

FINAL

COUNTY OF SAN DIEGO
MULTIPLE SPECIES CONSERVATION
PROGRAM

SOUTH COUNTY SUBAREA PLAN
ANNUAL REPORT
YEAR 25

Reporting Period: January 1, 2022 – December 31, 2022

Report Date: May 24, 2023



County of San Diego Board of Supervisors

Nora Vargas, District 1

Joel Anderson, District 2

Terra Lawson-Remer, District 3

Nathan Fletcher, District 4

Jim Desmond, District 5

Chief Administrative Officer

Helen N. Robbins-Meyer

Deputy Chief Administrative Officer, Land Use & Environment Group (LUEG)

Sarah Aghassi

Director, Department of Parks and Recreation (DPR)

Brian Albright

DPR Chief, Resource Management

Crystal Benham

Director, Department of Planning & Development Services (PDS)

Dahvia Lynch

PDS Group Program Manager, Sustainability Planning

Tyler Farmer

Cover photo: Boulder Oaks County Preserve

EXECUTIVE SUMMARY	vii
Preserve Assembly.....	ix
Covered Projects.....	x
Habitat Gains and Losses.....	x
Species and Habitat Conservation.....	xi
Preserve Management	xii
Preserve Monitoring and Research	xiii
Financial Summary.....	xiv
Program Administration	xv
CHAPTER 1	1
Introduction	1
Chapter 2 Preserve Assembly	3
Chapter 3 Covered Projects	3
Chapter 4 Habitat Gains and Losses	3
Chapter 5 Species and Habitat Conservation	4
Chapter 6 Preserve Management.....	4
Chapter 7 Preserve Monitoring and Research	4
Chapter 8 Financial Summary	5
Chapter 9 Program Administration.....	5
CHAPTER 2	6
Preserve Assembly.....	6
2.1 Preserve Assembly Status	7
2.2 Baseline Preserve	8
2.3 Public and Partner Conservation	9
2.4 Private Mitigation.....	13
2.5 Mitigation Banks	13
2.6 Mitigation Land Policy (I-138)	14
CHAPTER 3	16
Covered Projects.....	16
3.1 Clearing for Single Family Residences	17
3.2 Agricultural Exemption.....	17
3.3 Building Permit COIs	18
CHAPTER 4	19
Habitat Gains and Losses.....	19
4.1 Habitat Gains and Losses	20
4.2 Habitat Tracking Reporting.....	21

4.3	Rough Step Analysis	22
CHAPTER 5	.....	26
Species and Habitat Conservation.....		26
5.1	MSCP Objectives	27
5.2	MSCP Preserve Functionality Assessment.....	29
5.3	Landscape-Level Conservation	30
5.4	Habitat-Level Conservation	34
5.5	Species-Level Conservation	39
CHAPTER 6	.....	41
Preserve Management		41
6.1	County Resource Management Plan	41
6.2	Preserve Management of County Preserves	43
6.3	Grant Funded Management Projects.....	69
6.4	Preserve Management Partnerships	76
6.5	Private Mitigation Lands Management.....	80
6.6	Education and Outreach.....	89
CHAPTER 7	.....	94
Preserve Monitoring and Research		94
7.1	Preserve Biological Monitoring of County Lands.....	97
7.2	Grant Funded Monitoring Projects.....	120
7.3	Preserve Monitoring and Research Partnerships.....	120
7.4	Private Mitigation Lands Monitoring.....	130
CHAPTER 8	.....	133
Financial Summary.....		133
8.1	County Contribution.....	133
8.2	Otay Ranch Preserve Community Facility District 97-2.....	134
8.3	<i>TransNet</i> Funding.....	135
CHAPTER 9	.....	136
Program Administration		136
9.1	MSCP Coordination Efforts	136
9.2	MSCP Subarea Plan Updates	137
CHAPTER 10	.....	138
References.....		138

APPENDICES

- A County Tracked Acquisitions Since 1998
- B Wildlife Agency Tracked Acquisitions
- C Summary of MSCP Gains
- D MSCP Acquisitions by County of San Diego and Local Non-Profit Partners in Reporting Year
- E Summary of MSCP Losses
- F Summary of Habitat Losses and Gains
- G Habitat Conservation Accounting Model
- H Mitigation Bank Status
- I COIs Issued for Agricultural Clearing
- J Species and Habitat Conservation in County Preserves
- K Stewardship and Adaptive Management in County Parks and Preserves in Reporting Year
- L Private Mitigation Land Monitoring and Maintenance in Reporting Year
- M Stewardship and Management on Private Mitigation Lands
- N Annual Report for the Otay Ranch Preserve, Johnson Canyon Otay Tarplant Preserve, and Piper Ranch January 1 – December 31, 2022
- O MSCP Covered Species on County Preserves and Current Status
- P Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report

List of Figures

Figure 1. County Parks and Preserves Referenced in Annual Report	11
Figure 2. MSCP biological core resource areas and habitat linkages with gains and losses in the north half of the MSCP Subarea Plan Area.....	24
Figure 3. MSCP biological core resource areas and habitat linkages with gains and losses in the south half of the MSCP Subarea Plan Area.....	25

List of Tables

Table 1. Summary of MSCP Subarea Plan Preserve Assembly Status.....	8
Table 2. MSCP Subarea Plan Historical Baseline Preserve	8
Table 3. MSCP Public and Partner Acquisitions Since 1998	10
Table 4. MSCP Private Mitigation.....	13
Table 5. Mitigation Land Policy	15
Table 6. MSCP Covered Projects in Reporting Year	17
Table 7. Habitat Gain and Loss in Reporting Year	21
Table 8. Habitat Gains and Losses by Segment Since 1998 Per Habittrak	23
Table 9. Landscape-Level Conservation in County Preserves	32
Table 10. Habitat Conservation in County Preserves	36
Table 11. Habitat Conservation Goals Achieved in County Preserves for All Segments.....	37
Table 12. Habitat Conservation Goals Achieved in County Preserves for Metro-Lakeside-Jamul Segment.....	38
Table 13. Resource Management Plans for County Preserves	42
Table 14. Grant Funded Management Projects, Locations, and MSCP Species Benefitted in Reporting Year	70
Table 15. MSCP Covered Species or Habitats Documented by Program.....	95
Table 16. Targeted Monitoring Plan Species and Habitats by Location.....	99
Table 17. Targeted Monitoring Plan Species and Habitats Monitoring Frequency.....	101
Table 18. Targeted Monitoring Plan Species Monitored in Previous Reporting Years: Year-to-Year Comparison.....	104
Table 19. Incidental Observations of Other MSCP Covered Species During TMP Surveys in Reporting Year.....	108
Table 20. Preserve Monitoring and Research Partnerships Projects, Monitoring Targets, and Locations in Reporting Year.....	121
Table 21. MSCP Covered Species Documented on Private Mitigation Lands in Reporting Year.....	131

ACRONYMS

BLM – Bureau of Land Management
BMO – Biological Mitigation Ordinance
Board – Board of Supervisors
Caltrans – California Department of Transportation
CDFW – California Department of Fish and Wildlife
CEQA – California Environmental Quality Act
CNRA – California Natural Resources Agency
COI – Certificate of Inclusion
County – County of San Diego
County Preserves – County-owned or managed parks or preserves with preserve lands
CRAM – California Rapid Assessment Method
DBH – Diameter at Breast Height
DGS – County of San Diego Department of General Services
DPR – County of San Diego Department of Parks and Recreation
DPW – County of San Diego Department of Public Works
EHC – Environmental Habitat Conservancy
HabiTrak – Habitat Tracking Reporting, State of California instrument and database
HCP – Habitat Conservation Plan
HOA – Homeowners Association
IA – Implementing Agreement
IMG – Inspect and Manage
JPA – Joint Powers Authority
LUEG – Land Use & Environmental Group
MD – Management Directive
MHPA – Multiple Habitat Planning Area
MLP – Mitigation Land Policy
MSCP – Multiple Species Conservation Program
MSCP Preserve – Multiple Species Conservation Program Subarea Plan Preserve
NCCP Act – Natural Community Conservation Planning Act
Otay Ranch POM – Otay Ranch Preserve Owner/Manager
PAMA – Pre-Approved Mitigation Area
PDS – County of San Diego Planning & Development Services
PIT – Passive Integrated Transponder
RCHCA – Riverside County Habitat Conservation Agency
RDF – Regional Decarbonization Framework
RDM – Residual Dry Matter
RMP – Resource Management Plan
ROE – Right-Of-Entry Permit
RWQCB – Regional Water Quality Control Board
SANDAG – San Diego Association of Governments
SDGE – San Diego Gas & Electric
SDMMP – San Diego Management and Monitoring Program
SDRC – San Diego River Conservancy
SDRPF – San Diego River Park Foundation
STEAM – Science, Technology, Engineering, Arts, and Math
Subarea Plan – South County Subarea Plan
TMP – Targeted Monitoring Plan (formerly known as Comprehensive Monitoring Plan)

TransNet EMP – Environmental Mitigation Program for regional transportation projects administered by SANDAG

USACE – United States Army Corps of Engineers

USFWS – United States Fish and Wildlife Service

USGS – United States Geological Survey

WCB – Wildlife Conservation Board

Wildlife Agencies – used collectively for the USFWS and CDFW

EXECUTIVE SUMMARY



MULTIPLE SPECIES CONSERVATION PROGRAM SUBAREA PLAN

80,108 acres preserved

81% of MSCP Preserve goal achieved

13,383 acres County-owned, managed or funded

30 County Parks and Preserves



Reporting Year Highlights

132 acre MSCP
Preserve increase

48 MSCP covered
species monitored or
documented in County
Preserves

9 Grant-funded
management projects

6 MSCP Preserve
management partnership
projects

14
MSCP Preserve
monitoring and research
partnerships

This is the 25th annual report for the County of San Diego (County) Multiple Species Conservation Program's (MSCP) South County Subarea Plan (Subarea Plan) adopted by the County Board of Supervisors on October 22, 1997 for a term of 50 years. This report was prepared in conformance with Section 14.2 of the Implementing Agreement (IA) executed between the County, California Department of Fish and Wildlife (CDFW), and the United States Fish and Wildlife Service ([USFWS], collectively referred to as Wildlife Agencies) on March 17, 1998. The 50-year permit requires the preservation, protection, and creation of connections between biologically valuable habitats while encouraging development in less sensitive areas. This report accounts for MSCP Subarea Plan implementation from January 1 through December 31, 2022 and summarizes key accomplishments for the permit term. Topics include the following:

- Preserve assembly
- Covered projects
- Habitat gain and loss
- Species and habitat conservation
- Preserve management
- Preserve monitoring and research
- Financial summary, and
- Program administration.

The MSCP Subarea Plan serves to conserve the region's native habitats, plants, and animals for the enjoyment of future generations; protect the vast diversity of native plants and animals (including threatened and endangered species); and ensure opportunities for passive recreation. This unique regional conservation program, one of only 17 completed in California and with one of the largest covered species lists, works across jurisdictional boundaries, protects watersheds and water quality, and accommodates future growth by simplifying building regulations. It also ensures compliance with many federal and state regulations including the Federal Endangered Species Act and associated Habitat Conservation Plan (HCP) permits, State Endangered Species Act, and State Natural Communities Conservation Planning Act (NCCP) and associated permits.

The County's partnership with the Wildlife Agencies through the MSCP ensures that the unincorporated area's rich biodiversity is conserved while allowing development to occur through the County's permitting process. The MSCP provides the basis for the County to receive an incidental take permit from the Wildlife Agencies. An incidental take permit is a permit that can be issued under the Federal and State Endangered Species Acts for lawful projects that might result in impacts to endangered or threatened species or the species' habitat. The incidental take permit the County receives through the MSCP can be extended to future development projects that comply with the MSCP so that those projects do not have to secure their own separate incidental take permits from the Wildlife Agencies. Through this permitting mechanism, the MSCP helps streamline permitting, provide regional conservation of natural habitats, and facilitate economic growth in the unincorporated area. The Annual Report highlights the monitoring efforts conducted for sensitive plant and animal species within the

South County Subarea Plan boundaries that ensures long-term viability of habitat and species. In addition, the Annual Report highlights land stewardship activities for preserve lands, such as installing fencing and signage, patrolling preserve lands, managing public access areas, removing invasive species, and planting trees and vegetation.

Preserve Assembly

The goal of the South County Subarea Plan is to assemble a 98,379-acre South County Subarea Plan Preserve (MSCP Preserve). The MSCP Preserve is assembled through preserve lands acquired prior to 1998 (baseline conserved lands), lands acquired since 1998 by the County and its federal, state, and local non-profit partners (conserved lands), and lands added to the MSCP Preserve through mitigation from private development projects (private mitigation)¹. Preservation is prioritized within areas identified as having habitat with high biological value or within a habitat linkage². These are the Pre-Approved Mitigation Areas (PAMA) and the hardline preserve areas. Hardline preserve areas are lands that will be included in the MSCP Preserve as a result of negotiations between the County, Wildlife Agencies, and landowners. The Department of Parks and Recreation (DPR) implements the MSCP through land acquisition, management, and monitoring of preserve lands to ensure preservation of sensitive species and habitat.

The MSCP Preserve acreage is equal to the baseline acres plus acres gained within PAMA and hardline preserve areas from private mitigation and public and non-profit conservation partner acquisitions. In general, acquisitions or private mitigation outside PAMA or hardline preserve areas are considered complementary conservation and do not count towards the MSCP Preserve. However, the Wildlife Agencies have approved complementary County acquisitions outside the 1997 PAMA to be counted in the MSCP Preserve as they contribute to the biological goals of the MSCP. These acres are reported below as habitat gains.

The County has successfully implemented the South County Subarea Plan for 25 years, assembling 80,108 acres of the MSCP Preserve, which represents 81% of the 98,739-acre conservation goal. County, federal, state, and local non-profit partner acquisitions, as well as private development mitigation all contribute to the assemblage of the MSCP Preserve. County-owned, managed, or funded conserved lands in the MSCP Subarea Plan Area totals 13,383 acres³ (17%), while federal and state conserved lands contribute approximately 61% of the assembled MSCP Preserve. Local non-profit acquisitions have contributed approximately 4%, and private mitigation has contributed approximately 18% to the conserved 80,108 acres.

The County owns or manages 30 properties within the MSCP Preserve. These lands are managed for the benefit of the MSCP covered species and habitats. During the 2022 reporting period, January 1, 2022 to December 31, 2022, 132 acres were added to the MSCP Preserve (conserved within the PAMA and hardline preserve areas). The County acquired a total of 227 acres with an addition to the Ramona Grasslands Preserve. Of the 227 acres, a total of one acre was added to the MSCP Preserve, as 216 acres had previously been added to the MSCP Preserve as part of private mitigation, and 10 acres were located outside of PAMA and not counted toward the MSCP Preserve. While not increasing the MSCP Preserve assemblage total as it was previously counted towards the MSCP Preserve as private mitigation, 216 acres were

¹ All acquisitions are from willing sellers.

² Habitat linkages are corridors that allow plants and animals to move between biological core resource areas (areas of high quality habitat suitable to sustaining MSCP covered species).

³ All acreage reported for MSCP Preserve Assemblage utilizes GIS acreages, as opposed to Assessor's acreages, as the HabiTrak database only uses GIS acreages. GIS and Assessor's acreages can vary depending on terrain and mapping factors.

removed from the private mitigation contribution towards the MSCP Preserve and moved to the County's contribution of the MSCP Preserve. Of the 10 acres of the acquisition located outside of PAMA, five acres were previously accounted for in HabiTrak. A local, non-profit partner, using Federal Section 6 and Wildlife Conservation Board (WCB) funding, acquired 287 acres, of which 83 acres were located within PAMA and added to the MSCP Preserve, and 204 acres were located outside of PAMA. Private land dedication required as a County condition of private development added 48 acres inside the hardline preserve area and 49 acres outside the hardline preserve area.

During the course of the 50-year MSCP permit, the County and MSCP partners understood that once the MSCP Preserve had reached a large size, the focus on the MSCP Preserve would shift from assemblage of preserve lands to ensuring that the MSCP Preserve is successfully functioning and meeting its goals and objectives. As the MSCP Preserve is now 80,108 acres (81% of the preservation goal), DPR is working with its local, state and federal partners to assess the overall MSCP preserve goals and objectives. This includes analyzing, from a regional perspective, habitat and species monitoring data across the 80,108 acres. This effort has recently been initiated and will be ongoing through the term of the permit.

Covered Projects

The County permitted 64 development projects in the reporting period in the MSCP Subarea Plan Area. This included 63 residential related projects and one horse shelter. No agricultural exemptions were issued during the reporting period.

Habitat Gains and Losses

The South County Subarea Plan states that the rate of development and associated habitat impacts must not exceed the rate of conservation of preserve lands within the South County Subarea Plan's boundaries. This goal is to ensure that the two actions are occurring at approximately the same pace or are within "step" or "rough step" of one another. Rough step is the relationship between the conservation of preserve lands and impacts to habitat due to development. The two actions should be balanced, with impacts to habitat due to development not exceeding the conservation of preserve lands.

In the Annual Report, lands added to the Preserve are described as a "gain," and development within the South County Subarea Plan boundaries are described as a "loss." There was a total of 611 acres of habitat gains and 104 acres of habitat losses in the reporting period. Preservation within areas identified as having habitat with high biological value, PAMA and the hardline preserve areas, was 349 acres. There was an additional 263 acres of complementary conservation outside these areas. Habitat losses total 15 acres inside PAMA and hardline preserve areas and 89 acres outside these areas.

Cumulatively, the MSCP Preserve is in compliance with the rough step analysis, with habitat gains exceeding habitat losses. Rough step compares total gains and losses within and outside of PAMA and hardline preserve areas categorized by total acres and habitat types. The purpose of rough step is to ensure that the conservation of high-quality habitat and development in lower-quality habitat occurs in roughly the same amounts at the same time. Habitat located within the PAMA, or hardline preserve areas, is considered high-quality, while low-quality habitat is outside these areas. Cumulatively, the majority of habitat gains occurred within PAMA and hardline preserve areas, while the majority of habitat losses occurred outside of PAMA and hardline preserve areas. This indicates that the overall conservation goals are being met to

create a functional MSCP Preserve as high-quality habitat within PAMA and hardline preserve areas are being conserved and lower-quality habitat is being developed.



Luelf Pond Preserve

Species and Habitat Conservation

A total of 30 County-owned or managed parks and preserves (County Preserves) contribute to the MSCP Subarea Plan landscape, habitat, and species objectives⁴. They are part of the MSCP Preserve and are managed for the benefit of the MSCP covered species and habitats. MSCP Subarea Plan objectives ensure the persistence of habitat linkages for wildlife movement, critical biological resource areas for MSCP plant and animal habitat, and MSCP plant and animal occurrences in these areas. County Preserves span 11 of 16 biological core resource areas and protect habitat linkages. They contribute to conservation goals of each of the target segments (Lake Hodges, South County, North Metro-Lakeside-Jamul, and South Metro-Lakeside-Jamul). They conserve 17 of 18 target habitats with chaparral and coastal sage scrub being the most widespread in County Preserves. Of the 85 species covered by the MSCP, 53 MSCP covered species are expected within the MSCP Subarea Plan boundaries as originally anticipated in the MSCP Subarea Plan. A total of 48 MSCP covered species are documented in County Preserves located within the MSCP Subarea Plan Area.

The County's MSCP-related acquisitions focus on buying lands that contain high-quality habitat with the intent of conserving species in perpetuity. Since 1998, the County has purchased properties that support 19 MSCP covered species that were not previously found on other County Preserves. These acquisitions provide long-term protection for the species and ensure

⁴ The Annual Report provides detail on a subset of the County Preserves (the open space lands owned or managed by the County within the MSCP Subarea Plan Area).

that they will not be impacted by other land uses such as development. Together with the federal, state, local partners, and private mitigation conservation, the County and its partners contribute to preservation of the unique biological resources present in San Diego County.

Preserve Management

The County Preserves' stewardship and adaptive management ensures biological value and function of natural resources are maintained or enhanced. The County provides land stewardship of County Preserves through habitat restoration, invasive plant and animal control, replacement tree planting and inventory, access control, fire management, and environmental education. Land stewardship activities are guided by preserve-specific Resource Management Plans (RMPs), annual work plans, and monitoring activities. RMPs provide guidance for the continued management and protection of biological and cultural resources. The County has prepared 16 RMPs for County Preserves in the MSCP Subarea Plan Area and is updating existing RMPs for County Preserves that have new additions and preparing new RMPs for newer acquisitions. Management and maintenance of County Preserves are conducted by staff and volunteers that implement stewardship activities such as installing fencing and signage, patrolling preserve lands, managing public access areas, removing invasive species, and planting trees and native vegetation. Adaptive management is using preserve monitoring to inform stewardship. For example, if monitoring finds invasive, non-native plants increasing in extent and negatively impacting MSCP covered species and habitats, stewardship actions would control the invasive, non-native plants.

Ranger reports on County Preserves documented habitat restoration, access control, fire management, environmental education, and invasive, non-native plant and animal control actions completed to benefit MSCP covered species and habitats.

Grant-funded projects across six County Preserves benefited MSCP covered species, such as coastal California gnatcatcher, least Bell's vireo, coastal cactus wren⁵, light-footed Ridgway's rail, Belding's orange-throated whiptail, northern harrier, and Cooper's hawk and included habitat restoration, access control, invasive, non-native plant control, and trail alignment. Nine grants and County General Funds totaling just over \$15 million fund this work including four Wildlife Conservation Board (WCB) Proposition 68 grants, one State Coastal Conservancy Proposition 68 grant, two CDFW Proposition 1 grants, one San Diego River Conservancy (SDRC) Proposition 1 grant, and one California Natural Resources Agency (CNRA) Proposition 84 River Parkways grant.

Preserve management partners implemented seven management projects across 14 County Preserves to benefit wetland, riparian, stream, and coastal sage scrub habitats. Partners were CDFW, Nature Collective, City of San Diego (Stormwater Department), California Department of Transportation (Caltrans), Alter Terra, and San Dieguito River Valley Conservancy.

Private mitigation lands management was documented for 13 properties and included habitat restoration, access control, fire management, environmental education, and invasive, non-native plant control actions completed to benefit MSCP covered species and habitats.

⁵ The MSCP Subarea Plan lists the San Diego cactus wren as an MSCP covered species. At the time of adoption of the MSCP Subarea Plan, the San Diego cactus wren was identified as a sub-species of the coastal cactus wren. This is no longer the case. The San Diego cactus wren is now commonly known as the coastal cactus wren and is an MSCP covered species.

Environmental education informs the public about the county’s natural and cultural resources. In 2022, the County was excited to offer many popular educational programs and over 21,000 guests participated. County Preserve visitors were able to attend in-person ranger-led hikes and programs, Hawk Talk and Hawktober programs in 17 County parks, I Love a Clean San Diego watershed cleanup events in two County parks, Discovery Program events, and other popular environmental education programs and activities. Park-ology, a free, cloud-based education tool designed to teach teens ages 14 to 18 about the parks and recreation industry, was launched in 2021 and continued in 2022. County Park staff participated in the San Diego Festival of Science & Engineering by collaborating with BioCom and Live Well San Diego on several “Live Stage” programs aired at the Ruben H. Fleet Science Center to classrooms across San Diego County. Also, DPR hosted a STEAM Block Party at San Dieguito County Park where a full birds of prey demo was conducted, and an interactive nature discovery table was hosted at Saburo Muraoka Elementary School in Chula Vista. The County also continued the environmental education programs of the TRACK Trails Program, Story Trails for Green Friday, Nature Explorers Program, and partnering with the San Diego Astronomy Association on several in-person events. In addition, DPR maintains social media accounts to inform San Diego County residents and visitors of what is occurring on DPR’s preserve lands. Over 150 DPR field staff and volunteers implement education and interpretation programs to connect people to nature, thereby allowing residents and visitors to understand the importance of conserving natural resources and helping to inspire the next generation of environmental stewards.

Preserve Monitoring and Research

The MSCP monitoring program on County Preserves includes various monitoring efforts, including implementation of the Targeted Monitoring Plan (TMP), baseline inventory surveys, research partnerships, and special-status species monitoring. DPR manages and monitors vegetation communities within County preserve lands that provide habitat for special-status species and MSCP covered species⁶. In addition, DPR manages and monitors MSCP covered species at the species level. MSCP covered species monitoring focuses on species for which population-level monitoring is considered critical for effective management. DPR conducts biological monitoring of sensitive plants, animals, and habitats by conducting baseline surveys and implementation of the TMP. The TMP includes focused goals and objectives as well as detailed monitoring protocols for specific plants and animal species and habitat types. The TMP is implemented annually and provides important data to measure success of meeting the MSCP species specific goals and objectives. Baseline surveys are used to document all plant and animal species and habitats (including sensitive species and habitats), identify and address habitat stressors/threats, and map invasive plants and animals. Baseline surveys are conducted on new properties after acquisition.

In addition to baseline surveys, additional special-status species monitoring is conducted at certain County Preserves to further protect the sensitive resources that are specific to certain County Preserves. For example, raptor foraging monitoring is conducted annually at Ramona Grasslands Preserve. Raptor foraging monitoring ensures that raptors (including hawks and eagles) are successfully thriving within the Ramona Grasslands Preserve as there are

⁶ Special-status species are species that have been assessed and their population status has been found to be in decline or non-sustainable without conservation measures being implemented. These species are listed or are candidates to be listed under the Federal Endangered Species Act, California Endangered Species Act, State Species of Special Concern or are found on other watch lists. Not all special-status species are MSCP covered species. MSCP covered species include species that, if present, indicate that the habitat and other species living in that same habitat should be doing well or were species that could have been impacted by County or private development activities.

numerous raptor nests in and around the preserve. Successful raptor use of the preserve is a result of properly managed habitat that supports prey populations.

DPR conducts species and habitat monitoring on County Preserves to ensure that not only are the species and habitats are conserved properly, but that appropriate adaptive management strategies are identified and implemented as quickly as possible when needed. As the monitoring data is collected each year, species trends are more deeply understood and assist DPR with successful conservation and sustaining of the species. TMP survey results not only assist in determining when adaptive management strategies need to be implemented for species threatened from identified stressors, such as invasive, non-native plant species, but also identifies species that are stable or increasing in numbers.

These efforts have monitored or documented 48 MSCP covered species in County Preserves and an additional four MSCP covered species on private mitigation lands during previous reporting years, as well as approximately 189 special-status species living within County preserve lands, demonstrating that conservation efforts have been effective in protecting regionally important species and ensuring a thriving ecosystem.

TMP monitoring was performed for MSCP covered species across 11 County Preserves during the reporting period. During the reporting period monitoring efforts surveyed 13 targeted MSCP covered species (and one habitat) and documented an additional 10 MSCP covered species during these monitoring efforts. Raptor surveys and annual residual dry matter (RDM) monitoring were conducted within Ramona Grasslands Preserve during the reporting period, in addition to golden eagle nest monitoring at El Capitan Preserve.

Baseline inventory surveys were completed for two County Preserves (Skyline Preserve and Peutz Valley Preserve), in spring 2022. These surveys will guide future TMP monitoring efforts as well as the development of preserve-specific RMPs.

Preserve monitoring and research partnership projects totaled 14 in the reporting year across 40 County Preserves. These projects inform stewardship and adaptive management in County Preserves and the MSCP Preserve. Monitoring and research topics included Baja California birdbush, prickly pear cactus, arroyo toad, southwestern pond turtle, coastal California gnatcatcher, least Bell's vireo, coastal cactus wren, southwestern willow flycatcher, burrowing owl, golden eagle, tricolored blackbird, Stephens' kangaroo rat, and a variety of other MSCP covered species and habitats. Research occurred on County Preserves through the County's right-of-entry (ROE) permit process. ROEs were requested by federal and state agencies, local universities, a zoo, and environmental organizations.

Private mitigation lands monitoring detected 16 MSCP covered species across nine properties, including three MSCP covered species not observed on County Preserves.

Financial Summary

The County Board of Supervisors appropriates funds for land acquisition and management and monitoring of preserve lands throughout the adopted MSCP Subarea Plan Area, draft North County MSCP Plan Area, and proposed East County MSCP Plan Area.

Land acquisition appropriations fund land purchases, land stewardship, and baseline inventory surveys. Since 1998, the County has invested over \$51 million which leveraged over \$35 million of other funding to acquire 8,484 acres in the MSCP Subarea Plan, including 556 acres owned

by County partners. The County has acquired (through acquisitions, management agreements, or leveraged funding) a total of 13,383 acres of preserve lands in the MSCP Subarea Plan (baseline preserve lands plus lands conserved since 1998).

Management and monitoring appropriations fund staff positions, contracting resources, and capital expenses dedicated solely to MSCP monitoring and stewardship activities. MSCP monitoring staff oversee MSCP covered species and habitat monitoring. County Rangers provide operational “boots on the ground” to manage County Preserves. MSCP monitoring activities included biological monitoring in County Preserves via the County’s TMP, monitoring of special-status species not included in the TMP, and monitoring of sensitive species during and after park improvement projects. MSCP stewardship activities include habitat restoration, access control, fire management, environmental education, and invasive, non-native plant and animal control. Over \$15 million of grant funding augments annual appropriations for projects spanning Fiscal Year 2016-2017 through Fiscal Year 2021-2022. DPR maintains its commitment to its parks and preserve lands conservation program by continuing to allocate funding for the management and monitoring of County Preserves.

Management and monitoring on private mitigation lands is funded through mechanisms established during the RMP approval process (i.e., special districts, endowments, or annual fees). The health of these endowments and use of these funds are reported in the RMP annual reports.

Program Administration

The County coordinates implementation of the MSCP Subarea Plan with the Wildlife Agencies. There were no Minor, Major, or Subarea amendments to the MSCP Subarea Plan, or MSCP map updates in 2022.

CHAPTER 1

Introduction



The vegetation communities on Skyline Preserve (southern mixed chaparral, chamise chaparral, and granitic southern mixed chaparral) contribute to the MSCP Preserve and assist with successfully meeting MSCP habitat conservation goals.

San Diego county has one of the most diverse habitats in the United States, with over 200 rare, threatened, or endangered species inhabiting the region. To protect the region's biodiversity, in 1997, the County of San Diego (County) partnered with 11 other jurisdictions, community stakeholders, the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW; [collectively referred to as Wildlife Agencies]) to develop the Multiple Species Conservation Program (MSCP). The MSCP is a long term, regional habitat conservation program focused on balancing the protection of plant and animal species with recreation, development, and agricultural activities within San Diego region. On October 22, 1997, the County Board of Supervisors (Board) adopted the 50-year MSCP South County Subarea Plan, which includes the unincorporated areas in the southwestern portion of the region.

The County's partnership with the Wildlife Agencies, through the MSCP, ensures the unincorporated area's rich biodiversity is conserved while allowing development to occur through the County's permitting process. Through the MSCP, development applicants can rely on the County's permits under the Federal Endangered Species Act, State Endangered Species Act, and State Natural Communities Conservation Planning Act to impact threatened and endangered species and their habitats, eliminating the need for individual project-by-project permitting under these regulations.

The South County Subarea Plan Implementing Agreement (IA) between the County and Wildlife Agencies, became effective on March 17, 1998. Per the IA, each year the County prepares a MSCP South County Subarea Plan Annual Report that includes information about habitat gained through acquisitions or dedications of preserve lands, habitat lost due to development, and the management and monitoring efforts performed to ensure the assembled MSCP Preserve is functioning successfully. The reporting period for the Annual Report and past annual reports has been based on the calendar year. Future reporting periods may be adjusted to align with the County's fiscal year from July 1 through June 30.

The 2022 Annual Report summarizes habitat gains and losses as well as County management and monitoring programs within the South County Subarea Plan boundaries for the reporting year of January 1, 2022 through December 31, 2022, and ongoing progress from previous reporting years. The 2022 reporting period marks the 25th year of implementing the MSCP Subarea Plan.

In addition to the adopted South County Subarea Plan, there are two additional MSCP planning areas in the unincorporated area: the draft North County Plan and future East County Plan. On October 28, 2020, the County's Board of Supervisors directed staff to develop a plan for the draft North County Plan Area, like the plan currently in place for the South County Subarea Plan. The draft North County Plan will cover the northwestern portion of the unincorporated area and is anticipated to be brought to the Board of Supervisors for consideration in Fiscal Year 2025-26. The eastern portion of the unincorporated area is covered by the future East County Plan, which will be prepared after North County Plan adoption.

The DPR implements the MSCP in all three MSCP planning areas through land acquisition, management, and monitoring of preserve lands to ensure preservation of sensitive species and habitat. The acquisition criteria for County preserve land includes high-quality habitat and biodiversity, biological connectivity, access, and value. DPR works closely with a County-wide acquisition roundtable team consisting of staff from the CAP update, Regional Decarbonization Framework (RDF), Department of Public Works (DPW), Department of Environmental Health and Quality, Planning & Development Services (PDS), Agriculture, Weights and Measures, and Department of General Services (DGS) to analyze potential acquisitions from a multi-faceted perspective to ensure alignment with the County's sustainability programs including the CAP update, water quality protection, and RDF.

The County evaluates multiple factors when considering preserve lands for potential acquisition and inclusion into County preserve lands, including biology, connectivity, accessibility, and value. Foremost is an evaluation of wildlife biology. The land should include quality habitat and/or opportunities to restore habitat that supports regional biodiversity. Connectivity is another factor the County considers. The County seeks land that supports wildlife corridors and connectivity for sustainable wildlife movement. Connectivity to County preserve lands makes long-term management and stewardship more efficient because the same operational team can perform those functions. A contiguous property preserves not only the habitat but also the

financial resources that help extend the County's reach and maximize resource utilization. Accessibility to potential acquisitions is another factor considered. The County must be able to access all its lands to meet stewardship and monitoring requirements as well as potential access to the public for passive recreation and environmental education where appropriate. Limited and sustainable public access that does not negatively impact sensitive resources is an integral part of the MSCP. Lastly, the County considers financial and economic value to ensure that public resources are wisely invested. The County only considers land with willing sellers who agree to sell at appraised value or less.

Chapter 2 Preserve Assembly

The South County Subarea Plan requires the County, Wildlife Agencies, and partnering agencies to conserve 98,379 acres (MSCP Preserve). The MSCP Preserve goal of 98,379 acres was determined by the area needed to successfully conserve populations of MSCP covered species, associated high-quality habitats, and wildlife linkages between large, conserved areas. Habitat that is mostly intact or has not been degraded by impacts such as from development activities or a high frequency of fires is generally considered to be high-quality. To create opportunities for residents and visitors to connect with nature, passive recreation is allowed within County preserve lands in areas where MSCP covered species and habitat would not be impacted.

Chapter 2, *Preserve Assembly*, summarizes land acquisitions and conveyances into the MSCP Preserve in the reporting year and cumulatively. The Baseline Preserve, land already preserved at the time of the MSCP Subarea Plan adoption, is quantified. Conservation lands acquired by Wildlife Agencies, Bureau of Land Management (BLM), non-profit partners, and County are documented for the reporting year and cumulatively. Mitigation lands conserved by private entities and mitigation banks providing mitigation for MSCP covered species are also documented. Together, these lands comprise the MSCP Preserve and provide regional conservation for plants, animals, and their habitats in the unincorporated county.

Chapter 3 Covered Projects

The County permits development under the MSCP Subarea Plan for private and public projects (covered projects). Chapter 3, *Covered Projects*, documents covered projects permitted by the County in the reporting year under the MSCP Subarea Plan. Project reporting includes clearing for single-family residences on small parcels, agricultural exemptions, and building permits.

Chapter 4 Habitat Gains and Losses

Annual tracking of Subarea Plan gains, losses, management, and monitoring is required by Section 14.2 of the IA, and the HCP and NCCP Act permits. Chapter 4, *Habitat Gains and Losses*, documents the cumulative habitat gain from MSCP Preserve assembly and habitat loss from covered projects. All habitat gains and losses are reported annually to CDFW and tracked in a central database called HabiTrak. The HabiTrak reports generated by CDFW are used to track permit compliance and ensure that rough step permit requirements are being met. Rough step is the relationship between the conservation of preserve lands and impacts to habitat due to development. The two actions should be balanced, with impacts to habitat due to development not exceeding the conservation of preserve lands.

Chapter 5 Species and Habitat Conservation

Implementation of the South County Subarea Plan protects habitat and species through the acquisition, management, and monitoring of dedicated preserve lands and MSCP covered plant and animal species. Acquisitions of preserve lands are focused within the South County Subarea Plan's Pre-Approved Mitigation Area (PAMA) and hardline preserve areas. These are lands that have been identified as having high-quality habitat or as contributing to regional habitat linkages that connect large tracts of habitat. These regional habitat linkages are critical for the long-term conservation of MSCP covered species as they allow for movement of species between large, conserved areas of high-quality habitat.

The County Preserves conserve 48 MSCP covered species and their habitats. County Preserves refers to County-owned and managed parks and preserves that contribute to the MSCP Preserve. The County Preserves are managed for the benefit of the MSCP covered species and habitats. Chapter 5, *Species and Habitat Conservation*, evaluates how the County Preserves meet the MSCP objectives and monitors compliance with landscape-level, habitat-level, and species-level conservation targets identified in the MSCP Subarea Plan. The number of County Preserves and acres preserved is summarized for the reporting year and cumulatively. The County Preserves' contribution to segment goals, biological resource core areas, and habitat linkages is quantified. Habitats and vegetation communities important to MSCP covered species, conserved in County Preserves are quantified and their contribution to MSCP Subarea Plan targets are assessed. MSCP covered species conserved in County Preserves are documented and their contribution to MSCP Subarea Plan occurrence and habitat conservation are assessed. These analyses evaluate compliance with MSCP Subarea Plan objectives.

Chapter 6 Preserve Management

The County Preserves are managed for the benefit of MSCP covered species. Chapter 6, *Preserve Management*, documents stewardship, management, and education implemented on County Preserves, including Otay Ranch Preserve (which is jointly owned and managed by the County and the City of Chula Vista), and private mitigation lands. Resource Management Plans (RMPs) incorporate baseline inventory surveys and provide management and monitoring directives for MSCP covered species and habitats. Annual work plans direct resources to implement management actions. Habitat restoration, access control, fire management, environmental education, and invasive, non-native plants and animal control actions reported by County rangers and consulting staff are summarized for County Preserves, and MSCP covered species and habitats benefited are identified. These same actions and benefits are summarized for grant-funded management projects, preserve management partnerships, and private mitigation lands.

Chapter 7 Preserve Monitoring and Research

The County Preserves are monitored to determine the effectiveness of habitat conservation and management actions for MSCP covered species and habitats. Chapter 7, *Preserve Monitoring and Research*, summarizes MSCP covered species and habitat monitored or documented. The Targeted Monitoring Plan (TMP) monitors a sub-set of County Preserves and informs adaptive management. TMP results are provided for the target MSCP covered species. Grant-funded monitoring projects, monitoring and research partnerships, and private mitigation lands

monitoring descriptions and results are provided. Monitoring results are used to inform updates of RMPs, TMPs, and annual work plans.

Chapter 8 Financial Summary

The County funds acquisition, management, and monitoring of County Preserves. Chapter 8, *Financial Summary*, summarizes County and grant funding used to implement its MSCP Subarea program. Funding sources include the General Fund, Otay Ranch Preserve Community Facilities District 97-2, and grants.

Chapter 9 Program Administration

The County works with regional partners to implement and update the MSCP Subarea Plan. Chapter 9, *Program Administration*, reports key accomplishments, coordination efforts, minor and major amendments, and map updates.

CHAPTER 2

Preserve Assembly



Stoneridge Preserve supports MSCP covered species such as orange-throated whiptail, coastal California gnatcatcher, Cooper’s hawk, and southern mule deer.

Through December 31, 2022, the MSCP Preserve totals 80,108 acres and 81% of the 98,379-acre conservation target. It is comprised of land owned or managed by the County, Wildlife Agencies, BLM, local partners and non-profits, and private mitigation. In the reporting year, January 1, 2022 to December 31, 2022, 132 acres were added to the MSCP Preserve. This includes one acre of County acquisitions, 83 acres preserved by local, non-profit partners, and 48 acres preserved by private mitigation. The MSCP Preserve benefits MSCP covered species and habitats.

Acreage reported in Chapters 2, 3, 4, and 5 are GIS acreage as opposed to Assessor’s acreage. GIS acreage is utilized in the aforementioned chapters as MSCP Preserve gains and losses are tracked in HabiTrak, the CDFW database, using GIS acreage. For consistency, GIS acreage is used when reporting on acreage for MSCP Preserve assemblage, losses, and how the conserved lands within the MSCP Preserve are successfully meeting MSCP and Subarea Plan goals and objectives. Acreage reported in Chapter 6 is in both Assessor’s and GIS acreage. Assessor’s acreage is reported in Chapters 6 and 8 as this is the formal unit of measurement the County utilizes internally for real estate acquisitions, accounting, and reporting. The use of GIS acreage vs Assessor’s acreage is specified at the beginning of each chapter.

2.1 Preserve Assembly Status

The MSCP Preserve totals 80,108 acres with 81% of the 98,379-acre preservation goal achieved (**Table 1, Summary of MSCP Subarea Plan Preserve Assembly Status**). The County, Wildlife Agencies, BLM, local and non-profit partners, and private entities own and manage MSCP Preserve lands. The MSCP Preserve is assembled through a combination of baseline preserve lands that existed in 1997, lands preserved as mitigation from development permit projects, and public agency and non-profit conservation partner acquisitions from willing sellers. “Historical Baseline Preserve” is land conserved prior to MSCP Subarea Plan adoption in 1997. It includes County-owned, -managed, or -funded lands (5,466 acres); Wildlife Agencies and BLM lands (32,600 acres); and private mitigation areas (7,755 acres). “Conserved lands since 1998” includes lands preserved by these same entities, plus lands conserved by local and non-profit partners. Preservation is prioritized within areas identified as having habitat with high biological value or as habitat linkages, which include the Pre-Approved Mitigation Area (PAMA) and the hardline preserve areas.⁷ MSCP Preserve goals are split between public acquisitions (including local/non-profit partners) and private mitigation with each having a preserve goal⁸.

The MSCP Preserve acreage is baseline acres plus acres gained within PAMA and hardline preserve areas from private mitigation and public and non-profit conservation partner acquisitions. The Wildlife Agencies have approved complementary County acquisitions outside the 1997 PAMA areas to be counted in the MSCP Preserve as they contribute to the biological goals of the MSCP. In general, private mitigation or acquisitions outside PAMA or hardline preserve areas is complementary conservation and does not count toward the MSCP Preserve.

In addition to the 98,379-acre preservation acreage goal, the MSCP Subarea Plan also requires that the MSCP Preserve function for covered species by conserving specific wildlife corridors and habitat types. The County and the Wildlife Agencies will continue to look at potential gaps within the PAMA and hardline preserve areas to guide future acquisitions and private mitigation opportunities to ensure a functional MSCP Preserve.

⁷ Hardline preserve areas are lands that will be included in the MSCP Preserve as a result of negotiations between the County, Wildlife Agencies, and landowners.

⁸ The Historical Baseline Preserve and Conserved Lands Since 1998 shown in Table 1 do not add up to the total MSCP Preserve, as a subset of Historical Baseline is also potentially counted by some agencies in the Conserved Lands Since 1998. Record keeping has evolved during MSCP Subarea Plan implementation. HabiTrak data and approved County complementary acquisitions are used to determine the MSCP Preserve size.

TABLE 1. SUMMARY OF MSCP SUBAREA PLAN PRESERVE ASSEMBLY STATUS

Landowner	MSCP Preserve Goals (acres)	2021 MSCP Preserve Total (acres)	2022 MSCP Preserve Gain (acres)	2022 MSCP Preserve Total (acres)	% Achieved
Historical Baseline Preserve					
County ^a	5,461	5,466	-	5,466	100%
Federal and State	32,600	32,600	-	32,600	100%
Private	7,755	7,755	-	7,755	100%
Total	45,816	45,821	-	45,821	100%
Conserved Lands Since 1998					
Public and Partner Conservation					
Federal and State		25,101	0	25,101	
County ^a		7,678	217 ^c	7,895	
Local/non-profit partners		3,264	83 ^d	3,347	
Total	18,850	36,043	300	36,353	193%
Private Mitigation					
Dedicated Within Hardline	11,563	4,643	0	4,643	
Dedicated Outside Hardline	22,150	2,087	(168) ^c	1,919	
Total	33,713	6,730	(168)	6,562	20%
MSCP Preserve Total^b					
Total	98,379	79,976	132	80,108	81%

NOTES:

a County acquisitions adjusted to reflect previously reported MSCP Preserve acreage.

b Baseline Preserve acres may be included in the “Conserved Lands – Public Acquisitions” total acreage. Therefore, the MSCP Preserve Total acreage is derived from summing Appendix F, Summary of Habitat Losses and Gains.

“Cumulative Gain” total and the 2016 through 2019 approved additions to the MSCP Preserve that have not been formally designated in HabiTrak.

c A total of 216 acres of the 227-acre 2022 County acquisitions were previously counted towards the MSCP Preserve as private mitigation contribution. One acre, inside PAMA, of the 227 acres was previously accounted for in HabiTrak. In 2022, the 216 acres were transferred in HabiTrak to County conservation and removed from the private mitigation conserved lands, thus resulting in a net gain of 132 acres for the 2022 MSCP Preserve.

d Acreage was acquired with federal Section 6 and state Wildlife Conservation Board funding.

SOURCES: 2021 Annual Report and 2022 HabiTrak report Summary of Project Gains included in Appendix C, Summary of MSCP Gains.

2.2 Baseline Preserve

The MSCP Preserve includes baseline preserve land acreage that was conserved prior to MSCP Subarea Plan adoption in 1997. **Table 2, MSCP Subarea Plan Historical Baseline Preserve**, shows the historical breakdown, by landowner, of the 45,821-acre Baseline Preserve.

TABLE 2. MSCP SUBAREA PLAN HISTORICAL BASELINE PRESERVE

Landowner	Acres
County	5,466
Federal and State	32,600
Private	7,755
Total Baseline Preserve	45,821

2.3 Public and Partner Conservation

Public and partner acquisitions owned and managed in the MSCP Preserve total 36,347 acres (**Table 3, MSCP Public and Partner Acquisitions Since 1988**). Within the MSCP Subarea Plan boundaries, land owned and/or managed by the Wildlife Agencies, local partners, and the County total 53,929 acres. Section 10.4 of the IA states that the estimated conserved acreages through public acquisition to complete the MSCP Preserve “are approximate since the amount, timing, and location of land conserved through regulations, private mitigation and public acquisition are not exactly known.” The MSCP Subarea Plan estimated that 18,850 acres would need to be conserved through public acquisitions to adequately assemble the MSCP Preserve. The MSCP Subarea Plan outlines that the 18,850 acres would be split between 9,425 acres acquired by the County with local funds and 9,425 acres acquired with federal and state funds. Total acquisitions by the federal, state, and County partners, 33,083 acres, exceeds the public acquisition goal of 18,850 acres.

The County and the Wildlife Agencies maintain up-to-date, accurate accounting of their acquisitions and acquisitions completed by partnering agencies. Tracking of public, local government, and non-profit partners’ acquisitions is completed using both the CDFW maintained HabiTrak database and its subsequent reports that are found in **Appendices C, E, F, and G**, as well as manual accounting, which can be found in **Appendices A and B**.

The County has made several manual adjustments to HabiTrak accounting from 2016-2019 with approval from the Wildlife Agencies. In 2016, the County and the Wildlife Agencies concluded an accounting of conserved lands from public acquisition. As a result of the audit, 2,479 acres of County acquisitions were added to the MSCP Preserve, with five acres allocated to the Baseline MSCP Preserve total and 2,474 acres allocated to the MSCP Preserve total. In 2017, the Wildlife Agencies approved the inclusion of an additional 173 acres⁹ in the MSCP Preserve for the County’s Dictionary Hill acquisition. In 2018, the Wildlife Agencies approved the inclusion of an additional 97 acres in the MSCP Preserve for County acquisitions (92 acres for Peutz Valley Preserve and five acres for a Lakeside Linkage addition). In 2019, the Wildlife Agencies approved the inclusion of an additional 144 acres in the MSCP Preserve for County acquisitions. This includes two acres of Dictionary Hill additions, two acres of Ramona Grassland additions, and 140 acres of Skyline Preserve. In 2020, the County acquired almost 20 acres adjacent to the Ramona Grasslands Preserve that are outside of, but directly adjacent to PAMA and within the MSCP Subarea Plan boundaries. A one-acre addition to Dictionary Hill Preserve, which was approved by the Wildlife Agencies to be included into PAMA but has not yet been updated, was also acquired within the MSCP Subarea Plan. Pending approval of the Wildlife Agencies, these 21 acres may be counted towards the MSCP Preserve at a later date. Data contained in this chapter reflects these manual additions to the MSCP Preserve plus those reported as HabiTrak 2022 habitat gains (**Appendix C**). (HabiTrak is not yet updated to reflect the approved County additions to the MSCP Preserve from 2016 through 2019.)

⁹ A total of 177 acres was specified in the letter to the Wildlife Agencies for the inclusion of Dictionary Hill Preserve into the MSCP Preserve. The letter used Assessor’s acreage. In HabiTrak, GIS acreage for the same parcels totaled 173 acres. The 173 acres has been used in the manual accounting of County acquisitions added to the MSCP Preserve.

TABLE 3. MSCP PUBLIC AND PARTNER ACQUISITIONS SINCE 1998

Agency	Funded In MSCP Preserve (acres)	2022 MSCP Preserve Total Owned and Managed (acres)	Complementary Conservation Owned and Managed ^a (acres)	Total in the MSCP Subarea Plan Boundaries Owned and Managed (acres)
Federal				
USFWS	3,012	8,717	3,233	11,905
BLM	1,830	1,830	2,609	4,439
Subtotal	4,842	10,547	5,842	16,344
Non-Federal				
State	11,464	14,558	11,557	26,115
County	4,805 ^b	7,895 ^c	30	7,019 ^d
Local Partners	2,606	3,347	1,104	4,451
Subtotal	18,875	25,800	12,691	37,585
Total				
Grand Total	23,717	36,347	18,533	53,929

NOTES:

a "Complementary Conservation" = "Outside the MSCP Preserve", a HabiTrak designation.

b Includes 205 acres that the County has purchased within other jurisdictions (Cities of San Diego and Chula Vista).

c Includes 689 acres that the County manages within other jurisdictions (Cities of San Diego and Chula Vista).

d Does not include 885 acres that the County manages within other jurisdictions (Cities of San Diego and Chula Vista).

SOURCES: 2020 Annual Report; Appendix B, Wildlife Agency Tracked Acquisitions; Appendix A; County Tracked Acquisitions Since 1998; Appendix C, Summary of MSCP Gains

County Preserve Lands

The County has acquired and/or managed 13,383 acres in the MSCP Subarea Plan Area (**Tables 2 and 3** and **Figure 1**). This includes 5,466 acres of baseline and 7,900 acres of newly acquired conserved lands. In the reporting period, the County acquired a total of 227 acres with an addition to the Ramona Grasslands Preserve. Of the 227 acres, 217 acres are located within PAMA and 10 acres outside of PAMA. The 10 acres outside of PAMA were not counted towards the MSCP Preserve. Of the 217 acres located within PAMA, 216 acres had previously been incorrectly added to the MSCP Preserve as part of private mitigation. As the 216 acres had already been included in the MSCP Preserve total, the MSCP Preserve total did not increase for the 216 acres. One acre of the 217 acres within PAMA were not previously counted in HabiTrak and so, of the 217 acres within PAMA, the acquisition increased the MSCP Preserve total by one acre. The County's conservation contribution to the MSCP Preserve increased by 217 acres in 2022 while 216 acres of private mitigation conservation contribution was removed from the MSCP Preserve resulting in a net gain of one acre to the MSCP Preserve from County contributions.

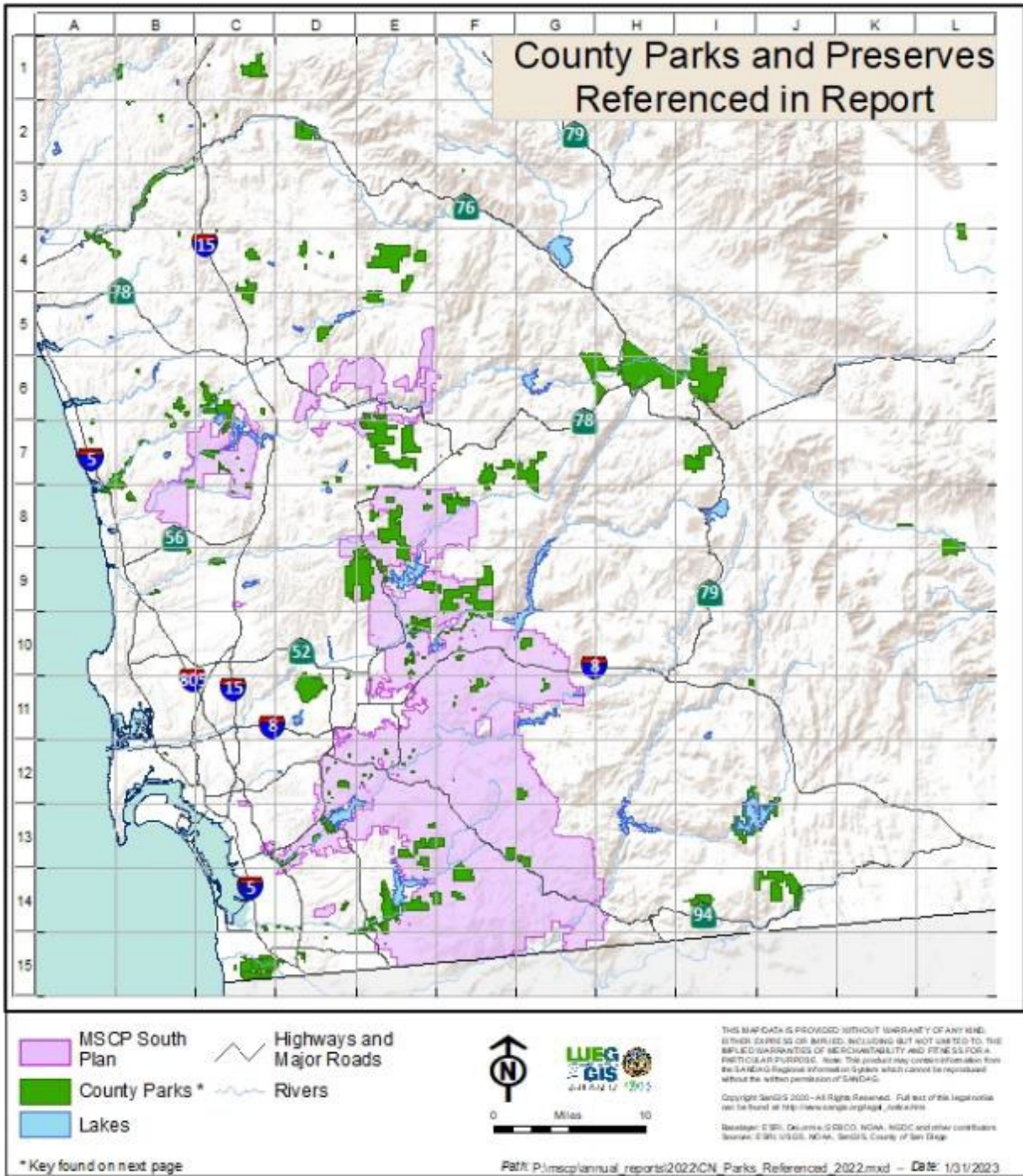


Figure 1. County Parks and Preserves Referenced in Annual Report

Map Key is on the following page

Map Key:

County Parks and Preserves Referenced in Report

<u>MSCP Subarea Plan*</u>		<u>Draft North County MSCP</u>	
F8	Barnett Ranch Preserve**	B6	Diamond Trail (TET) Property
E8,9	Boulder Oaks Preserve	B6, C6	Escondido Creek Preserve
C8	Christopher Hill Property	C6	Felicita Park
E12	Damon Lane Park	A4	Guajome Park
C6, C7	Del Dios Highlands Preserve**	E4	Hellhole Canyon Preserve
D12	Dictionary Hill Preserve	B2	Live Oak Park
E8	Dos Picos Park	F7, G7	Mt. Gower Preserve
F9	El Capitan Preserve**	A4	Rancho Guajome Adobe Park
F9, F10	El Monte Park	B6	Sage Hill Preserve
F10	Flinn Springs Park	B8	San Dieguito Park
D15	Furby-North Property	A7, B7	San Elijo Lagoon Ecological Reserve
E8	Holly Oaks County Park	B3	San Luis Rey River Park
E8	Iron Mountain Preserve	B1	Santa Margarita Preserve
E10	Lakeside Linkage Preserve	G5, G6,H5, H6,I6	Santa Ysabel Preserve
F13, G13	Lawrence & Barbara Daley Preserve	F7	Simon Preserve
B9, C9	Los Peñasquitos Canyon Preserve	I6	Volcan Mt. Wilderness Preserve
E10	Louis A. Stelzer Park	D2	Wilderness Gardens Preserve
E8	Luelf Pond Preserve	I7	William Heise Park
B7, B8	Lusardi Creek Preserve		
E9	Oakoasis Preserve		
F11	Old Ironsides Park		
E14	Otay Lakes Park		
D14, E13, E14, F14	Otay Ranch Preserve		
C14, D14, E14	Otay Valley Regional Park		
G10	Peutz Valley		
E6, E7	Ramona Grasslands Preserve**		
C7	Santa Fe Valley Preserve		
G12	Skyline Preserve		
F11	Stoneridge Preserve		
D13	Sweetwater Regional Park		
DE9	Sycamore Canyon and Goodan Ranch Preserve		
C15	Tijuana River Valley Regional Park		
		<u>Future East County MSCP</u>	
		L8, L9	Agua Caliente Park
		I12, I13,J12, J13	Lake Morena Park
		F3	Palomar Mountain Park
		I11	Pine Valley Park
		I14	Potrero Park
		K8	Vallecito Park

* Not all parks and preserves listed are counted towards the MSCP Preserve

** Portions of preserves are also in North County MSCP Plan

2.4 Private Mitigation

Private mitigation has conserved 6,562 acres in the MSCP Preserve (**Table 4, MSCP Private Mitigation**). In the reporting year, while 48 acres of private mitigation were added to the MSCP Preserve, 216 acres of the County's 2022 Ramona Grasslands Preserve addition that had previously been counted towards private mitigation were transferred in HabiTrak to County conservation and removed from private mitigation. This transfer resulted in net loss of 168 acres from the private mitigation conservation for 2022. Private mitigation is estimated to preserve 33,713 acres over the permit term. Private mitigation primarily includes gains acquired through the County's permitting processes. Hardline agreements identified in the MSCP Subarea Plan (Otay Ranch Preserve Owner/Manager [POM]) are found in the "Dedicated Private Hardline" totals. Private mitigation for new developments and other regulations are found in the "Privately Dedicated Lands" totals. An audit of the acreage in the Otay Ranch POM is in process and is anticipated to be completed in 2023 and reflected in the 2023 MSCP Annual Report. County staff are working on reconciling "Privately Dedicated Lands" data. This effort is anticipated to be completed in 2023 and the results are anticipated to be reported in the 2023 MSCP Annual Report.

TABLE 4. MSCP PRIVATE MITIGATION

Mitigation type	MSCP Preserve Goal (acres)	2021 Cumulative (acres)	2022 MSCP Preserve Gains (acres)	2022 MSCP Preserve Total (acres)
Dedicated Private Hardline ^a	11,563	4,643	0	4,643
Privately Dedicated Lands ^b	22,150	2,087	(168)	1,919
TOTAL	33,713	6,730	(168)	6,562

NOTES:

a Dedicated Private Hardline are HabiTrak Acres Inside Habitat Preserve attributed to Otay Ranch POM.

b Privately Dedicated Lands are HabiTrak Acres Inside Habitat Preserve attributed to Private.

2.5 Mitigation Banks

Five mitigation banks, Boden Canyon, Old Castle, Rancho San Diego, Singing Hills, and Sweetwater, are established in the unincorporated county. With the Wildlife Agencies' approval, they are used to mitigate impacts to sensitive biological resources resulting from the County DPW construction, improvement, and maintenance projects. These banks are not used for mitigating private development projects as they were established for DPW projects. Use of credits is determined based on quality of habitat impacted in relation to quality of habitat available and is subject to approval by the United States Army Corps of Engineers (USACE), USFWS, CDFW, and Regional Water Quality Control Board (RWQCB). The status of each of the banks is detailed in **Appendix H** and summarized below.

Boden Canyon. Mitigation bank totals 39.50 acres and includes the seven habitat types of coast live oak woodland, coastal sage scrub, Engelmann oak woodland, mixed chaparral, native grasslands, non-native grasslands, and southern riparian/oak woodland. All credits for four of the seven habitat types have been used. Credits totaling 15.68 acres for mixed chaparral, native grasslands and non-native grasslands remain.

Old Castle. Mitigation bank totals 60.02 acres and includes the four habitat types of coast live oak woodland, coastal sage scrub, mixed chaparral scrub, and southern willow scrub. All credits for coast live oak woodland are used. Credits totaling 14.90 acres remain for the other habitats.

Rancho San Diego. Mitigation bank totals 409.20 acres and includes the seven habitat types of coast live oak woodland, coastal sage scrub, disturbed/ruderal, marsh/riparian scrub/floodplain, mixed chaparral, native grasslands, and southern riparian/oak woodland. Credits totaling 249.07 acres remain.

Singing Hills. Mitigation bank totals 69.70 acres for coastal sage scrub. Credits totaling 69.01 remain.

Sweetwater. Mitigation bank totals 24.33 acres for marsh/riparian scrub/floodplain. Credits totaling 5.19 remain.

Per Section 9.13 of the IA, two types of mitigation banks are allowed in the MSCP Subarea Plan – formal banks approved by the Wildlife Agencies and banks that existed prior to adoption of the IA. Information on approved mitigation banks can be found at www.wildlife.ca.gov/Conservation/Planning/Banking.

2.6 Mitigation Land Policy (I-138)

In November 2020, the County Board of Supervisors reestablished the Board of Supervisors Mitigation Land Policy (MLP) I-138, Mitigation on County-Owned Land Managed by the County Department of Parks and Recreation (DPR). MLP I-138 does not replace nor supersede Board of Supervisors Policy I-117, Mitigation Banking Policy. Policy I-117 was included as part of the original MSCP approvals and sets the procedures in establishing, using, and managing mitigation banks. MLP I-138 describes the County’s program for acquiring land and making it available to mitigate the biological impacts of public and private projects through the sale of mitigation credits. Although MLP I-138 is not a mitigation bank, it authorizes DPR to administer the sale of mitigation credits.

As stated in MLP I-138, the value of the mitigation credits and cost to be paid to DPR for use of County Mitigation Lands is determined by market analysis or independent appraisal. In addition, DPR calculates an amount for an endowment needed to cover the costs for ongoing annual stewardship of the site. Revenue from the mitigation credits is deposited into an account used to purchase additional preserve lands while the endowment funds are used for ongoing stewardship of the affected County-owned preserve lands within the County of San Diego.

County numbers, in **Table 5**, *Mitigation Land Policy*, and **Appendix A**, accurately show year-to-year manual County updates and subtraction of acres used for MLP credits. There were no MLP sales within the MSCP Subarea Plan boundaries in 2022. **Table 5** also shows revenue generated since adoption in the MSCP Subarea Plan from the sale of mitigation credits in accordance with the MLP. The County considers requests to use MLP I-138 on the preserves listed in **Table 5** according to GIS mapping of the vegetation available on those sites, which are generally acquired with County funds. The County also uses MLP within the other MSCP Plan Areas, but these numbers are not reported in this document.

TABLE 5. MITIGATION LAND POLICY

Project	MSCP Subarea Plan Credits Sold	MSCP Subarea Plan Credit Cost	Endowment	County Preserve	Date
LOSSAN Double Tracking and Mid-Coast Light Rail Project	10	\$350,000	\$630,644	Tijuana River Valley Regional Park ^a	7/11/2016
San Vicente Road Improvement (SC Portion)	8.04	\$254,562	\$85,650	Lawrence & Barbara Daley	6/10/2015
Central Avenue Drainage Improvement and Woodside Flood Control	0.37	\$14,800	\$2,220	Lawrence & Barbara Daley	1/21/2014
Swiss Park Staging Area	1	\$23,300	\$6,000	Furby-North (East Otay Mesa)	1/17/2013
San Ysidro Freight Yard Improvement Project	1.75	\$61,250	\$10,500	Tijuana River Valley Regional Park ^a	2/14/2013
Five DPW projects (Tavern Rd., Wing Ave., Woodside Ave., Emery Rd., Jamacha Blvd.)	2.45	\$98,000	\$14,700	Lawrence & Barbara Daley	10/2/2012
Tuscan Ridge	1.07	\$16,050	\$4,060	Louis A. Stelzer Park	5/3/2011
Dictionary Hill-Maria Ave.	0.31	\$7,225	\$1,240	Lakeside Linkage	6/16/2011

Total Credits Sold	Total Income	Total Endowment	Total Income & Endowment
24.99	\$825,187	\$755,014	\$1,580,201

1. NOTES:

^a Park is outside of the MSCP Subarea Plan Area but is within the City of San Diego MSCP

2. SOURCE: DPR

CHAPTER 3

Covered Projects



Furby-North Preserve supports diverse vegetation communities including Diegan coastal sage scrub, maritime succulent scrub, coastal scrub, and riparian scrub.

Section 4.3.4 of the MSCP Subarea Plan discusses clearing and grading permit exemptions for single-family residences and agriculture. The County issues Certificates of Inclusion (COIs) to track exempt acres. The County permitted 64 development projects in the reporting period in the MSCP Subarea Plan Area. This included 63 residential related projects and one horse shelter. No agricultural exemptions were issued during the reporting period. Habitat clearing acreages for development projects in 2022 are cumulatively included in **Appendix E**. The number of covered projects and associated permit types are included in **Table 6, MSCP Covered Projects in Reporting Year**.

Acreage reported in Chapter 3 is in GIS acreage as opposed to Assessor's acreage. GIS acreage is utilized as MSCP Preserve gains and losses are tracked in HabiTrak, the CDFW database, using GIS acreage. For consistency, GIS acreage will be used when reporting on acreage for MSCP Preserve assemblage, losses, and how the conserved lands within the MSCP Preserve are successfully meeting MSCP and Subarea Plan goals and objectives.

TABLE 6. MSCP COVERED PROJECTS IN REPORTING YEAR

Permit Type	Number of Projects
Discretionary Permit COI	17
Agricultural Exemption COI	0
Building Permit COI	47
TOTAL SINCE 1998	4,336

SOURCE: 2022 HabiTrak Report found in Appendix E, Summary of Project Losses

3.1 Clearing for Single Family Residences

COIs were issued for 17 discretionary permits for single-family residential projects totaling 27.5 acres in 2022. Private landowners of parcels existing as of January 1, 1997, within the MSCP Subarea Plan boundaries and zoned for single-family residences, can apply for a COI for their property. COIs are issued for clearing or grading of two or five acres depending on whether the parcel is in PAMA or not, and 10 acres if a house existed on the parcel before October 22, 1997, even if the landowners intend to clear less. The MSCP Subarea Plan does not have a limit for how many total acres can be cleared for single-family residences. **Appendix E** includes COIs for discretionary permits issued in 2022 for clearing habitat on parcels 10 acres or smaller.

The following details the grading and clearing exemptions provided in Section 4.3.4.2 of the MSCP Subarea Plan, as implemented by the Biological Mitigation Ordinance (BMO). Parcels which are less than 10 acres, occurring within the MSCP Subarea Plan boundaries that were zoned for single-family dwellings and contained a dwelling unit as of October 22, 1997, are exempt from the clearing regulations. Within PAMA, parcels existing as of January 1, 1997, without a dwelling unit as of October 22, 1997, and are less than 10 acres and zoned for single-family residential uses, are allowed to clear up to two acres provided that clearing and grading of such two-acre portions does not interfere with achieving the goals and criteria of the MSCP Subarea Plan. Grading and clearing on the remaining portion of the parcel must meet the mitigation requirements of the BMO. Outside PAMA, grading and clearing on parcels less than 10 acres, zoned for single-family residential uses as of January 1, 1997, and without a dwelling unit as of October 22, 1997, shall be permitted for clearing on a total of five acres. Clearing the remainder of the parcel shall be subject to the requirements of the MSCP Subarea Plan and BMO.

These exempted acres are tracked and were accounted for within the MSCP Subarea Plan, which was designed and developed with anticipation of these clearing exemptions not interfering with the County's ability to achieve the goals and objectives of the MSCP Subarea Plan.

3.2 Agricultural Exemption

COIs were not issued for agricultural exemptions in 2022. Section 4.3.4.3 of the MSCP Subarea Plan allows up to 3,000 acres of cumulative clearing and grading for agriculture without mitigation requirements of the MSCP Subarea Plan and the BMO. When the clearing and grading of habitat reach 3,000 acres, all other clearing and grading for agriculture will be subject to the mitigation requirements of the MSCP Subarea Plan and the BMO. Private landowners can apply for a COI for agricultural clearing and grading until the 3,000 acres are reached. COIs

issued for agricultural clearing in the Subarea since the MSCP Subarea Plan was approved are listed in **Appendix I**, a cumulative reporting. Since 1998, the County has issued 13 COIs covering 1,224 acres for agricultural clearing or 41% of the 3,000 acres.

3.3 Building Permit COIs

The County issues COIs that allow habitat clearing of the amount needed to construct an approved Building Permit. COIs were issued for 47 Building Permits totaling 45.24 acres in 2022. Habitat clearing acreages for these projects in 2022 are identified in **Appendix E**.

CHAPTER 4

Habitat Gains and Losses



Lakeside Linkage Preserve, which supports multiple MSCP covered species including coastal California gnatcatcher, coastal cactus wren, Cooper’s hawk, and southern mule deer.

There was a total of 611 acres of habitat gains and 104 acres of habitat losses in the reporting period. This includes 349 acres of habitat gain inside the MSCP Preserve and 263 acres of complementary conservation.¹⁰ Habitat losses total 15 acres inside PAMA and hardline preserve areas and 89 acres outside these areas. Cumulatively, the MSCP Subarea Plan is in compliance with the rough step analysis, which ensures that habitat gains do not exceed habitat losses.¹¹ From 1998 to 2022, the majority of habitat gains occurred within PAMA and hardline preserve areas, while the majority of habitat loss occurred outside of PAMA and hardline preserve areas. This indicates that the overall conservation goals are being met to create a functional MSCP Preserve as high-quality habitat within PAMA, hardline preserve areas are being conserved, and lower-quality habitat is being developed.

As previously stated, acreage reported in Chapter 4 is in GIS acreage as opposed to Assessor’s acreage. GIS acreage is utilized as MSCP Preserve gains and losses are tracked in HabiTrak, the CDFW database, using GIS acreage. For consistency, GIS acreage will be used when reporting on acreage for MSCP Preserve assemblage, losses, and how the conserved lands within the MSCP Preserve are successfully meeting MSCP and Subarea Plan goals and objectives.

¹⁰ Appendix C, *Summary of MSCP Gains*, includes HabiTrak Summary of Project Gains, total of “Inside the Preserve” and County complementary acquisitions.

¹¹ Appendix F, *Summary Habitat Losses and Gains*, includes HabiTrak Summary of Project Losses and Gains.

4.1 Habitat Gains and Losses

Habitat gains of 349 acres and habitat losses of 15 acres occurred within PAMA and hardline preserve areas in the reporting period, see **Table 7**, *Habitat Gain and Loss in Reporting Year*, and **Appendix F**.¹² Habitat gains were reported within the MSCP Preserve through acquisitions and dedications of mitigation land via the discretionary permit process. Habitat losses were reported from permitted development within PAMA and hardline preserve areas. Mitigation gain and habitat loss were associated with the following types of projects for which approvals were granted and reported in COIs during the reporting period.

- Private projects (tentative maps/tentative parcel maps) with final map approval.
- Projects issued grading permits.
- Building permits exempt from the BMO.
- Lands acquired for preservation.

Habitat Gains

In 2022, conserved land additions within PAMA and hardline preserve areas included County acquisitions (one acre), local, non-profit conservation (83 acres), and private dedications in PAMA (48 acres [**Appendix C**]). The County acquired a 227-acre addition to the Ramona Grasslands Preserve in 2022. However, 216 had previously counted towards the MSCP Preserve as private mitigation that were transferred in HabiTrak to County conservation and ten acres were outside PAMA, thus resulting in a net gain of one acre for the MSCP Preserve. Of the ten acres located outside of PAMA, five acres were previously counted in HabiTrak, thus resulting in five acres that were newly accounted for in 2022. There were 132 acres of net habitat gain within the MSCP Preserve per HabiTrak.

Habitat Loss

Losses in 2022 were 15 acres within PAMA and hardline preserve areas, part of a total of 89 acres impacted by development projects within the MSCP Subarea Plan boundaries (**Table 7** and **Appendix E**).

¹² Appendix C, *Summary of MSCP Gains*, includes HabiTrak Summary of Project Gains, total of "Inside the Preserve" and County complementary acquisitions.

TABLE 7. HABITAT GAIN AND LOSS IN REPORTING YEAR

Habitat Gain/Loss	Outside PAMA and Hardline Preserve Areas	Inside PAMA and Hardline Preserve Areas	Total
Habitat Gains			
County	10	217	227
Federal and State	-	-	-
Local/Non-profit partners	204	83	287
Private Mitigation Outside Hardline	49	48	97
Private Mitigation Inside Hardline	-	-	-
Total	263	348	611
Habitat Losses			
Total	89	15	104

SOURCES: 2022 HabiTrak reports found in Appendix C, Summary of MSCP Gains, Appendix E, Summary of MSCP Losses.

4.2 Habitat Tracking Reporting

CDFW maintains the HabiTrak toolset designed to track habitat losses and gains over time due to public and private development projects. HabiTrak reports for 2021 are attached to this reporting for the MSCP Subarea and are as follows.

- Appendix C, Summary of MSCP Gains**, documents new acquisitions in the reporting year. Habitat gains in and outside PAMA and hardline preserve areas, as well as total acreage preserved by acquisition, are tracked. Habitat gains inside PAMA and hardline preserve areas are referred to as Acres Inside Habitat Preserve. These habitat gains represent the MSCP Preserve. Habitat gains outside PAMA and hardline preserve areas are referred to as Acres Outside Habitat Preserve. These habitat gains represent complementary conservation.
- Appendix E, Summary of MSCP Losses**, documents habitat losses from covered project impacts by segment in the reporting year. Habitat losses inside and outside PAMA and hardline preserve areas, as well as total acreage lost by project, are tracked. Habitat losses inside PAMA and hardline preserve areas are referred to as Acres Inside Habitat Preserve. Habitat losses outside PAMA and hardline preserve areas are referred to as Acres Outside Habitat Preserve.
- Appendix F, Summary of Habitat Losses and Gains**, documents both habitat losses and gains for MSCP habitats in the reporting year and cumulatively. Like in the above, habitat gains and losses are tracked inside and outside PAMA and hardline preserve areas and cumulatively.
- Appendix G, Habitat Conservation Accounting Model**, documents compliance with rough step proportionality. It reports on habitat losses and gains within PAMA and hardline preserve areas only for the North and South Metro-Lakeside-Jamul segments. It is within these segments that specific conservation ratios must be met.

Habitat gains and losses differ from those entered in HabiTrak as corrections for County acquisitions counted as Inside the Preserve are outstanding or not yet recorded in HabiTrak for reporting years 2016 through 2019. For example, in 2019, 144 acres of habitat gains should be attributed to the MSCP Preserve rather than outside PAMA and hardline preserve areas for County acquisitions. In other years, accounting for losses due to MLP credits may need adjustment. For these reasons, the cumulative gains and losses of acreage within the MSCP Subarea Plan boundaries in the HabiTrak reports differ from the MSCP Preserve assembly totals reported in previous sections of this report. 2020 County acquisitions located outside of PAMA and hardline preserve areas may be attributed to the MSCP Preserve in future years, with approval from the Wildlife Agencies.

HabiTrak reports a 77,209-acre cumulative gain within PAMA and hardline preserve areas and a loss of 1,569 acres (**Appendix F**). HabiTrak data for the MSCP Subarea Plan does not show the total of 885 acres jointly owned and managed by the County in the cities of San Diego and Chula Vista. The acreage is outside of the MSCP Subarea Plan Area, but included in the County-owned, managed or funded lands in the MSCP Preserve. Manual accounting of County acreages in **Appendix A** also differ from HabiTrak because County numbers accurately show year-to-year manual County updates and subtraction of acres used for MLP credits. The Wildlife Agencies' acquisitions totals are also tracked manually and may differ from HabiTrak. The manual accounting numbers are corrected when errors are noted, and audits are performed. Additionally, through the discretionary permitting process, the California Environmental Quality Act (CEQA) requires the identification of potential impacts. The corresponding loss of habitat resulting from development and habitat conserved through mitigation is tracked. Habitat loss through ministerial projects that do not require a discretionary permit are in this report.

The HabiTrak database and report formats have undergone updates and changes, and the numbers are corrected once inputs are received. As such, a combination of HabiTrak reports and manual accounting of gains and losses within both the MSCP Subarea Plan boundaries and MSCP Preserve is utilized to total MSCP Preserve assemblage by landowner type documented in **Table 1 and Table 3**.

4.3 Rough Step Analysis

Rough step is the comparison of the total gains and losses within and outside of PAMA and hardline preserve areas in terms of total acres and habitat types. The purpose of rough step is to ensure that the conservation of high-quality habitat and habitat linkages, those lands inside PAMA and hardline preserve areas, occurs roughly in the same amounts at the same time as development outside PAMA and hardline preserve areas. **Table 8, Habitat Gains and Losses by Segment Since 1988 Per HabiTrak**, shows the cumulative gains and losses inside and outside of PAMA and hardline preserve areas for each of the four segments within the MSCP Subarea Plan.

The majority of habitat gains for the four segments occurred within PAMA and hardline preserve areas, while the majority of habitat loss occurred outside of PAMA and hardline preserve areas. This numerical comparison indicates that the overall conservation goals are being met to create a functional MSCP Preserve as high-quality habitat within PAMA and hardline preserve areas is being conserved and lower-quality habitat is being developed. A visual rough step analysis of the biological core resource areas and habitat linkages are depicted in **Figure 2 and Figure 3**.

Rough step status can also be determined by comparing gains and losses of vegetation types inside and outside PAMA in the North and South Metro-Lakeside-Jamul segments. (PAMA

designations only apply to the North and South Metro-Lakeside-Jamul segments. Lake Hodges and South County are both hardline preserve areas.) **Appendix G** reports on the conservation of each vegetation type within the Metro-Lakeside-Jamul segment, as required by Section 4.4 of the MSCP Subarea Plan and Section 14 of the IA. It should be noted that existing vegetation maps used to develop baseline conditions in HabiTrak are regional in nature and may not be consistent with actual on-the-ground conditions. This data also indicates that conservation is proceeding in rough step with development. The report in **Appendix G** demonstrates the County's compliance with MSCP Subarea Plan Objective 1 "Acknowledge the no-net-loss-of-wetlands standard to satisfy state and federal wetland goals, policies, and standards."

TABLE 8. HABITAT GAINS AND LOSSES BY SEGMENT SINCE 1998 PER HABITRAK

Cumulative (acres)			
Segment	Outside PAMA and Hardline Preserve Areas	Inside PAMA and Hardline Preserve Areas	Total
Habitat Gain			
Lake Hodges	543	2,943	3,486
North Metro-Lakeside-Jamul	6,923	11,232	18,155
South Metro-Lakeside-Jamul	12,039	13,657	25,696
South County	1,784	10,682	12,466
Total	21,289	38,514	59,803
Habitat Losses			
Lake Hodges	2,477	93	2,570
North Metro-Lakeside-Jamul	3,961	696	4,657
South Metro-Lakeside-Jamul	3,371	591	3,962
South County	816	160	976
Total	10,625	1,540	12,165

NOTE: Totals may not add up due to rounding.

SOURCE: 2021 Annual Report plus 2022 HabiTrak reports found in Appendix C, *Summary of MSCP Gains* and Appendix G, *Habitat Conservation Accounting Model*.

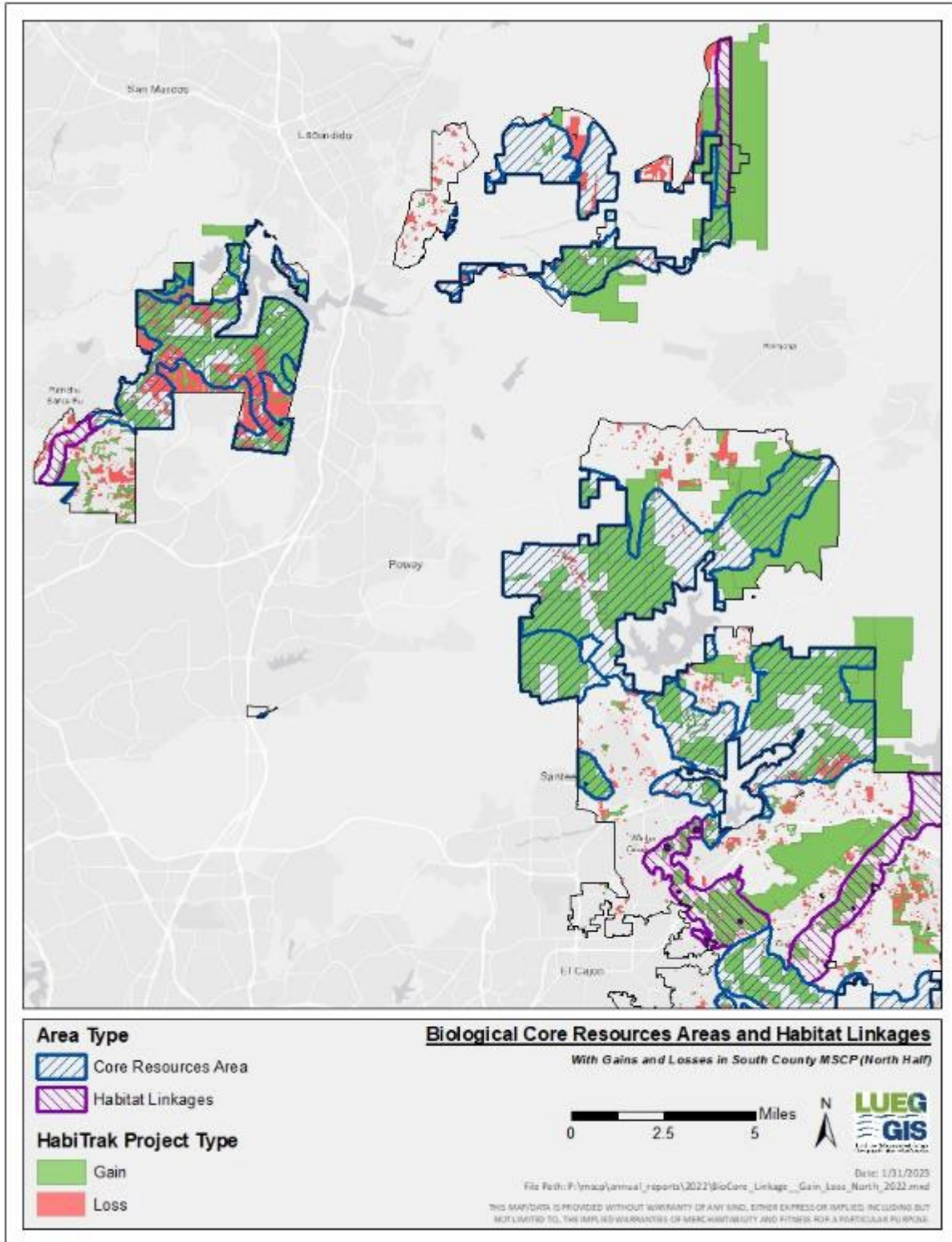


Figure 2. MSCP biological core resource areas and habitat linkages with gains and losses in the north half of the MSCP Subarea Plan Area.

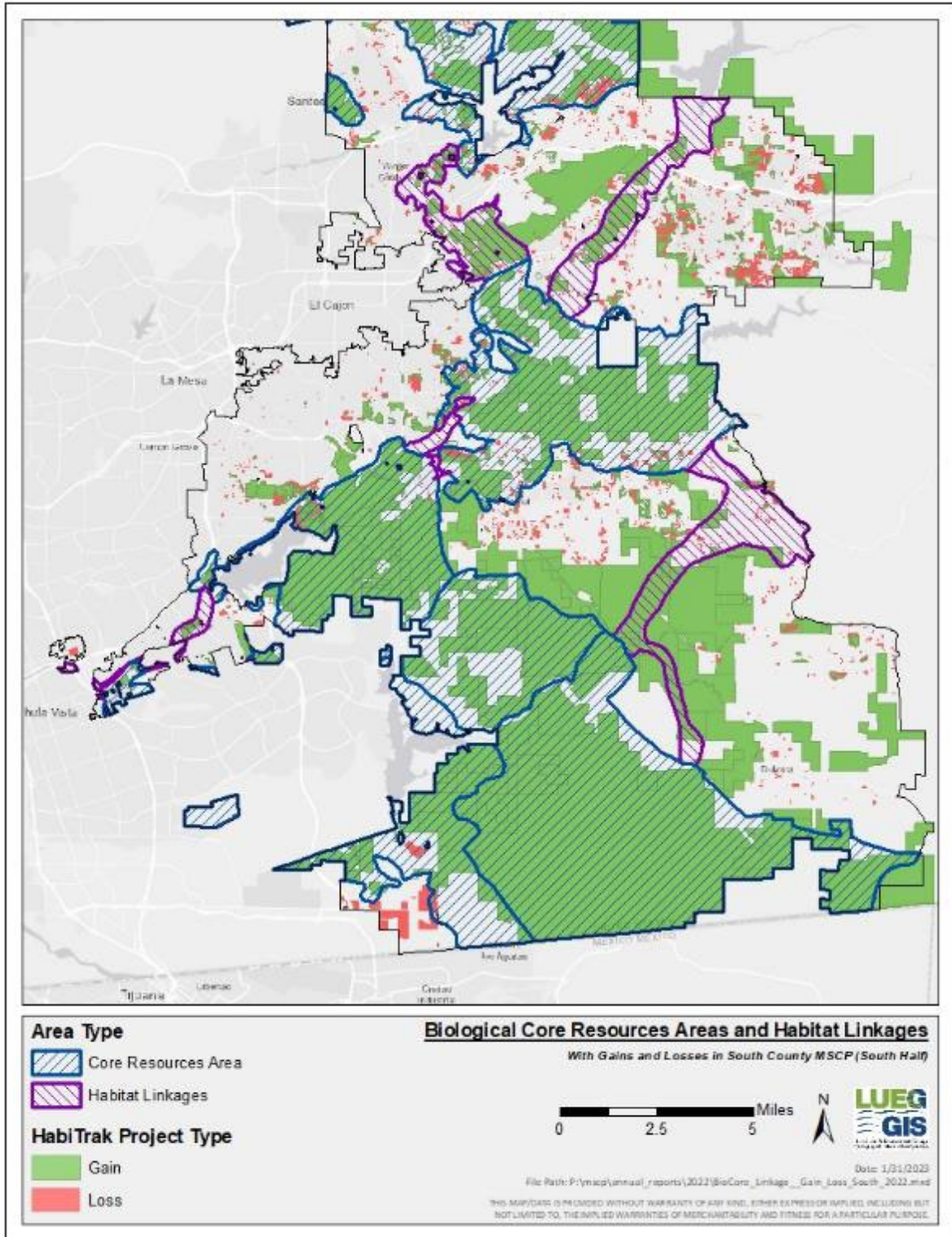


Figure 3. MSCP biological core resource areas and habitat linkages with gains and losses in the south half of the MSCP Subarea Plan Area.

CHAPTER 5

Species and Habitat Conservation



Mule deer, an MSCP covered species, can be found on Boulder Oaks Preserve.

This chapter summarizes the contribution of County Preserves to the MSCP Subarea Plan objectives. The MSCP objectives ensure the persistence of habitat linkages for wildlife movement, critical biological resource areas for MSCP covered plant and animal habitat, and MSCP covered plant and animal occurrences in these areas.

The County initiated a *Preserve Functionality Assessment* to evaluate the contribution of County Preserves to the MSCP objectives at the landscape-, habitat-, and species-level. A total of 30 County Preserves currently contribute to MSCP Subarea Plan landscape, habitat, and species objectives. (County Preserves are those depicted and referenced in **Figure 1**). The MSCP Subarea Plan identifies targets at the landscape-, habitat-, and species-level to quantify contributions to the MSCP objectives and measure success of the MSCP Subarea Plan. At the landscape-level, contributions are measured in acres of biological core resource areas, habitat linkages, and segments conserved. At the habitat-level, contributions are measured in acres of target habitat types conserved. At the species-level, contributions are measured in the MSCP covered species conserved. Section 5.2 through Section 5.5 describes the preliminary results of the first phase of the *Preserve Functionality Assessment*. It is anticipated that the first phase of the *Preserve Functionality Assessment* will be finalized in 2023.

County Preserves span 11 of 16 biological core resource areas and protect habitat linkages. The County Preserves contribute to habitat conservation goals of each of the target segments, which are Lake Hodges, South County, North Metro-Lakeside-Jamul, and South Metro-Lakeside-Jamul. The County Preserves conserve undeveloped lands that contain all 18 target habitats, with chaparral and coastal sage scrub being the most represented in 23 and 26 of

County Preserves, respectively. Of the 85 MSCP covered species, 48 have been documented across 26 of the 30 County Preserves (**Appendix O**). Together with federal, state, local partner, and private mitigation conservation, the County and its partners contribute to preservation of the unique biological resources present in the unincorporated county.

As previously mentioned, acreage reported in Chapter 5 is in GIS acreage as opposed to Assessor's acreage. GIS acreage is utilized as MSCP Preserve gains and losses are tracked in HabiTrak, the CDFW database, using GIS acreage. For consistency, GIS acreage will be used when reporting on acreage for MSCP Preserve assemblage, losses, and how the conserved lands within the MSCP Preserve are successfully meeting MSCP and Subarea Plan goals and objectives.

5.1 MSCP Objectives

The Natural Communities Conservation Planning Conservation Guidelines, the MSCP, and the biological information from the MSCP's Multiple Habitat Planning Area (MHPA) Preserve alternative were used to establish conservation goals and criteria for habitat and individual species for each Segment of the MSCP Subarea Plan. These goals and criteria are based on the needs of the 85 MSCP covered species and an analysis of their habitats in the MSCP study area. Goals and criteria for conservation of biological core resource areas and habitat linkages within the individual segments are discussed in MSCP Subarea Plan Chapters 2, 3, and 4. The anticipated levels of conservation for vegetation types and individual species are included in MSCP Subarea Plan Section 1.2.1 and Section 1.2.2, respectively and the progress that has been made regarding those goals is summarized in **Appendix F**.

The County has made substantial progress toward the achievement of the MSCP Subarea Plan Objectives listed below. For each objective, progress is documented in the referenced chapter or section of the annual report. The County Preserves contribution refers to those parks and preserves owned or managed by the County.

Objective 1: Acknowledge the no-net-loss-of-wetlands standard to satisfy state and federal wetland goals, policies, and standards.

Progress: Acknowledgment of the state and federal goals, policies, and standards of the no-net-loss-of-wetlands is provided in Chapter 4, *Habitat Gains and Losses* and **Appendix F**, *Summary of Habitat Losses and Gains*, with almost no impacts to wetlands.

Objective 2: Include measures to maximize the habitat structural diversity of conserved habitat areas, including conservation of unique habitats and habitat features (e.g., soil types, rock outcrops, drainages, and host plants).

Progress: Conservation of habitat diversity and unique habitats is provided in **Appendix F**, *Summary of Habitat Losses and Gains*. Properly managing conserved preserve lands ensures that habitat diversity is sustained. RMP development and implementation is provided in Chapter 6, *Preserve Management*. RMPs provide detailed site-specific physical, biological, and cultural information for County Preserves. These documents serve as a guidance document to manage and preserve the biological and cultural resources within County Preserves and include guidance for land management/stewardship. They also include a framework for on-site MSCP covered species monitoring and management. The TMP provides detailed specifications for implementation of management and monitoring within County-owned and managed conserved lands. The TMP is an adaptive implementation plan that incorporates the site-specific

monitoring strategy included in RMPs, focused goals and objectives for target resources, and detailed monitoring protocols. The TMP is consistent with regional priorities, includes goals, measurable objectives, and detailed protocols using best available science. Species- and habitat-specific monitoring results are provided in Chapter 7, *Preserve Monitoring and Research*. Habitat and species management is informed by the TMP. Management actions are described in Chapter 6, *Preserve Management*.

Objective 3: Provide for the conservation of spatially representative (e.g., coastal versus interior) examples of extensive patches of coastal sage scrub and other habitat types that were ranked as having high and very high biological value by the MSCP habitat evaluation model.

Progress: Habitat protection goals identified in MSCP Subarea Plan Table 1-2 and Table 4-2 are measured in Section 5.4, *Habitat-Level Conservation*. Habitat protection has occurred in all three Subarea Plan segments in extensive patches in the biological core resources areas (**Figures 2 and 3**). The County Preserves contribution toward the Subarea Plan habitat goals are evenly distributed among all three segments.

Objective 4: Create significant blocks of habitat to reduce edge effects and maximize the ratio of surface area to the perimeter of conserved habitats.

Progress: Protection of the eight critical biological resource areas identified in MSCP Subarea Plan Section 4.2.2 and five habitat linkages identified in MSCP Subarea Plan Section 4.2.3 is documented in Section 5.3, *Landscape-level Conservation*. As of December 31, 2022, the assembled 80,108-acre MSCP Preserve has large blocks of habitat that reduce edge effects and maximize the ratio of surface area to perimeter (**Figures 2 and 3**).

Objective 5: Provide incentives for development in the least sensitive habitat areas.

Progress: Development is incentivized in the least sensitive habitat areas through the application of **Appendix M** of the County's BMO, which identifies higher mitigation requirements for projects impacting biological resource core areas and lower mitigation requirements for projects impacting land outside these areas. The use of project mitigation sites within biological core resource areas is also incentivized by further lowering project mitigation requirements. Projects covered by the MSCP and compliant with County's BMO are documented in Chapter 3, *Covered Projects*.

Objective 6: Provide for the conservation of key regional populations of the covered species, and representation of sensitive habitats and their geographic sub-associations in biologically functioning units.

Progress: Conservation of target vegetation communities, species habitats, and species occurrences (i.e., compliance monitoring) is documented in Section 5.4, *Habitat-level Conservation* and Section 5.5, *Species-level Conservation*. Status and trends monitoring (i.e., effectiveness monitoring) is documented in Chapter 7, *Preserve Monitoring and Research*.

Objective 7: Conserve large, interconnected blocks of habitat that contribute to the preservation of wide-ranging species such as mule deer, golden eagle, and predators as appropriate. Special emphasis will be placed on conserving adequate foraging habitat near golden eagle nesting sites.

Progress: Protection of the eight critical biological resource areas identified in MSCP Subarea Plan Section 4.2.2 and five habitat linkages identified in MSCP Subarea Plan Section 4.2.3. is documented in Section 5.3, *Landscape-Level Conservation*.

5.2 MSCP Preserve Functionality Assessment

The County initiated an *MSCP Preserve Functionality Assessment* to evaluate the contribution of conserved lands to the MSCP objectives at the landscape-, habitat-, and species-level. This assessment will be a multi-phase effort with the first phase focused on County Preserves that contribute to the assembled MSCP Preserve. As part of a regional effort, and in coordination with conserved land partners, future phases of an MSCP functionality assessment will focus on private mitigation contributions and lands conserved by federal, state, and non-profit partners. The MSCP Subarea Plan identifies measurable objectives at the landscape-, habitat-, and species-level to measure success of the assembled MSCP Subarea Plan Preserve. At the landscape-level, acres of conserved biological core resource areas, habitat linkages, and segments are the measurable objective. At the habitat-level, acres of conserved target habitat types are the quantifiable objective. At the species-level, the number of conserved MSCP covered species are used as the measurable objective. The metrics presented in this chapter are the preliminary results of the contributions of County Preserves. The functionality analysis efforts continued in 2022 and final results of the first phase of the assessment are anticipated to be included in the 2023 MSCP Annual Report. In up-coming years, as part of a regional effort, and in coordination with conserved landowners, additional MSCP Preserve-lands assessment will be completed. It is anticipated that the next MSCP Preserve-lands to be analyzed will be private mitigation lands.

DPR, the Wildlife Agencies, San Diego Management and Monitoring Program (SDMMP), and United States Geological Society (USGS) met prior to the initiation of the *Preserve Functionality Assessment*. The following components of the first phase of the assessment (County Preserves that contribute to the assembled MSCP Preserve) were discussed and are described as follows.

- **County Preserves.** County Preserves enrolled in the MSCP Preserve would be the units of analysis. These are the 30 County Preserves included in this Annual Report and depicted in **Figure 1**.
- **Data.** Data from 1997 to 2020 would be considered in the analysis. Data sources would include GIS data from DPR's TMP, RMPs, inventory surveys, habitat vegetation mapping, and restoration projects. County partner data from the SDMMP, USGS, and Wildlife Agencies would also be included.
- **MSCP Covered Species on County Preserves.** The analysis would determine species-level contributions to MSCP covered species conservation goals. The data would be used to determine which of the 85 MSCP covered species are found on County Preserves. Results would be summarized in a matrix of MSCP covered species, their sensitivity classifications, and whether or not they were found on the County Preserves. A separate table would identify MSCP covered species by County Preserve.
- **Acreage of conserved and targeted habitat vegetation types on County Preserves.** The analysis would determine habitat-level contributions to MSCP habitat conservation goals. The data would be used to determine the habitat vegetation type acreage on County Preserves compared to the target acreage in Table 1-2 of the MSCP Subarea Plan. Results would be summarized in a matrix of vegetation types, their total acreages

within County Preserves, and the relative contribution to the target acreages in Table 1-2 (e.g., percent contribution). The results would be summarized for the County Preserves as a whole and by each County Preserve.

- **Status summary of each MSCP covered species located on County Preserves.** The analysis would determine species-level contributions to MSCP covered species conservation goals. A status summary of each MSCP covered species conserved and their MSCP habitat conservation goals based on Table 3-5 of the MSCP would be provided. This summary would list MSCP covered species with the habitat conservation goals for each species. The amount of habitat conserved for each species on County Preserves would be quantified and percent contribution to the MSCP goal calculated. For those species monitored by the TMP, the number of occurrences and percent contribution to the occurrence targets in Table 1-3 of the MSCP Subarea Plan would be summarized.
- **Summary of threats and monitoring activities on County Preserves for MSCP covered species.** The analysis would inform habitat and species-level management and monitoring actions for MSCP covered species. An analysis of threats to MSCP covered species and DPR monitoring activities that are implemented to ensure the success of the MSCP covered species on County Preserves would be conducted and a summary developed.
- **MSCP Preserve Functionality Report.** This report would summarize landscape-level, habitat-level, and species-level contributions and assess MSCP Preserve function on the County Preserves. A report encompassing the analyses described above would be developed. Recommendations for further analyses and reporting to address MSCP Preserve Functionality would be provided.

Section 5.3 through Section 5.5 provides preliminary results and assessments of the first phase of the Preserve Functionality Analysis, which analyzed the County's Preserves within the MSCP Preserve.

5.3 Landscape-Level Conservation

A landscape-level conservation analysis was conducted to determine the County's contributions to MSCP Subarea Plan Objective 4 "*Create significant blocks of habitat to reduce edge effects and maximize the ratio of surface area to the perimeter of conserved habitats*" and Objective 7 "*Conserve large, interconnected blocks of habitat that contribute to the preservation of wide-ranging species such as mule deer, golden eagle, and predators as appropriate. Special emphasis will be placed on conserving adequate foraging habitat near golden eagle nesting sites.*" The results presented in this section are the preliminary results of a *Preserve Functionality Assessment*. As the County continued to conduct and develop the *Preserve Functionality Assessment* in 2022, final results are anticipated to be presented in the 2023 MSCP Annual Report.

The preliminary analysis was prepared using GIS-calculated acres. To complete this analysis, the County Preserves layer was overlaid with the MSCP Subarea Plan segments, biological core resource areas, and habitat linkages¹³ to quantify the landscape level conservation

¹³ The biological core resource areas and habitat linkages are those identified in Figure 2-2 of the *Final Multiple Species Conservation Program* (MSCP Plan [1998]).

contribution of the 30 County Preserves. All the parks and preserves included in the analysis were County Preserves; however, portions of the park or preserve may have been excluded from the MSCP Preserve due to existing use (e.g., campground, sports fields).

Based on this preliminary analysis, the County Preserves contribute to MSCP Subarea Plan landscape, habitat, and species objectives by spanning 11 biological core resource areas, 634 acres of habitat linkages, and seven segments. **Table 9, *Landscape-Level Conservation in County Preserves***, summarizes landscape-level conservation in the preserves.

Biological core resource areas. The MSCP Plan identifies 16 biological core resource areas in Table 2-2. Biological core resource areas generally support a high concentration of sensitive biological resources which, if lost or fragmented, could not be replaced or mitigated elsewhere. Eight of these biological core resource areas are identified as critical in the MSCP Subarea Plan Section 4.2.2. County Preserves contribute to the protection of 11 of the 16 biological core resource areas and six of the eight identified as critical. Future phases of the *Preserve Functionality Analysis* assess all conserved lands within the MSCP Preserve and it is anticipated that conserved lands will be located within all biological core resource areas in Table 2-2.

Habitat linkages. The MSCP Plan identifies 24 linkages between biological core resource areas in Table 2-2. Habitat linkages have characteristics that allow plants and animals to move between the biological core resource areas. Five of these linkages are targeted for acquisition in the North and South Metro-Lakeside-Jamul segments as identified in MSCP Subarea Plan Section 4.2.3. County Preserves protect linkages in the following segments: North and South Metro-Lakeside-Jamul, City of San Diego Northern Area, South County, City of Chula Vista, and City of San Diego Southern Area. Future phases of the *Preserve Functionality Analysis* will assess all conserved lands within the MSCP Preserve and it is anticipated that conserved lands will be located within the 24 linkages identified in Table 2-2.

Segments. The MSCP Subarea Plan identifies four segments within which the MSCP Preserve will be assembled. County Preserves span these four segments, plus three additional segments in other Subarea Plan Areas. Within the MSCP Subarea Plan Area, County Preserves contribute 1-77% of the segment goals.¹⁴ Future phases of the *Preserve Functionality Analysis* will assess all conserved lands within the MSCP Preserve and it is anticipated that the assembled MSCP Preserve will meet all segment objectives.

The County Preserves contribute to MSCP Subarea Plan Objective 4 “*Create significant blocks of habitat to reduce edge effects and maximize the ratio of surface area to the perimeter of conserved habitats*” and Objective 7 “*Conserve large, interconnected blocks of habitat that contribute to the preservation of wide-ranging species such as mule deer, golden eagle, and predators as appropriate. Special emphasis will be placed on conserving adequate foraging habitat near golden eagle nesting sites.*” The County Preserves conserved in each segment are summarized below and detailed in **Table 9**. Only the acreage within the MSCP Subarea Plan Area’s boundaries are reported in **Table 9** as four County Preserves span both the South County and draft North County MSCP Plan Areas.

¹⁴ The segment goals are for all MSCP Preserve acquisitions—County, federal, state, non-profit partners, private mitigation.

TABLE 9. LANDSCAPE-LEVEL CONSERVATION IN COUNTY PRESERVES

County Preserve	Area within MSCP Subarea Plan Area (acres)	Segment Name	Segment acres	Biological Core Resource Area Habitat Linkage	Core Area acres	Linkage acres
Barnett Ranch Preserve	668 ^a	North Metro-Lakeside-Jamul	668	Central Poway/San Vicente Reservoir	275	-
Boulder Oaks Preserve	2,022	North Metro-Lakeside-Jamul	2,022	Central Poway/San Vicente Reservoir	1,420	-
Damon Lane Park	29	South Metro-Lakeside-Jamul	29	-	-	-
Del Dios Highlands Preserve	269 ^a	North Metro-Lakeside-Jamul	269	Hodges Reservoir/San Pasqual Valley	167	-
Dictionary Hill Preserve	177	South Metro-Lakeside-Jamul	177	-	-	-
El Capitan Preserve	2,325 ^a	North Metro-Lakeside-Jamul	2,325	Lake Jennings/Wildcat Canyon	2,313	-
El Monte Park	117	North Metro-Lakeside-Jamul	117	Lake Jennings/Wildcat Canyon	117	-
Flinn Springs Park	73	South Metro-Lakeside-Jamul	73	-	-	-
Furby-North Property	79	City of San Diego Southern Area	79	Vernal Pools, Otay Mesa	65	-
Holly Oaks Preserve	42	North Metro-Lakeside-Jamul	42	-	-	-
Iron Mountain Preserve	162	North Metro-Lakeside-Jamul	162	Central Poway/San Vicente Reservoir	162	-
Lakeside Linkage Preserve	209	North Metro-Lakeside-Jamul	209	Lake Jennings/Wildcat Canyon I-8 at Lakeside Linkage	11	188
Lawrence & Barbara Daley Preserve	581	South Metro-Lakeside-Jamul	581	Otay Mountain/Jamul Mountains to Sequan Peak Linkage	-	<1
Los Peñasquitos Canyon Preserve	266	City of San Diego Northern Area	266	Los Peñasquitos Lagoon/Del Mar Mesa Los Peñasquitos Creek west of Poway Linkage	243	14
Louis A. Stelzer Park	368	North Metro-Lakeside-Jamul	368	Lake Jennings/Wildcat Canyon	368	-
Luelf Pond Preserve	87	North Metro-Lakeside-Jamul	87	-	-	-

County Preserve	Area within MSCP Subarea Plan Area (acres)	Segment Name	Segment acres	Biological Core Resource Area Habitat Linkage	Core Area acres	Linkage acres
Lusardi Creek Preserve	226	Lake Hodges	226	Hodges Reservoir/San Pasqual Valley	226	-
Oak Oasis Preserve	442	Lake Hodges	442	Central Poway/San Vicente Reservoir	26	-
Old Ironsides Park	4	South Metro-Lakeside-Jamul	4	Dehesa to El Capitan Reservoir Linkage	-	2
Otay Lakes Park	87	South County	87	Otay Lakes/Otay Mesa/Otay River Valley	87	-
Otay Ranch Preserve	4,707	City of Chula Vista South County	1,113 3,594	Jamul Mountains Otay Lakes/Otay Mesa/Otay River Valley Otay Mountain/Marron Valley	1,294 2,135 1,252	-
Otay Valley Regional Park	432	South County City of Chula Vista City of San Diego Southern Area	209 125 99	Otay Lakes/Otay Mesa/Otay River Valley Otay River west of I-805 Linkage	339	41
Peutz Valley Preserve	255	North Metro-Lakeside-Jamul	255	Dehesa to El Capitan Reservoir Linkage	-	7
Ramona Grasslands Preserve	785 ^a	North Metro-Lakeside-Jamul	785	Hodges Reservoir/San Pasqual Valley	775	-
Santa Fe Valley Preserve	298	Lake Hodges	298	Hodges Reservoir/San Pasqual Valley	286	-
Skyline Preserve	261	South Metro-Lakeside-Jamul	261	Otay Mountain/Jamul Mountains to Sequan Peak Linkage	-	122
Stoneridge Preserve	247	South Metro-Lakeside-Jamul	247	Dehesa to El Capitan Reservoir Linkage	-	241
Sweetwater Regional Park	490	South County South Metro-Lakeside-Jamul City of Chula Vista National City Sweetwater Authority	425 15 6 42 2	Sweetwater Reservoir/San Miguel Mountain Otay Lakes/Otay Mesa/Otay River Valley	105 124	154
Sycamore Canyon and Goodan Ranch Preserve	2,931	North Metro-Lakeside-Jamul City of San Diego Northern Area	2,928 3	Central Poway/San Vicente Reservoir Mission Trails/Kearny Mesa/East Elliot/Santee	1,464 1,467	-

County Preserve	Area within MSCP Subarea Plan Area (acres)	Segment Name	Segment acres	Biological Core Resource Area Habitat Linkage	Core Area acres	Linkage acres
Tijuana River Valley Regional Park	1,609	City of San Diego Southern Area	1,609	Tijuana Estuary/River Valley	1,045	-

^a Barnett Ranch Preserve, El Capitan Preserve, Del Dios Highlands Preserve, and Ramona Grasslands Preserve are located within both the South County and draft North County MSCP Plan Areas. Acreages reported in this table reflect only the portions of the preserves within the MSCP Subarea Plan Area.

SOURCE: County, LUEG-GIS



Prickly pear cactus at Lakeside Linkage Preserve provides nesting habitat for MSCP covered species coastal cactus wren.

5.4 Habitat-Level Conservation

A habitat-level conservation analysis was conducted to determine the County’s contributions to MSCP Subarea Plan Objective 3 *“Provide for the conservation of spatially representative (e.g., coastal versus interior) examples of extensive patches of coastal sage scrub and other habitat types that were ranked as having high and very high biological value by the MSCP habitat evaluation model”* and Objective 6 *“Provide for the conservation of key regional populations of the covered species, and representation of sensitive habitats and their geographic subassociations in biologically functioning units.”* The results presented in this section are the preliminary results of the *MSCP Preserve Functionality Assessment*. Final results of the first

phase of the assessment are anticipated to be completed in 2023 and reported in the 2023 MSCP Annual Report.

The preliminary analysis was prepared by the County using GIS-calculated acres. To complete this analysis, the County Preserves layer was overlaid with the vegetation layer to estimate the acres of MSCP target habitats in the County Preserves cumulatively, by segment (i.e., Lake Hodges, South County, and Metro-Lakeside-Jamul), and by sub-segment for Metro-Lakeside-Jamul (i.e., North and South).

Based on this analysis, County Preserves conserve 17 of 18 target habitats within the MSCP Subarea Plan. Each County Preserve contains two to 15 habitat types. The most prevalent habitats conserved in County Preserves are chaparral (7,347 acres) and coastal sage scrub (3,480 acres). For these habitat types, County Preserves contribute 56% and 27%, respectively, to the MSCP Preserve goals. **Table 10, *Habitat Conservation in County Preserves***, details County Preserves' contribution to MSCP Preserve-wide habitat conservation goals. The acres of habitat conserved in each County Preserve is summarized in **Appendix J**.

County Preserves conserve habitat in all segments, with 14 of 16 target habitats conserved in the Lake Hodges segment, 12 of 17 target habitats conserved in South County, and 13 of 14 target habitats conserved in the Metro-Lakeside-Jamul Segment. Depending on the vegetation community, County Preserves account for 1-77% of the habitat conservation goals identified in MSCP Subarea Plan Table 1-2. The largest contributions to the overall goals are to oak woodland (27%), grassland (23%), and coastal sage scrub/chaparral (21%). County Preserves' contribution is provided in **Table 11, *Habitat Conservation Goals Achieved in County Preserves for all Subunits***, and summarized as follows.

- **Lake Hodges.** Fourteen target habitats are conserved in the Lake Hodges segment. The largest contributions are for riparian scrub (45%), riparian forest (43%), and freshwater marsh (32%).
- **South County.** Twelve target habitats are conserved in the South County segment. The largest contributions are for coastal sage scrub/chaparral (77%), grassland (21%), and oak woodland (17%).
- **Metro-Lakeside-Jamul.** Thirteen target habitats are conserved in the Metro-Lakeside-Jamul segment. The largest contributions are for riparian woodland (67%), chaparral (39%), and oak woodland (29%).

The MSCP Subarea Plan establishes additional habitat conservation goals for 13 habitats in the north and south sub-segments of the Metro-Lakeside-Jamul segment in MSCP Subarea Plan Table 4-2. County Preserves conserve 13 of 13 target habitat types in the North sub-segment and 10 of 12 in the South sub-segment. County Preserves' contributions are provided in **Table 12, *Habitat Conservation Goals Achieved in County Preserves for Metro-Lakeside-Jamul Segment***, and summarized as follows.

- **North Metro-Lakeside-Jamul.** Twelve target habitats are conserved in North Metro-Lakeside-Jamul. The largest contributions are for grassland (67%), riparian woodland (67%), and chaparral (56%).

- **South Metro-Lakeside-Jamul.** Nine target habitats are conserved in South Metro-Lakeside-Jamul. The largest contributions are for eucalyptus woodland (36%), riparian forest (30%), and oak riparian forest (9%).

TABLE 10. HABITAT CONSERVATION IN COUNTY PRESERVES

Vegetation Community	Cumulative within MSCP Subarea Plan Area (acres)	% of Total
Coastal Sage Scrub	3,480	27%
Maritime Succulent Scrub	93	0%
Chaparral	7,347	56%
Southern Maritime Chaparral	-	-
Coastal Sage Scrub/Chaparral	156	1%
Grassland	695	5%
Freshwater Marsh	41	0%
Oak Riparian Forest	216	2%
Riparian Forest	69	1%
Riparian Woodland	4	0%
Riparian Scrub	74	1%
Oak Woodland	548	4%
Tecate Cypress Forest	160	1%
Eucalyptus Woodland	11	0%
Open Water	9	0%
Disturbed Wetland	6	0%
Flood Channel	3	0%
Other Habitat	-	0%
Bog and Marsh	13	0%
Shallow Bays	-	0%
Disturbed Land	115	1%
Agriculture	172	1%
Urban/Developed	172	1%

NOTES: Vegetation Communities listed are those identified in MSCP Subarea Plan Table 1-2. Habitat Protection Goals for the San Diego County Subarea.

SOURCE: County, LUEG-GIS.

TABLE 11. HABITAT CONSERVATION GOALS ACHIEVED IN COUNTY PRESERVES FOR ALL SEGMENTS

	Goals (acres)				In County Preserves within MSCP Subarea Plan Area (acres)				Contribution to Goals (%)			
	Segments			Total	Segments			Total	Segments			Total
Vegetation Community	LH	SC	MLJ	Goal	LH	SC	MLJ		LH	SC	MLJ	
Coastal Sage Scrub	2,591	23,037	18,626	44,254	308	2,351	2,802	5,461	12%	10%	15%	12%
Maritime Succulent Scrub	0	158	0	158	-	1	-	1	-	1%	-	1%
Chaparral	1,391	19,874	18,619	39,884	76	683	7,273	8,032	5%	3%	39%	20%
Southern Maritime Chaparral	5	0	0	5	-	-	-	0	0%	-	-	0%
Coastal Sage Scrub/Chaparral	20	153	1,152	1,325	3	118	153	274	15%	77%	13%	21%
Grassland	305	1,658	1,603	3,566	40	343	445	828	13%	21%	28%	23%
Freshwater Marsh	50	173	15	238	16	13	<1	29	32%	8%	6%	12%
Oak Riparian Forest	7	141	2,045	2,194	<1	6	216	222	0%	4%	11%	10%
Riparian Forest	21	243	84	348	9	-	12	21	43%	-	14%	6%
Riparian Woodland	6	8	6	20	-	-	4	4	0%	-	67%	20%
Riparian Scrub	38	424	298	760	17	3	1	21	45%	1%	0%	3%
Oak Woodland	21	284	1,901	2,206	1	49	542	592	5%	17%	29%	27%
Tecate Cypress Forest	0	5,589	0	5,589	-	160	-	160	-	3%	-	3%
Eucalyptus Woodland	61	17	41	120	6	<1	5	11	10%	0%	12%	9%
Open Water	19	6	124	149	4	-	2	6	21%	-	2%	4%
Disturbed Wetland	4	34	52	90	1	-	-	1	25%	-	-	1%
Flood Channel	15	132	197	344	3	-	-	3	20%	-	-	1%
Other Habitat	16	2	0	18	39	24	273	335	>100%	>100%	>100%	>100%

NOTES: Contributions to City of Chula Vista and City of San Diego MSCP Subarea Plan segment goals are not provided. For this reason, the sum of the segments does not equal the County Preserve acreage. Habitat protection goals are from MSCP Subarea Plan Table 1-2, *Habitat Protection Goals for the San Diego County Subarea*. SOURCE: County, LUEG-GIS.

TABLE 12. HABITAT CONSERVATION GOALS ACHIEVED IN COUNTY PRESERVES FOR METRO-LAKESIDE-JAMUL SEGMENT

Vegetation Community	Metro-Lakeside-Jamul Goals (acres)		Conserved in County Preserves within MSCP Subarea Plan Area (acres)		Contribution to Goals (%)	
	North	South	North	South	North	South
Coastal Sage Scrub	9,525	9,101	2,085	717	22%	8%
Maritime Succulent Scrub	-	-	-	-	-	-
Chaparral	12,134	6,285	6,775	498	56%	8%
Southern Maritime Chaparral	-	-	-	-	-	-
Coastal Sage Scrub/Chaparral	454	698	136	17	30%	2%
Grassland	633	971	422	23	67%	2%
Freshwater Marsh	2	13	<1	-	5%	
Oak Riparian Forest	1,121	923	137	79	12%	9%
Riparian Forest	51	33	2	10	4%	30%
Riparian Woodland	6	-	4	-	67%	
Riparian Scrub	236	63	1	<1	0%	0%
Oak Woodland	1,036	862	533	10	51%	1%
Tecate Cypress Forest	-	-	-	-	-	-
Eucalyptus Woodland	27	14	<1	5	2%	36%
Open Water	90	34	2	-	2%	-
Disturbed Wetland	-	52	-	-	-	-
Flood Channel	34	163	-	-	-	-
Other Habitat	-	-	234	39	-	-
Total	25,353	19,411	10,332	1,399	41%	7%

NOTES: Metro-Lakeside-Jamul Goals are from MSCP Subarea Plan Table 4-2.

SOURCE: County, LUEG-GIS.



Northern harrier, an MSCP Covered Species, can be found at Tijuana River Valley Regional Park.

5.5 Species-Level Conservation

A species-level conservation analysis was conducted to determine the County's contribution to MSCP Subarea Plan Objective 6, *“Provide for the conservation of key regional populations of the covered species, and representation of sensitive habitats and their geographic subassociations in biologically functioning units”* and Objective 7 *“Conserve large interconnected blocks of habitat that contribute to the preservation of wide-ranging species such as mule deer, golden eagle, and predators as appropriate. Special emphasis will be placed on conserving adequate foraging habitat near golden eagle nesting sites.”* The results presented in this section are the preliminary results of a Preserve Functionality Assessment. Final results of the first phase of the *Preserve Functionality Assessment* are anticipated to be presented in the 2023 MSCP Annual Report.

To complete this analysis, MSCP covered species occurrence data for occurrences documented from 1998 to 2020 was consolidated. GIS data sources were SanBIOS, California Natural Diversity Database, SDMMMP's MSP Species Master Occurrence Matrix databases, USFWS Regss locations of sensitive species sightings database, and USFWS sensitive species (polygons). The County Preserves layer was overlaid with this data to determine MSCP covered species within the County Preserves. RMPs and baseline reports for County Preserves were reviewed for additional MSCP covered species that may have been missing from the GIS data. If GIS data or document review indicated an MSCP covered species was present in a County Preserve, it was determined to be documented in a County Preserve. The results were provided by MSCP covered species and by County Preserve and are summarized in **Appendix J**.

The County Preserves have documented occurrences for 47 MSCP covered species, including 25 MSCP covered plant, two MSCP covered invertebrate, two MSCP covered reptile, 16 MSCP covered bird, and two MSCP covered mammal species. Of the 30 County Preserves evaluated, 23 have documented MSCP covered species. The MSCP covered species found on County Preserves, as well as their general conservation status, can be found in **Appendix O**.

Some MSCP covered species are widespread across the County Preserves and occurrences are protected in several different locations. This allows for the protection of key regional populations in different geographical areas, supporting MSCP Subarea Plan Objective 6, *“Provide for the conservation of key regional populations of the covered species, and representation of sensitive habitats and their geographic subassociations in biologically functioning units.”* The most widespread MSCP covered plant species are the coast barrel cactus and San Diego goldenstar (each documented in five County Preserves) and variegated dudleya (documented in six County Preserves). Blainville’s horned lizard is documented in 16 County Preserves and Belding’s orange-throated whiptail is documented in 15 County Preserves. The most widespread bird species are the southern California rufous-crowned sparrow (documented in 16 County Preserves), coastal California gnatcatcher (documented in 15 County Preserves), and Cooper’s hawk, (documented in 13 County Preserves). The most widespread mammal is southern mule deer, documented in 14 County Preserves.

Other MSCP covered species are documented only in a single County Preserve. This includes Del Mar manzanita in Lusardi Creek Preserve, heart-leaf pitcher sage in Iron Mountain Preserve, Otay manzanita in Otay Ranch Preserve, Otay mesa mint in Otay Ranch Preserve, San Diego thornmint in Sycamore Canyon and Goodan Ranch Preserve, ferruginous hawk and white-faced ibis in Del Dios Highlands Preserve, and Swainson’s hawk in Barnett Ranch Preserve.

County Preserves conserve large, interconnected blocks of habitat that contribute to the preservation of wide-ranging species such as mountain lion, southern mule deer, and golden eagle. Mountain lions are documented in six County Preserves (Barnett Ranch Preserve, Boulder Oaks Preserve, Del Dios Highlands Preserve, El Capitan Preserve, Otay Ranch Preserve, and Sycamore Canyon and Goodan Ranch Preserve). Southern mule deer are documented in 14 County Preserves (Barnett Ranch Preserve, Boulder Oaks Preserve, Del Dios Highlands Preserve, El Capitan Preserve, El Monte Park, Lakeside Linkage Preserve, Lawrence and Barbara Daley Preserve, Louis A. Stelzer Preserve, Lusardi Creek Preserve, Oakoasis Preserve, Otay Ranch Preserve, Ramona Grasslands Preserve, Stoneridge Preserve, and Sycamore Canyon and Goodan Ranch Preserve). Golden eagles are documented in six County Preserves (Barnett Ranch Preserve, Del Dios Highlands Preserve, El Capitan Preserve, Otay Ranch Preserve, Ramona Grasslands Preserve, and Sycamore Canyon and Goodan Ranch Preserve). Conservation of habitat for these species contributes to MSCP Subarea Plan Objective 7, *“Conserve large, interconnected blocks of habitat that contribute to the preservation of wide-ranging species such as mule deer, golden eagle, and predators as appropriate. Special emphasis will be placed on conserving adequate foraging habitat near golden eagle nesting sites.”*

CHAPTER 6

Preserve Management



Invasive, non-native plant management to benefit MSCP covered species and habitats at Lusardi Creek Preserve.

Preserve management within the MSCP Subarea is an important element of the MSCP Preserve success and the overall success of the MSCP Subarea Plan. The overall management goal of the MSCP Subarea Plan is to ensure that the biological value and function of natural resources are maintained or improved over time, where land is preserved as part of the MSCP through acquisition, regulation (the discretionary permit process), mitigation or other means. In conformance with IA Section 10.9, *Preserve Management*, and Section 10.10, *Preserve Management Program*, the County is responsible for managing the land it owns or acquires as well as ensuring that other private mitigation lands dedicated to the County within the MSCP Preserve are managed consistent with the MSCP Subarea Plan. This chapter summarizes the stewardship activities in County Preserves and private mitigation areas.

6.1 County Resource Management Plan

The County has a coordinated stewardship, monitoring, and adaptive management program to ensure proper management and protection of sensitive species and habitat on County

Preserves. The RMPs provide a framework for long-term stewardship/management and monitoring actions required to protect biological resources on County Preserves. RMPs document biological and cultural resources on-site and provide guidance on management and preservation of the resources within County Preserves in accordance with Management Directives (MDs) pursuant to the requirements of the MSCP Subarea Plan Framework Management Plan (County 2001) and Table 3-5 of the MSCP Plan. To develop County Preserve-specific RMPs, the County conducts baseline inventory surveys that document the biological and cultural resources on the property. The County prepares RMPs for County Preserves larger than 300 acres or under 300 acres for County Preserves with unique habitat or species values. Their preparation is prioritized annually across all three MSCP Plan areas. The County has prepared or is in the process of preparing 20 RMPs in the MSCP Subarea Plan Area. RMPs are updated as needed, such as when additional baseline inventory surveys are completed or there are additions to existing County Preserves. Land stewardship/management actions are generally implemented by ranger staff. RMP updates are in progress for Barnett Ranch, Boulder Oaks, Lusardi Creek, and Ramona Grasslands Preserves, and Tijuana River Valley Regional Park, all of which are located within the MSCP Subarea Plan boundaries. Management completed in the reporting year is summarized in Section 6.2 and **Appendix K**.

The County also conducts targeted monitoring on County Preserves to ensure species are thriving, to identify threats and stressors, and to identify appropriate adaptive management activities to further support biological and cultural resources. The monitoring is guided by the County's TMP. The TMP ensures consistency with the preserve-specific RMPs. RMPs include a framework for general stewardship management activities (including public access) and are incorporated into the TMP by reference. The TMP is an adaptive implementation plan that includes focused goals and objectives for target MSCP covered species and habitats and detailed monitoring protocols. As part of the County's monitoring program, baseline inventory surveys are conducted on newly acquired properties that are part of the County Preserve. The baseline inventory surveys are used to identify the appropriate monitoring for each property, consistent with the TMP. The TMP and monitoring results are provided in Chapter 7, *Preserve Monitoring and Research*. Adaptive management actions informed by TMP monitoring are included in Section 6.2, Preserve Management of County Lands.

Baseline inventory surveys were completed for Skyline and Peutz Valley Preserves in 2022. Baseline inventory surveys were completed in 2021 for Iron Mountain, and additions to Lakeside Linkage, Ramona Grasslands, and Sycamore Canyon and Goodan Ranch Preserves. **Table 13, Resource Management Plans for County Preserves**, has been updated to reflect completion of these baseline surveys.

TABLE 133. RESOURCE MANAGEMENT PLANS FOR COUNTY PRESERVES

County Preserve	Baseline Inventory Surveys Completed	RMP Completed
1. Barnett Ranch Preserve	2001-2003, 2018	2004
Holly Oaks Preserve^a	2018	
Luelf Pond Preserve^a	2018	
2. Boulder Oaks Preserve	2007, 2013	2008
3. Del Dios Highlands Preserve^b	2008-2011	2011

County Preserve	Baseline Inventory Surveys Completed	RMP Completed
4. Dictionary Hill Preserve	2020	
5. El Capitan Preserve	2008	2009
6. El Monte Park	2008	2009
7. Furby-North Property	2011	2012
8. Iron Mountain Preserve	2021	
9. Lakeside Linkage Preserve	2008, 2021	2010
10. Lawrence and Barbara Daley Preserve	2009-2010	2011
11. Lusardi Creek Preserve	2008, 2018	2009
12. Otay Ranch Preserve	1989-1991	2002/2018
13. Oakoasis Preserve	2008	2009
14. Peutz Valley Preserve	2022	
15. Ramona Grasslands Preserve ^b	2009, 2021	2013
16. Louis A. Stelzer Park	2008	2009
17. Skyline Preserve	2022	
18. Stoneridge Preserve	2012	2013
19. Sycamore Canyon and Goodan Ranch Preserve	2008, 2012, 2016, 2019, 2021	2013
20. Tijuana River Valley Regional Park	2018	2007

NOTES:

a Barnett Ranch, Holly Oaks, and Luelf Pond Preserves will be managed under a single RMP as Holly Oaks and Luelf Pond Preserves are part of Barnett Ranch Preserve.

b Ramona Grasslands and Del Dios Highlands Preserves span the MSCP Subarea Plan Area and draft North County MSCP Plan Area. They are included here because they are managed as a single unit.

SOURCE: County of San Diego Department of Parks and Recreation.

6.2 Preserve Management of County Preserves

Preserve management benefits the 48 MSCP covered species found across County Preserves. Stewardship and adaptive management activities performed in 2022 on County Preserves guided by TMP, annual work plans, and RMPs are described below and summarized in **Appendix K**. For each park or preserve, its size (first in Assessor's acreage and then in GIS acreage), and MSCP segment are provided. Assessor's and GIS acreages are both reported as the County acquires all real estate transactions in Assessor's acreage, while HabiTrak, the tracking database used to track MSCP Preserve assemblage, only utilizes GIS acreage. The two acreages can differentiate as Assessor's records of the legal acreage of parcels are plotted on paper and then converted into GIS. For these reasons, acreage in the following section will be reported as Assessor's acreage and GIS acreage for each park or preserve.

All parks and preserves discussed in this section are located with the MSCP Subarea Plan Area or are located in a partnering MSCP Subarea Plan Area and are counted towards the County's

MSCP Preserve assemblage. All County Preserves that are owned or managed by DPR within the MSCP Subarea Plan are discussed in the following section of the report to record the management actions implemented to ensure that the preserve lands within the MSCP Subarea Plan are successfully managed and the MSCP habitats and covered species thrive. It will be noted if a property is not counted towards the MSCP Preserve. County Preserves spanning multiple MSCP Plan areas or ownerships are acknowledged. MSCP covered species, other sensitive species, and habitats benefited by preserve management activities are identified. The following categories are used to link management actions to TMPs, annual work plans, and RMPs.

- **Habitat restoration and management actions** are habitat or species-specific. These actions are guided by the documents outlining adaptive management strategies such as the preserve-specific RMPs and annual work plans as well as by survey information resulting from the implementation of the TMP, baseline surveys, research partner surveys, and other environmental surveys performed on County Preserves. As a standard management practice, dead or dying trees in the County Preserves are replaced with habitat appropriate native tree species that include coast live oak, Engelmann oak, sycamore, cottonwood, and arroyo willow, among other species. Replacement of dead or dying trees benefits MSCP covered species by providing habitat for nesting birds and cover for foraging amphibians. Cause of death of the trees on County Preserves is most commonly attributed to drought conditions, old age or disease. Native shrub species commonly used in restoration projects include native cacti, lemonade berry, laurel sumac, monkey flower, and Mexican elderberry. However, specific tree and shrub species will not be listed for every County Preserve in this section.
- **Invasive, non-native plant and animal control** implements *MD A.3. Reduce, control, or where feasible eradicate invasive, non-native fauna known to be detrimental to native species and/or the local ecosystem*, *MD B.2. Reduce, control, or eradicate non-native flora known to be detrimental to native species and local ecosystem*, and *B.3. Manage and minimize the expansion of invasive, non-native flora within the Preserve*, and corresponding sub-directives. Invasive, non-native plant species treatment and removal is also conducted on County Preserves and the targeted plant species may not be specified but would most likely include mustard and non-native annual grasses, among other species.
- **Access control** implements *MD C.1. Limit types of public uses to those appropriate for the Preserve*, *C.2. Manage public access in sensitive biological and cultural resource areas within the Preserve*, *C.5. Install and maintain fencing and gates within the Preserve*, *C.6. Properly maintain access roads, staging areas and trails for user safety, to protect natural and cultural resources, and to provide high-quality user experiences*, *C.7. Install, and maintain appropriate signage to effectively communicate important information to Preserve visitors*, *D.1. Maintain a safe and healthy environment for Preserve users*, and *D.2. Publicize and enforce regulations regarding littering/dumping, and corresponding sub-directives*. The mission of the County is to enhance the quality of life in San Diego County by providing exceptional parks and recreation experiences and preserving significant natural resources. Activities that address unauthorized access or implement access control measures to protect sensitive resources are described under this heading.

- **Fire management** implements MD B.4. *Provide for fire management activities that are sensitive to natural and cultural resources* and corresponding sub-directives.
- **Environmental education** implements MD C.3. *Provide interpretive and educational materials* and corresponding sub-directives.



Tree Planting Event at Barnett Ranch Preserve

Barnett Ranch Preserve

Preserve Total Acreage: 708 Assessor's acres, 745 GIS acres

MSCP Subarea Plan: 690 Assessor's acres, 668 GIS acres

Segment: Metro-Lakeside-Jamul

Draft North County MSCP: 18 Assessor's acres, 77 GIS acres

Management benefits the ten MSCP covered species known to occur on or utilizing the Preserve, which are Belding's orange-throated whiptail, Blainville's horned lizard, Cooper's hawk, tricolored blackbird, golden eagle, southern California rufous-crowned sparrow, Swainson's hawk, western bluebird, southern mule deer, and mountain lion. Management actions included the following.

- **Habitat restoration and management.** Native tree and shrub planting remains a top priority at the Preserve. A total of 25 coast live oaks, 25 Engelmann oaks, and two cottonwood trees were planted by County Park Rangers. Several native plant shrub species were also planted, including ten toyon, California broom, and white sage plants.

Maintenance included trucking in water to establish the new plants at each restoration site.

- **Invasive, non-native plant control.** Invasive, non-native plant removal efforts included hand-pulling, string trimmers, and herbicide across six acres. Target species included goats head, Russian thistle, mustard, and milk thistle.
- **Access control.** County Park Rangers repaired five interpretive signs and installed one new sign to prevent unauthorized trail use. One solar gate was also repaired. Daily patrols to stop trash dumping and littering within the staging area continued. County Park Rangers have also continued to educate visitors in order to prevent off-trail activity.
- **Fire management.** County Park Rangers maintained an existing three-acre firebreak, close to residential property, using mowers and string trimmers along Deviney Road.
- **Environmental education.** County Park Rangers hosted-discovery tables, bike rides, docent tours, and a public tree planting event. In total these events attracted 103 visitors.



County Staff Hosted Multiple Discovery Booths at Barnett Ranch Preserve.

Boulder Oaks Preserve

Preserve Total Acreage: 1,964 Assessor's acres, 2,022 GIS acres

MSCP Subarea Plan: 1,964 Assessor's acres, 2,022 GIS acres

Segment: Metro-Lakeside-Jamul

Management benefits the 12 MSCP covered species known to occur on the Preserve, which are felt-leaved monardella, Lakeside ceanothus, Orcutt's brodiaea, San Miguel savory, Blainville's horned lizard, Belding's orange-throated whiptail, coastal California gnatcatcher, Cooper's hawk, southern California rufous-crowned sparrow, western bluebird, mountain lion, and southern mule deer. Management actions included the following.

- **Habitat restoration and management.** County Park Rangers planted 25 coast live oak trees and 40 Engelmann oak trees. Three dead trees were removed from the Preserve.
- **Invasive, non-native plant control.** Invasive, non-native plant species removal efforts included hand-pulling and intermittent herbicide application across 15 acres. Target species included black mustard, dyer's rocket, and milk thistle. This threat abatement allows for higher-quality habitats in the Preserve for all the MSCP covered species.
- **Access control.** Six new no trespassing signs were installed to prevent unauthorized access. Approximately 100 feet of ranch fencing was repaired, and one new gate was installed. Game cameras were installed throughout the Preserve to monitor wildlife and unauthorized access. These cameras are monitored on a regular basis and County Park Rangers have addressed trespassers and achieved compliance through education.
- **Fire management.** County Park Rangers maintained existing firebreak along the entry road and on-site structures.
- **Environmental education.** The Preserve was closed to the public.

Damon Lane Park

Park Total Acreage: 29 Assessor's acres, 29 GIS acres

MSCP Subarea Plan: 29 acres

Segment: Metro-Lakeside-Jamul

Management benefits the MSCP habitat known to occur on the Park, which are coastal sage scrub, grasslands, and riparian forest. Management actions include the following.

- **Habitat restoration and management.** County Park Rangers planted five Torrey pines, removed 25 eucalyptus trees that were potentially hazardous to the Park's neighbors, and removed one dead king palm.
- **Invasive, non-native plant control.** Invasive, non-native plant species removal efforts included hand-pulling and cutting across one acre. Target species included castor bean and fan palms.
- **Access control.** Three new signs restricting off-road vehicles and off-leash dogs were installed.

- **Fire management.** County Park Rangers maintained an existing firebreak via mowing and string trimmers. The areas maintained were in the northeast and southwest corners of the Park. The firebreak is adjacent to neighboring habitable structures located within 100 feet of the Park's boundaries.

Del Dios Highlands Preserve

Preserve Total Acreage: 774 Assessor's acres, 782 GIS acres

MSCP Subarea Plan: 269 Assessor's acres, 269 GIS acres

Segment: Metro-Lakeside-Jamul

Draft North County MSCP: 505 Assessor's acres, 513 GIS acres

Management benefits the 15 MSCP covered species known to occur on or utilizing the Preserve, which are Encinitas baccharis, wart-stemmed ceanothus, Belding's orange-throated whiptail, Blainville's horned lizard, coastal California gnatcatcher, Cooper's hawk, golden eagle, northern harrier, peregrine falcon, southern California rufous-crowned sparrow, ferruginous hawk, white-faced ibis, western bluebird, mountain lion, and southern mule deer. Management actions included the following.

- **Habitat restoration and management.** County Park Rangers planted three palo verde trees in 2022.
- **Invasive, non-native plant control.** Invasive, non-native plant species removal efforts included chainsaws, string trimmers and hand-pulling across one acre. Target species included tree tobacco, ox tongue, black mustard, and castor bean.
- **Access control.** County Park Rangers installed six new signs to prevent unauthorized access, off-road vehicles, littering, and off-leash dogs. County Park Rangers also repaired one fence near the Preserve entrance.
- **Fire management.** County Park Rangers maintained an existing firebreak along San Diego Gas and Electric power pole trail using string trimmers and hedgers.
- **Environmental education.** A bike tour led by the San Diego Mountain Bike Association was attended by 150 visitors at the Preserve.

Dictionary Hill Preserve

Preserve Total Acreage: 180 Assessor's acres, 177 GIS acres

MSCP Subarea Plan: 180 Assessor's acres, 177 GIS acres

Segment: Metro-Lakeside-Jamul

Management benefits the eight MSCP covered species known to occur on the Preserve, which are San Diego barrel cactus, San Diego goldenstar, variegated dudleya, Blainville's horned lizard, Belding's orange-throated whiptail, coastal California gnatcatcher, Cooper's hawk, and southern California rufous-crowned sparrow. Management actions included the following.

- **Habitat restoration and management.** County Park Rangers planted two coast live oaks and removed 12 eucalyptus trees that were potentially hazardous. California coastal gnatcatcher, Quino checkerspot and monarch butterfly habitat restoration

commenced in 2021 with the start of a WCB Proposition 68 grant funded project. This project will last three years and will help restore and enhance four acres of habitat on the Preserve. More information regarding this project can be found in *Section 6.3 Grant Funded Management Projects*.

- **Invasive, non-native plant control.** Invasive, non-native plant species control methods included the use of string trimmers and hand tools to treat approximately six acres. Target species included black mustard and thistle.
- **Access control.** County Park Rangers installed four new signs to prevent unauthorized access, off-road vehicles, littering, and off-leash dogs. County Park Rangers also installed large boulders at multiple trailheads to block unauthorized vehicles.
- **Fire management.** County Park Rangers performed maintenance of the existing firebreak using string trimmers. The firebreak is located where neighboring habitable structures are located within 100 feet of the Preserve's boundaries.
- **Environmental education.** Multiple hikes, led by a County Park Ranger, were attended by a total of 56 visitors who learned about the native plant and animal species that can be found on the Preserve.

Dos Picos Park

Management actions included the following.

- **Habitat restoration and management.** County Park Rangers planted 57 coast live oak trees in 2022. County Park Rangers removed 15 coast live oak, two Engelmann oak, and three sycamore trees that were either dead or damaged during a storm and potentially hazardous to the Preserve's visitors.
- **Invasive, non-native plant control.** Invasive, non-native plant species treatment and removal efforts included the use of string trimmers, mowing, and hand-pulling application across approximately 12 acres. Non-native mustard and thistle were the targeted species.
- **Access control.** County Park Rangers have continued to educate visitors in order to prevent off-trail activity, wildfires, and to protect wildlife within the Park. County Park Rangers addressed the presence of unleashed pets via increased patrols and continued efforts to educate the public on County policies.
- **Fire management.** County Park Rangers maintained a firebreak along the Park's eastern service road using string trimmers and mowers.
- **Environmental education.** County Park Rangers held multiple educational activities, including animal showing/presentations and guided hikes to approximately 1,100 Park visitors.



Dos Picos Park Staff Held Educational Snake Presentation at Ramona Library.

El Capitan Preserve

Preserve Total Acreage: 2,759 Assessor's acres, 2,324 GIS acres

MSCP Subarea Plan: 2,759 Assessor's acres, 2,324 GIS acres

Segment: Metro-Lakeside-Jamul

Management benefits the 11 MSCP covered species known to occur on the Preserve, which are felt-leaved monardella, Lakeside ceanothus, Belding's orange-throated whiptail, Blainville's horned lizard, Cooper's hawk, golden eagle, southern California rufous-crowned sparrow, coastal cactus wren, western bluebird, mountain lion, and southern mule deer. Management actions included the following.

- **Habitat restoration and management.** Erosion control measures continued along approximately six miles of the El Capitan Preserve Trail. Erosion and sediment control traps were cleaned out to ensure they were functioning at maximum efficiency and protecting surrounding habitat.
- **Access control.** County Park Rangers have continued to educate visitors to prevent off-trail activity and littering. Thirty laminated paper signs were posted to discourage littering and approximately 20 feet of concrete wall was restored to prevent unauthorized entry. Approximately six miles of trail maintenance was performed by County Park staff.
- **Fire management.** County Park Rangers maintained approximately four miles of existing firebreak using string trimmers and mowers.
- **Environmental education.** County Park Rangers guided “Warrior Hikes” held on Memorial Day and Veteran’s Day. A total of 427 Park visitors attended. During busy days, County Park Rangers increased their presence to increase outreach efforts to help educate visitors about how to properly prepare for the Preserve’s difficult trails and maximize their hiking experience.

El Monte Park

Park Total Acreage: 120 Assessor’s acres, 117 GIS acres
MSCP Subarea Plan: 120 Assessor’s acres, 117 GIS acres
Segment: Metro-Lakeside-Jamul

Management benefits the three MSCP covered species known to occur on the Preserve, which are southern California rufous-crowned sparrow, western bluebird, and southern mule deer. Management actions included the following.

- **Habitat restoration and management.** County Park Rangers planted 110 trees, including coast live oak, sycamore, cottonwood, white alder, and palo verde. Two dead coast live oak trees that posed a risk to public safety were removed from the Park. County Park Rangers also planted 45 shrubs, including toyon, lemonade berry, and laurel sumac.
- **Invasive, non-native plant control.** Invasive, non-native plant species removal efforts included hand-pulling and herbicide application, and chainsaw use across approximately eight acres. Target species included tree tobacco, goats head, and tamarisk.
- **Access control.** Five new informational signs were installed. One new metal gate and two wooden fences were installed in the Park. Additional patrols were established within the Park to prevent the use of unauthorized trails.
- **Fire management.** County Park Rangers maintained a firebreak on the south side of the Park and around facility structures.
- **Environmental education.** County Park Rangers held a variety of interpretive programs, including Hawk Talks, native plant talks, and early morning birding for more than 1,500 Park visitors.

Flinn Springs Park

Park Total Acreage: 80 Assessor's acres, 73 GIS acres

MSCP Subarea Plan: 80 Assessor's acres, 73 GIS acres

Segment: Metro-Lakeside-Jamul

Management benefits the MSCP covered habitats known to occur on the Park, which are chaparral, coastal sage scrub/chaparral, and oak riparian forest. Management actions included the following.

- **Habitat restoration and management.** County Park Rangers planted 375 trees, including Engelmann oak, coast live oak, arroyo willow, and cottonwood. One dead coast live oak was removed. County Park Rangers also planted 100 native shrubs, including toyon, milkweed, sugar bush, and lemonade berry.
- **Invasive, non-native plant control.** Invasive, non-native plant species control efforts included hand-pulling, digging, string trimmers, and herbicide application for Mexican fan palm, castor bean, giant reed, and mustard species across the Park. The Park is adjacent to Crestridge Ecological Preserve, owned by CDFW, so treatment of invasive, non-native plant species on the Park benefitted movement of animals through both properties, as well as benefitting native plant species. Targeted species included papyrus, Mexican fan palm, castor bean, and giant reed.
- **Access control.** Ten new interpretive signs were installed at the Park's pollinator garden. Two new lodgepole fences were also installed. Erosion control measures were implemented on authorized trails and surrounding hillsides to minimize erosion potential and protect surrounding native habitat. County Park Rangers also cleaned up trash from homeless encampments.
- **Fire management.** County Park Rangers maintained an existing firebreak along the western and southern boundary of the Park using string trimmers.
- **Environmental education.** County Park Rangers held multiple educational outreach events, including nature hikes, as well as nature interpretation/tree planting. Approximately 900 Park visitors participated in these events. New partnerships with afterschool programs in underserved communities of San Diego County have been successful. In addition, I Love A Clean San Diego hosted a watershed cleanup event in the Park, which removed 800 pounds of trash from Los Coches Creek.

Furby-North Property

Property Total Acreage: 83 Assessor's acres, 79 GIS acres

City of San Diego MHPA: 83 Assessor's acres, 79 GIS acres

Management benefits the ten MSCP covered species known to occur on the Property, which are coast (San Diego barrel) cactus, Otay tarplant, snake cholla, Belding's orange-throated whiptail, Blainville's horned lizard, coastal cactus wren, coastal California gnatcatcher, least Bell's vireo, northern harrier, and southern California rufous-crowned sparrow. Management actions included the following.

- **Access control.** County Park Rangers patrolled monthly, added five new interpretive signs, and repaired 20 feet of fencing. County Park Rangers also installed three signs restricting illegal trash dumping and placed rocks at entry points to prevent off-road activity.
- **Fire management.** County Park Rangers maintained an existing firebreak using string trimmers.

Holly Oaks Preserve

Preserve Total Acreage: 40 Assessor's acres, 42 GIS acres

MSCP Subarea Plan: 40 Assessor's acres, 42 GIS acres

Segment: Metro-Lakeside-Jamul

Management benefits the four MSCP covered species known to occur in the Park, which are Cooper's hawk, Swainson's hawk, tricolored blackbird, and western bluebird. Management actions included the following.

- **Habitat restoration and management.** County Park Rangers planted five new cedar trees in the Preserve.
- **Invasive, non-native plant control.** Invasive, non-native plant species control efforts included hand-pulling across approximately seven acres. Target species included black mustard and goat-head.
- **Access control.** Approximately 100 feet of three rail ranch fences were repaired to ensure that Preserve visitors remained on the authorized trail. Unleashed dogs were a recurring issue in the Preserve. County Park Rangers contacted individuals and gained voluntary compliance in addition to installing signage as a deterrence for dogs off-leash.
- **Fire management.** County Park Rangers maintained an existing firebreak along the access roads and staging area.

Iron Mountain Preserve

Preserve Total Acreage: 160 Assessor's acres, 162 GIS acres

MSCP Subarea Plan: 160 Assessor's acres, 162 GIS acres

Segment: Metro-Lakeside-Jamul

Management benefits the seven MSCP covered species known to occur on the Preserve, which are heart-leaf pitcher sage, Belding's orange-throated whiptail, Blainville's horned lizard, Cooper's hawk, southern California rufous-crowned sparrow, mountain lion, and southern mule deer. MSCP covered habitats known to occur in the Preserve, which include chaparral, also benefit from management. Management actions included the following.

- **Invasive, non-native plant control.** Invasive, non-native plant species control efforts included hand-pulling and herbicide application for black mustard.
- **Access control.** Park Rangers patrolled and did not observe any signs of unauthorized access or activities.

Lakeside Linkage Preserve

Preserve Total Acreage: 210 Assessor's acres, 209 GIS acres

MSCP Subarea Plan: 210 Assessor's acres, GIS acres

Segment: Metro-Lakeside-Jamul

Management benefits the eight MSCP covered species known to occur on the Preserve, which are Belding's orange-throated whiptail, Blainville's horned lizard, coastal cactus wren, coastal California gnatcatcher, Cooper's hawk, southern California rufous-crowned sparrow, western bluebird, and southern mule deer. Other species and habitats targeted by management actions are Hermes copper butterfly and Diegan coastal sage scrub. Management actions included the following.

- **Habitat restoration and management.** The *Lakeside Linkage Preserve Cactus Wren and Hermes Copper Butterfly Habitat Restoration* project, implemented in 2019, continued in 2022 with implementation activities to restore and enhance two acres of coastal cactus wren habitat and two acres of Hermes copper butterfly habitat. The project is funded by a WCB 2019 Proposition 68 grant. In 2021, maintenance activities of the project included invasive, non-native plant species control efforts to ensure invasive non-native plant cover across the properties was 10% or lower. The project ended in March 2022 and cover by invasive non-native plants within the Preserve was substantially reduced compared to pre-enhancement site conditions, from approximately 40 percent to less than five percent. Target invasive annual cover is less than five percent and target invasive perennial cover is zero percent. Natural recruitment of species, particularly California sagebrush and California buckwheat, was observed in 2022. More information regarding this project can be found in *Section 6.3 Grant Funded Management Projects*.
- **Invasive, non-native plant control.** Invasive, non-native plant species removal efforts included hand-pulling, mowing, and weed whip usage across approximately 21 acres across the entire preserve. Target species included short-pod mustard.
- **Access control.** County Park Rangers installed two new restriction signs to prevent unauthorized vehicle activity. Signs were placed where entry was seen during patrols of the preserve.
- **Fire management.** County Park Rangers maintained existing firebreaks within the Preserve. The firebreaks are located where neighboring habitable structures are located within 100 feet of the Preserve's boundaries.

Lawrence and Barbara Daley Preserve

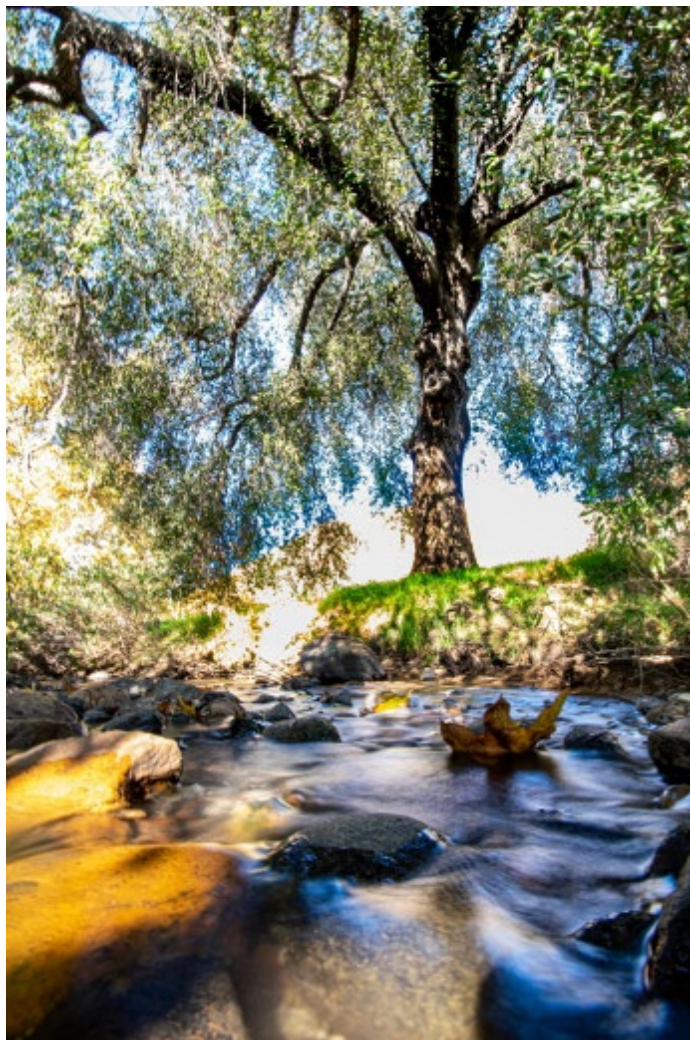
Preserve Total Acreage: 604 Assessor's acres, 581 GIS acres

MSCP Subarea Plan: 604 Assessor's acres, 581 GIS acres

Segment: Metro-Lakeside-Jamul

Management benefits the eight MSCP covered species known to occur on the Preserve, which are Palmer's goldenbush, Blainville's horned lizard, Belding's orange-throated whiptail, Cooper's hawk northern harrier, southern California rufous-crowned sparrow, western bluebird, and southern mule deer. Additional species and habitats benefited are nesting habitat for great horned owl. Management actions included the following.

- **Access control.** County Park Rangers installed signage and patrolled the Preserve to prevent littering and minimize unauthorized access. County Park Rangers also cleaned up trash from homeless encampments.
- **Fire management.** County Park Rangers maintained an existing firebreak along the perimeter.



Dulzura Creek within Lawrence and Barbara Daley Preserve.

Los Peñasquitos Canyon Preserve

Preserve Total Acreage: 277 Assessor's acres, 266 GIS acres
City of San Diego MHPA: 277 Assessor's acres, 266 GIS acres

Management benefits the four MSCP covered species known to occur on the Preserve, which are San Diego goldenstar, Orcutt's brodiaea, San Diego button-celery, and least Bell's vireo. Management actions included the following.

- **Habitat restoration and management.** County Park Rangers planted 145 trees, including coast live and Engelmann oak, California sycamore, and cottonwood. Native shrub species were also planted, including San Diego sunflower, California sagebrush, white sage, lemonade berry, broom baccharis, and toyon. County Park Rangers removed one dead tree that was potentially hazardous to Preserve visitors.
- **Invasive, non-native plant control.** Invasive, non-native plant species removal efforts included mowers and hand tools across approximately 31 acres. Target species included black mustard, common fennel, Russian thistle, and stinkwort.
- **Access control.** County Park Rangers installed two new memorial signs and repaired one split rail fence. County Park Rangers also continued to patrol the Preserve to prevent littering and minimize unauthorized access to Los Peñasquitos Creek.
- **Fire management.** County Park Rangers maintained an existing firebreak on the south rim of the canyon.
- **Environmental education.** One Discovery Program event was held at the Preserve with 568 attendees.

Louis A. Stelzer Park

Park Total Acreage: 373 Assessor's acres, 368 GIS acres
MSCP Subarea Plan: 373 Assessor's acres, 368 GIS acres
Segment: Metro-Lakeside-Jamul

Management benefits the eight MSCP covered species known to occur on the Park, which are Lakeside ceanothus, San Diego goldenstar, Belding's orange-throated whiptail, Blainville's horned lizard, northern harrier, southern California rufous-crowned sparrow, coastal California gnatcatcher, and southern mule deer. Management actions included the following.

- **Habitat restoration and management.** County Park Rangers planted 200 trees, including coast live and Engelmann oaks. County Park Rangers removed 15 dead trees that were potentially hazardous to Preserve visitors.
- **Invasive, non-native plant control.** Invasive, non-native plant species removal efforts included hand-pulling, intermittent herbicide usage, and string trimmers across approximately four acres. Target species included poison oak and black mustard.

- **Access control.** County Park Rangers increased patrols to deter vandalism and illegal dumping. In addition, County Park Rangers installed eight new signs to prevent illegal trash dumping.
- **Fire management.** County Park Rangers maintained an existing firebreak along the Park's perimeter.
- **Environmental education.** One Discovery Program hike was held at the Park with 180 attendees.

Luelf Pond Preserve

Preserve Total Acreage: 87 Assessor's acres, 87 GIS acres

MSCP Subarea Plan: 87 Assessor's acres, 87 GIS acres

Segment: Metro-Lakeside-Jamul

Management benefits the six MSCP covered species known to occur on or utilizing the Preserve, which are Blainville's horned lizard, Cooper's hawk, golden eagle, western bluebird, southern mule deer, and mountain lion. Management actions included the following.

- **Invasive, non-native plant control.** Invasive, non-native plant species removal efforts included shoveling, hand-pulling, and using string trimmers across approximately one acre. Target species included tree tobacco and black mustard.
- **Fire management.** County Park Rangers maintained an existing firebreak along Duck Pond Lane.



Maintained Trail in Luelf Pond Preserve.

Lusardi Creek Preserve

Preserve Total Acreage: 224 Assessor's acres, 226 GIS acres

MSCP Subarea Plan: 224 Assessor's acres, 226 GIS acres

Segment: Lake Hodges

Management benefits the 11 MSCP covered species known to occur on the Preserve, which are coast barrel cactus, Del Mar manzanita, variegated dudleya, Belding's orange-throated whiptail, Blainville's horned lizard, coastal California gnatcatcher, Cooper's hawk, least Bell's vireo, northern harrier, southern California rufous-crowned sparrow, and southern mule deer. Management actions included the following.

- **Access control.** Unauthorized access was noted at Rio Vista Gate, so County Park Rangers installed boulders and 30 feet of new lodgepole fencing to deter off-road activity. Trash heaps were identified and removed near Artesian Gate.
- **Fire management.** County Park Rangers maintained existing firebreaks in the Preserve.

Oakoasis Preserve

Preserve Total Acreage: 436 Assessor's acres, 442 GIS acres

MSCP Subarea Plan: 436 Assessor's acres, 442 GIS acres

Segment: Metro-Lakeside-Jamul

Management benefits the six MSCP covered species known to occur on the Preserve, which are Lakeside ceanothus, Blainville's horned lizard, Cooper's hawk, southern California rufous-crowned sparrow, western bluebird, and southern mule deer. Management actions included the following.

- **Habitat restoration and management.** As part of on-going efforts to maintain habitat and augment the oak tree population in the Preserve, 250 coast live oak trees were planted.
- **Invasive, non-native plant control.** Invasive, non-native plant species control included the use of hand-pulling, hand tools, string trimmers, and herbicide across approximately six acres. Target species included stinkwort, black mustard, and poison oak.
- **Access control.** County Park Rangers continued to patrol the Preserve multiple times a day to prevent illegal trash dumping and unauthorized parking along the entrance road. Ten new signs were also installed at trail entrances to inform Park visitors of the importance of staying on authorized trails. In addition, County Park Rangers repaired ten feet of concrete fencing.
- **Fire management.** County Park Rangers maintained existing firebreaks using string trimmers around County Park Ranger residences and volunteer pads.
- **Environmental education.** Environmental education programs included a monthly star party led by San Diego Astronomy Association attracting approximately 750 visitors.



Educational signs are often used at County Preserves to inform visitors of actions taken at habitat restoration areas.

Old Ironsides County Park

Park Total Acreage: 4 Assessor's acres, 4 GIS acres
MSCP Subarea Plan: 4 Assessor's acres, 4 GIS acres
Segment: Metro-Lakeside-Jamul and PAMA

Management benefits the MSCP covered habitat known to occur in the Park, which is oak riparian forest. Management actions included the following.

- **Invasive, non-native plant control.** Invasive, non-native plant species removal efforts included the use of hand tools and hand-pulling across two acres. Target species included papyrus, Mexican fan palm, giant reed and castor bean.
- **Fire management.** County Park Rangers maintained existing firebreaks using string trimmers.
- **Environmental education.** County Park Rangers held multiple educational workshops and nature hikes in the Park. In addition, I Love A Clean San Diego hosted a watershed cleanup event in the Park, which removed trash and 400 pounds of invasive species.

Otay Lakes Park

Park Total Acreage: 79 Assessor's acres, 87 GIS acres
MSCP Subarea Plan: 79 Assessor's acres, 87 GIS acres
Segment: South County

Management benefits the two MSCP covered species known to occur on the Park, which are variegated dudleya and Otay mesa mint. Management actions included the following.

- **Habitat restoration and management.** County Park Rangers planted 140 coast live oak trees.
- **Invasive, non-native plant control.** Invasive, non-native plant species removal efforts included the use of hand tools and hand-pulling across approximately 15 acres. Target species included black mustard and Russian thistle.
- **Fire management.** County Park Rangers maintained existing firebreaks using string trimmers.
- **Environmental education.** Environmental outreach efforts included 12 County Park Ranger-led nature hikes, which were attended by 142 participants, and eleven nature touch table events, which were attended by 277 participants. Hawktober is DPR's month-long celebration (held in October) of the region's raptors. An outdoor Hawktober workshop was held that allowed visitors to meet raptors and learn about their life history characteristics (where they live, what they eat, and how they hunt). A total of 35 participants attended this event.

Otay Ranch Preserve (Otay Ranch POM)

Preserve Total Acreage: 3,973 Assessor's acres, 4,707 GIS acres
MSCP Subarea Plan: 3,973 Assessor's acres, 4,707 GIS acres
Segment: City of Chula Vista and South County

The County and City of Chula Vista work jointly as the Otay Ranch POM and are responsible for implementing the Otay Ranch Phase 2 Resource Management Plan Update (RMP; RECON 2018) management and monitoring strategies within the 4,373-acre Otay Ranch Preserve. The management and monitoring of the Otay Ranch Preserve is funded through the collection of assessments from Community Facility District 97-2, administered by the City of Chula Vista. In 2022, preserve monitoring and operations/maintenance tasks were implemented by the Preserve Steward/Biologist (RECON Environmental Inc.) in consultation with the Otay Ranch POM. Regular coordination meetings occurred during 2022 to track progress of MSCP management and monitoring. Habitat maintenance activities were performed to control non-native plant species and enhance habitat for sensitive species, including coastal cactus wren, Otay tarplant habitat, and vernal pools. All work summarized in this report is detailed in the 2022 Annual Report for the Otay Ranch Preserve and can be found in **Appendix N**.

While no baseline surveys were conducted in 2022, management benefits the 32 MSCP covered species known to occur on the Preserve, which include 17 plant, two invertebrate, two reptile, nine bird, and two mammal species. The MSCP covered species on the Preserve are Otay manzanita, San Diego golden star, Orcutt's brodiaea, Dunn's mariposa lily, San Miguel

savory, snake cholla, Otay tarplant, variegated dudleya, Palmer's goldenbush, San Diego button-celery, coast barrel cactus, Tecate cypress, heart-leaf pitcher sage, Gander's pitcher sage, felt-leaved monardella, willowy monardella, spreading navarretia, Otay mesa mint, San Diego fairy shrimp, Thorne's hairstreak butterfly, Belding's orange-throated whiptail, Blainville's horned lizard, Cooper's hawk, southern California rufous-crowned sparrow, golden eagle, burrowing owl, coastal cactus wren, northern harrier, peregrine falcon, coastal California gnatcatcher, least Bell's vireo, mountain lion, and southern mule deer. Habitats, such as maritime succulent scrub, freshwater marsh, and coastal sage scrub were enhanced.

- **Habitat restoration and management.** Regularly scheduled site visits were conducted to document access issues, sensitive species, newly detected species, non-native plant species, and the overall health of the sites. Specifically, monitoring activities included focused rare plant surveys, Quino checkerspot butterfly surveys, vegetation mapping, photographic monitoring, coastal California gnatcatcher surveys, least Bell's vireo and yellow-billed cuckoo surveys, shot hole borer tree health surveys, gold-spotted oak borer monitoring, Hermes copper butterfly surveys, golden eagle camera surveys, vernal pool plant monitoring, wet season fairy shrimp surveys, and vegetation rapid assessment monitoring.
- **Invasive, non-native plant control and habitat enhancement.** The invasive, non-native plant species treated were short-pod mustard, tocalote, stinkwort, oats, hyssop loosestrife, annual beard grass, and Boccone's sand-spurrey. In addition, shrubs were selectively thinned and removed from existing coast cholla patches to increase available coastal cactus wren habitat. The primary shrub removed via hand tools and trimmers during shrub thinning activities was lemonade berry. Removal of non-native plant species also occurred within Otay tarplant and vernal pool habitat with the use of hand tools.
- **Access control.** Access control within the Preserve continues to be one of the highest priority tasks. Sensitive habitat, plants, and wildlife have been impacted by unauthorized foot and bicycle traffic, off-highway vehicle, target-shooting activities, and unauthorized route creation. Access management efforts included the installation of signage, fences, and gates to prevent illegal access and block unauthorized trails, as well as coordinating with United States Border Patrol and adjacent land managers. Fencing at Jamul Mountains, Dulzura, Salt Creek, and Western Wolf Canyon parcels were installed and/or repaired after they were vandalized by trespassers. Signs were installed and replaced at Jamul Mountains, Salt Creek, Wolf Canyon, and San Ysidro parcels.

Additional management and monitoring efforts conducted on Otay Ranch Preserve are reported in the 2022 Otay Ranch Preserve Annual Report (**Appendix N**).

Otay Valley Regional Park

Park Total Acreage: 442 Assessor's acres, 432 GIS acres
MSCP Subarea Plan: 442 Assessor's acres, 432 GIS acres
Segment: South County

Management benefits the seven MSCP covered species known to occur on the Preserve, which are Otay tarplant, Orcutt's bird's beak, variegated dudleya, San Diego button-celery, coastal cactus wren, coastal California gnatcatcher, and least Bell's vireo. Habitats, such as maritime

succulent scrub, freshwater marsh, and coastal sage scrub were enhanced by removing non-native plant species. Management actions included the following.

- **Habitat restoration and management.** County Park Rangers planted 3,000 cholla cactus within the Preserve as part of the ongoing Cholla Cactus Restoration Project. An additional 5,000 cholla cactus will be planted in 2023.
- **Invasive, non-native plant control.** Invasive, non-native plant removal efforts included hand pulling and using string trimmers across approximately six acres. Target species included chrysanthemums and black mustard.
- **Access control.** County Park Rangers installed 10 “no off-roading” signs and increased weekly patrols to prevent unauthorized use of motorized vehicles. Two metal gates were also installed to deter unauthorized access.
- **Environmental education.** Environmental outreach efforts included two County Park Ranger-led nature hikes, which were attended by 22 participants.

Additional management and monitoring efforts conducted by the City of San Diego are reported in the City of San Diego MSCP Annual Report.

Peutz Valley Preserve

Park Total Acreage: 240 Assessor’s acres, 255 GIS acres
MSCP Subarea Plan: 240 Assessor’s acres, 255 GIS acres
Segment: Metro-Lakeside-Jamul

Management benefits the seven MSCP covered species known to occur on the Preserve, which are Belding’s orange throated whiptail, Blainville’s horned lizard, American peregrine falcon, southern California rufous-crowned sparrow, western bluebird, southern mule deer, and mountain lion. Management also benefits the habitat found on the Preserve including southern riparian woodland, coastal sage scrub-chaparral transition, and southern mixed chaparral. Management actions, performed by the SDRPF and County Park Rangers, included the following.

- **Access control.** Patrols on the Preserve documented one instance of unauthorized motor vehicle access. As such, T-post and wire fencing was installed to prevent further access.

Ramona Grasslands Preserve

Preserve Total Acreage: 3,639 Assessor’s acres, 3,635 GIS acres
MSCP Subarea Plan: 804 Assessor’s acres, 558 GIS acres
Segment: Metro-Lakeside-Jamul
Draft North County MSCP: 2,835 Assessor’s acres, 3,077 GIS acres

Management benefits the four MSCP covered species known to occur on the MSCP Subarea Plan Area portion of the Preserve, which are Belding’s orange-throated whiptail, Blainville’s horned lizard, golden eagle, and southern mule deer. Within the draft North County MSCP Plan area on the Preserve, several MSCP Subarea Plan covered species can be found and include

Engelmann oak, San Diego thornmint, spreading navarretia, San Diego fairy shrimp, arroyo toad, southwestern pond turtle, western spadefoot toad, western burrowing owl, grasshopper sparrow, tricolored blackbird, Cooper's hawk, Canada goose, ferruginous hawk, northern harrier, peregrine falcon, long-billed curlew, white-faced ibis, western bluebird, coastal California gnatcatcher, southern mule deer, pallid bat, and Townsend's big-eared bat. Other species and habitats targeted by management actions are Diegan coastal sage scrub, riparian, non-native grassland, and Stephens' kangaroo rat. Management actions included the following.

- **Habitat restoration and management.** County Park Rangers planted two and removed one dead coast live oak tree that was potentially hazardous to the Preserve's visitors. The existing grazing lease reduces invasive, non-native plant cover and ensures that suitable habitat is available to sensitive species, including the Stephens' kangaroo rat.
- **Invasive, non-native plant control.** County Park Rangers coordinated with the County of San Diego Department of Agriculture, Weights and Measures to strategically treat and remove milk thistle, artichoke, and tamarisk. County Park Rangers' invasive, non-native plant species removal efforts included hand-pulling, shoveling, and intermittent herbicide usage across approximately 60 acres. Target species included tree tobacco, tamarisk, Russian thistle, milk thistle, and artichoke thistle. Herbicides were not used within vernal pool basins or within 10 feet of basin margins.
- **Access control.** A total of 20 new signs were installed to prevent illegal parking and unauthorized trail use. Approximately three miles of barbed wire fencing was removed and replaced by County Park Rangers. In addition, two metal gates were installed and 150 feet of wooden fence was repaired to help protect the Preserve's natural resources and prevent unauthorized vehicle activity. Additional game cameras were installed and maintained to better monitor unauthorized activity. The County created and implemented a "Responsible Photography" campaign at the Preserve to help encourage photographers and groups to stay on existing trails. This campaign included educational signs at trail heads to outline how to practice responsible photography and why it is important to stay on trails. In addition, maps of authorized trails for optimal photography opportunities were posted at the trailheads. County Park Rangers also increased patrols within the Preserve to help photographers locate ideal spots on the trail for conducting photography sessions (which were being used for holiday cards, graduation announcements, etc.).

As a measure to protect the golden eagles nesting adjacent to the Preserve, a seasonal trail allows restricted access only during the non-breeding season (August through November). This trail is closed during the rest of the year. Trail use is also restricted to 50 users per day, 2 days a week, and a permit is required to access the trail. A total of 56 hikers, 59 equestrians, and 20 mountain bikers utilized the trail for a total of 635 users. The daily average use was 24 participants. Users must watch an online video that provides educational outreach regarding the nearby golden eagle nest and other sensitive species and take a survey prior to receiving the permit. Only one permit was revoked due to a violation of the rules and regulations.

- **Fire management.** County Park Rangers maintained existing firebreaks along the Preserve's border with adjacent residences and approximately 1.5 miles of firebreak along roads within the Highland Hills community.

- **Environmental education.** Environmental outreach efforts included County Park Rangers staffing nature touch table events, one trails discovery event, one burrowing owl event, and one Story Trails event. Discovery tables were manned by County Park Rangers every Saturday and Sunday, between August 15 and November 15, 2022, at the Old Survey Road 97 trailhead. These Discovery Tables were visited by 635 visitors. Almost 1.600 visitors were reached by the County Park Ranger’s environmental outreach efforts at the Preserve.



Hiking Stick Adventure at Ramona Grasslands Preserve.



Tree Planting at Ramona Grasslands Preserve.

Skyline Preserve

Preserve Total Acreage: 267 Assessor’s acres, 261 GIS acres

MSCP Subarea Plan: 267 Assessor’s acres, 261 GIS acres

Segment: Metro-Lakeside-Jamul

Management benefits MSCP covered species currently known to occur on the Preserve, which are Belding’s orange-throated whiptail, Blainville’s horned lizard, Cooper’s hawk, southern

California rufous-crowned sparrow, northern harrier, and golden eagle. Other species and habitats targeted by management actions are Diegan coastal sage scrub, southern mixed chaparral, chamise chaparral, and Engelmann oak woodland. Management actions, performed by the Environmental Habitat Conservancy (EHC) and County Park Rangers, included the following.

- **Fire management.** EHC maintained an existing fire break along the Preserve's boundary where habitable structures on adjacent properties were within 100 ft of the Preserve.
- **Access control.** EHC maintained an existing access gate that ensured proper management activities can be implemented on the Preserve.

Stoneridge Preserve

Preserve Total Acreage: 245 Assessor's acres, 245 GIS acres
MSCP Subarea Plan: 245 Assessor's acres, 245 GIS acres
Segment: Metro-Lakeside-Jamul

Management benefits the seven MSCP covered species known to occur on the Preserve, which are Belding's orange-throated whiptail, Blainville's horned lizard, coastal California gnatcatcher, Cooper's hawk, southern California rufous-crowned sparrow, western bluebird, and southern mule deer. Other species and habitats targeted by management actions are Diegan coastal sage scrub and southern mixed chaparral. Management actions included the following.

- **Habitat restoration and management.** Regular patrolling of the Preserve by County Park staff ensured that any illegal trash dump sites were quickly cleaned up and native habitat was not impacted.
- **Fire management.** County Park Rangers maintained an existing firebreak using string trimmers around facility structures on Kelley Drive.

Sweetwater Regional Park

Park Total Acreage: 489 Assessor's acres, 490 GIS acres
MSCP Subarea Plan: 489 Assessor's acres, 490 GIS acres
Segment: South County

Management benefits the three MSCP covered species known to occur on the Park, which are coastal cactus wren, coastal California gnatcatcher, and least Bell's vireo. Other species and habitats targeted by management actions are riparian and aquatic. Management actions included the following.

- **Habitat restoration and management.** County Park Rangers planted 34 coast live oak trees and 25 toyon shrubs. County Park Rangers removed two dead trees that were potentially hazardous to the Park's visitors.
- **Invasive, non-native plant control.** Invasive, non-native plant species removal efforts included the use of hand tools and hand-pulling across approximately five acres. Target species included Russian thistle and castor bean.

- **Access control.** County Park Rangers increased patrols in order to prevent vandalism, theft, dumping, and unauthorized camping and parking. County Park Rangers installed four new directional signs and repaired 100 feet of lodgepole fencing.
- **Fire management.** County Park Rangers maintained an existing firebreak using mowers and hand tools.
- **Environmental education.** Environmental outreach efforts included County Park Rangers leading a nature hike, wildfire and native plant workshop, Hawktober raptor event, tree planting event, and an environmental trivia event in 2022. A total of 155 visitors participated in these events.

Sycamore Canyon and Goodan Ranch Preserve

Preserve Total Acreage: 2,847 Assessor's acres, 2,931 GIS acres

MSCP Subarea Plan: 2,847 Assessor's acres, 2,931 GIS acres

Segment: Metro-Lakeside-Jamul

Management benefits the 15 MSCP covered species known to occur on the Preserve, which are San Diego thorn-mint, San Diego goldenstar, variegated dudleya, willowy monardella, Belding's orange-throated whiptail, Blainville's horned lizard, burrowing owl, coastal California gnatcatcher, Cooper's hawk, golden eagle, northern harrier, southern California rufous-crowned sparrow, western bluebird, mountain lion, and southern mule deer. Other habitats targeted by management actions are southern coast live oak riparian forest, coast live oak woodland, and southern mixed chaparral. Management actions included the following.

- **Habitat restoration and management.** County Park Rangers planted 292 trees, including coast live oak, Mexican elderberry, and California sycamore. County Park Rangers also planted 140 shrubs, including toyon, Cleveland sage, coffee berry, sagebrush, and white sage. County Park Rangers removed 12 dead coast live oak trees that were potentially hazardous. In areas where unauthorized trails appeared, once the unauthorized trails were closed, fencing (including T-posts and wire, concrete, and lodgepole fencing) and "Sensitive Habitat" signs were installed to prevent unauthorized trail usage as well as inform Preserve visitors of the impacts that unauthorized trails have in native and sensitive habitats. Regular patrolling of the park by County Park staff ensured that any illegal trash dump sites were quickly cleaned up and native habitat was not impacted. The *Sycamore Canyon and Goodan Ranch Preserve Targeted Non-Native Plant Treatment* project was funded by a SDRC Proposition 1 grant and will enhance 32 acres of riparian habitat along Sycamore Canyon Creek through implementation of invasive, non-native plant control methods. In 2021, the grant term was extended to June 2022 to utilize all grant funds. Riparian habitat along Sycamore Canyon Creek, which has been impacted by mature eucalyptus trees, stands of tamarisk, and pampas grass among other invasive, non-native plants, supports several MSCP covered species including Belding's orange-throated whiptail, northern harrier, and Cooper's hawk. In 2022, invasive species were treated and removed. More information regarding this project can be found in *Section 6.3 Grant Funded Management Projects*.

- **Invasive, non-native plant control.** Invasive, non-native plant species removal efforts included intermittent herbicide usage, hand-pulling, and the use of string trimmers across approximately twenty acres. Target species included pampas grass, black mustard, and artichoke thistle.
- **Access control.** County Park Rangers installed 20 new boundary signs in order to prevent unauthorized trail usage. Unauthorized trails were closed with a variety of new or repaired wire fences, boulders, and heavy brush. County Park Rangers increased patrols to prevent illegal trash dumping and unauthorized access. Preventative actions included increasing patrols, engaging with trail users, installing signs, installing fences, and brushing in unauthorized trails. At trail access points, metal and wood stepovers prevent unauthorized vehicle and motorized activity on the trails and protect native habitat and species. County Park Rangers also worked with volunteer groups, including the San Diego Mountain Bike Association, to ensure that authorized trails were maintained and erosion potential was minimized.
- **Fire management.** County Park Rangers maintained existing firebreaks using string trimmers and hand-pulling along the SR-67 roadways, around the staging area parking lot, and the Preserve's Visitor Center.
- **Environmental education.** Environmental outreach efforts included County Park Rangers leading nature hikes, nature tables, and night hikes. A total of 208 visitors attended these events and talks for Preserve visitors about the native plants and animals. Educational signage was installed, including interpretive panels in high user areas and signs and flyers in kiosks, to inform Preserve visitors of potential impacts unauthorized trails have on sensitive resources as well as about the Preserve's native plants and animals.



Rainbow at Sycamore Canyon/Goodan Ranch Preserve.

Tijuana River Valley Regional Park

Park Total Acreage: 1,592 Assessor's acres, 1,609 GIS acres

City of San Diego MHPA: 1,592 Assessor's acres, 1,609 GIS acres

Management benefits the 16 MSCP covered species known to occur on the Preserve, which are coast barrel cactus, Orcutt's bird's-beak, Torrey pine (planted), wart-stemmed ceanothus, Belding's orange-throated whiptail, Blainville's horned lizard, coastal cactus wren, coastal California gnatcatcher, Cooper's hawk, least Bell's vireo, light-footed Ridgway's rail, northern harrier, southern California rufous-crowned sparrow, southwestern willow flycatcher, American peregrine falcon, and tricolored blackbird. Riparian habitat was also targeted by management actions. Management actions included the following.

- **Habitat restoration and management.** County Park Rangers planted 113 trees and shrubs, including coast live oaks, lemonade berry, and blue elderberry. County Park Rangers removed 25 dead trees that were potentially hazardous to the Park's visitors. Regular patrolling of the park by County Park staff ensured that any illegal trash dump sites were quickly cleaned up and native habitat was not impacted. As part of a grant from CDFW, the County drafted a Habitat Restoration Plan for the entire Tijuana River Valley Regional Park. This restoration plan will provide a comprehensive and contiguous strategy for habitat restoration within this Preserve. As part of this project, the County conducted protocol surveys for several MSCP-covered species in this Park in 2021 including coastal California gnatcatcher, least Bell's vireo, light-footed Ridgway's rail, and southwestern willow flycatcher, among others. The County also worked toward conducting environmental review under the CEQA. The County will apply for environmental permits, complete environmental analysis, and finalize the Habitat Restoration Plan in 2023. More information regarding this project can be found in *Section 6.3 Grant Funded Management Projects*.
- **Invasive, non-native plant and insect control.** Invasive, non-native plant species removal efforts included hand-pulling, string trimmers, herbicide application, and the use of hand tools across approximately 157 acres. Target species included Russian thistle, castor bean, ice plant, tree tobacco, hottentot-fig, crown daisy, nasturtiums, Mexican fan palm and non-native grasses in the *Poaceae* family.
- **Access control.** County Park Rangers installed 125 new informational/directional signs to encourage Park visitors to stay on the designated trails, identify sensitive habitat, and deter illegal trash dumping. Approximately 20 feet of fencing and 25 new directional and interpretive signs were installed throughout the Park. Erosion control measures were implemented on trails where erosion was found to occur. Daily patrolling of the Park continued to ensure that any illegal trash dump sites were quickly cleaned up and native habitat was not impacted. Several "No Dumping" signs were also installed throughout the Park. Occasionally, there have been visitors with dogs off leash, and County Park Rangers have educated these visitors on Park rules. In addition, signs stating "Dogs must be leashed" have been installed throughout the Park.
- **Fire management.** County Park Rangers maintained an existing firebreak using string trimmers, herbicide application, and chainsaws.

- **Environmental education.** Environmental outreach efforts included County Park Rangers leading nature hikes, wellness hikes, nature tables, and Hawktober – an educational event about hawk species in the San Diego region. A total of 374 visitors attended these events.

Comprehensive Tree Program

The County has always had a commitment to planting trees on County Preserves and this was formalized in 2016 with the Comprehensive Tree Program. Dead or dying trees, along with trees that pose potential risks to County Preserve visitors, are removed and replaced. The replacement ratio is three new trees replaced for each tree that is removed. Native tree species are used in the preserve lands, while non-native, non-invasive trees may be planted near park facilities and active recreation areas to increase resilience, diversity, and beauty. Since 2016, over 30,000 trees have been installed on County properties. Over 4,100 trees were planted in 2022. The Tree Plotter Inventory web application augments the efforts of the Comprehensive Tree Program. Started in April 2021, this web-based program will ultimately result in a full inventory of all new and existing trees on every County Preserve and can be accessed by the public. Each tree will have a GPS location, its species, health ranking, and other characteristics, including diameter breast at height (DBH) at 4.5 feet above ground, as well as photos of each tree through time. Reports can be generated by tree, or County Preserve, and can also show the ecosystem benefits of the trees. This application will assist in understanding when adaptive management strategies are needed to ensure that the trees are thriving. In 2022, part of the Tree Plotter Inventory efforts included conducting a complete tree inventory of the existing and new trees at Felicita Park, Otay Lakes, and Lindo Lake East Basin, in addition to mapping all newly planted trees at all County Parks and Preserves.

6.3 Grant Funded Management Projects

The County implemented nine grant funded management projects across six County Preserves in the reporting year. These projects benefitted nine MSCP covered species, which are coastal California gnatcatcher, least Bell's vireo, coastal cactus wren, Belding's orange-throated whiptail, northern harrier, Cooper's hawk, arroyo toad, southwestern pond turtle, and fairy shrimp, and included habitat restoration, access control, invasive, non-native plant control, and trail alignment. Grant-funded projects occurred at Dictionary Hill Preserve, Lakeside Linkage Preserve, Sycamore Canyon and Goodan Ranch Preserve, Ramona Grasslands Preserve, Tijuana River Valley Regional Park, and East Otay Trail. Grant funding totaled over \$15 million and was provided by nine grants and County General Funds. Grant funds were from four WCB Proposition 68 grants, one State Coastal Conservancy Proposition 68 grant, two CDFW Proposition 1 grants, one SDRC Proposition 1 grant, and one California Natural Resources Agency (CNRA) Proposition 84 River Parkways grant.

The County actively seeks grants to supplement stewardship activities in addition to those funded through County general fund. These activities meet the MSCP Subarea Plan's fourth Specific Objective to "implement a program for the conservation and management of habitats of federal and state endangered, threatened, or rare species," as well as the MSCP Subarea Plan's Biological Goal (Section 1.2.1) to help conserve both diversity and functionality of the southwestern county ecosystem through preservation and adaptive management. In 2022, the County applied for eight grants, which included proposals for restoration of habitats within preserves, and were awarded three of the grants. See **Table 14**, *Grant Funded Management Projects, Locations, and Species Benefitted in Reporting Year*.

TABLE 14. GRANT FUNDED MANAGEMENT PROJECTS, LOCATIONS, AND MSCP SPECIES BENEFITTED IN REPORTING YEAR

Project	Preserve	MSCP Species Benefitted
Coastal California Gnatcatcher Habitat Restoration	Dictionary Hill Preserve	Coastal California gnatcatcher, coastal cactus wren, Quino checkerspot butterfly ¹ , monarch butterfly ¹
Morrison Pond Restoration and Enhancement	Sweetwater Regional Park	Coastal California gnatcatcher, coastal cactus wren, least Bell's vireo
Smuggler's Gulch Improvements	Tijuana River Valley Regional Park	Least Bell's vireo
Invasive Species Removal and Restoration Plan	Tijuana River Valley Regional Park	Least Bell's vireo, coastal California gnatcatcher, light-footed Ridgway's rail
Cactus Wren and Hermes Copper Butterfly Habitat Restoration	Lakeside Linkage Preserve	Coastal cactus wren, Hermes copper butterfly ¹
Targeted Invasive Non-native Plant Treatment	Sycamore Canyon and Goodan Ranch Preserve	Belding's orange-throated whiptail, northern harrier, Cooper's hawk
Brown Property Fill Removal/Restoration	Tijuana River Valley Regional Park	Least Bell's vireo
Invasive Removal, Restoration, and Interpretive Signage	Tijuana River Valley Regional Park	Least Bell's vireo
East Otay Trail Alignment Study	Otay Ranch Preserve	Light-footed Ridgway's rail, fairy shrimp, burrowing owl, Quino checkerspot butterfly ¹

¹ Species are not MSCP covered species; however, will benefit from biological surveys

Dictionary Hill Preserve Coastal California Gnatcatcher Habitat Restoration Project

Funding Source: WCB Proposition 68 Grant and County funding

Funding Amount: \$551,535 (Prop 68 funds \$527,000 and County funds \$24,560)

Project Timeline: June 2021 – March 2024

Target Species or Habitat: Coastal California gnatcatcher, coastal cactus wren, Quino checkerspot butterfly, monarch butterfly, and coastal sage scrub habitat

Management Action: Invasive plant treatment and native plant establishment

The *Dictionary Hill Preserve Coastal California Gnatcatcher Habitat Restoration Project* will restore and enhance habitat on Dictionary Hill Preserve to benefit coastal California gnatcatcher and other coastal sage scrub dependent species. This project was approved for funding at the May 2021 WCB hearing for the full project amount of \$551,535. Dictionary Hill Preserve is located within a stepping-stone linkage for coastal California gnatcatcher, providing suitable habitat patches between established breeding areas in proximity to the Preserve and between Core Resource Areas, and supports up to four territories. Starting in Winter 2021, the project initiated a three-year program for the treatment of large stands of invasive non-native plants identified throughout the Preserve to benefit the on-site coastal sage scrub and sensitive species that occur in this vegetation community, including MSCP covered San Diego goldenstar, variegated dudleya, San Diego barrel cactus, southern California rufous-crowned sparrow, Belding's orange-throated whiptail, and Cooper's hawk. The project will install 1,750

coastal sage scrub species over four acres of disturbed coastal sage scrub to expand existing nesting and foraging habitat for coastal California gnatcatcher, install 25 pounds of Quino checkerspot butterfly host plant/nectar species seed mix, install 25 pounds of monarch butterfly host plant/nectar species seed mix, and install 175 pounds of coastal sage scrub seed mix. Restoration areas have been chosen and in 2022 implementation of the restoration and enhancement work began. Following installation of the coastal sage scrub species, Quino checkerspot butterfly seed mix, and monarch butterfly seed mix in 2022, as well as initial removal of invasive non-native plant species, monitoring and maintenance activities will continue to ensure successful installation of native plants and eradication of invasive, non-native plant species. Prior to initiating restoration activities, the boundaries of five restoration areas were verified, totaling 4.0 acres. Weed control within the 155-acre upland enhancement area targeted invasive non-native plant species occurred between January and April 2022. Installation of the five upland restoration areas occurred between February 28 and April 8, 2022. This included orange construction fence installation, weeding and dethatching, irrigation installation, soil testing, and container plant installation. A total of 1,750 plantings were installed between March 21 and April 8, 2022. Seed installation was delayed until the start of the next wet season, in December 2022, at the start of the natural growing season for upland vegetation. During the third quarter of Year 1 (October 1 – December 31, 2022), maintenance and monitoring occurred on the five restoration areas and included installing new irrigation features, watering, hand weeding, installing seed mixes and planting 537 container plants. Due to the high mortality of coast monkeyflower and white sage, these species were not replanted. Instead, the number of San Diego sunflower, Munz's sage, coast cholla, and prickly pear were increased. Blue elderberry, which was not found on the original plant palette, was added due to its value to wildlife for foraging and shelter, specifically for coastal cactus wren, which is documented north of Dictionary Hill. Thirty-three animal species were observed or detected within the Preserve. Of the wildlife observed, two species are considered special status; coastal California gnatcatcher and turkey vulture.

During the fourth quarter of Year 1 (January – March 2023), weeding in all restoration areas and throughout the 155 acres of enhancement is scheduled to occur. Weeding will continue within the five restoration areas during watering events. In addition, supplemental watering will occur monthly from January 2023 through September 2023.

Sweetwater Regional Park Morrison Pond Restoration and Enhancement

Funding Source: WCB Proposition 68 Grant and County funding

Funding Amount: \$509,110 (WCB Prop 68 funds \$397,185 and County funds \$111,925)

Project Timeline: November 2021 – March 2025

Target Species or Habitat: Vegetation surrounding riparian wetland and adjacent upland habitats

Management Action: Invasive plant treatment and native plant establishment

The *Sweetwater Regional Park Morrison Pond Restoration and Enhancement* project within Sweetwater Regional Park will restore 3.45 acres of coastal sage scrub habitat for coastal California gnatcatcher and coastal cactus wren. In addition, the project will enhance riparian and adjacent upland habitat around Morrison Pond within the 19.29-acre project area. The three-year habitat restoration project will also benefit the least Bell's vireo. Funding for the project is provided by a WCB 2020 Proposition 68 grant awarded in November 2020 and with County matching funds. The project's objectives are: (1) initiate a three-year invasive, non-native plant control program throughout the 19.29 acres to enhance the existing habitat and benefit sensitive

and listed species, including least Bell's vireo; (2) plant native trees provided by the County Tree Program; (3) install 3,450 coastal sage scrub species over approximately 3.45 acres to expand nesting and foraging habitat for coastal California gnatcatcher and coastal cactus wren; and (4) install 135 pounds of coastal sage scrub seed mix over approximately 3.45 acres to expand nesting and foraging habitat for coastal California gnatcatcher and coastal cactus wren. Implementation of the Restoration and Enhancement Plan began in 2022. Following installation of the coastal sage scrub species in 2022 and initial removal of invasive non-native plant species, monitoring and maintenance activities will continue to ensure successful installation of native plants and eradication of invasive, non-native plant species.

Smuggler's Gulch Improvements Project

Funding Source: State Coastal Conservancy Proposition 68 Grant (\$10,000,000) and County funding (\$323,000)

Funding Amount: \$10,323,000

Project Timeline: January 2021 – March 2026

Target Species or Habitat: Riparian Wetland and adjacent upland habitats

Management Action: Habitat Enhancement

The *Smuggler's Gulch Improvements Project* is a Capital Improvements Project within Tijuana River Valley Regional Park that originated from the County's *Tijuana River Valley Needs and Opportunities Assessment* completed in March 2020. The County secured a \$10M grant on May 27, 2021 to implement the *Smuggler's Gulch Improvements Project*, which will capture additional trash and sediment where Smuggler's Gulch enters the United States to avoid these materials from moving downstream where they can impact important riparian habitat in the main Tijuana River channel. This project includes design, environmental review, and construction of a sedimentation basin, trash capture devices, and culvert improvements at Smuggler's Gulch and surrounding areas. As part of this project, the County conducted protocol surveys for several MSCP-covered species in 2021 including California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher. The County also conducted a habitat assessment of the area to identify and map habitat types to ensure maximum avoidance to native habitat. Once implemented, this project has the potential to protect native habitat downstream by capturing trash upstream. In 2022, the County chose an alternative for the project and initiated project design. The County will complete design and apply for environmental permits in 2023.

Tijuana River Valley Invasive Species Removal and Restoration Plan

Funding Source: CDFW Proposition 1 Grant

Funding Amount: \$520,167

Project Timeline: July 2020 – June 2023

Target Species or Habitat: Riparian Wetland and adjacent upland habitats

Management Action: Planning for habitat restoration

The *Tijuana River Valley Invasive Species Removal and Restoration Plan* project will complete the planning and permitting steps necessary for the future implementation of a large-scale habitat restoration project which will target invasive and non-native plants within the Tijuana River Valley Regional Park. This project is funded through a CDFW Proposition 1 grant totaling \$520,167 which was awarded to the County in March 2020. The project will complete a Habitat Restoration Plan, obtain necessary regulatory permits, and obtain environmental clearance pursuant to the CEQA so that the project will be "shovel-ready" for implementation as the next

phase. The Habitat Restoration Plan will analyze the entirety of the Tijuana River Valley Regional Park which encompasses approximately 1,800 acres of the Tijuana River Valley. Existing information will be supplemented by technical studies conducted during the project to inform implementation priorities and effective restoration methods in the Habitat Restoration Plan for future implementation. The overall project goal is to remove and treat invasive, non-native plants within the Tijuana River Valley Regional Park and restore targeted areas with native vegetation. This will enhance the ecological function of the Tijuana River Valley and provide habitat for the sensitive species that occur in this region, including several MSCP covered species such as least Bell's vireo, coastal California gnatcatcher, and light-footed Ridgway's rail. The project was initiated in Fall 2020. Protocol surveys for target species were conducted in 2021 and the Habitat Restoration Plan was drafted. These surveys included several MSCP-covered species including coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher. The County also worked toward conducting environmental review under the CEQA. The County will apply for environmental permits, complete environmental analysis, and finalize the Habitat Restoration Plan in 2023.

Lakeside Linkage Preserve – Cactus Wren and Hermes Copper Butterfly Habitat Restoration

Funding Source: WCB Proposition 68 Grant

Funding Amount: \$423,000

Project Timeline: March 2019 – March 2022

Target Species or Habitat: Coastal cactus wren and Hermes copper butterfly

Management Action: Invasive, non-native plant control and habitat restoration and enhancement

The *Lakeside Linkage Preserve – Cactus Wren and Hermes Copper Butterfly Habitat Restoration* project was implemented to restore and enhance two acres of coastal cactus wren habitat and two acres of Hermes copper butterfly habitat in Lakeside Linkage Preserve over a three-year period. The project was funded by a WCB 2019 Proposition 68 grant of \$423,000 awarded to the County in March 2019. There were three project objectives: (1) initiate a three-year invasive, non-native plant control program throughout the Preserve to enhance the existing coastal sage scrub habitat and benefit sensitive species; (2) install 500 cholla cactus to expand nesting and foraging habitat for coastal cactus wren; and (3) install 500 spiny redberry and 500 California buckwheat plants to supplement the existing populations and expand potential habitat for Hermes copper butterfly.

The project ended in March 2022 and cover by invasive non-native plants within the Preserve was substantially reduced compared to pre-enhancement site conditions, from approximately 40 percent to less than five percent. Target invasive annual cover is less than five percent and target invasive perennial cover is zero percent. Natural recruitment of species, particularly California sagebrush and California buckwheat, was observed in 2022.

Coastal cholla cuttings installed within the cactus wren habitat restoration area had a 100 percent survival rate at the end of the project and more than doubled in size with many of the cuttings sprouting multiple branches. Cover by invasive forbs, as well as target invasive annuals/perennials, was substantially reduced as compared to pre-restoration conditions within the cactus wren restoration area. No perennial invasive non-native plant species were observed after the initial maintenance of the restoration area conducted in June 2019.

In late 2019 and early 2020 a total of 500 spiny redberry plants were installed at the Hermes copper butterfly restoration area. Of the surviving 32 spiny redberry plants observed during the March 2022 annual monitoring event, a patch of 10 individuals within the western portion of the central plot were particularly large and healthy. California buckwheat and San Diego sunflower installed between December 2019 and November 2020 appeared healthy and survival was estimated at 74 and 84 percent respectively. There are likely multiple factors that contributed to high mortality rates of spiny redberry within the Hermes copper butterfly habitat restoration area including size of the spiny redberry plants and development of the root system when installed (plant container stock should be at least 10 inches tall and has a well-developed root system), incorrect soil type and drainage at restoration sites (spiny redberry plants grow best in well-draining, sandy loam soils), and insufficient or over-irrigation.

Sycamore Canyon and Goodan Ranch Preserve Targeted Invasive Non-Native Plant Treatment Project

Funding Source: SDRC Proposition 1 Grant

Funding Amount: \$203,000

Project Timeline: November 2019 – June 2022

Target Species or Habitat: Riparian habitat

Management Action: Invasive, non-native plant control

The *Sycamore Canyon and Goodan Ranch Preserve Targeted Invasive Non-Native Plant Treatment Project* was implemented to enhance 32 acres of riparian habitat along Sycamore Canyon Creek through invasive, non-native plant control over a 2.5-year period. The project ended in June 2022. The project was funded by a SDRC Proposition 1 grant of \$203,000 awarded to the County in 2019. This project funded the treatment and removal of a variety of invasive, non-native plants within Sycamore Canyon and Goodan Ranch Preserve. Approximately 32 acres of primarily riparian habitat along Sycamore Canyon Creek was targeted for this project, which included mature eucalyptus trees, stands of tamarisk, and pampas grass among other invasive, non-native plants. Treatment and removal of these plants is expected to enhance the quality of the riparian habitat in the Preserve which supports several MSCP covered species including Belding's orange-throated whiptail, northern harrier, and Cooper's hawk. In 2022, invasive species were treated and removed in the two Treatment Areas, rain gauges and soil moisture probes were monitored, and photographs were taken quarterly at designated photo points. Within the riparian habitat of Sycamore Canyon Creek, during the term of the project from May 2020 to January 2022, 204.75 cubic yards of weeds were hauled off-site to a landfill and from February 2022 to June 2022, 880 pounds of weeds were hauled off-site to a landfill. Through a comparison of pre- and post-treatment California Rapid Assessment Method (CRAM) assessment results of the creek riparian habitat, the post-treatment CRAM results showed a significant decrease in the presence of non-native vegetation within the Assessment Areas. Stump cutting of 21 eucalyptus trees around the Preserve ranger station and hauling of material off-site occurred in the first year of the project. Herbicide application to all stumps first occurred on May 19, 2020 and continued throughout the project when sprouting was observed. The treated eucalyptus trees have not resprouted.

Tijuana River Valley Regional Park Brown Property Fill Removal/Restoration

Funding Source: CDFW Proposition 1 Grant

Funding Amount: \$1,328,000

Project Timeline: June 2018 – March 2023

Target Species or Habitat: Least Bell's vireo

Management Action: Habitat restoration

The *Tijuana River Valley Regional Park Brown Property Fill Removal/Restoration* project will complete planning for a restoration project for least Bell's vireo in the Tijuana River Valley Regional Park over a nearly 5-year time period. The project is funded by a CDFW Proposition 1 grant of \$1,328,000 awarded to the County in 2017. The County worked with regulatory agencies and stakeholders to revise this project in 2022. The revised project is a habitat restoration plan of the Brown Property and will be finalized in early 2023. Restoration site preparation includes removal of invasive species and existing structures from the property in Tijuana River Valley Regional Park. Restoration planning for the site includes technical studies, design, and environmental review and documentation. While the existing CDFW grant cannot be used for implementation of this restoration plan, the County actively sought grant and alternative funding opportunities for restoration throughout the year. Funding has been successfully secured through the State Water Board and restoration implementation will begin in 2023 to ultimately realize the varied benefits from the implementation of this project. These benefits include restoration of disturbed land into native habitat for least Bell's vireo and other native wildlife species.

Tijuana River Valley Regional Park Invasive Removal, Restoration and Interpretive Signage

Funding Source: CNRA Proposition 84 River Parkways Grant

Funding Amount: \$492,920

Project Timeline: October 2016 – February 2024

Target Species or Habitat: Least Bell's vireo

Management Action: Invasive, non-native plant control and habitat restoration

The *Tijuana River Valley Regional Park Invasive Removal, Restoration and Interpretive Signage* project will restore and enhance least Bell's vireo habitat at Tijuana River Valley Regional Park. The project is funded by a CNRA's Proposition 84 River Parkways grant for \$492,920 awarded to the County in 2016. The funding supplements ongoing habitat restoration activities in the Tijuana River Valley Regional Park. The project removed invasive, non-native plants, particularly tamarisk, and restored treated areas by planting native plant species across two acres. In 2022, DPR was granted an extension of the project performance period to February 2024 to ensure successful establishment of native plants and eradication of invasive, non-native plants from the restoration area. During plant establishment visits, crews spot-treat or remove by hand any germinating non-native seedlings they encounter within the restoration site. Non-native plants are hand-pulled where growing adjacent to native plants. Watering will continue while dry weather is prevalent but may be temporarily discontinued if rainy weather resumes. If additional trees are available from the County's tree committee, they will be installed in open areas where either tamarisk trees were removed or open areas where non-native plants have been treated/removed. The restoration effort is on track to meet the dual goals of tamarisk eradication and the increase in native riparian vegetation. Native cover is expected to increase

as installed container plantings, and germinated seedlings are expected to increase in size and as surrounding native vegetation expands into the project site. This project provides new habitat for several species within the Park including least Bell's vireo, an MSCP covered species.

East Otay Trail Alignment Study

Funding Source: WCB Proposition 68 Grant (\$450,000), County funding (\$150,000), and local agency match (\$50,000)

Funding Amount: \$650,000

Project Timeline: March 2021 – March 2023

Target Species or Habitat: Upland habitat surrounding trails

Management Action: Habitat Management

The *East Otay Trail Alignment Study* project will complete an Environmental Impact Report for the comprehensive planning document which identifies 13 new trail alignments totaling approximately 80.5 linear miles of hiking, biking, riding, and wheelchair accessible pathways and trails near and around the ecologically rich Otay Lakes Area. The project is a result of a multi-agency effort to identify a coordinated and sustainable trail system in southern San Diego County. As part of this project, wet season fairy shrimp surveys began towards the end of 2021 and no listed fairy shrimp species were found present in the EOTAS survey area. The project will provide a comprehensive trail network while maintaining ecological diversity and preserving quality habitat in the Otay Ranch Preserve.

6.4 Preserve Management Partnerships

Six County partners implemented seven management projects across five County Preserves within the reporting year to benefit wetland, riparian, stream, and coastal sage scrub habitats. Natural resources restoration activities, including invasive, non-native plant species treatment and active habitat restoration, were implemented in five County Preserves: Boulder Oaks Preserve, Santa Fe Valley Preserve, Tijuana River Valley Regional Park, Otay Valley Regional Park, and Lusardi Creek Preserve; maintenance to a water catchment system was conducted in Boulder Oaks Preserve; and continued deployment of trash capture booms as well as implementation of channel and culvert maintenance was conducted in the Tijuana River Valley Regional Park. Partners were the CDFW, City of San Diego (Stormwater Department), Nature Collective, Caltrans, Alter Terra (Earth Island Institute), and the San Dieguito River Valley Conservancy.

The regular management, monitoring, and invasive, non-native species removal activities performed by County Rangers, staff, and contractors is augmented by other organizations and projects at various Parks and Preserves, including those detailed below. Through the Right-Of-Entry (ROE) permit process, DPR assists with the habitat restoration and enhancement projects proposed by outside government agencies, municipalities, and environmental organizations that benefit the County's preserve lands. These projects not only support the County's management activities, but they also provide another source of stewardship to support the success of native and sensitive plant and animal species in County Preserves. For the individual projects detailed below, only County Preserves are mentioned, but many of the habitat management projects extend well outside of the County Preserves in the MSCP Subarea Plan.

Water Catchment Repair

Lead Agency: CDFW

Project Timeline: May 2022 – July 2022

Target Species or Habitat: Western bluebird and southern California rufous-crowned sparrow

Management Action: Repairs to the water catchment system

County Preserve: Boulder Oaks Preserve

The *Water Catchment Repair* project repaired the on-site water catchment system along the Foster Truck Trail in Boulder Oaks Preserve over a three-month period in summer 2022. This project included chiseling and cleaning of cracks, cleaning of the tank, and repairing and filling of the cracks using a concrete patching compound. Any missing sections were replaced with poured concrete and a concrete-based sealer was authorized for application over the collection apron. Minimal trimming or removal of brush was allowed within six feet of the water catchment system. This project benefits the preserve by providing year-round water to animals.

Invasive Non-native Plant Treatment/Santa Fe Valley Preserve

Lead Agency: Nature Collective

Project Timeline: October 2022 – October 2024

Target Species or Habitat: Coastal California gnatcatcher and riparian habitat

Management Action: Invasive, non-native plant control

County Preserve: Santa Fe Valley Preserve

The *Invasive Non-native Plant Treatment/Santa Fe Valley Preserve* project will retreat giant reed, a non-native invasive plant species, along the San Dieguito River in Santa Fe Valley Preserve three times over a two-year period. In 2022, the Nature Collective conducted their first work event, which consisted of foliar treatment of giant reed with herbicide approved for use in riparian habitat. This project helps maintain the ecological health of riparian habitats in the preserve, as well as benefitting downstream areas by minimizing the spread of invasive plant species.

Channel Maintenance and Invasive Non-native Plant Treatment/Tijuana River Valley Regional Park

Lead Agency: City of San Diego (Stormwater Department)

Project Timeline: August 2021 – August 2023

Target Species or Habitat: Channels and wetland habitat

Management Action: Channel maintenance and invasive, non-native plant control, and restoration

County Preserve: Tijuana River Valley Regional Park

The Channel Maintenance and Invasive Non-native Plant Treatment/Tijuana River Valley Regional Park project will conduct channel maintenance, as well as non-native invasive plant treatment and native plant restoration within previous maintenance areas within Tijuana River Valley Regional Park over a two-year period. Channel maintenance will occur periodically within the Smuggler's Gulch drainage channel and Tijuana River Pilot Channel, and will consist of removing soil, rock, and vegetation from the channel bottoms. Channel maintenance will require some pumping of stagnant water downstream. The City of San Diego will also maintain existing culverts under Monument Road and the Disney Crossing. The second component of this project

is invasive, non-native plant treatment for approximately 20 acres of previous maintenance areas within Smuggler's Gulch, Tijuana River Pilot Channel, and the Smythe and Via de la Bandola Channel. This treatment will focus on removal of giant reed, castor bean (*Ricinus communis*), tamarisk (*Tamarix* sp.), and trash, and will be followed by wetlands rehabilitation and enhancement in the Smythe Channel and Via de la Bandola Channel. The second project component will mitigate for impacts to wetland waters of the U.S. and State. The project includes various measures to protect environmental resources. Best Management Practices (BMPs) will be present at designated staging areas for equipment and material staging, including temporary storage of spoils. This project also limits travel to designated access routes and includes restrictions on use of vehicles and equipment. Various measures are included for protection of nesting birds and preventing the spread of invasive shot hole borer. Implementation of this project provides flood protection to the surrounding properties, mitigates for impacts to jurisdictional features, and enhances the quality of wetland habitat in the Preserve, which supports MSCP covered species such as least Bell's vireo (*Vireo bellii pusillus*).

Johnson Canyon Habitat Restoration

Lead Agency: Caltrans

Project Timeline: January 2017 – December 2022

Target Species or Habitat: Riparian and coastal sage scrub habitat

Management Action: Habitat restoration and invasive, non-native plant control

County Preserve: Otay Valley Regional Park

The Johnson Canyon Habitat Restoration project will restore and enhance riparian habitat in Otay Valley Regional Park over a five-year period as mitigation for improvements to SR-125. In 2017, Caltrans began a multi-year project restoring a 9.33-acre site in and adjacent to the creek bed within Johnson Canyon, which drains an ephemeral tributary of the Otay River. The project site spans Otay Valley Regional Park (1.41 acres) and a Caltrans property (7.92 acres). Project actions include invasive, non-native plant control, irrigation installation, and native plant establishment via active restoration. Caltrans subcontractors performed retreatments of invasive, non-native plants and native plant establishment monitoring, which continued through 2022.

Wetland Restoration Phase 2

Lead Agency: Caltrans

Project Timeline: December 2016 – December 2022

Target Species or Habitat: Wetland habitat

Management Action: Habitat restoration and invasive, non-native plant control

County Preserve: Tijuana River Valley Regional Park

The *Wetland Restoration Phase 2* project restored 10 acres of wetlands in Tijuana River Valley Regional Park over a six-year period. Caltrans began *Phase 2* in December 2016. This project is a continuation of *Phase 1* of the restoration activity, which began in 2013, and involved mitigation associated with the Mid Coast Transit Project. Project elements included invasive, non-native plant control, debris/trash removal, native wetland plantings, and temporary irrigation for supplemental watering. Following the completion of the active restoration, a minimum of five years was dedicated to monitoring in order to ensure mitigation efforts have been successful. Restoration of wetland habitat benefits the MSCP covered species found within the park

including least Bell's vireo, northern harrier, and Cooper's hawk. The restoration site met its success criteria in late 2022. A final monitoring report was prepared and submitted to the regulatory agencies for site sign-off.

Smuggler's Gulch Transportable Floating Trash Booms

Lead Agency: Alter Terra, a project of Earth Island Institute

Project Timeline: January 2017 – present

Target Species or Habitat: Riparian and stream habitat

Management Action: Habitat restoration

County Preserve: Tijuana River Valley Regional Park

The *Smuggler's Gulch Transportable Floating Trash Booms* project removes trash from the Smuggler's Gulch drainage channel before it enters the Tijuana River to benefit stream and riparian habitat in the Tijuana River Valley Regional Park over a four-year period. In 2017, Alter Terra, a project of Earth Island Institute, began planning the installation of a floating trash removal system. The first phase of this project included pre-construction activities including planning and design, which were completed from 2017-2019. The implementation phase of this project began in December 2019 with the construction and installation of the trash booms at the channel. The trash removal system is comprised of two sets of trash booms constructed of repurposed plastic. The booms were placed in the Smuggler's Gulch drainage channel to capture trash crossing the US-Mexico border. The trash booms remain deployed during the wet season and are regularly monitored and cleared with assistance from the Urban Corps, which partners with *Live Well San Diego*. The trash booms were checked and cleaned of debris at least once every two weeks and after every significant rain event measuring 0.5 inches or more of measurable precipitation. Trash booms remained active during Spring 2021 and were removed during the dry season. Trash booms are redeployed before each wet season except for a few weeks out of each season to facilitate DPR's channel maintenance work. Through these habitat enhancement efforts, this project benefits several MSCP covered species occurring in the Park, including coastal California gnatcatcher, least Bell's vireo, and northern harrier.

San Dieguito Watershed Invasive Non-native Plant Control Program

Lead Agency: San Dieguito River Valley Conservancy

Project Timeline: September 2019 – June 2023

Target Species or Habitat: Riparian habitat

Management Action: Invasive, non-native plant control

County Preserve: Lusardi Creek Preserve

The *San Dieguito Watershed Invasive Non-native Plant Control Program* removes invasive, non-native plants from riparian habitat in Lusardi Creek Preserve. As a partner of the San Dieguito River Park JPA, the San Dieguito River Valley Conservancy also obtained a ROE permit to implement a portion of this project within the Lusardi Creek Preserve. Approximately three acres of the creek have been targeted for this project due to an abundance of giant reed within the watershed. The project began with the initial removal of giant reed above ground biomass within the project area. All giant reed canes are chipped on-site and follow best management practices to prevent the further spread of this invasive species. Following the initial biomass removal, re-sprouts are treated approximately once per month to maximize the efficacy of the treatments. In 2020, the use of wildlife cameras was added to the project scope to

monitor how wildlife respond to and utilize the enhanced area. Monitoring and retreatments of the project area continued in 2022 and an amendment to the ROE permit was issued to extend the monitoring and maintenance period to account for time lost during the COVID-19 pandemic and the state Stay-at-Home Executive Order. This project will improve the ecological function of this important riparian habitat and support the MSCP covered species, least Bell's vireo.

6.5 Private Mitigation Lands Management



Open space conserved in the MSCP Subarea Plan Area boundaries benefits many MSCP covered species and habitat types, such as the orange-throated whiptail.

Private RMPs are required as a condition of development entitlements when biological resources are impacted by the proposed development project and the acreage of required mitigation exceeds 50 acres, on- or off-site. Private RMPs may also be required when open space less than 50 acres is proposed if a particularly sensitive resource is present that would benefit from active management and/or monitoring.

Private RMPs are approved by PDS and require submission of annual monitoring reports that focus on the resource attributes of that specific site and detail the monitoring and habitat management activities conducted within the previous year. Annual reports also document any issues and the overall health of the Preserve, which allows the County to assess the biological integrity of the open space habitats protected by each Private RMP. Controlling and managing public access through fencing, signage, and patrolling is another component of the Private RMPs. Management and monitoring on private mitigation lands is funded through mechanisms established during the Private RMP approval process (i.e., special districts, endowments, or annual fees). The health of these endowments and use of these funds are reported in the RMP annual reports.

Private RMP annual reports are publicly available online through the PDS Document Library¹⁵ using the associated Record ID. **Appendix L** provides a general overview of the 18 Private RMPs located within the MSCP Subarea Plan including a description of the habitat conservation area, required surveys, and monitoring/maintenance status for each Private RMP. The following section is a summary of the RMP annual reports received in the 2021-2022 reporting period.

2022 Annual Report Private RMP Review

Thirteen of the 18 (72%) Private RMPs submitted reports for the 2021-2022 reporting period. Each report was reviewed by County PDS staff to evaluate compliance with the RMP document terms. Review letters were sent to all 13 responsible habitat managers and/or property owners that submitted reports. Review letters notified managers of the need, if any, to address specific management topics. Common areas for improvement in future reports include addressing financial status, monitoring results, and complying with the general provisions of the approved RMP. The Wildlife Agencies are routinely copied on correspondence from the County to the land managers regarding annual monitoring reports wherein greater detail of the report review results can be obtained. Stewardship and management activities on private mitigation lands are described below and summarized in **Appendix M**.

Bernardo Lakes Preserve

MSCP Subarea Plan: 111 acres
Segment: Lake Hodges

Once the RMP is implemented, management could benefit the five MSCP covered species historically known to occur on or utilizing the preserve, which are Orcutt's brodiaea, San Diego barrel cactus, coastal California gnatcatcher, southern California rufous-crowned sparrow, and southern mule deer. No annual report summarizing management actions was submitted this reporting year. A summary of the County steps taken in 2022 towards bringing this RMP into compliance is provided in the next section.

4S Ranch Ralphs Preserve

MSCP Subarea Plan: 111 acres
Segment: Lake Hodges

Management benefits the six MSCP covered species known to occur on or utilizing the preserve, which are southern California rufous-crowned sparrow, thread-leaved brodiaea, variegated dudleya, Belding's orange-throated whiptail, northern harrier, and coastal California gnatcatcher. Management actions included the following:

- **Invasive, non-native plant control:** Removal efforts included hand pulling of artichoke thistle covering less than 0.50 acre. After an assessment took place, it was determined that there is a diminishing population.

¹⁵ The PDS Document Library can be accessed at: <https://www.sandiegocounty.gov/content/sdc/pds/doclibrary.html>.

- **Access control:** Resource managers patrolled weekly to ensure compliance with trespassing, illegal activity, dumping or vandalism. No significant activity occurred during access control and no law enforcement was involved during the monitoring year.

4S Ranch Specific Plan Preserve

MSCP Subarea Plan: 547 acres

Segment: Lake Hodges

Management benefits the six MSCP covered species known to occur on or utilizing the preserve, which are southern California rufous-crowned sparrow, thread-leaved brodiaea, variegated dudleya, Belding's orange-throated whiptail, northern harrier, and coastal California gnatcatcher. Management actions included the following:

- **Invasive, non-native plant control:** Efforts included treatment and removal of non-native invasives in the non-native grassland areas and salt cedar.
- **Access control:** Resource managers monitored for illegal off-road vehicle and trail access issues. Damaged fencing was repaired and replaced.

Golem Preserve

MSCP Subarea Plan: 154 acres

Segment: Lake Hodges

Management benefits the five MSCP covered species known to occur on or utilizing the preserve, which are wart stemmed ceanothus, Del Mar manzanita, coastal California gnatcatcher, California rufous-crowned sparrow, and mountain lion. Management actions included the following.

- **Habitat restoration:** Resource managers watered previously installed plants and implemented comprehensive weed control, and general maintenance in the Upland Restoration Site. Sticky dudleya grown in the San Diego River Park Foundation (SDRPF) nursery was re-installed in similar habitat to where the seed was collected.
- **Invasive, non-native plant control:** Removal efforts included ongoing weed control of 1.1 acres at the coastal sage restoration sites as well as an adjacent one-acre site which was treated with herbicide with follow up hand pulling of weeds. Weed control also occurred in the floodplain to control nonnative grasses. Additionally, 239 Eucalyptus saplings were removed by cut stump herbicide treatment and nine large (+24 inches) trees were girdled, nine canary palms and 17 castor-bean were also treated with herbicide.
- **Access control:** Resource managers patrolled almost daily and there is a security guard at the main entrance every day. Plants and rock mulch were installed and maintained near the main entry point to block access to coastal California gnatcatcher habitat and graffiti was removed from signs.
- **Environmental education:** Outreach occurred directly with people using the trail system, and through coordinated hikes and restoration projects.

Starwood (Crosby) Preserve

MSCP Subarea Plan: 170 acres

Segment: Lake Hodges

Management benefits the 13 MSCP covered species known to occur on or utilizing the preserve, which are San Diego mesa mint, San Diego button celery, Orcutt's brodiaea, San Diego ambrosia, Del Mar manzanita, San Diego barrel cactus, wart-stemmed ceanothus, San Diego fairy shrimp, Belding's orange-throated whiptail, coastal California gnatcatcher, Cooper's hawk, northern harrier, and southern California rufous-crowned sparrow. Management actions included the following.

- **Habitat restoration:** Resource managers planted native plant species to restore the over trimming that occurred as part of brush management activities including California adolphia, chalk dudleya, deer weed, California sagebrush, and California buckwheat in the Upland Habitat Management Area and Wart-stemmed ceanothus, coyote brush, bush sunflower, chamise, California sagebrush, Ramona lilac, toyon, and lemonade berry in the Chaparral Habitat Management Area.
- **Invasive, non-native plant control:** Removal efforts included ongoing weed control to avoid perennial invasive plants as well as spot herbicide treatment to reduce plant outbreaks.
- **Invasive, wildlife control:** Efforts included surveying for brown-headed cowbird and American bullfrog. American bullfrog egg removal also took place.
- **Fire Management:** Resource managers conducted brush management in coordination with the San Diego County Fire Marshall to maintain a “defensible space” around structures. Removal efforts included clearing weeds with hand tools and trimming larger vegetation, such as shrubs and trees, back away from homes and flammable structures.
- **Environmental education:** The Crosby Open Space website was regularly updated to provide community members with access to news and information about the Preserve as well as education towards citizen science applications and conserving water resources.

Woodridge Preserve

MSCP Subarea Plan: 54.2 acres

Segment: North Metro-Jamul-Lakeside

Management benefits the three MSCP covered species known to occur on or utilizing the preserve, which are coastal California gnatcatcher, southern California rufous-crowned sparrow, and Belding's orange-throated whiptail. Management actions included the following:

- **Habitat restoration:** Resource managers planted approximately 500 cacti to develop coastal cactus wren habitat and maintained the previous years' plantings.
- **Invasive, non-native plant control:** Removal efforts included treatment of approximately 0.25 acre of black mustard. Due to below average rainfall, the growth of nonnative species was minimal compared to previous maintenance year.

- **Fire Management:** Fuel zones were thinned or cleared to help protect the surrounding community. Any dead, non-native vegetation was cleared.
- **Access control:** Resource managers conducted weekly to bi-weekly patrols to prevent vandalism and illegal activities. Minimal trash was found and picked up during patrols and other management activities. Fences and gates are in good working order and no maintenance was required. Illegal trails were blocked and raked over and covered with vegetation.
- **Environmental education:** Kiosks were updated with photos and information quarterly. Materials included information of native plants and animals.

Blossom Valley Preserve

MSCP Subarea Plan: 285.9 acres
Segment: North Metro-Jamul-Lakeside

Management benefits the seven MSCP covered species known to occur on or utilizing the preserve, which are southern California rufous-crowned sparrow, southern mule deer, San Diego horned lizard, Belding's orange-throated whiptail, bald eagle, mountain lion, and northern harrier. Management actions included the following.

- **Invasive, non-native plant control:** Resource Managers removed tumble pigweed and rigput brome from main access trails.
- **Access control:** Resource managers conducted weekly to biweekly patrols. Minimal trash was found and picked up during patrols and other management activities. All fences and gates are in good working order and no maintenance was required. No major issues occurred during patrol.
- **Environmental education:** Efforts included providing educational outreach to trail users as they were encountered on trails. There was heavy emphasis on staff educating public on leashed dog importance on trails.

McCrink Ranch Preserve

MSCP Subarea Plan: 269.9 acres
Segment: Lake Hodges

Once the RMP is implemented, management could benefit the six MSCP covered species historically known to occur on or utilizing the preserve, which are San Diego barrel cactus, sticky dudleya, coastal California gnatcatcher, southwestern pond turtle, southern California rufous-crowned sparrow, and Cooper's hawk. No annual report summarizing management actions was submitted this reporting year. A summary of the County steps taken in 2022 towards bringing this RMP into compliance is provided in the next section.

Maranatha Chapel Preserve

MSCP Subarea Plan: 87 acres

Segment: Lake Hodges

Once the RMP is implemented, management could benefit the five MSCP covered species historically known to occur on or utilizing the preserve, which are wart-stemmed lilac, coastal California gnatcatcher, Cooper's hawk, northern harrier, and southern mule deer. No annual report summarizing management actions was submitted this reporting year. A summary of the County steps taken in 2022 towards bringing this RMP into compliance is provided in the next section.

El Apajo Preserve

MSCP Subarea Plan: 25.6 acres

Segment: North Metro-Jamul-Lakeside

Once the RMP is implemented, management could benefit the two MSCP covered species historically known to occur on or utilizing the preserve, which are Blainville's horned lizard and northern harrier. No annual report summarizing management actions was submitted this reporting year. A summary of the County steps taken in 2022 towards bringing this RMP into compliance is provided in the next section.

Greenhills Ranch Preserve

MSCP Subarea Plan: 38.9 acres

Segment: North Metro-Jamul-Lakeside

Management benefits the four MSCP covered species known to occur on or utilizing the preserve, which are coastal cactus wren, coastal California gnatcatcher, southern California rufous-crowned sparrow, southern mule deer. Management actions included the following.

- **Invasive, non-native plant control:** Removal efforts included weed whacking and chemical treatments of five acres. Targeted species included mustard and tecolote.
- **Access control:** Resource managers conducted quarterly patrols and seven maintenance visits. Minimal trash was found and picked up during regular maintenance and monitoring visits. Trespass and damage from bike activity was observed and is planned to be addressed with adaptive management strategies.
- **Environmental education:** Resource managers regularly communicated with the HOA to report visits and activities.

Artesian Trail Preserve

MSCP Subarea Plan: 3.2 acres

Segment: Lake Hodges

Once the RMP is implemented, management could benefit the one MSCP covered species historically known to occur on or utilizing the preserve, thread-leaved brodiaea. No annual report summarizing management actions was submitted this reporting year. A summary of the County steps taken in 2022 towards bringing this RMP into compliance is provided in the next section.

Lonestar Preserve

MSCP Subarea Plan: 62.16 acres

Segment: South County

Management benefits the one MSCP covered species known to occur on or utilizing the preserve, Otay tarplant. Management actions included the following:

- **Habitat restoration:** Resource managers obtained a grant from the Jewish Teen Foundation to improve Burrowing owl habitat and coordinated with San Diego Zoo Wildlife Alliance to install brush piles. Additionally, HELIX Environmental Planning, Inc. was contracted to find soil and install the berms and mounds.
- **Invasive, non-native plant control:** Efforts included mowing of non-native grassland to improve habitat for burrowing owls and the Otay tarplant. Herbicide and line trimming were applied during contractor visits to remove exotics.
- **Access control:** Resource managers repaired 20 linear feet of fencing. SDGE installed another heavy gate at road intersection to prevent off-road vehicle trespass. Trash was picked up inside and outside the preserve mostly along the fencing next to the road.
- **Environmental education:** The resource manager attended the San Diego County Burrowing Owl meeting.

East Otay Mesa Preserve

MSCP Subarea Plan: 92.23 acres

Segment: South County

Management benefits the six MSCP covered species known to occur on or utilizing the preserve, which are San Diego barrel cactus, coastal California gnatcatcher, southern California rufous-crowned sparrow, northern harrier, California horned lark, and southern mule deer. Management actions included the following:

- **Invasive, non-native plant control:** Removal efforts included hand removal of pampas grass, fennel, and artichoke thistle.
- **Access control:** Resource managers replaced fencing between the adjacent auto yard and preserve and notified adjacent property. Minimal trash was found and removed during site inspections.

- **Environmental education:** The resource manager communicated with the adjacent property manager regarding encroachments.

Sloane Canyon Preserve

MSCP Subarea Plan: 39.18 acres
Segment: South Metro-Lakeside-Jamul

Management benefits the one MSCP covered species known to occur on or utilizing the preserve, Belding's orange-throated whiptail. Management actions included the following.

- **Invasive, non-native plant control:** No removal occurred, as minimal amounts of non-native vegetation were found within the open space.
- **Access control:** Resource managers conducted biannual patrols. Fences and gates are in adequate condition and no trash removal was needed.
- **Environmental education:** The resource manager communicated with neighboring property owners who was implementing brush management on their property to make sure they were aware of the sensitive nature of the preserve. No encroachment occurred on the property.

High Meadow Ranch (Trevi Hills) Preserve

MSCP Subarea Plan: 358 acres
Segment: North Metro-Lakeside-Jamul

Management benefits the nine MSCP covered species known to occur on or utilizing the preserve, which are Lakeside ceanothus, coastal California gnatcatcher, northern harrier, golden eagle, southern California rufous-crowned sparrow, Blainville's horned lizard, Belding's orange-throated whiptail, southern mule deer, and Cooper's hawk. Management actions included the following.

- **Invasive, non-native plant control:** Removal efforts included re-treatment of 170 individual tamarisks using drill and kill methodology.
- **Access control:** Resource managers maintained fencing and signs along the Preserve boundary. Trash and debris were minimal and no problem areas were observed.

Otay Crossings Commerce Park Preserve

MSCP Subarea Plan: 24.3 acres
Segment: South County

Management benefits the seven MSCP covered species known to occur on or utilizing the preserve, which are Otay tarplant, San Diego barrel cactus, variegated dudleya, San Diego fairy shrimp, Riverside fairy shrimp, burrowing owl, and northern harrier. Management actions included the following.

- **Invasive, non-native plant control:** Removal efforts included treatment of fennel, black mustard, tecolote, tamarisk, and Russian thistle. Hand weeding occurred in the Quino checkerspot butterfly areas focused on slender leaved ice plant and Australian saltbush.
- **Access control:** Resource managers conducted monthly patrols. Minimal trash was found and picked up, as necessary. Off road vehicle tire marks were observed on preserve and the resource managers coordinated with border control to discuss alternate routes and limiting access to the preserve unless necessary. Signs and other enforcement methods were provided to ensure compliance.

OMC Resource Management Area

MSCP Subarea Plan: 16.08 acres **Segment: South County**

Management benefits several MSCP species that have potential of occurring on the preserve including the Otay tarplant, burrowing owl, and the northern harrier. Management activities included the following:

- **Invasive, non-native plant control:** Six invasive species including Australian saltbush, black mustard, artichoke thistle, fennel, shortpod mustard, and Russian thistle or tumbleweed were documented and are scheduled for hand removal next year when mowing and dethatching is scheduled to occur.
- **Access Control:** General site monitoring took place monthly and revealed off-road vehicle use. The Resource Manager coordinated with the San Diego County Sheriff's Off-Road Enforcement team to help educate off-road vehicle users about legal areas to ride. Repair of vandalism, signs, and fencing occurred. Additionally, several piles of trash, larger metal objects, plastic tubing, and tires were removed from the preserve.

Non-Compliant Private RMP Reporting

Five of the 18 (28%) RMPs did not submit annual reports for the 2021-2022 calendar year. These five non-compliant RMPs include RMP 98-001 Bernardo Lakes, RMP 02-001 McCrink, RMP 02-003 Maranatha Chapel, RMP 03-002 El Apajo, and RMP 06-005 Artesian Trail. These five RMPs have been out of compliance since the mid-2000s due to missing RMP implementation components (e.g., Resource Manager, funding mechanism, Open Space Maintenance Agreement, and/or easements). The County has and will continue to improve its processes and procedures, as necessary, to ensure additional compliance cases are not created. The County is also working towards bringing the five RMPs into compliance. In 2022, the County corresponded with three RMP responsible parties and is still evaluating paths forward for two of the more complicated RMP compliance cases. Below summarizes the County steps taken in 2022 towards bringing these RMPs into compliance and their current status.

Bernardo Lakes Preserve (PDS2008-3914-98-001) – County Staff continued to actively work with the HOA to select a Resource Manger that meets the qualifications in the County's RMP guidelines. The HOA proposed a Resource Manager and submitted an updated Property Analysis Record that identifies the RMP implementation costs. Next steps will include County review and approval of the proposal. The final step will be the execution of an updated Open Space Maintenance Agreement between the HOA, new Resource Manager, and County. The

Open Space Maintenance Agreement will ensure that the RMP is implemented by the new Resource Manager and funded by the HOA in perpetuity. This effort will continue into 2023 and a status update will be provided in the 2023 MSCP Annual Report.

McCrink Ranch Preserve (PDS2008-3914-02-001) – County Staff continued to actively work with the developer and their consultants on the RMP implementation components that need to be installed to satisfy the conditions of approval for TM 5069 (i.e., Resource Manager, funding mechanism, and Open Space Maintenance Agreement). County Staff is anticipating a revised proposal in 2023. Next steps will include County review and approval of the proposal. The final steps will include establishment of a funding mechanism and the execution of an Open Space Maintenance Agreement between the developer, Resource Manager, and County. The Open Space Maintenance Agreement will ensure that the RMP is implemented by the Resource Manager and funded by the developer in perpetuity. This effort will continue into 2023 and a status update will be provided in the 2023 MSCP Annual Report.

Maranatha Chapel Preserve (PDS2008-3914-02-003) – County Staff continued discussions with the Maranatha Chapel and determined that Major Use Permit P00-020 was not properly conditioned in 2004. The County is reevaluating options to achieve compliance. An RMP was approved for the 72-acre preserve in 2003. Additionally, an Open Space Easement was recorded over the 5-acre southern portion of the RMP area in 2019. Discussions will continue into 2023 and a status update will be provided in the 2023 MSCP Annual Report.

El Apajo Preserve (PDS2008-3914-03-002) – County Staff continued discussions with County Counsel to understand the County's options to achieve compliance. An RMP was approved for the 25.6-acre preserve in 2003. Additionally, two Conservation Easements were recorded over the RMP area in 2003. Discussions will continue into 2023 and a status update will be provided in the 2023 MSCP Annual Report.

Artesian Trail Preserve (PDS2009-3914-06-005) – County Staff continued discussions with County Counsel to understand the County's options to achieve compliance. An RMP was approved for the 3.2-acre preserve in 2007 and an Open Space Easement was recorded over the RMP area in 2006. Discussions will continue into 2023 and a status update will be provided in the 2023 MSCP Annual Report.

6.6 Education and Outreach

One of DPR's key missions is educating the public about the County's biological and cultural resources. Rangers and volunteers are trained to lead environmental education programs and provide multiple interpretive services to the public. Presentations are available to people of all ages at schools, parks, campgrounds, interpretive centers, camps, scout groups, and churches. In 2022, DPR returned to offering a wide range of popular educational programs again and approximately 21,000 guests participated in over 670 programs. Highlights for 2022 include the following:

Hawktober and Hawk Talk continued to be one of DPR's most popular educational programs. In 2022, County Park Rangers visited 17 County parks and interacted with over 1000 guests. This program offers attendees the chance to learn about the importance of raptors in our ecosystem and the unique adaptations that make them such capable predators. Hawktober events also served as a training opportunity for apprentice raptor handlers which should enhance the program in 2023.



Animal ambassadors are a popular way for County Park Rangers to educate visitors about the native animals found in San Diego County.

Park-ology¹⁶ is a free, cloud-based education tool designed to teach teens, ages 14 to 18, about the parks and recreation industry. The content is split into three learning modules – Play, Nature, and People – to provide a diverse and comprehensive look at key topics and concepts while unveiling a number of science, technology, engineering, arts, and math (STEAM) related career paths that students can learn more about as they plan their academic and professional futures. Text is balanced with videos, games, and fun facts to keep students engaged and entertained. The first learning module – Play – was launched in 2021 and explores the evolution of recreation at the local, national, and international levels. Students are introduced to concepts like play theory and the benefits of responsible park use. The Nature learning module was launched in 2022 and tells the story of the biodiversity of the San Diego region to help participants understand the importance of conservation on both a macro and micro scale. The final learning module, People, will be launched in 2023.

Discovery Program assists educators and elementary school students with exploring the wealth of nature at local parks and in their own backyards, at no cost to the participants. The curriculum correlates with Next Generation Science Standards and includes the subjects of plants and photosynthesis, astronomy, birds, Native Americans, geology, insects, and general ecology. The hands-on courses include a County Park Ranger visit to the school, activities for classroom use, a field trip and County Park Ranger-led hikes, and post-field trip activities for classroom and home use. The program is found in eight parks throughout the County, including Guajome Regional Park, Felicita County Park, San Dieguito County Park, Los Peñasquitos Canyon County Preserve, Louis A. Stelzer County Park, El Monte County Park, Flinn Springs County Park, and Otay Lakes County Park. Five of these County properties are located within the MSCP Subarea Plan boundary. In 2022, the Discovery Program hosted over 3,000 students from various schools in San Diego County.

¹⁶ Parkology can be found at <https://www.sdparcs.org/content/sdparcs/en/news-events/news-stories/park-ology.html>.

Story Trails for Green Friday is a partnership between County Parks and County Libraries to encourage reading in public spaces the day after Thanksgiving – historically the busiest shopping day of the year. In 2022, DPR hosted several events including a 3-mile loop trail hike at San Elijo Ecological Reserve, a Park Beautification project at Woodhaven County Park, an Oak Tree Education & Planting Demonstration at Ramona Grasslands County Preserve, a History & Dam Tour at Otay Lakes County Park, and a Star Party at Sycamore Canyon/Goodan Ranch County Preserve. DPR also continued a Story Trails partnership with County Libraries to encourage reading in public spaces. This program encourages families to spend quality time outside by displaying pages of children’s books along popular hiking trails. 2022 marked the third year of this family-friendly program, with nine trails at parks across the County, and books in both English and Spanish. This event will continue in 2023, with new books and Story Trail locations. All Green Friday activities were offered without charge and open to all ages.

TRACK Trails Program helps children explore the beauty of nature as part of the national Kids in Parks campaign. It features kiosks at trailheads with brochures detailing fun and adventurous aspects of the hikes offered. Children earn prizes by visiting the TRACK Trails website and tracking their adventures in their online nature journals. Seven DPR parks currently participate in the TRACK Trails program: Guajome Regional Park, Felicita Park, San Dieguito Park, San Elijo Park, Lake Morena Park, and the Lakeside Community Center. In 2022, 72 participants submitted registrations for 104 adventures completed at DPR TRACK Trails over the course of the year. In 2022, 72 participants submitted registrations for 104 adventures completed at DPR TRACK Trails over the course of the year.

Astronomy Programs: DPR continued the partnership with the San Diego Astronomy Association on several in-person Star Party events at multiple parks and preserves. These events continue to be popular with earthlings of all sizes and help to increase public awareness and enjoyment of astronomy and the physical sciences.

San Diego Festival of Science & Engineering is committed to providing experiential STEAM activities to diverse populations. It is a comprehensive community event that works to inspire the curious young minds in our community to become tomorrow’s STEAM leaders. In 2022, County Park Rangers participated in this festival by collaborating with BioCom and Live Well San Diego on several “Live Stage” programs aired at the Ruben H. Fleet Science Center to classrooms across San Diego County. Several live animal ambassadors were presented during these programs including a rosy boa snake and a red-tailed hawk. Also, DPR hosted a STEAM Block Party at San Dieguito County Park where a full birds of prey demo was conducted, and an interactive nature discovery table was hosted at Saburo Muraoka Elementary School in Chula Vista. All these programs were offered free to the public.

Nature Explorers Program is a five-year plan for increasing local awareness of resources and recreational opportunities through strategic intervention. Program curriculum is designed to inform and inspire San Diegans through awareness of environmental issues. Program excursions leverage County-owned areas and community partners, such as local representatives from the BLM, to provide participants access to green space through safe and responsible recreation. The first stage, Junior Explorers, positions the County in partnership with local schools to increase environmental sensitivity by connecting school age children with their neighborhood parks. The second stage is the Nature Explorers group, which includes comprehensive pre- and post-trip evaluation of on-site learning to increase environmental literacy among teen participants. As teens continue to engage with the program, the program provides opportunities for participants to progress into leadership roles that exemplify stewardship among their peers. In 2022, Nature Explorers participants hiked Dictionary Hill

County Preserve, kayaked at Lake Morena County Park, enjoyed the surf at Coronado beach and slept under the stars at William Heise and Sweetwater Summit County Campgrounds. The focal point for these trips included highlighting the significance of water conservation and the importance of 'Leave No Trace' principles when encountering delicate environments and exploring local outdoor spaces as an option for exercise to maintain a healthy and balanced lifestyle.

Additional education and outreach activities include the following.

- Display center interpretation
- Daily interpretation at County Preserves' nature centers, museums, and kiosks
- MSCP and environmental presentations to community groups and service boards
- County Ranger-led nature talks, slide shows, walks, and hikes
- Community service projects which include on-going tree care and watering
- Stormwater and watershed education
- Leave No Trace Program

Social media is also a powerful tool that DPR utilizes to inform San Diego county residents and visitors of what is occurring on DPR's preserve lands. Facebook, Twitter, Instagram, the DPR website, YouTube, Pinterest, and an e-blast distribution are all used to ensure that current preserve conditions, educational opportunities, and other information regarding County Preserves are just a quick click away. DPR's social media reach includes the following:

- DPR has a total of 11 active Facebook pages, which cumulatively have more than 66,000 followers. The main DPR Facebook page has 21,500 followers and is ranked fourth against other counties in California
- DPR's Twitter feed has 13,000 followers and is ranked second only to San Francisco's twitter feed that covers both the city and county
- DPR's Instagram account started in January 2020 is growing its 7,894 followers
- DPR's YouTube channel has had over 180,000 views and 615 subscribers
- DPR's Pinterest page has over 2,100 followers
- DPR has an E-blast distribution list of 2,300 subscribers
- DPR website receives over 65,000 visits every month



Social media is a powerful tool the County utilizes to inform San Diego County residents and visitors of what is occurring on County Preserves.

CHAPTER 7

Preserve Monitoring and Research



Otay tarplant, an MSCP covered species, at Furby-North Preserve (left photo) and San Miguel savory, an MSCP covered species, at Boulder Oaks Preserve (right photo)

Preserve monitoring within the MSCP Subarea Plan Area assesses the success of the MSCP Subarea Plan. In conformance with IA Section 14.5, Biological Monitoring, the County is responsible for monitoring the land it owns or acquires as well as ensuring that other private mitigation lands dedicated to the County within the MSCP Preserve are monitored consistent with the MSCP Subarea Plan. This chapter summarizes the monitoring activities in County Preserves and private mitigation areas.

MSCP monitoring on County Preserves, including TMP monitoring, baseline inventory surveys, research partnerships, and private mitigation lands monitoring occurred in 2022. County monitoring efforts also include the monitoring of sensitive species during and after park improvement projects. The 2022 monitoring results of park improvement projects are included in Section 7.1, Preserve Biological Monitoring of County Lands. Monitoring efforts, in 2022, by County partners can be found in Section 7.3, Preserve Monitoring and Research Partnerships. MSCP monitoring surveys resulted in the monitoring or documentation of 48 MSCP covered species and one MSCP covered habitat in County Preserves and an additional three MSCP covered species on private mitigation lands (**Table 15, MSCP Covered Species or Habitats Documented by Program**).

TABLE 15. MSCP COVERED SPECIES OR HABITATS DOCUMENTED BY PROGRAM

MSCP Covered Species and Habitats	Monitoring Program				
	TMP	ROE	Otay Ranch POM	Private Mitigation	Inventory Surveys
Plants					
1. Del Mar manzanita				✓	✓
2. Dunn's mariposa lily			✓		✓
3. Encinitas baccharis	✓				✓
4. Felt-leaved monardella			✓		✓
5. Gander's pitcher sage			✓		
6. Heart-leaf pitcher sage					✓
7. Lakeside ceanothus	✓				✓
8. Orcutt's bird's beak	✓	✓			✓
9. Orcutt's brodiaea		✓	✓		✓
10. Otay manzanita			✓		✓
11. Otay mesa mint – source CNDDB			✓		
12. Otay tarplant	✓	✓	✓		✓
13. Palmer's goldenbush			✓		✓
14. San Diego ambrosia				✓	
15. San Diego barrel cactus	✓ ^a		✓	✓	✓
16. San Diego button celery			✓		✓
17. San Diego goldenstar		✓	✓	✓	✓
18. San Diego thornmint	✓	✓			✓
19. San Diego mesa mint			✓	✓	
20. San Miguel savory	✓		✓		✓
21. Snake cholla			✓		✓
22. Spreading (prostrate) navarretia			✓		✓
23. Sticky dudleya				✓	
24. Tecate cypress			✓		
25. Torrey pine					✓
26. Variegated dudleya	✓		✓		✓
27. Wart-stemmed ceanothus	✓ ^a				✓
28. Willowy monardella	✓	✓	✓		✓

Monitoring Program					
MSCP Covered Species and Habitats	TMP	ROE	Otay Ranch POM	Private Mitigation	Inventory Surveys
Birds					
29. American peregrine falcon	✓ ^a		✓		✓
30. Bald eagle	✓ ^b			✓	
31. Burrowing owl	✓		✓	✓	✓
32. Coastal (San Diego) cactus wren	✓	✓	✓		✓
33. Coastal California gnatcatcher	✓ ^a	✓	✓	✓	✓
34. Cooper's hawk	✓ ^a		✓	✓	✓
35. Ferruginous hawk	✓ ^a				✓
36. Golden eagle	✓	✓	✓		✓
37. least Bell's vireo	✓	✓	✓	✓	✓
38. Light-footed Ridgway's rail					✓
39. Northern harrier	✓	✓	✓	✓	✓
40. Southern California rufous-crowned sparrow	✓ ^a		✓	✓	✓
41. Southwestern willow flycatcher		✓			✓
42. Swainson's hawk					✓
43. Tricolored blackbird	✓				✓
44. Western bluebird	✓ ^a				✓
45. White-faced ibis					✓
Reptiles					
46. Belding's orange-throated whiptail	✓ ^a		✓	✓	✓
47. Blainville's horned lizard		✓	✓	✓	✓
Mammals					
48. Mountain lion			✓	✓	✓
49. Southern mule deer	✓ ^a		✓	✓	✓
Invertebrates					
50. San Diego fairy shrimp	✓ ^b		✓		
51. Thorne's hairstreak butterfly			✓		

Monitoring Program					
MSCP Covered Species and Habitats	TMP	ROE	Otay Ranch POM	Private Mitigation	Inventory Surveys
Habitats					
52. Vernal pool/alkali playa	✓				✓

NOTES:

a These species were incidental observations during TMP monitoring surveys

b This species was observed on the draft North County MSCP portion of a County Preserve and is presumed to utilize the South County MSCP areas of the same preserve.

SOURCES:

DPR ROE database

Environmental Science Associates. 2023. Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report. Prepared for Department of Parks and Recreation County of San Diego. January.

PDS Private Mitigation RMP Annual Reports. 2021.

SanBios GIS data

7.1 Preserve Biological Monitoring of County Lands

The MSCP monitoring program on County Preserves includes baseline inventory surveys, TMP monitoring, park improvement special status species monitoring, and other resource-specific monitoring. TMP monitoring was started in Spring 2022. Baseline surveys at two of the County Preserves were completed in Spring 2022. TMP monitoring was also performed at 11 County Preserves to monitor MSCP covered species and habitats. Annual residual dry matter (RDM) and peak forage production monitoring was performed on Ramona Grasslands Preserve.

Baseline inventory surveys identify and map existing biological resources within a property. They are used to develop or update preserve-specific RMPs. In addition to informing management activities for individual areas, these surveys provide baseline status of MSCP covered species for future monitoring efforts.

The TMP consists of a combination of surveillance-type monitoring (e.g., ongoing assessments of threats and habitat conditions, and presence/absence surveys to confirm presence of targeted species), baseline condition assessments to determine population-specific threats and conditions, and monitoring to assess the response of a particular species to specific management treatments. Rare plant monitoring follows the most current Management and Monitoring Strategic Plan Rare Plant Monitoring Protocol prepared by the SDMMMP, and additional monitoring protocols stated in the TMP. Habitats and species included in the TMP are listed in **Table 16**, *Targeted Monitoring Plan Species and Habitats by Location*. Monitoring frequency is provided in **Table 17**, *Targeted Monitoring Plan Species and Habitats Monitoring Frequency*.

The TMP goal to collect high-quality data to inform trends in occurrences and populations, evaluate the current habitat conditions, assess threats, and provide adaptive management recommendations to ensure that the conservation goals of the MSCP are being met. The TMP prioritizes preserve level monitoring to allocate funding where it is most needed. It includes focused management and monitoring goals and objectives for target resources and detailed monitoring protocols (Environmental Science Associates and ICF 2022). The County utilizes the

TMP to implement the biological goals and objectives discussed in MSCP Subarea Plan Section 6.4.1 and Section 14.5.

The TMP was revised in 2021 to incorporate 10 new preserves (5 MSCP Subarea Plan County Preserves and 5 draft North County MSCP County Preserves). The 2021 TMP update included seven additional species. The five Subarea Plan County Preserves included in the TMP update are Barnett Ranch Preserve, Furby-North Preserve, Tijuana River Valley Regional Park, Lawrence and Barbara Daley Preserve, and Stoneridge Preserve¹⁷. All MSCP County Preserves with RMPs are now included in the TMP monitoring efforts. In 2019, the TMP monitoring results from 2015-2019 were reviewed to determine lessons learned and further refine priorities, goals, objectives, and monitoring methods. The proposed revisions were integrated into the TMP update in 2021. In 2021, the Wildlife Agencies were included in the review process of updating TMP. In total, the TMP currently addresses monitoring and adaptive management within 20 open space parks and preserves.

¹⁷ Hellhole Canyon, Mt. Olympus, Santa Margarita, Simon, and Wilderness Gardens are also included in the TMP update and area located in the draft North County MSCP Plan Area.

TABLE 16. TARGETED MONITORING PLAN SPECIES AND HABITATS BY LOCATION

Common Name ^a	Boulder Oaks	Lakeside Linkage	El Capitan	El Monte	Stelzer	Oak oasis	Sycamore Canyon and Goodan Ranch	Ramona Grasslands ^b	Del Dios Highlands ^b	Lusardi Creek	Barnett Ranch	Tijuana River Valley Regional Park	Furby-North	Stoneridge
San Diego thornmint			✓				✓							
Otay tarplant													✓	
Orcutt's bird's-beak												✓		
Encinitas baccharis									✓					
Lakeside ceanothus	✓		✓		✓	✓								
Variiegated dudleya							✓			✓				
Willowy monardella							✓							
Spreading (Prostrate) navarretia								✓						
San Miguel savory	✓													
San Diego fairy shrimp								✓ ^b						
Arroyo toad								✓						
Tricolored blackbird								✓ ^b	✓ ^b					
Golden eagle			✓					✓	✓		✓			
Burrowing owl								✓ ^b						
Northern harrier												✓		
Coastal (San Diego) Cactus wren		✓												
Bald eagle								✓ ^b			✓			

Common Name ^a	Boulder Oaks	Lakeside Linkage	El Capitan	El Monte	Stelzer	Oak oasis	Sycamore Canyon and Goodan Ranch	Ramona Grasslands ^b	Del Dios Highlands ^b	Lusardi Creek	Barnett Ranch	Tijuana River Valley Regional Park	Furby-North	Stoneridge
Least Bell's vireo												✓		
Vernal Pool / Alkali Playa Habitat	✓							✓ ^b						

NOTES:

a Stephens' Kangaroo Rat (*Dipodomys stephensi*), Harbison's dun skipper (*Euphyes vestris harbisoni*), pallid bat (*Antrozous pallidus*), and Townsend's big-eared bat (*Corynorhinus townsendii*) are monitored as part of the TMP. These species are excluded here because they are not covered species under the MSCP Subarea Plan.

b Portions of the Ramona Grasslands and Del Dios Highlands Preserves are located within the draft North County MSCP. This species was observed in the draft North County MSCP portion of the Preserves and is presumed to utilize South County MSCP areas of the Preserves.

SOURCES:

Environmental Science Associates and ICF. 2015. Comprehensive Monitoring Plan. Prepared for Department of Parks and Recreation County of San Diego. July.

Environmental Science Associates and ICF. 2022. Targeted Monitoring Plan. Prepared for Department of Parks and Recreation County of San Diego. December.

TABLE 17. TARGETED MONITORING PLAN SPECIES AND HABITATS MONITORING FREQUENCY

Species or Habitat^a	Monitoring Frequency^b	Monitored in Reporting Year
San Diego thornmint	Population quantified and threats assessed annually for 5 years	Yes
Otay tarplant	Population quantified and threats assessed annually for 5 years	Yes
Orcutt's bird's-beak	Population quantified and threats assessed annually for 5 years	Yes
Encinitas baccharis	Population quantified and threats assessed every 2 years	No
Lakeside ceanothus	Photo-documentation and threats assessed every 5 years	No
Variegated dudleya	Population quantified and threats assessed annually	No
Willow monardella	Population quantified and threats assessed annually for 5 years	Yes
San Miguel savory	Population quantified and threats assessed annually for 5 years	No
Arroyo toad	Population and habitat quantified, and threats assessed annually for 5 years	Yes
	RDM monitoring annually	Yes
Tricolored blackbird	Presence/absence surveys and habitat and threats assessment annually for 5 years	Yes
Golden eagle	Foraging study monthly for 3 years	Yes
Burrowing owl	Presence/absence surveys, and habitat and threats assessment annually	Yes
	RDM monitoring annually	Yes ^c
Coastal (San Diego) cactus wren	Avian point counts monthly during breeding season, annually for 10 years	Yes
	Qualitative habitat and threat assessment and photo monitoring monthly during breeding season, annually for 5 years	Yes
Northern harrier	Nest monitoring annually for 5 years	Yes
	Threats assessment annually for 5 years	Yes
Bald eagle	Foraging study monthly for 3 years	Yes
Least Bell's vireo	Presence/absence and nest monitoring surveys annually for 5 years	Yes ^d
	Monitor shot hole borer annually or based on DPR Emergent Tree Pests Plan recommendation	No
	Monitor habitat recovery (Tijuana River Valley Regional Park only), annually or based on DPR Emergent Tree Pests Plan recommendation	No

Species or Habitat ^a	Monitoring Frequency ^b	Monitored in Reporting Year
	Brown-headed cowbird trapping, as needed (March 15 – June 1)	Yes ^d
Vernal pool / alkali playa habitat	Quantitative vegetation and wet-season fairy shrimp monitoring every 3-5 years	Yes ^e
	Qualitative monitoring early and late season, annually for 5 years	No
	RDM monitoring annually	Yes
	Dry season fairy shrimp monitoring every 10 years	No
	Spreading (Prostrate) navarretia (<i>Navarretia fossalis</i>) monitored as part of qualitative monitoring	No
	San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>) monitored as part of qualitative monitoring	No

NOTES:

a Stephens' kangaroo rat (*Dipodomys stephensi*), Harbison's dun skipper (*Euphyes vestris harbisoni*), pallid bat (*Antrozous pallidus*), and Townsend's big-eared bat (*Corynorhinus townsendii*) are monitored as part of the TMP.

These species are excluded here because they are not covered species under the MSCP Subarea Plan.

b Indicated monitoring frequency is after the baseline is established for the species or habitat.

c RDM monitoring only occurring at Ramona Grasslands Preserve, in draft North County MSCP

d Monitoring and brown-headed cowbird trapping only occurred at Santa Margarita Preserve, in draft North County MSCP

e Only wet-season San Diego fairy shrimp surveys were performed in 2022

SOURCE:

Environmental Science Associates and ICF. 2015. Comprehensive Monitoring Plan. Prepared for Department of Parks and Recreation County of San Diego. July.

Baseline Inventory Surveys

Baseline inventory surveys are conducted on County Preserves to establish what biological and cultural resources are on-site. These surveys allow for the development of preserve-specific RMPs with adaptive management strategies to ensure the sustainable management and monitoring of the sensitive resources, as well as the RMPs' Vegetation Management Plans, Grazing Management Plans, and Public Access Plans. Baseline biodiversity resources surveys include vegetation communities mapping, rare and sensitive plant species, invasive and non-native plant species, avian, herpetological, butterfly, bat, small mammal, medium mammal, and large mammal surveys. Biodiversity surveys take place over the course of one calendar year to maximize the potential to observe any late season flowering plant species or migratory animal species on the preserve land.

Baseline biological resources surveys were started in Spring 2020 for Peutz Valley Preserve, Skyline Preserve, Iron Mountain Preserve, and additions to Lakeside Linkage Preserve and Ramona Grasslands Preserve. Peutz Valley Preserve, 240 acres, and a 75-acre addition to Lakeside Linkage Preserve, were acquired in 2018. The 267-acre Skyline Preserve, which is managed by the EHC, was acquired in 2019 as was the 160-acre Iron Mountain Preserve. Also acquired in 2019 was a 123-acre addition to Ramona Grasslands Preserve. Baseline inventory surveys were completed in 2021 at Iron Mountain Preserve, and the additions to Ramona Grasslands and Lakeside Linkage Preserves. Baseline inventory surveys were completed in 2022 for Skyline and Peutz Valley Preserves. During the baseline surveys at Skyline Preserve, six special-status plant species and 21 special-status wildlife species were observed or

detected, seven of which are covered under the MSCP Subarea Plan. In addition, USFWS-designated critical habitat for Hermes copper butterfly (*Lycaena hermes*) occurs on 68 acres of the Preserve.

During baseline surveys at Dictionary Hill Preserve in 2019, the Quino checkerspot butterfly host plant was observed but the host plant's distribution was not mapped. In 2020, the area inhabited by the Quino checkerspot butterfly host plant was fully mapped within the Preserve to inform the County of this sensitive species' habitat and guide subsequent habitat enhancement projects. The baseline surveys also revealed that up to four territories of coastal California gnatcatcher were located on the Preserve. The data from the Dictionary Hill Preserve baseline surveys guided the County's habitat restoration efforts and the County applied for a grant to enhance and expand the existing Quino checkerspot butterfly host plant extent as well as to restore and enhance approximately four acres of coastal sage scrub habitat, which provides nesting and foraging habitat for the coastal California gnatcatcher. Additional work was approved to expand and enhance monarch butterfly habitat, as well. The County was awarded the WCB Proposition 68 grant, supplemented by County matching funds, and work commenced in summer of 2021 with the development of a habitat restoration plan. The implementation of the habitat restoration plan began in 2022 and the project will be finalized in 2024. The WCB grant is also discussed in Section 6.3, Grant Funded Projects.

Targeted Monitoring Plan

Thirteen MSCP covered species and one habitat were monitored across 11 County Preserves as part of the TMP monitoring efforts in the reporting year (**Table 18, Targeted Monitoring Plan Species Monitored in Previous Reporting Years: Year-to-Year Comparison**). Four of the plant populations increased including Otay tarplant at Furby-North Preserve and San Diego thornmint at Sycamore Canyon and Goodan Ranch Preserve. Monitoring followed the methods and key considerations as outlined in the TMP (Environmental Science Associates and ICF 2022) for each species and habitat type. An additional 10 MSCP covered species were incidentally observed during TMP monitoring (**Table 19, Incidental Observations of Other MSCP Covered Species During TMP Surveys in Reporting Year**).

The TMP includes management objectives for target species and habitats. For example, for all TMP MSCP covered plant species, management objectives include maintaining invasive, non-native plant cover to less than 20% cover (Environmental Science Associates and ICF 2022). Monitoring completed in the previous reporting years includes an assessment of management needs for the following year. Implementation of management actions is documented in Chapter 6, Preserve Management.

TABLE 18. TARGETED MONITORING PLAN SPECIES MONITORED IN PREVIOUS REPORTING YEARS: YEAR-TO-YEAR COMPARISON

Species	Location/Measurements	2015	2016	2017	2018	2019	2021	2022
San Diego thornmint	<u>Sycamore Canyon and Goodan Ranch</u> Population estimate, individuals		20,000-30,000	777,300	5,525	27,200	12,990	41,921
Orcutt's bird's-beak	<u>Tijuana River Valley Regional Park</u> Population estimate, individuals						123	315
Otay tarplant	<u>Furby-North</u> Population estimate, individuals						1	610
Lakeside ceanothus	<u>Boulder Oaks</u> Population estimate, individuals	600					1,100	No monitoring
	<u>El Capitan</u> Population estimate, individuals	400					450	No monitoring
	<u>Louis A. Stelzer</u> Population estimate, individuals	135					428	No monitoring
	<u>Oakoasis</u> Population estimate, individuals	225					573	No monitoring
Encinitas baccharis	<u>Del Dios Highlands</u> Population estimate, individuals	250		344		350	350	No monitoring

Species	Location/Measurements	2015	2016	2017	2018	2019	2021	2022
San Miguel savory	<u>Boulder Oaks</u> Population estimate, individuals		184	145	145	99	127	No monitoring
Variegated dudleya	<u>Lusardi Creek</u> Population estimate, individuals		199	199	199	33	0	No monitoring
	<u>Sycamore Canyon and Goodan Ranch</u> Population estimate, individuals		11	60		30	1,275	No monitoring
Willow monardella	<u>Sycamore Canyon and Goodan Ranch</u> Population estimate, individuals	441	238	284	283	364	305	332
Golden eagle	<u>Ramona Grasslands</u> Species Observed	yes	yes			yes	yes	yes
	Off-site Species Nesting	no	yes			yes	yes	yes
	<u>Barnett Ranch</u> Species Observed						yes	yes
Tricolored blackbird	<u>Ramona Grasslands</u> Species Observed			yes	yes	yes	No monitoring	no
	Species Nesting			no	no	no	No monitoring	no
Burrowing owl	<u>Ramona Grasslands</u> Species Observed		yes ^b		no	no	No monitoring	no
	Species Nesting		no		no	no	No monitoring	no

Species	Location/Measurements	2015	2016	2017	2018	2019	2021	2022
Coastal (San Diego) cactus wren	<u>Lakeside Linkage</u> Species Observed				yes	yes	No monitoring	yes
	Species Nesting				no	yes	No monitoring	yes
Bald eagle	<u>Ramona Grasslands</u> Species Observed	yes	yes			yes	yes	yes
	Species Nesting	yes	yes ^c			yes ^c	no	yes
Northern harrier	<u>Tijuana River Valley Regional Park</u> Species Observed						yes	yes
	Species Nesting						yes	yes
Least Bell's vireo	<u>Tijuana River Valley Regional Park</u> Species Observed						yes	yes
	Species Nesting						yes	-

Species	Location/Measurements	2015	2016	2017	2018	2019	2021	2022
Arroyo toad (ARTO)	Ramona Grasslands # of occupied reaches	No monitoring	9	9	6	7	0 reaches occupied 2 juvenile ARTO detected in upland area	0 ARTO tadpoles detected
Vernal pool/alkali playa	Ramona Grasslands # of pools supporting at least one USACE indicator species	No monitoring	15	No monitoring	11	17	15	No monitoring
	# of pools supporting spreading (prostrate) navarretia	No monitoring	0	No monitoring	0	0	0	No monitoring
	# of pools supporting San Diego fairy shrimp	No monitoring	14	No monitoring	0	7	0	4

NOTES:

a Stephens' kangaroo rat (*Dipodomys stephensi*) is monitored as part of the Target Monitoring Plan. It is excluded here because it is not a covered species under the MSCP Subarea Plan.

b One burrowing owl was reported by DPR staff. None were observed during surveys.

c Bald eagle nest territory is located on Ramona Grasslands Preserve within the NC MSCP portion of the Preserve. Successful nesting was documented 2014-2016. Nesting was documented but not successful in 2019, 2021, and 2022.

d Burrowing owl monitoring results from the San Diego Zoo Institute for Conservation Research are provided in parentheses.

SOURCES:

ICF International. 2017. CMP Resource-Specific Monitoring 2016 Annual Report. November. Prepared for: County of San Diego Department of Parks and Recreation.

ICF International. 2018. CMP Resource-Specific Monitoring 2017 Annual Report. January. Prepared for: County of San Diego Department of Parks and Recreation.

ICF. 2018. Targeted Monitoring Plan Resource-Specific Monitoring 2018 Annual Report. October. Prepared for: County of San Diego Department of Parks and Recreation.

Environmental Science Associates. 2023. Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report. Prepared for Department of Parks and Recreation County of San Diego. January.

Environmental Science Associates. 2022a. *Raptor Foraging Surveys & Nest Monitoring 2021-2022 Summary Report Ramona Grasslands Preserve & El Capitan Preserve for the County of San Diego Department of Parks and Recreation*. Prepared for Department of Parks and Recreation San Diego County. December.

TABLE 19. INCIDENTAL OBSERVATIONS OF OTHER MSCP COVERED SPECIES DURING TMP SURVEYS IN REPORTING YEAR

Species	Ramona Grasslands	Sycamore Canyon and Goodan Ranch	Tijuana River Valley Regional Park	Furby-North	Lakeside Linkage
1. San Diego barrel cactus			✓		
2. Orange-throated whiptail			✓		✓
3. Cooper's hawk	✓		✓		✓
4. American Peregrine falcon	✓				
5. Western bluebird	✓		✓		✓
6. Coastal California gnatcatcher	✓	✓	✓	✓	✓
7. Least Bell's vireo			✓		
8. Tricolored blackbird	✓				
9. Southern California rufous-crowned sparrow					✓
10. Southern mule deer	✓				

SOURCE:

Environmental Science Associates. 2023. Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report. Prepared for Department of Parks and Recreation County of San Diego. January
 Environmental Science Associates. 2022a. *Raptor Foraging Surveys & Nest Monitoring 2021-2022 Summary Report Ramona Grasslands Preserve & El Capitan Preserve for the County of San Diego Department of Parks and Recreation*. Prepared for Department of Parks and Recreation San Diego County. December.

San Diego Thornmint

Monitoring Location: Sycamore Canyon and Goodan Ranch Preserve

Plot Establishment Dates: April 22, May 4-5, 2016 (10 plots); and May 4, 2017 (added 1 plot)

Reporting Year Monitoring Dates: June 14–16, June 28–July 1, and July 5–6, 2022

Number of Permanent Monitoring Plots: 11

Reporting Year Population Estimate: 41,921 plants

The San Diego thornmint population estimate was 41,921 individuals at Sycamore Canyon and Goodan Ranch in 2022. Incidentally observed special-status plant species include small-flowered bindweed at six of the 11 monitoring plots, Palmer's grappling hook at nine of the 11 monitoring plots, and ashy spike-moss at two of the 11 monitoring plots. Across all 11 monitoring plots, San Diego thornmint habitat contained invasive, non-native plants, particularly purple false brome and tocalote. The annual population fluctuates based on rainfall. High rainfall years result in a smaller population size due to increased competition from invasive, non-native plants (Preston 2019). Population estimates range between a low of 5,525 in 2018 to a high of 777,300 individuals in 2017 (**Table 18**).

Monitoring results indicate the importance of invasive, non-native plant control for this species. Eight of the 11 plots would benefit from invasive, non-native plant control (ESA 2022). The TMP recommends overall invasive, non-native plant cover be kept to less than 20% and cover of purple false brome be kept to less than 10% (Environmental Science Associates and ICF 2015). Non-native plant cover of plots 1, 2, 4, 5, 7, 8, 9, and 11 were recorded at 14.6%, 21.8%, 41.6%, 21.2%, 34.1%, 20.8%, 21.4%, and 31.6%, respectively. The remaining plots were under 10% total non-native plant cover.

Focused management occurred in 2022 in response to the high thatch and invasive non-native plant cover observed in 2021. Management consisted of carefully hand-pulling target invasive non-native species within an approximately 0.93-acre management area where San Diego thornmint populations were previously detected. Line trimmers were then used to dethatch remaining non-native species surrounding San Diego thornmint occurrences within approximately 12-meter radius circles around the established monitoring plot center points. Non-native species consisted predominantly of purple false brome. No herbicide was used.



San Diego Thornmint is a Targeted Monitoring Plan species found in Sycamore Canyon and Goodan Ranch Preserve.

Orcutt's bird's-beak

Monitoring Location: Tijuana River Valley Regional Park
Plot Establishment Dates: June 29, 2016 and June 5, 2017
Reporting Year Monitoring Dates: June 1, 2022 and June 6, 2022
Number of Permanent Monitoring Plots: 2
Reporting Year Population Estimate: 315 plants

The Orcutt's bird's beak population estimate was 315 individuals at Tijuana River Valley Regional Park in 2022. A total of 81 Orcutt's bird's-beak plants were estimated within the monitoring plots. Additional special-status plant species, such as western ponysfoot, San Diego barrel cactus, and ashy spikemoss, were also observed within the monitoring plots.

Monitoring results indicate the importance of invasive, non-native plant control for this species. The Orcutt's bird's-beak habitat contained invasive non-native grasses and herbs, particularly red brome, and Saharan mustard. Routine management for 2022 included the control of invasive grasses and forbs, protecting soils, and controlling off-trail use.

Otay Tarplant

Monitoring Location: Furby-North Preserve
Plot Establishment Dates: June 29, 2016
Reporting Year Monitoring Dates: May 13, 2022 and May 23, 2022
Number of Permanent Monitoring Plots: 1
Reporting Year Population Estimate: 610 plants

The Otay tarplant population estimate was 610 plants at Furby-North Preserve in 2022. A total of 141 Otay tarplant plants were estimated within the monitoring plot. Coastal California gnatcatcher was the only additional special-status species detected within the plot. Additional special-status species observed outside of the monitoring plot include western dichondra. The Otay tarplant population rebounded from a low of an estimated one plant at Furby-North Preserve in 2021 due to drought conditions. The Otay tarplant habitat contained invasive non-native grasses and herbs, particularly soft brome, compact brome, and crown daisy. Routine management consisted of carefully hand-pulling invasive non-native grasses directly adjacent to Otay tarplant individuals which occurred on July 15, 2022. Thatch and invasive non-native grasses within and adjacent to the Otay tarplant population were removed to reduce invasive grass and forb to 20 percent absolute cover.

San Miguel Savory

Monitoring Location: Boulder Oaks Preserve
Plot Establishment Dates: April 6 and 16, 2016
Number of Permanent Monitoring Plots: 2

As outlined in the TMP, monitoring for San Miguel savory is recommended at Boulder Oaks Preserve every three years and is next scheduled for 2023; therefore, rare plant monitoring for this species was not conducted in 2022. However, focused management was conducted in 2022 based on 2021 TMP monitoring results and adaptive management recommendations.

Routine management of the San Miguel savory occurred around each monitoring plot on May 26, 2022. Non-native plants within 12 inches of the San Miguel savory plants and the

management area were carefully removed by hand. Although non-native plant cover is currently very low, the area should continue to be monitored for invasive, non-native plants that could threaten this population of San Miguel savory. In addition, because vegetation within the San Miguel savory occurrences is very thick and on steep slopes, care should be taken when performing monitoring to not trample the San Miguel savory plants, and to avoid other native plants to the extent possible (ESA 2022).

Variegated Dudleya

Monitoring Location: Lusardi Creek Preserve

Plot Establishment Dates: April 27, 2016

Number of Permanent Monitoring Plots: 1

As outlined in the TMP, monitoring for variegated dudleya is recommended at Lusardi Creek Preserve every 3 years and is next scheduled for 2023; therefore, rare plant monitoring for this species was not conducted in 2022. However, management for variegated dudleya at Lusardi Creek Preserve occurred on May 23, 2022 and June 7, 2022. Invasive non-native plant species within the previously installed herbivory fencing were carefully removed by hand to reduce the amount of standing biomass from invasive non-native plants and encourage native plant recruitment. Per the TMP, invasive non-native plants within 18 inches of the variegated dudleya should be carefully pulled by hand; however, no variegated dudleya plants were detected in 2022. Population estimates range between 199 to zero individuals from 2016 to 2021 (**Table 18**). Routine management of invasive non-native plants included trimming with a mechanical weed trimmer 1 to 2 inches from the ground. The removed thatch was raked and properly disposed of off-site. In addition, herbivory fencing was installed around the variegated dudleya monitoring plot.

Monitoring Location: Sycamore Canyon and Goodan Ranch

Plot Establishment Dates: June 23, 2017 and April 14, 2021

Number of Permanent Monitoring Plots: 2

As outlined in the TMP, monitoring for variegated dudleya is recommended at Sycamore Canyon/Goodan Ranch Preserve every three years and is next scheduled for 2023; therefore, rare plant monitoring for this species was not conducted this year. However, management for variegated dudleya at Sycamore Canyon/Goodan Ranch Preserve occurred on May 24, 2022 and July 7, 2022. Management consisted of carefully hand-pulling target invasive non-native species, predominantly purple false brome and tocalote, with a focus on areas where variegated dudleya populations were previously detected. Once hand-pulling was completed, line trimmers were used to cut and remove remaining invasive non-native species surrounding variegated dudleya occurrences. All cut biomass was manually collected, bagged, and properly disposed of at an approved off-site facility.

Willow Monardella

Monitoring Location: Sycamore Canyon and Goodan Ranch

Plot Establishment Dates: July 7, 2015, June 22, 2016 and June 9, 2021

Reporting Year Monitoring Dates: June 7, 2022

Number of Permanent Monitoring Plots: 3

Reporting Year Population Estimate: 332

The three willow monardella monitoring plots within Sycamore Canyon/Goodan Ranch Preserve were monitored in 2022. A total of 69 willow monardella plants were estimated within the monitoring plots. The entire population within the Preserve is an estimated 332 individual plants. No special-status plant species were observed within the three monitoring plots. Across all monitoring plots, willow monardella habitat contained invasive non-native grasses and herbs, particularly slender wild oat, fountain glass, purple false brome, and brome grasses. However, the percent cover of invasive non-native plants was below the target when management is required. No management occurred in 2022. Population variability may be attributed to how surveyors count clumps of plants rather than annual fluctuations in population size (ESA 2022). The population estimates range from a low of 238 in 2016 to a high of 441 in 2017 (**Table 18**).

Arroyo Toad

Monitoring Location: Ramona Grasslands Preserve

Stream Reaches: USGS-established monitoring reaches along Santa Maria Creek

Assessment: Visual surveys for life stages and threat and habitat assessment

Reporting Year Monitoring Dates: May 19, 2022

In 2022, no arroyo toad clutches, juveniles or adults were observed within Santa Maria Creek during the surveys. Precipitation within the county was below average in 2022, and survey sites were dry or nearly dry. Occupied reaches vary from a low of zero in 2022 and highs of nine in 2016 and 2017 (**Table 18**).

Habitat suitable to support arroyo toad calling and breeding (i.e., shallow pooling and adjacent unshaded banks) observed along Santa Maria Creek in the past (i.e., 2019 monitoring) was not present during the 2022 surveys. Much of the creek that previously supported shallow pooling and adjacent, unvegetated calling banks, was now either dry or stagnant with no flow. Two exotic predators were also noted during surveys: red-swamp crayfish and bullfrog. Bullfrog eradication surveys will be performed in 2023 in Ramona Grasslands Preserve. Ongoing rangeland management practices that keep cattle out of Santa Maria Creek during the arroyo toad breeding season will be maintained.

Northern Harrier

Monitoring Location: Tijuana River Valley Regional Park

Habitat surveyed: Suitable foraging and nesting habitat

Assessment: Visual surveys and habitat and threat assessment

Reporting Year Monitoring Dates: March 3, April 18, May 17, and June 29, 2022

Reporting Year Species Observed: Yes

Reporting Year Species Nesting: Yes

In 2022, three territories (Territories #1, #4, and #5) were confirmed within the Tijuana River Valley Regional Park. Northern harriers were observed during all surveys with the highest observations during the month of March. Territory 1 fledged and the nest site was in close proximity to a public trail and a known historic nest location. Territory 5 did not fledge and the nest site location was adjacent to an abandoned road between Sunset Avenue and Wardlow Avenue. This abandoned road is used by the public and it is unknown if incubation ever occurred at this nest site. The nest site in Territory 4 was not located and assumed to have failed given the presence of individual/pair sightings and lack of fledglings observed.

Up to two other territories (Territories 2 and 3) have potential to occur in the Park but were not confirmed. Territory 2 is a potential territory due to the presence of a pair early in the breeding season. Territory 3 may also be a potential territory, but due to the lack of pair observations early in the breeding season, this territory may not have been occupied in 2022. A subadult northern harrier was seen foraging within the abandoned agricultural field north of the Tijuana River Valley Sports Complex in the Park, indicating that the Park also supports foraging habitat for non-breeding individuals. Overall, there were fewer northern harrier observations throughout the Park in 2022 compared to 2021, especially within the area near Territory 3 and the scrub habitat south of Sunset Avenue and west of Saturn Boulevard.

In 2022, the continued threats to nesting territories were determined to include nest disturbance and nest predation that may diminish the success of the species over time, without effective management. Installing a trail counter on the trail in the vicinity of the Territory #1 nest site to track trail use may provide a trail use baseline and inform if seasonal trail closure is warranted to prevent nest disturbance. Unauthorized dumping of trash and litter was detected during 2022 surveys, and an expected increase of trash from the recently opened campground could encourage increased park usage by northern harrier nesting predators. Regularly maintaining trash cans and removing trash around the park campground may prevent attraction of nest predators. Trash removal is especially important during the nesting season due to the proximity of the campground to Territory #1. Trash cans in the park campground will be maintained and trash observed around the campground will also be removed.

Tricolored Blackbird

Monitoring Location: Ramona Grasslands Preserve

Habitat surveyed: suitable foraging and nesting habitat

Assessment: Visual surveys and habitat and threat assessment

Reporting Year Monitoring Dates: June 8, 2022

Reporting Year Species Observed: No

Reporting Year Species Nesting: No

No tricolored blackbirds were detected in the Ramona Grasslands Preserve in 2022. In addition, no nesting was documented on or adjacent to the Preserve. Two adult tricolored blackbirds were observed flying off-site on the adjacent Ramona Municipal Water District property. In the past, tricolored blackbirds have been documented foraging annually in Ramona Grasslands with nesting occurring on the adjacent property (**Table 18**).

The TMP management goal for tricolored blackbirds is to maintain suitable foraging and nesting habitat on Ramona Grasslands Preserve. Based on the habitat and threats assessment, the Preserve has low potential for tricolored blackbird nesting habitat. There are no wetland/marsh areas with protective substrate/vegetation on the Preserve within a large enough area that can support a breeding colony of tricolored blackbirds. Ramona Grasslands Preserve still provides suitable foraging habitat but currently lacks moderate- to high-quality nesting habitat. No adaptive management recommendations are suggested at this time for the Preserve due to the lack of moderate- to high-quality tricolored blackbird nesting habitat (ESA 2022).

Burrowing Owl

Monitoring Location: Ramona Grasslands Preserve

Habitat surveyed: 9 monitoring polygons

Assessment: Visual surveys and habitat and threat assessment

Reporting Year Monitoring Dates: March 23, 24, April 21, May 26, 27, June 16, 17, July 7

Reporting Year Species Observed: No

Reporting Year Species Nesting: No

Burrowing owls were not documented in Ramona Grasslands in 2022. However, the San Diego Zoo Institute for Conservation Research conducted a burrowing owl survey on July 7, 2022 and detected burrowing owl sign in the form of a pellet and whitewash in the northwest portion of the Preserve. The habitat and threats assessment evaluated vegetation and habitat suitability for the species. Due to their short stature, burrowing owls like short grasses to better see their surroundings and predators. Ground squirrel burrow complexes provide burrows for nesting. During the first survey in March, the grass height was relatively short (between four and 12 inches) providing conditions suitable for high detectability for owls, their burrow, and/or their sign. Due to growth of summer annual plants, the vegetation was taller during the surveys from April through June (between 16 and 36 inches) providing low detectability for owls, their burrows, and/or their sign.

The TMP management goal for burrowing owl is to maintain suitable foraging and nesting habitat on Ramona Grasslands Preserve. Based on the 2022 breeding burrowing owl surveys, six of the nine monitoring polygons are recommended to be modified to maximize the potential to detect and locate burrowing owls, their burrows, and/or their sign on the Preserve during future surveys. Proposed revisions to monitoring area polygons considered presence of rocky outcrops, more open grassland areas, increased squirrel activity, and higher density of burrows. In addition, reducing vegetation height around suitable burrows is recommended to increase habitat suitability for dispersing owls from the introduced population. Future monitoring for burrowing owl should be coordinated with the San Diego Zoo Institute for Conservation Research to implement consistent monitoring protocols, limit duplication of efforts, provide cumulative adaptive management recommendations, and provide transparency on any implemented management activities.

Coastal Cactus Wren

Monitoring Location: Lakeside Linkage Preserve

Habitat surveyed: 6 avian point count stations

Assessment: Avian point counts and habitat and threat assessment

Reporting Year Monitoring Dates: March 16, April 21, May 20, July 1

Reporting Year Species Observed: Yes

Reporting Year Species Nesting: Yes

Four avian point count surveys were conducted at the six previously established point count locations in 2022. During the April avian point count survey, one San Diego cactus wren was detected. In addition, a pair were observed in between avian point count stations 1 and 2 but were not documented during the surveys. During the May and June survey periods, three individual San Diego cactus wrens were observed foraging together, but again, were not documented during the point count surveys.

San Diego cactus wren nesting behavior was not documented on- or off-site Lakeside Linkage Preserve in 2022. One recently used nest was observed in the southern restoration area in the central property of the Preserve but was likely only used for roosting during the non-breeding season as the nest became dilapidated as surveys continued throughout the year. No breeding nests were detected. During the last survey period in July 2022, a newly built nest was observed within the northern restoration area in the central property of the Preserve. There seemed to be no preference as to what species of cactus, coast prickly pear (*Opuntia littoralis*) or coast cholla (*Cylindropuntia prolifera*), the individual or pair used in 2022.

The TMP management goal for San Diego cactus wren is to restore, enhance, and maintain suitable nesting habitat for San Diego cactus wren on the Lakeside Linkage Preserve (ESA and ICF 2022). As such, removal of native vegetation within established cacti patches is recommended at both restoration sites to prevent predator access to nest sites and will be addressed in 2023.

Vernal Pool/Alkali Playa

Monitoring Location: Ramona Grasslands Preserve

Habitat surveyed: subset of 20 vernal pools

Assessment: Qualitative surveys in wet and dry season and habitat and threat assessment

Reporting Year Monitoring Dates: March 5, March 14, and April 3, 2022

Reporting Year Habitat Function: 4 of 20 pools

Rainfall in 2022 was below average, with 6.5 inches of rain reported by Ramona Airport during the hydrologic period of January to September 2021 (NOAA 2022). Only a subset of the 20 study locations were inundated and subsequently sampled during wet-season surveys. Wet season surveys were conducted at study locations with three centimeters or more of standing water following 24 hours of significant rain events (generally considered to be 0.25 inches or more of rain in a 24-hour period). At no point during the wet-season surveys were all 20 study locations inundated with water. San Diego fairy shrimp were documented by the thousands in study locations EV3, E59 and CS, and by the hundreds in E61. The remaining 16 study locations did not yield any fairy shrimp during these surveys. In addition, a total of 174 Parish's brittlescale plants were estimated within the monitoring plot. The entire population of Parish's brittlescale within Ramona Grasslands County Preserve in 2022 is estimated at 282 plants.

The TMP recommends overall invasive non-native plant cover within vernal pool basins to be kept to less than 20 percent (ESA and ICF 2022). Formal qualitative and quantitative monitoring was not conducted this year; however, based on previous monitoring efforts and observations made during the 2021/2022 wet-season surveys, vernal pool and alkali playa habitat suitability has declined. This is likely due to a lack of year-to-year natural recruitment of native species and an increase in invasive non-native grass cover, resulting in less complex vegetation composition and structure within the pools and playas. Based on 2022 monitoring results, invasive non-native plant species treatment/removal was performed in 16 vernal pools and three alkali playa features within Ramona Grasslands Preserve in 2022. Invasive, non-native plant management was performed after the ground was completely dry and native plants had generally senesced.

Otay Ranch Preserve Monitoring

Otay Ranch Preserve is jointly owned by the County and City of Chula Vista (Otay Ranch POM) and is counted towards the assembled MSCP Preserve as dedicated private hardline mitigation. Monitoring of MSCP covered species and habitats ensures that the covered species are thriving and that any potential threats can be quickly addressed. The 2022 monitoring tasks were conducted in support of the Phase 1 and Phase 2 RMPs (County of San Diego 1993 and RECON 2018).

In 2022, monitoring efforts focused on vegetation mapping, photographic monitoring, surveys for rare plant species, Quino checkerspot butterfly, coastal California gnatcatcher, and least Bell's vireo. Tree health surveys were conducted to document the effects of the invasive Kuroshio shot hole borer (KSHB) within riparian habitat on multiple parcels of the Preserve. Gold-spotted oak borer monitoring was also conducted. Golden eagle camera monitoring and wet season fairy shrimp surveys were conducted in both 2021 and 2022. Additionally, monitoring efforts included site visits to the various Otay Ranch parcels to document access issues, sensitive species, any newly detected species, non-native plant species, and the overall health of the sites. Site-specific monitoring took place from January 1 to December 31, 2022 and included site visits to cover all property that is currently included as part of the 4,370-acre Otay Ranch Preserve. Regular coordination meetings between the Preserve Steward/Biologist and Otay Ranch POM occurred to track progress of management and monitoring activities. No baseline surveys were conducted on the Preserve in 2022. All 2022 management and monitoring activities are included in the 2022 Annual Report for Otay Ranch Preserve (**Appendix N**).

Species Specific Adaptive Management Monitoring

Monitoring of special-status species not included in the TMP or supplemental to the TMP monitoring is also a component of the County's monitoring program. The information gathered during these surveys provides guidance on a species-specific level as to when, if any, adaptive management strategies need to be implemented on County Preserves. Species specific monitoring occurred in 2022 as described below.

Raptor Foraging Study at Ramona Grasslands Preserve

Raptor use and foraging behavior is monitored at the Ramona Grasslands Preserve to understand bald eagle, golden eagle, and raptor abundance and distribution; to inform adaptive management and public use; and to evaluate potential threats. The study includes monitoring the year-to-year status of the off-site golden eagle territory adjacent to the preserve. Study methodology includes raptor point count field surveys and golden eagle nest monitoring.

Thirteen raptor species were detected at both the northeast and southwest survey areas during the 2021-2022 raptor point count surveys. Seven of the 13 raptors were MSCP covered species, which are golden eagle, bald eagle, American peregrine falcon, northern harrier, Cooper's hawk, ferruginous hawk, and sharp-shinned hawk. Red-tailed hawk, red-shouldered hawk, prairie falcon, merlin, American kestrel, and osprey were also observed. Red-tailed hawk was the most commonly observed raptor species within and adjacent to the Preserve. Raptor species richness was highest during the fall season. Raptor species richness was also higher in the northeast survey area than the northwest survey area throughout the year (ESA 2022a).

A golden eagle pair with a juvenile in tow was observed from August through December 2021 within the Preserve. It is assumed the family group was from the Bandy Canyon territory.

Typically, the juvenile would follow the adults around within the survey areas, perching on the rocky outcrops and oak trees. Foraging behavior by the resident pair and the 2021 fledgling was noted on the Preserve during the fall, winter, and summer seasons. The resident pair successfully fledged two young in 2019 and one young in 2020 and 2021. New nesting material appeared to have been placed by the pair on the same nesting site, but no chicks or activity at the nest site was observed. Due to the lack of nesting behavior and no observation of a chick, the nest is assumed to have failed due to unknown causes (ESA 2022a).

Golden eagle observations on the Preserve were evenly split between the two survey areas during the 2021–2022 survey period, which had not been the case in previous survey periods. One subadult golden eagle with a patagial tag marked #65 was identified on two occasions during the winter season of the survey period. In addition, on January 5, 2022, U.S. Geological Survey (USGS) was able to capture, tag, and place a transmitter on one of the adult golden eagles associated with the Bandy Canyon territory. This individual was patagial tagged, marked with #0E, and sexed as male. The winter season was when the highest number of individual golden eagles were observed: two juveniles, one subadult, and one adult. However, because one subadult golden eagle was tagged, and there were observations of the Bandy Canyon resident pair with the juvenile, there were up to six distinct golden eagles using the Preserve.

Bald eagles were detected in each season but were not detected during each survey within the Preserve. During the fall season, a pair of bald eagles was actively seen nest building at a new site within the northeast survey area. It is assumed the nesting pair observed in 2022 is the newly established pair that arrived in October 2020. This territory still appears to be contentious, as three adults were documented in the Preserve during both the fall and spring season, leading to territorial displays such as talon locking and aggressive pursuits of the third adult. By the second survey in January, one bald eagle was seen incubating on the nest. However, by the spring season the nest had failed with no known causes. Golden eagles and other raptors nested in or adjacent to the Preserve. The golden eagle nest site appeared to have new nesting material, but no chicks or activity at the nest was observed. The nest is assumed to have failed for unknown reasons. One bald eagle pair was observed nesting on the Preserve in the vicinity of the nest tree used in previous years. The adult pair did incubate eggs but appeared to have failed (for unknown reasons) during this nesting phase. One American kestrel nest was also observed within the Preserve (ESA 2022a).



A golden eagle, an MSCP covered species, perching at Ramona Grasslands Preserve.

Golden Eagle Nest Monitoring at El Capitan Preserve

The El Capitan Preserve has an established golden eagle nesting territory on El Cajon Mountain (ESA 2022a). This is the first year DPR has conducted golden eagle nest monitoring at the Preserve. The purpose of the monitoring was to determine the location and status of the golden eagle nesting site.

Nest monitoring surveys were conducted between January and May 2022. The monitoring was conducted from an observation point located in El Monte County Park, approximately 1,900 meters from the closest cliff face on El Cajon Mountain. This vantage point provided an unobstructed view of the nest site to observe the golden eagle behavior without disturbance. The nest site was determined to be located west of El Cajon Mountain situated on top of a cut-out rock; the nest site is adjacent to El Capitan Preserve but located on property owned by San Diego Gas and Electric.

Five separate monitoring surveys were conducted to determine golden eagle nest status and success. A pair of adult golden eagles were observed at the nesting site over the course of the surveys. It was determined that one chick was successfully fledged in 2022.

Residual Dry Matter Monitoring at Ramona Grasslands Preserve

Ramona Grasslands Preserve is divided into 12 management units, 10 of which are grazed. The grazing program enhances rare plant and wildlife populations and reduces invasive, non-native plants. To measure success, species and habitat-specific RDM targets were established. RDM is the amount of dry grass remaining after the growing season and grazing. Typically, a

lower RDM is desirable to prevent the build-up of thatch (e.g., dried grass) and to allow for greater visibility for native wildlife (e.g., shorter grass length). Target RDM values vary depending on the target plant or animal species management and range from 300 – 2,100 lbs./acre.

RDM monitoring was performed in September 2022. Monitoring results were a low of 911 to a high of 5,608 lbs./acre (ESA 2022b). Monitoring results indicate that the Preserve could support a potential increase in the number of cows grazing on-site as eight of 10 of the grazed management units were under-grazed and two met RDM targets. Most of the management units were above their target RDM values in 2022. These results were likely influenced by the lack of a grazing lessee at the Preserve since April 2022. Results were likely also influenced by the rainstorm event in early September 2022 that initiated vegetative growth. Extreme fluctuations in rainfall in recent years (e.g., drought conditions in 2018, above-average rainfall in 2019, below-average to average rainfall in 2020, and drought conditions in 2021) drive substantial variability in vegetative cover from year to year. The decrease in RDM values between 2021 and 2022 is likely low rainfall levels and continued drought conditions in the region. To better estimate how much biomass is available and likely to persist in a given year, ESA initiated annual spring peak forage production monitoring on the Preserve, with the inaugural monitoring effort in April 2022 (ESA 2022c). Based on the results of this monitoring, the grazing regime can be adjusted accordingly by either increasing or decreasing heads of cattle or grazing duration/frequency.

RDM monitoring concluded that active restoration and management of unit 3E should continue by removing non-native species through mowing, herbicide treatment, and/or targeted grazing.



Grazing on Ramona Grasslands Preserve is a management tool used to control invasive, non-native plant species, reduce fire fuel loads, and enhance rare plant and animal species populations.

Park Improvement MSCP Covered Species Monitoring

Monitoring of MSCP covered species during park improvement projects are a critical component to minimize impacts to MSCP covered species. These monitoring efforts are a priority for the County.

Habitat Restoration and Enhancement of Habitat at Sweetwater Trails Phase III

The Sweetwater Trails Phase III Project, within the Sweetwater Summit Regional Park, improved the existing trail and included on-site wetland restoration and enhancement efforts at 30 locations. The project's habitat restoration and enhancement efforts were part of the RWQCB 401 Water Quality Certification, USACE 404 permit, and CDFW 1602 Streambed Alteration Agreement. Habitat restoration and enhancement efforts were completed in March 2017. A total of 0.3 acre of riparian habitat was restored, while an additional 0.24 acre of riparian habitat was enhanced within the project's 30 locations. The three-year maintenance and monitoring period, required per the permits, was completed in March 2021. However, due to the COVID-19 pandemic and the state Stay-at-Home Executive Order, a final site visit with the water resource agencies to receive approval that the success criteria for the permits had been met was not possible. Due to the delay of the final site visit and success criteria certification, DPR completed additional maintenance and monitoring of the restoration and enhancement sites in 2021. These additional efforts included a qualitative and quantitative assessment of the vegetation as part of the annual report sent to the water resource agencies and documented the success of the restoration and enhancement sites. The native species doing particularly well included mule fat, Hooker's evening primrose, and goldenbush. It was also observed that native plants not installed as part of restoration or enhancement efforts were growing within the project areas, indicating that natural recruitment from adjacent habitat or a pre-existing seed bank was occurring. The final site visit with the water resource agencies is anticipated to be completed in early 2023.

I-805 to Heritage Trails Project Surveys

The I-805 to Heritage Trails is a proposed County project in the Otay Valley Regional Park which includes a 3.5-mile loop trail from the I-805 freeway to Heritage Road. The project will ultimately connect to the larger existing Otay Valley Regional Park trail network to the west and the proposed network to the east. In 2021, the County conducted protocol surveys for Ridgeway's rail, least Bell's vireo, coastal California gnatcatcher, and Quino checkerspot butterfly. These protocol surveys were completed as well as a habitat assessment in preparation for a Biology Report for the proposed trails in an effort to maximize avoidance of sensitive habitat and species. In 2023, the County will continue environmental analysis and design for this project.

7.2 Grant Funded Monitoring Projects

There were no grant-funded monitoring projects in the reporting year.

7.3 Preserve Monitoring and Research Partnerships

Research occurred on County Preserves through the County's ROE permit process (**Table 20, *Preserve Monitoring and Research Partnerships Projects, Monitoring Targets, and Locations in Reporting Year***). ROEs were requested by federal and state agencies, local universities,

museums, and environmental organizations. In the past, the County has not charged for ROEs. Due to the extensive review ROEs require to ensure compliance with the MSCP and County rules, a fee to recover a portion of the processing cost may be implemented in the future. In 2022, these studies focused on species such as arroyo toad, southwestern pond turtle, coastal California gnatcatcher, least Bell’s vireo and other species inside and outside of the MSCP Subarea Plan Area. Only those studies that include properties within the MSCP Subarea Plan are summarized below. Reports and research findings obtained through the ROE permit process are shared with the County to further supplement monitoring efforts and to inform management recommendations.

TABLE 20. PRESERVE MONITORING AND RESEARCH PARTNERSHIPS PROJECTS, MONITORING TARGETS, AND LOCATIONS IN REPORTING YEAR

Project Name	Project Lead	Monitoring/ Research Target	County Preserves Within MSCP Subarea Plan Area	County Parks and Preserves Outside MSCP Subarea Plan Area
1. Native Plant Seed Bank	San Diego Zoo	Rare, native plants	<ul style="list-style-type: none"> • Boulder Oaks Preserve • Del Dios Highlands Preserve • El Capitan Preserve • Sycamore Canyon and Goodan Ranch Preserve • Louis A. Stelzer Preserve • Oakoasis Preserve • Ramona Grasslands Preserve 	<ul style="list-style-type: none"> • Santa Margarita Preserve • Volcan Mountain Wilderness Preserve • Wilderness Gardens Preserve • William Heise Park • Simon Preserve
2. Regional Arroyo Toad Monitoring	USGS	Arroyo toad	<ul style="list-style-type: none"> • Ramona Grasslands Preserve • Boulder Oaks Preserve • Stoneridge Preserve • Old Ironsides Park • Sweetwater Regional Park 	<ul style="list-style-type: none"> • Hellhole Canyon Preserve • Lake Morena Park • San Luis Rey River Park • Santa Margarita Preserve • Santa Ysabel Preserve • Wilderness Gardens Preserve

Project Name	Project Lead	Monitoring/ Research Target	County Preserves Within MSCP Subarea Plan Area	County Parks and Preserves Outside MSCP Subarea Plan Area
3. Southwestern Pond Turtle Monitoring in Aquatic Habitats	USGS	Southwestern pond turtle	<ul style="list-style-type: none"> • Los Peñasquitos Canyon Preserve • Lusardi Creek Preserve • Ramona Grasslands Preserve 	<ul style="list-style-type: none"> • Santa Ysabel Preserve • Star Ranch Preserve • Wilderness Gardens Preserve • Sage Hill Preserve
4. Sensitive Avian Species Demography Monitoring	USGS	Coastal California gnatcatcher, least Bell's vireo, coastal cactus wren, and southwestern willow flycatcher	<ul style="list-style-type: none"> • Cactus Park • Damon Lane Park • El Capitan Preserve • El Monte Park • Furby-North Preserve • Historic Flume Trail • Lakeside Linkage Preserve • Lawrence and Barbara Daley Preserve • Louis A. Stelzer Preserve • Lusardi Creek Preserve • Otay Lakes Park • Otay Ranch Preserve • Otay Valley Regional Park • Ramona Grasslands Preserve • Santa Fe Valley Preserve • Stoneridge Preserve • Sweetwater Regional Park • Sycamore Canyon and Goodan Ranch Preserve • Tijuana River Valley Regional Park 	<ul style="list-style-type: none"> • Blue Sky Ranch Ecological Reserve • Diamond Trail • Guajome Regional Park • Lakeside Sports Park • Mission Trails Regional Park • San Luis Rey River Park • Santa Margarita Preserve
5. Rare Seed Collection	Center for Plant Conservation	Baja California birdbush and various other sensitive plant species	<ul style="list-style-type: none"> • Tijuana River Valley Regional Park 	

Project Name	Project Lead	Monitoring/ Research Target	County Preserves Within MSCP Subarea Plan Area	County Parks and Preserves Outside MSCP Subarea Plan Area
6. Field Herpetology Course and Research	San Diego State University	Small mammals, reptiles, and amphibians	<ul style="list-style-type: none"> • Tijuana River Valley Regional Park • Sycamore Canyon and Goodan Ranch Preserve • El Monte Park • El Capitan Preserve 	
7. Rare Plant Surveys	Conservation Biology Institute	Various sensitive plant species	<ul style="list-style-type: none"> • Tijuana River Valley Regional Park • Furby-North Preserve • Otay Valley Regional Park • Ramona Grasslands Preserve • Santa Fe Valley Preserve • Sycamore Canyon/Goodan Ranch Preserve 	<ul style="list-style-type: none"> • San Elijo Lagoon Ecological Reserve • Simon Preserve
8. Burrowing Owl Monitoring	San Diego Zoo Wildlife Alliance	Burrowing owl	<ul style="list-style-type: none"> • Ramona Grasslands Preserve 	
9. Golden Eagle	USGS	Golden eagle	<ul style="list-style-type: none"> • Ramona Grasslands Preserve 	
10. Fungal Pathogen Tracking	AECOM	Prickly pear cactus	<ul style="list-style-type: none"> • Lusardi Creek Preserve 	
11. Coastal California Gnatcatcher Surveys	California State Parks	Coastal California gnatcatcher	<ul style="list-style-type: none"> • Tijuana River Valley Regional Park (Bunker Hill, Goat Canyon, and Spooner's Mesa areas) 	
12. Avian/Tricolored Blackbird Surveys	AECOM	Tricolored blackbird	<ul style="list-style-type: none"> • Barnett Ranch Preserve • Boulder Oaks Preserve • Holly Oaks Preserve • Ramona Grasslands Preserve 	<ul style="list-style-type: none"> • San Elijo Lagoon Ecological Reserve
13. Stephens' Kangaroo Rat Trapping Surveys	Riverside County Habitat Conservation Agency (RCHCA)	Stephens' kangaroo rat	<ul style="list-style-type: none"> • Ramona Grasslands Preserve 	

Project Name	Project Lead	Monitoring/ Research Target	County Preserves Within MSCP Subarea Plan Area	County Parks and Preserves Outside MSCP Subarea Plan Area
14. Feral Pig Eradication and Control Project and Monitoring	San Diego State University and CDFW	Feral pigs	<ul style="list-style-type: none"> • Boulder Oaks Preserve • Ramona Grasslands Preserve 	<ul style="list-style-type: none"> • Santa Ysabel Preserve • William Heise Park • Lake Morena Park • Volcan Mountain Wilderness Preserve • Mt. Gower Preserve • Hellhole Canyon Preserve

Source: County of San Diego Department of Parks and Recreation

Native Plant Seed Bank

Project Lead: Zoological Society of San Diego, dba San Diego Zoo Global

Project Timeline: May 2021 – December 2022

Target Species or Habitat: Rare, native plants

County Preserves within MSCP Subarea Plan Area: Boulder Oaks Preserve, Del Dios Highlands Preserve, El Capitan Preserve, Sycamore Canyon and Goodan Ranch Preserve, Louis A. Stelzer Park, Oakoasis Preserve, Ramona Grasslands Preserve

County Preserves Outside MSCP Subarea Plan Area: Santa Margarita Preserve, Santa Ysabel Preserve, Volcan Mountain Wilderness Preserve, Wilderness Gardens Preserve, William Heise Park

The Native Plant Seed Bank project is spearheaded by the San Diego Zoo with a goal to conserve San Diego County’s rare, threatened, and endangered plants as recognized by the California Native Plant Society’s rare plant inventory. The San Diego Zoo is a regional partner in the California Plant Rescue project which is a statewide effort to conserve the most at-risk plant species in California. Surveys are conducted within 13 County parks and preserves to locate sensitive plant species. Once identified, San Diego Zoo staff collect an herbarium voucher, if available, and will monitor the population until it senesces. After senescence, ripe seeds are collected from the documented populations for long term seed banking. Collected seeds are processed, counted, and weighed prior to storage and 40% of the collection is sent to the USDA-ARS National Laboratory for Genetic Resources Preservation in Fort Collins, Colorado for backup storage. Seeds are tested for viability and herbarium vouchers are deposited at the San Diego Natural History Museum. Seed banks are maintained for long term conservation and to provide sufficient plant material for the establishment of new populations or to augment existing populations in southern California. MSCP covered species which have been conserved by the Native Plant Seed Bank include Orcutt’s brodiaea, Lakeside lilac, and felt-leaved monardella, among others.

Regional Arroyo Toad Monitoring

Project Lead: USGS

Project Timeline: January 2022 – December 2023

Target Species or Habitat: Arroyo toad

County Preserves within MSCP Subarea Plan Area: Boulder Oaks Preserve, Old Ironsides Park, Ramona Grasslands Preserve, Stoneridge Preserve, Sweetwater Regional Park

County Preserves Outside MSCP Subarea Plan Area: Hellhole Canyon Preserve, Lake Morena Park, San Luis Rey River Park, Santa Margarita Preserve, Santa Ysabel Preserve, Wilderness Gardens Preserve

The Regional Arroyo Toad Monitoring project was initiated in 2020 for the purpose of implementing a regional monitoring program for the MSCP covered arroyo toad as part of the SDMMMP. Prior to 2022, surveys were conducted across seven County parks and preserves in areas where arroyo toads are known to occur and areas of potential habitat. The surveys were expanded in 2022 to add four additional County parks and preserves (Boulder Oaks Preserve, Sweetwater Regional Park, Old Ironsides Park, and Stoneridge Preserve), for a total of 11 parks and preserves. Surveys are conducted through visual observations aided by dip netting to positively identify arroyo toad tadpoles in aquatic habitats. Genetic information obtained through toe clippings is also collected for genetic analysis. Genetic analysis is done to compare current findings with past data to determine the degree of genetic variation within and between arroyo toad populations in San Diego, which could identify potential population bottlenecks or connectivity issues. Results of the surveys will be used to estimate the distribution and status of the arroyo toad, determine threats and habitat covariates, and to identify future management actions. Data will also be used to determine source populations which can be used to reestablish arroyo toads in previously occupied areas within conserved lands. The monitoring effort is ongoing and will continue through 2023.

Southwestern Pond Turtle Monitoring in Aquatic Habitats

Project Lead: USGS

Project Timeline: November 2020 – October 2024

Target Species or Habitat: Southwestern pond turtle

County Preserves within MSCP Subarea Plan Area: Lusardi Creek Preserve, Ramona Grasslands Preserve, and Los Peñasquitos Canyon Preserve

County Preserves Outside MSCP Subarea Plan Area: Wilderness Gardens Preserve, Santa Ysabel Preserve, Sage Hill Preserve, and Star Ranch Preserve

The Southwestern Pond Turtle Monitoring in Aquatic Habitats project was initiated in 2020 to study the current status and demography of the southwestern pond turtle in San Diego County as part of the SDMMMP. USGS collects pond turtle data by setting baited hoop traps in aquatic areas which are checked daily while set. Successfully captured turtles will be weighed, measured, photographed, and marked with a passive integrated transponder (PIT) tag for long term monitoring. USGS also collects tail tissue samples for further genetic analysis. Visual surveys are conducted to assess habitat conditions and to document the presence of native and non-native aquatic species. Trapping surveys are utilized for marking/recapturing previously marked individuals to assess growth and to contribute to demography monitoring. Genetic analysis will help determine the degree of genetic variation within and between pond turtle populations to identify possible genetic bottlenecks or barriers. Information will also be used to determine source populations which can be used to reestablish pond turtles in previously

occupied areas as a potential recovery strategy. Southwestern pond turtle is an MSCP-covered species, and the results of this study could help identify future management strategies for this species.

Sensitive Avian Species Demography Monitoring

Project Lead: USGS

Project Timeline: March 2020 – March 2024

Target Species or Habitat: Coastal California gnatcatcher, least Bell's vireo, coastal cactus wren, southwestern willow flycatcher

County Preserves within MSCP Subarea Plan Area: Cactus Park, Damon Lane Park, El Capitan Preserve, El Monte Park, Furby-North Preserve, Historic Flume Trail, Lakeside Linkage Preserve, Lawrence and Barbara Daley Preserve, Louis A. Stelzer Park, Lusardi Creek Preserve, Otay Lakes Park, Otay Ranch Preserve, Otay Valley Regional Park, Ramona Grasslands Preserve, Santa Fe Valley Preserve, Stoneridge Preserve, Sweetwater Regional Park, Sycamore Canyon and Goodan Ranch Preserve, Tijuana River Valley Regional Park

County Preserves Outside MSCP Subarea Plan Area: Blue Sky Ranch Ecological Reserve, Diamond Trail, Guajome Regional Park, Lakeside Sports Park, Mission Trails Regional Park, San Luis Rey River Park, Santa Margarita Preserve

The Sensitive Species Demography Monitoring project encompasses a long-term regional monitoring effort spearheaded by USGS to monitor populations of four sensitive and MSCP covered species: coastal California gnatcatcher, least Bell's vireo, coastal cactus wren, and southwestern willow flycatcher. Surveys for the monitoring program are conducted to collect data on the distribution, abundance, and demography of these four species to assess the progress of local populations towards recovery. For coastal California gnatcatcher and coastal cactus wren, three surveys are conducted each year to ascertain presence of the species within areas of suitable habitat. For least Bell's vireo and southwestern willow flycatcher, surveys are conducted twice a year to determine presence. Visual observations with the aid of song playbacks are utilized and if presence is confirmed, the number, banding status, age (adult or juvenile), and breeding status of all sighted birds will be recorded. For coastal California gnatcatcher, a habitat assessment for coastal sage scrub is conducted to quantify the cover, structure, and composition of coastal sage scrub vegetation which the species depends on. For least Bell's vireo and southwestern willow flycatcher, vegetation surveys are also conducted to identify evidence of the invasive shot hole borer which may be contributing to recent population declines. The results of this study will help determine the status of regional populations for these four sensitive species which will help guide future management actions. Monitoring efforts are ongoing and will continue through 2024.

Rare Seed Collection

Project Lead: Center for Plant Conservation

Project Timeline: July 2021 – October 2022

Target Species or Habitat: Baja California birdbush and various other sensitive plant species

County Preserves within MSCP Subarea Plan Area: Tijuana River Valley Regional Park

County Preserves Outside MSCP Subarea Plan Area: None

The Center for Plant Conservation (CPC) received a grant from the Institute for Museum and Library Services to aid in preserving seed collections and rare plant species. The focus of this project is to assess plant species for viability and health over a period of 15 years. At the end of

the grant life cycle, seeds are to be collected once more to assess the health of local plant populations, specifically the health of local Baja California birdbush (*Ornithostaphylos oppositifolia*).

Field Herpetology Course and Research

Project Lead: San Diego State University

Project Timeline: March 2019 – December 2022

Target Species or Habitat: Small mammals, reptiles, and amphibians

County Preserves within MSCP Subarea Plan Area: Tijuana River Valley Regional Park, Sycamore Canyon and Goodan Ranch Preserve, El Monte Park, El Capitan Preserve

County Preserves Outside MSCP Subarea Plan Area: None

The Field Herpetology Course and Research project teaches students techniques for field study of amphibians and reptiles in four MSCP Subarea Plan preserves for a three-year period. Dr. Rulon Clark, a biology professor at San Diego State University, began teaching a new advanced ecology course in field herpetology with a focus on teaching future field biologists the proper techniques on how to locate, capture, handle, and collect basic data from non-threatened reptiles and amphibians. As part of this course, students are also documenting photographs of identified species for contribution to the citizen scientist database, iNaturalist. Tissue samples collected through this course will contribute to the professor's long-term efforts to collect ecological data on occurrence, abundance, and genetic connectivity of local reptiles in San Diego County. Field visits for this purpose were granted at four County Preserves. This program continued through 2022.

Rare Plant Surveys

Project Lead: Conservation Biology Institute

Project Timeline: June 2022 – June 2024

Target Species or Habitat: Various sensitive plant species

County Preserves within MSCP Subarea Plan Area: Tijuana River Valley Regional Park, Furby-North Preserve, Otay Valley Regional Park, Ramona Grasslands Preserve, Santa Fe Valley Preserve, Sycamore Canyon and Goodan Ranch Preserve

County Preserves Outside MSCP Subarea Plan Area: San Elijo Lagoon Ecological Reserve, Simon Preserve

The Rare Plant Surveys project was initiated in 2022 to perform monitoring (Inspect and Manage [IMG]) and discovery surveys of rare plants included in the San Diego Management and Monitoring Program's Management Strategic Plan for Western San Diego County, within eight County preserves. Survey results assist the County regarding rare plant populations on County property.

Burrowing Owl Monitoring

Project Lead: San Diego Zoo Wildlife Alliance

Project Timeline: June 2021 – December 2022

Target Species or Habitat: Burrowing owl

County Preserves within MSCP Subarea Plan Area: Ramona Grasslands Preserve

County Preserves Outside MSCP Subarea Plan Area: None

The Burrowing Owl Monitoring project implemented burrowing owl monitoring for burrowing owls dispersing into the Ramona Grasslands Preserve after burrowing owl translocation on the adjacent San Diego Habitat Conservancy (SDHC) mitigation bank parcel in early 2021. The project monitored movements and nesting of translocated burrowing owls, their offspring, and extant wild burrowing owls. The project included the use of direct observations and remote cameras for nest monitoring, capturing and banding of burrowing owls to gather data on survival and nest success, as well as allowed for supplemental feeding to increase the likelihood of nest success. Survey results in 2022 included the detection of burrowing owl sign in the form of a pellet and whitewash in the northwest portion of Ramona Grasslands Preserve.

Golden Eagle Monitoring

Project Lead: USGS

Project Timeline: July 2021 – December 2022

Target Species or Habitat: Golden eagle

County Preserves within MSCP Subarea Plan Area: Ramona Grasslands Preserve

County Preserves Outside MSCP Subarea Plan Area: None

The Golden Eagle project involved performing a telemetry study of golden eagle movement and habitat use in San Diego County, including baiting and trapping. Because of a lack of clarity about the status of golden eagles in coastal southern California, the USGS, in collaboration with local, State, and other Federal agencies, began a multi-year occupancy, biotelemetry, and genetics sampling program of golden eagles to address questions regarding habitat use, movement behavior, territory and nest occupancy, genetic population structure, and impacts on eagles. Once captured, eagles will be fitted with a GPS-GSM telemetry unit for tracking. This will yield data that will provide valuable information on eagle movement and habitat use in the preserve and adjacent lands. If golden eagles are captured at the preserve and fitted with a telemetry unit, then the DPR will receive the movement data and perform adaptive management of on-site foraging habitat if necessary. In January 2022 USGS was able to attach a GPS-GSM telemetry unit to one male golden eagle captured in the preserve. Movement data was recorded until March 2022 when the telemetry unit fell off the golden eagle.

Fungal Pathogen Tracking

Project Lead: AECOM

Project Timeline: July 2022 – September 2022

Target Species or Habitat: Prickly pear cactus

County Preserves within MSCP Subarea Plan Area: Lusardi Creek Preserve

County Preserves Outside MSCP Subarea Plan Area: None

The *Fungal Pathogen Tracking Project* implemented short-term monitoring to track and document the potential spread of a new fungal pathogen, *Fusarium brachygibbosum*, affecting prickly pear cactus (*Opuntia littoralis*). Cacti planted at the preserve were observed exhibiting similar symptoms as cacti that had tested positive for the pathogen. SDMMP initiated the study. During 2022 surveys, no *Fusarium* sp. was detected on any cactus samples collected at Lusardi Creek Preserve.

Coastal California Gnatcatcher Surveys

Project Lead: California State Parks

Project Timeline: February 2022 – August 2022

Target Species or Habitat: Coastal California Gnatcatcher

County Preserves within MSCP Subarea Plan Area: Tijuana River Valley Regional Park

County Preserves Outside MSCP Subarea Plan Area: None

This project implemented a single season of coastal California gnatcatcher surveys to fulfill environmental compliance requirements for the annual maintenance of the Goat Canyon sediment basins. The primary goal was to document presence/absence of coastal California gnatcatcher in Goat Canyon and adjacent Bunker Hill and Spooner's Mesa areas. In 2022 coastal California gnatcatchers were observed within the survey area in Tijuana River Valley Regional Park.

Avian/Tricolored Blackbird Surveys

Project Lead: AECOM

Project Timeline: May 2022 – August 2022

Target Species or Habitat: Tricolored Blackbird

County Preserves within MSCP Subarea Plan Area: Barnett Ranch Preserve, Boulder Oaks Preserve, Holly Oaks Preserve, Ramona Grasslands Preserve

County Preserves Outside MSCP Subarea Plan Area: San Elijo Lagoon Ecological Reserve

This project implemented a single season of coastal California gnatcatcher surveys to fulfill environmental compliance requirements for the annual maintenance of the Goat Canyon sediment basins. The primary goal was to document presence/absence of coastal California gnatcatcher in Goat Canyon and adjacent Bunker Hill and Spooner's Mesa areas. In 2022 no tricolored blackbirds were observed within the Ramona Grasslands County Preserve. Two adult tricolored blackbirds were observed flying off-site on the adjacent Ramona Municipal Water District property. No tricolored blackbirds were observed at Barnett Ranch Preserve, Boulder Oaks Preserve, Holly Oaks Preserve, or San Elijo Lagoon Ecological Reserve.

Stephens' Kangaroo Rat Trapping Surveys

Project Lead: Riverside County Habitat Conservation Agency (RCHCA)

Project Timeline: September 2022 – October 2022

Target Species or Habitat: Stephens' Kangaroo Rat

County Preserves within MSCP Subarea Plan Area: Ramona Grasslands Preserve

County Preserves Outside MSCP Subarea Plan Area: None

This project implemented a live trapping survey for Stephens' kangaroo rat at five monitoring locations within the Ramona Grasslands Preserve. As part of this survey, habitat assessments were conducted for each area, traps were deployed if Stephens' kangaroo rat sign was observed, and Stephens' kangaroo rats were captured and released. This project is part of a larger effort to determine Stephens' kangaroo rat distribution and occupation. In 2022 habitat assessments were performed in the monitoring locations in the southeast portion of the preserve and the assessments did not find Stephens' kangaroo rat sign, so no live-trapping was performed.

Feral Pig Eradication and Control Project and Monitoring

Project Lead: San Diego State University and CDFW

Project Timeline: November 2020 – November 2022

Target Species or Habitat: All habitats and species

County Parks and Preserves Within the MSCP Subarea Plan Area: Boulder Oaks Preserve and Ramona Grasslands Preserve

County Parks and Preserve Outside the MSCP Subarea Plan Area: Santa Ysabel Preserve, William Heise Park, Lake Morena Park, Volcan Mountain Wilderness Preserve, Mt. Gower Preserve, Hellhole Canyon Preserve

The *Feral Pig Eradication and Control Project and Monitoring* encompasses a multi-agency effort involving the County, City of San Diego, CDFW, USFWS, United States Forest Service, BLM, United States Department of Agriculture-Wildlife Services, California Department of Parks and Recreation, Vista Irrigation District, and Helix Water District to eradicate and prevent future occurrences of feral pigs in San Diego County. Feral pigs are a non-native species in San Diego County and are the result of escaped domestic stock, introduced European wild boar, or a hybrid of both and are considered an invasive species in California. Feral pigs pose a serious threat to native ecosystems due to their foraging behavior called rooting, which involves physically disturbing soils and uprooting plants to search for food which can destroy stands of native vegetation. In 2015, the implementation phase of the project was initiated, and eradication efforts began. Active trapping and removal efforts ended in Summer 2020. In Fall 2020, CDFW in partnership with San Diego State University obtained a ROE to initiate the monitoring phase of the project to determine the success of eradication efforts. Wildlife cameras and visual surveys are utilized to monitor for feral pig occurrences in places where they have previously been known to occur. Since the monitoring phase was initiated, no feral pigs have been sighted on County property. Monitoring continued into 2022.

7.4 Private Mitigation Lands Monitoring

MSCP monitoring of Private Preserves is achieved through RMP annual monitoring reports that focus on the resource attributes of that specific site and detail the monitoring and habitat management activities conducted within the previous year. Annual reports document any issues and the overall health of the Preserve, which allows the County to assess the biological integrity of the open space habitats protected by each RMP. Annual reports are publicly available online through the PDS Document Library¹⁸ using the associated Record ID. **Appendix L** provides a general overview of the 18 RMPs located within the MSCP Subarea Plan including a description of the habitat conservation area, required surveys, and monitoring/maintenance status for each RMP.

An accounting of RMP annual report submissions revealed that in 2022, 12 of the 18 (67%) RMPs submitted reports for the 2021-2022 reporting period. **Table 21**, *MSCP Covered Species Documented on Private Mitigation Lands In Reporting Year*, summarizes the MSCP covered species documented in the 2021-2022 annual RMP monitoring reports.

¹⁸ The PDS Document Library can be accessed at: <https://www.sandiegocounty.gov/content/sdc/pds/doclibrary.html>.

TABLE 21. MSCP COVERED SPECIES DOCUMENTED ON PRIVATE MITIGATION LANDS IN REPORTING YEAR

Private Mitigation Area

Common Name	Bernardo Lakes	4S Ranch Ralphs	4S Ranch Specific Plan	Golem	Starwood (Crosby)	Woodridge	Blossom Valley	McCrink Ranch	Maranatha Chapel	El Apajo	Greenhills Ranch	Artesian Trail	East Otay Mesa	Lonestar	Sloane Canyon	High Meadow Ranch (Trevi Hills)	Otay Crossings Commerce Park	OMC
Plants																		
Del Mar manzanita					✓													
San Diego goldenstar					✓													
San Diego barrel cactus																	✓	
San Diego ambrosia					✓													
Sticky dudleya				✓														
Three-leaved brodiaea			✓															
Reptiles																		
Blainville's horned lizard							✓											
Birds																		
Bald eagle							✓											
Burrowing owl														✓				
Coastal California gnatcatcher			✓		✓						✓		✓					
California rufous-crowned sparrow													✓				✓	
Cooper's hawk					✓						✓							

Private Mitigation Area

Common Name	Bernardo Lakes	4S Ranch Ralphs	4S Ranch Specific Plan	Golem	Starwood (Crosby)	Woodridge	Blossom Valley	McCrink Ranch	Maranatha Chapel	El Apajo	Greenhills Ranch	Artesian Trail	East Otay Mesa	Lonestar	Sloane Canyon	High Meadow Ranch (Trevi Hills)	Otay Crossings Commerce Park	OMC
Least Bell's vireo					✓													
Northern harrier														✓				✓
Mammals																		
Mountain lion																	✓	
Southern mule deer																	✓	

CHAPTER 8

Financial Summary



Boulder Oaks Preserve pond providing water for on-site wildlife.

The County is responsible for funding acquisition, management, and monitoring of lands within the MSCP Subarea Plan. The costs associated with these activities may be funded through local and regional sources. The County primarily uses General Fund monies to acquire land or leverage funding to acquire additional preserve lands. Additionally, the County Board of Supervisors annually appropriates funding for ongoing management and monitoring efforts. Management and monitoring efforts for conveyed lands in the Otay Ranch Preserve, which are jointly owned and managed by the County and the City of Chula Vista, are funded through Community Facilities District 97-2 administered by the City of Chula Vista. Lastly, the County has sought additional funding through various grant programs such as those offered through the San Diego Association of Governments (SANDAG) *TransNet* EMP.

8.1 County Contribution

The Board of Supervisors allocates funding for ongoing management and monitoring efforts on 45,000 acres within the MSCP Subarea, draft North County MSCP, and proposed East County MSCP Plan Areas, approximately 26,670 acres of which were acquired since the MSCP Subarea Plan was adopted. Acreage discussed in this section is reported as Assessor's

acreage and not GIS acreage to provide consistency of reporting acreage across all three MSCP Plan Areas. The acreage of preserve lands within the three MSCP Plan Areas include approximately:

- 8,480 acres acquired, managed, or funded within the MSCP Subarea Plan Area since 1998.
- 15,370 acres acquired and managed in the draft North County MSCP Plan Area since 2001.
- 2,820 acres acquired and managed in the proposed East County MSCP Plan Areas since 2001.
- Of the original, baseline 19,000 acres of preserve lands owned and managed by the County across the three MSCP Plan Areas prior to the MSCP Subarea Plan adoption, approximately 5,500 acres is in the MSCP Subarea Plan Area.

The cost for MSCP management and maintenance are intertwined in the DPR operating budget. The County is working to track expenses to reflect on-going funding on County preserve lands. As in years past, in Fiscal Year 2022-2023, the County Board of Supervisors appropriated \$7.5 million for acquisition of preserve lands throughout the adopted South County Subarea, draft North County MSCP, and proposed East County MSCP Plan Areas. In this reporting period, approximately \$11.2 million was spent to successfully manage and maintain the County's MSCP preserve lands across the three MSCP Plan Areas. Approximately 110 full time staff as well as additional part-time staff and almost 1,600 volunteers implemented management and monitoring activities on County Preserves in 2022. Stewardship activities include those tasks detailed in Chapter 6, *Preserve Management*. MSCP monitoring activities included those tasks detailed in Chapter 7, *Preserve Monitoring and Research*.

Since 1998, the County has invested over \$51 million which leveraged over \$35 million of other funding to acquire 8,484 acres in the MSCP Subarea Plan, including 556 acres owned by County partners. During this reporting period, the 227-acre Ramona Grasslands Preserve addition was acquired in the SC MSCP Subarea Plan for \$640,000. Since 1998, The County has invested over \$75 million while leveraged over \$60 million of other funding to acquire 15,370 acres in the draft North County MSCP Plan Area. During the reporting period, 794 acres were acquired in the draft North County MSCP Plan Area for approximately \$6.7 million. In addition, since 1998, the County has invested approximately \$10 million which leveraged over \$1.3 million of other funding to acquire 2,817 acres in the proposed East County MSCP Plan Area. No acquisitions occurring in the proposed East County MSCP Plan Area in 2022.

In addition to the 45,000 acres of County-owned preserve lands, the County and the City of Chula Vista jointly own and manage Otay Ranch Preserve.

8.2 Otay Ranch Preserve Community Facility District 97-2

Community Facility District 97-2 funds, administered by the City of Chula Vista, are used for managing and monitoring the Otay Ranch Preserve. The approved budget for FY2022-2023 was \$640,000 for preserve monitoring, operations, and maintenance. Preserve monitoring includes scheduled surveys for various species by parcel, focused rare plant surveys, baseline surveys for newly acquired properties, updating vegetation mapping, land stewardship,

meetings and on-going coordination, and reporting. Operations and maintenance include access control and invasive species treatment activities.

8.3 TransNet Funding

SANDAG is a regional transportation agency responsible for administering TransNet EMP funds collected as a local half-cent sales tax for transportation improvements. The vote to extend the TransNet tax in 2004 included \$850 million to fund land acquisition, land management, and species monitoring of mitigation lands for local and regional transportation projects. As of June 2018, the \$850 million TransNet EMP has supported the acquisition of 40 properties throughout the region, totaling more than 8,780 acres.¹⁹ As of 2022, SANDAG invested more than \$46.5 million to manage and monitor the regional habitat preserve system.²⁰ The County has received almost \$2.7 million of management and monitoring TransNet EMP funds from 2006 through 2022.

¹⁹ <http://www.keepsandiegomoving.com/EMP-Group/EMP-acquisitions.aspx>.

²⁰ <http://www.keepsandiegomoving.com/EMP-Group/EMP-management-monitoring.aspx>.

CHAPTER 9

Program Administration



Hiker enjoying El Capitan Preserve.

9.1 MSCP COORDINATION EFFORTS

MSCP Subarea Plan IA Section 14.0 requires coordination with the Wildlife Agencies. Coordination meetings are scheduled regularly between the County and the Wildlife Agencies. Coordination also occurs regularly with regional technical groups, other jurisdictions, stakeholders, and the public. The County continues to actively participate in regularly scheduled MSCP group meetings including the SANDAG *TransNet* EMP Working Group, SDMMMP Working Group, MSCP Annual Workshop, Quarterly Acquisitions coordination meetings, South County Land Managers Working Group, San Dieguito River Park JPA, SDRC, the Tijuana River Valley Recovery Team, the Tijuana River Water Quality Improvement Plan Working Group, the Tijuana River National Estuarine Research Reserve Advisory Council, the Mission Trails Regional Park Task Force, the Otay Ranch POM Executive/Policy Committees and Joint Staff, the Otay Valley Regional Park Executive/Policy Committees and Joint Staff, the Otay Valley Regional Park citizens advisory committee, California HCP Coalition, National HCP Coalition, Santa Ana to Palomar Linkage Alliance, County of San Diego Sustainability Task Force, and the United States Border Management Task Force Group. The various MSCP group meetings consist of members from USFWS, CDFW, BLM, local/governmental participating agencies, private stakeholders, and members of the general public. The primary objectives of these meetings are to discuss land acquisitions, management, monitoring methodologies, conservation techniques,

and regional coordination. These meetings provide meaningful educational information and create public awareness regarding the importance of habitat conservation and how it adds to quality of life.

MSCP Subarea Plan implementation also requires coordination among County departments. Regularly scheduled internal meetings regarding MSCP topics are held to facilitate and ensure consistency in implementing the MSCP Subarea Plan. The DPR, PDS, DPW, and DGS MSCP staff meet regularly to discuss issues and exchange ideas.

9.2 MSCP SUBAREA PLAN UPDATES

The following discussion summarizes work completed on the proposed amendments and projects processed with Wildlife Agency staff concurrence during this reporting period.

MSCP Amendments

In 2022, there were no Minor, Major, or Subarea amendments to the MSCP Subarea Plan. The County finalizes amendments upon concurrence from the Wildlife Agencies and when amendment conditions are satisfied.

MSCP Map Update

In 2022, there were no MSCP map updates. The maps associated with the MSCP Subarea Plan were originally adopted by the County Board of Supervisors on October 22, 1997. The maps have been updated through the years to reflect changes in designations for Major and/or Minor Amendment areas to either "take authorized" or "preserve" designations.

CHAPTER 10

References

California Natural Diversity Database. 2020. Occurrences points and polygons documenting species sightings from 1998 to present included for MSCP species occurrences.

County of San Diego Land Use and Environmental Group-GIS. 2022. SanBIOS. Occurrences points and polygons documenting species sightings from 1998 to present included for MSCP species occurrences.

County of San Diego Department of Parks and Recreation. 2018. *Draft Boulder Oaks Resource Management Plan*. March.

2018. *Draft Sycamore Canyon and Goodan Ranch Preserve Resource Management Plan*. April.

2013. *Stoneridge Preserve Resource Management Plan*. April.

2012. *Furby-North Property Resource Management Plan*. June.

2011. *Del Dios Highlands Preserve Resource Management Plan*. June.

County of San Diego Department of Parks and Recreation (cont.)

2011. *Lawrence and Barbra Daley Preserve Resource Management Plan*. June.

2010. *Lakeside Linkage Preserve Resource Management Plan*. August.

2009. *Final El Capitan Preserve Resource Management Plan*. June.

2009. *El Monte County Park Resource Management Plan*. June.

2009. *Lusardi Creek Preserve Resource Management Plan*. June.

2009. *Oakoasis Preserve Resource Management Plan*. June.

2009. *Louis A. Stelzer County Park Resource Management Plan*. April.

2007. *Tijuana River Valley Regional Park Area Specific Management Objectives*. June.

County of San Diego and City of Chula Vista. 1993. Otay Ranch Resource Management Plan. October. Environmental Science Associates. 2023. *Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report*. Prepared for Department of Parks and Recreation County of San Diego. January.

2022a. *Raptor Foraging Surveys & Nest Monitoring 2021-2022 Summary Report Ramona Grasslands Preserve & El Capitan Preserve for the County of San Diego Department of Parks and Recreation*. Prepared for Department of Parks and Recreation San Diego County. December.

2022b. *Residual Dry Matter Monitoring for the Ramona Grasslands Preserve, September 2022*. Memorandum to Jennifer Price, County of San Diego Department of Parks and Recreation. December.

2022c. *Ramona Grasslands County Preserve Peak Forage Production Monitoring*. Memorandum to Jennifer Price, County of San Diego Department of Parks and Recreation. June.

Environmental Science Associates and ICF. 2022. *Targeted Monitoring Plan*. Prepared for Department of Parks and Recreation County of San Diego. December.

2015. *Comprehensive Monitoring Plan*. Prepared for Department of Parks and Recreation County of San Diego. July.

ICF International. 2018. *CMP Resource-Specific Monitoring 2017 Annual Report*. Final. Prepared for County of San Diego Department of Parks and Recreation. January.

Targeted Monitoring Plan Resource-Specific Monitoring 2018 Annual Report. Final. Prepared for County of San Diego Department of Parks and Recreation. October.

2017. *CMP Resource-Specific Monitoring 2016 Annual Report*. Final. Prepared for County of San Diego Department of Parks and Recreation. November.

Preston, K. 2019. *San Diego Rare Plant Management and Monitoring Program* [PowerPoint Presentation]. San Diego Management and Monitoring Program Meeting, October 23, 2019.

RECON Environmental, Inc. 2018. *Otay Ranch Phase 2 Resource Management Plan Update*. Prepared for County of San Diego and City of Chula Vista. September.

Reiser, C. 2011. *Rare Plants of San Diego County*.

San Diego Management and Monitoring Program. 2020. *MSP Species Master Occurrence Matrix databases*. Occurrences points documenting species sightings from 1998 to present included for MSCP species occurrences.

United States Fish and Wildlife Service. 2020. *Regss Locations of Sensitive Species Sightings database*. Occurrences points documenting species sightings from 1998 to present included for MSCP species occurrences.

2020. *Sensitive Species (polygons)*. Occurrence polygons documenting species sightings from 1998 to present included for MSCP species occurrences.

APPENDIX A

County Tracked Acquisitions Since 1998

This page is intentionally blank

Acres Acquired							Cost	Funding		
Acquisition Year Area and Property Name	Owned By Local/Non Profits	Preserve / Hardline Owned By County	MHPA & Chula Vista	Total Counted Toward MSCP Preserve	Total Outside of MSCP Preserve (Not Counted Towards MSCP Preserve)	Total Acreage of Acquisition	Land Cost	County Funds	Non County Funds	Funding Source
1998										
Tijuana River Valley, Arietta			39	39		39	\$ 478,000		\$ 478,000	State
Tijuana River Valley, Calmat Option I			164	164		164	\$ 1,225,272		\$ 1,225,272	State, City of San Diego
Tijuana River Valley, West/Dymott			40	40		40	\$ 410,000		\$ 410,000	State
1999										
Tijuana River Valley, Calmat Option Final			28	28		28	\$ 208,837		\$ 208,837	State
Lakeside, Arabo		9		9		9	\$ 160,000	\$ 80,000	\$ 80,000	County, State, Federal
Lakeside, Ham		48		48		48	\$ 800,000	\$ 400,000	\$ 400,000	County, State, Federal
Lakeside, HJMD		33		33		33	\$ 490,000	\$ 245,000	\$ 245,000	County, State, Federal
Lakeside, Yunis		13		13		13	\$ 270,000	\$ 135,000	\$ 135,000	County, State, Federal
Lusardi Creek, Rancho Vista		98		98		98	\$ 1,845,500	\$ 922,750	\$ 922,750	County, State, Federal
2000										
Lusardi Creek, Santa Fe Views		97		97		97	\$ 1,976,000	\$ 988,000	\$ 988,000	County, State
Hollenbeck Canyon, L&B Daley Pres, Ph I		290		290		290	\$ 1,000,000	\$ 1,000,000		County

Acquisition Year Area and Property Name	Acres Acquired					Total Acreage of Acquisition	Cost	Funding		
	Owned By Local/Non Profits	Preserve / Hardline Owned By County	MHPA & Chula Vista	Total Counted Toward MSCP Preserve	Total Outside of MSCP Preserve (Not Counted Towards MSCP Preserve)		Land Cost	County Funds	Non County Funds	Funding Source
Hollenbeck Canyon, L&B Daley Pres, Ph II		291		291		291	\$ 1,000,000	\$ 1,000,000		County
Lakeside, United Brokers		8		8		8	\$ 153,000	\$ 76,500	\$ 76,500	County, State
Tijuana River Valley, Piper/Shelton			142	142		142	\$ 1,752,750	\$ 500,000	\$ 1,252,750	County, State
Wright's Field, Alpine School District	41	0		41		41	\$ 425,000	\$ 175,000	\$ 250,000	County, State, Federal
Wright's Field, Union Bank	40	0		40		40	\$ 356,633	\$ 148,196	\$ 208,437	County, State
2001										
Lakeside, Pavel		11		11		11	\$ 200,000	\$ 100,000	\$ 100,000	County, State
Otay River Valley Park, Malcolm			1	1		1	\$ 46,000		\$ 46,000	County, Developer
Otay River Valley Park, O Brien			8	8		8	\$ 205,500	\$ 102,776	\$ 102,724	Developer negotiated by County
2002										
Lakeside, Shuler		59		59		59	\$ 425,000		\$ 425,000	State, Federal
Tijuana River Valley, Hanson			74	74		74	\$ 1,387,500	\$ 1,387,500		County
Tijuana River Valley, Skibbe			10	10		10	\$ 485,000		\$ 485,000	State, City (Federal)
Wright's Field, Findel Ranch	29			29		29	\$ 500,000	\$ 500,000		County
Iron Mountain, Ramona Serena/Barnett Ranch		665		665		665	\$ 4,440,000	\$ 2,440,000	\$ 2,000,000	County, State, Federal

Acres Acquired							Cost	Funding		
Acquisition Year Area and Property Name	Owned By Local/Non Profits	Preserve / Hardline Owned By County	MHPA & Chula Vista	Total Counted Toward MSCP Preserve	Total Outside of MSCP Preserve (Not Counted Towards MSCP Preserve)	Total Acreage of Acquisition	Land Cost	County Funds	Non County Funds	Funding Source
2003										
Otay River Valley Park, Hirlinger-Baker		0	8	8		8	\$ 95,000	\$ 95,000		State, Federal
Iron Mountain, Berkeley Hering		59		59		59	\$ 457,200	\$ 62,200	\$ 395,000	County, State, Federal
Iron Mountain, Boulder Oaks		1,271		1,271		1,271	\$ 4,410,000	\$ 1,102,500	\$ 3,307,500	County, State, Federal
Iron Mountain, Reams Thomsen		46		46		46	\$ 180,000		\$ 180,000	County, State, Federal
Sycamore Canyon Preserve (I-122)		28		28		28				County, I-122
East Otay Mesa, Furby North			79	79		79	\$ 1,296,600	\$ 1,296,600		County
Otay River Valley Park, Munson Otay			19	19		19	\$ 13,300		\$ 13,300	State
Tijuana River Valley, Horwin			21	21		21	\$ 365,000		\$ 365,000	State
Tijuana River Valley, Nelson Sloan			73	73		73	\$ 699,782		\$ 699,782	State
Wright's Field, Apollo 120 acres	120			120		120	\$ 1,800,000	\$ 800,000	\$ 1,000,000	County, State
2004										
Escondido Creek, Polo (110 acs, but 4 acs in NC)		106		106		106	\$ 1,700,000	\$ 1,374,000	\$ 326,000	County, I-122 (8 acs), State
Sycamore Canyon Preserve (I-122)		63		63		63				County, I-122

Acres Acquired						Cost	Funding			
Acquisition Year Area and Property Name	Owned By Local/Non Profits	Preserve / Hardline Owned By County	MHPA & Chula Vista	Total Counted Toward MSCP Preserve	Total Outside of MSCP Preserve (Not Counted Towards MSCP Preserve)	Total Acreage of Acquisition	Land Cost	County Funds	Non County Funds	Funding Source
Otay River Valley Park, Georgiana Smith		89		89		89	\$ 2,611,000		\$ 2,611,000	State
Otay River Valley Park, Greg Smith		98		98		98	\$ 3,243,000		\$ 3,243,000	State
2005										
Stoneridge (fka Harbison), Bahde Donation		20		20		20				County acquired donation (interdept) post MSCP creation
Otay River Valley Park, Grindle		8		8		8	\$ 138,000	\$ 46,800	\$ 91,200	County, State
Otay River Valley Park, Kimball		13		13		13	\$ 196,000		\$ 196,000	State
Otay River Valley Park, Lanzetta			6	6		6	\$ 125,000		\$ 125,000	State
Tijuana River Valley, Dairy Mart Ponds			60	60		60				County had managed for State, State formalized by transfer
2006										
Otay River Valley Park, Sandoval (1 & 2)			13	13		13	\$ 700,000		\$ 700,000	State
Otay River Valley Park, Otay Land Company			114	114		114	\$ 1,490,000		\$ 1,490,000	State

Acquisition Year Area and Property Name	Acres Acquired					Total Acreage of Acquisition	Cost	Funding		
	Owned By Local/Non Profits	Preserve / Hardline Owned By County	MHPA & Chula Vista	Total Counted Toward MSCP Preserve	Total Outside of MSCP Preserve (Not Counted Towards MSCP Preserve)		Land Cost	County Funds	Non County Funds	Funding Source
Pitchford (MLJ at Stelzer)		3		3		3	\$ 75,000	\$ 75,000		County
Sheriff's East Mesa Buffer		9		9		9	\$ 45,000	\$ 45,000		County
2007										
Greenfield Transfer Mitig 17 acs	17			17		17	\$1	\$1		Olivenhain Wtr Mitigation Mgt
2008										
Del Dios Highlands (Greer)		10		10		10	\$ 675,000	\$ 675,000		County
Sycamore Canyon/Goodan Ranch (Armstrong)		20		20		20	\$ 160,000	\$ 160,000		County
Ramona Grasslands (Gildred Portion in SC MSCP)		463		463		463	\$ 3,630,000	\$ 412,500	\$ 3,217,500	County, State, Federal
2009										
Christopherhill TET dedication - Dedication was 69 acres in 2009 with all but 5 acs baseline then; Now 5 acs approved as Preserve										County accepted in bankruptcy settlement
2010										
Del Dios Highlands (Helix- Lambron)		153		153		153	\$ 4,000,000	\$ 1,400,000	\$ 2,600,000	County, Federal
Sycamore Canyon southern additions		150		150		150	\$ 1,310,000	\$ 1,310,000		County

Acquisition Year Area and Property Name	Acres Acquired					Total Acreage of Acquisition	Cost	Funding		
	Owned By Local/Non Profits	Preserve / Hardline Owned By County	MHPA & Chula Vista	Total Counted Toward MSCP Preserve	Total Outside of MSCP Preserve (Not Counted Towards MSCP Preserve)		Land Cost	County Funds	Non County Funds	Funding Source
Lakeside Hansen Pond (Endangered Habitats Conservancy) Conservancy)	141			141		141	\$ 4,000,000	\$ 1,000,000	\$ 3,000,000	County, State, EHC
2011										
Stoneridge Preserve - Worley		227		227		227	\$ 2,650,000	\$ 2,650,000		County
Sycamore Canyon/Goodan Ranch		112		112		112	\$ 2,820,000	\$ 2,620,000	\$ 200,000	County, State
Mit Land Policy Deduction- Stelzer, Lakeside Linkage		-1		-1		-1				
2012										
San Diego River Foundation El Capitan	158			158		158	\$ 205,000	\$ 200,000	\$ 5,000	County, Non Profit
Boulder Oaks -Salvation Army		748		748		748	\$ 6,555,000	\$ 6,555,000		County
Mit Lnd Policy Deduction - L B Daley		-2		-2		-2				
2013										
Oakosis-Sophisticated Investments		37		37		37	\$ 72,000	\$72,000		County
Sycamore Canyon/Goodan Ranch (South-Barratt American)		18		18		18	\$ 180,000	\$ 180,000		County
Otay River Valley Park, Reed/Paintball City MHPA	8			8		8	\$ 262,500	\$ 262,500		General Fund

Acquisition Year Area and Property Name	Acres Acquired					Total Acreage of Acquisition	Cost	Funding		
	Owned By Local/Non Profits	Preserve / Hardline Owned By County	MHPA & Chula Vista	Total Counted Toward MSCP Preserve	Total Outside of MSCP Preserve (Not Counted Towards MSCP Preserve)		Land Cost	County Funds	Non County Funds	Funding Source
Lusardi Creek, Fingal		31		31		31	\$ 1,360,000	\$ 1,160,000	\$ 200,000	County, State
Mit Lnd Policy Deduction - Tijuana River Valley			-3	-3		-3				
2014										
Stoneridge Preserve (tax default)		1		1		1	\$ 9,563	\$ 9,563		County
Mit Lnd Policy Deduction - L B Daley Daley		0		-0.37		-0.37				
2015										
Flinn Springs MSCP		33		33		33	\$ 400,000	\$ 400,000		County
Sycamore Canyon/Goodan		100		100		100	\$ 810,000	\$ 610,000	\$ 200,000	County, State
Sycamore Canyon/Goodan		40		40		40	\$ 541,000	\$ 541,000		County
Mit Lnd Policy Deduction - L B Daley		-8		-8		-8				
2016										
S. Vicente Connection (Navarro)		23		23		23	\$ 224,000	\$ 224,000		County
Mit Lnd Policy Deduction - Tijuana River Valley			-10	-10		-10				
2017										
S. Vicente Connection (Moore- Moffet)		69		69		69	\$ 627,670	\$ 627,670		County
Dictionary Hill		173		173		173	\$ 5,467,000	\$ 5,467,000		County

Acres Acquired						Cost	Funding			
Acquisition Year Area and Property Name	Owned By Local/Non Profits	Preserve / Hardline Owned By County	MHPA & Chula Vista	Total Counted Toward MSCP Preserve	Total Outside of MSCP Preserve (Not Counted Towards MSCP Preserve)	Total Acreage of Acquisition	Land Cost	County Funds	Non County Funds	Funding Source
2018										
S. Vicente (Uridel)		19		19		19	\$ 223,000	\$111,500	\$ 111,500	County/State
Lakeside Linkage (Centex)		75		75		75	\$ 2,250,000	\$ 2,250,000		County
Peutz Valley Preserve (Helix Lnd)		255		255		255	\$ 1,651,000	\$ 1,451,000	\$ 200,000	County/State
2019										
Ramona Grasslands (Carroll)		121		121		121	\$ 950,000	\$ 950,000		County
Skyline Preserve		262		262		262	\$ 1,068,000	\$ 602,080	\$ 465,920	County/SANDAG
Sycamore Goodan (Miera)		20		20		20	\$ 220,000	\$ 220,000		County
Iron Mountain Preserve		162		162		162	\$ 1,280,000	\$ 1,080,000	\$ 200,000	County/State
Dictionary Hill (North)		1		1		1	\$ 40,000	\$ 40,000		County
Dictionary Hill (Inholding)		1		1		1	\$ 30,000	\$ 30,000		County
2020										
Sycamore Goodan (Miera II)		10		10		10	\$ 110,000	\$ 110,000		County
Sycamore Goodan (Miera III)		30		30		30	\$ 330,000	\$ 330,000		County
Ramona Grasslands (Trussells)		5		5	20	25	\$ 950,000	\$ 950,000		County
Dictionary Hill (Ouidiani)		0		0	1	1	\$ 40,000	\$ 40,000		County
2021										
No SC MSCP acquisitions in 2021										

Acres Acquired							Cost	Funding		
Acquisition Year Area and Property Name	Owned By Local/Non Profits	Preserve / Hardline Owned By County	MHPA & Chula Vista	Total Counted Toward MSCP Preserve	Total Outside of MSCP Preserve (Not Counted Towards MSCP Preserve)	Total Acreage of Acquisition	Land Cost	County Funds	Non County Funds	Funding Source
2022										
Ramona Grasslands (Metzler)		217		217	9		\$640,000	\$640,000		County
Total	556	7,010	885	8,451	30	8,481	\$ 85,024,608	\$ 49,842,636	\$ 35,181,972	

APPENDIX B

Wildlife Agency Tracked Acquisitions

This page is intentionally blank

Table B-1. Wildlife Agency Tracked Acquisitions– U.S. Fish and Wildlife Service

USFWS Acquisitions ^a				State of California Funded				Federal Government Funded							
Track No	Property Name	Total Acres	Total Acres in MSCP MHPA	Prorated Acres Purchased	Prorated Acres in MSCP MHPA	% Contribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP MHPA	% Contribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
10	FDIC (Rancho San Diego)	1167	1144	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	1996	None
10a	FDIC (Rancho San Diego)	475	468	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	1996	None
10b	FDIC (Rancho San Diego)	28	28	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	1996	None
10c	FDIC (Rancho San Diego)	129	129	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	1996	None
10d	FDIC (Rancho San Diego)	26	0	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	1996	None
240	National Fish and Wildlife Foundation (Smith "V parcel")	278	278	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	1997	None
101	Emerald Properties Corp (N. San Miguel)	500	499	217	216	43%	\$1,300	283	283	57%	\$1,700	\$850	\$3,000	1997	Prop 117 and LWCF
101a	Emerald Properties Corp (N. San Miguel)	1188	1176	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	1997	None
200	TPL (Las Montanas I)	276	112	0	0	0%	\$0	276	112	100%	\$1,800	\$0	\$1,800	1998	LWCF

USFWS Acquisitions ^a				State of California Funded				Federal Government Funded							
Track No	Property Name	Total Acres	Total Acres in MSCP MHPA	Prorated Acres Purchased	Prorated Acres in MSCP MHPA	% Contribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP MHPA	% Contribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
222	Singing Hills (Duncan)	79	76	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	1998	None
137	Hamel (I)	45	2	0	0	0%	\$0	45	2	100%	\$211	\$0	\$211	1998	LWCF
237a	Mozaffarian	10	10	0	0	0%	\$0	10	10	100%	\$40	\$0	\$40	1998	LWCF
237b	Mozaffarian	5	5	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	1998	LWCF
92	Doenges, Robert S. & William S.	87	85	0	0	0%	\$0	87	85	100%	\$446	\$0	\$446	1998	LWCF
199	Liker	8	8	0	0	0%	\$0	8	8	100%	\$150	\$0	\$150	1998	LWCF
200a	TPL (Las Montanas II)	661	279	0	0	0%	\$0	661	279	100%	\$1,500	\$0	\$1,500	1998	LWCF
200b	TPL (McGinty Ranch I)	582	582	0	0	0%	\$0	582	582	100%	\$1,675	\$0	\$1,675	1999	LWCF
137a	Hamel (II)	79	0	0	0	0%	\$0	79	0	100%	\$319	\$0	\$319	1999	LWCF
1	Department of Treasury (Gomez)	88	26	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	1999	None
200c	TPL (McGinty Ranch II)	112	112	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	1999	None
89	Desert Pacific Council/Boy Scouts	83	0	0	0	0%	\$0	83	0	100%	\$393	\$0	\$393	1999	LWCF
23	Beitmann	5	5	0	0	0%	\$0	5	5	100%	\$28	\$0	\$28	1999	LWCF
86	DeGuzman	37	0	0	0	0%	\$0	37	0	100%	\$180	\$0	\$180	1999	LWCF
84	DeGuzman	34	0	0	0	0%	\$0	34	0	100%	\$153	\$0	\$153	1999	LWCF

USFWS Acquisitions ^a				State of California Funded				Federal Government Funded							
Track No	Property Name	Total Acres	Total Acres in MSCP MHPA	Prorated Acres Purchased	Prorated Acres in MSCP MHPA	% Contribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP MHPA	% Contribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
85	DeGuzman	41	0	0	0	0%	\$0	41	0	100%	\$180	\$0	\$180	1999	LWCF
132	Grant, Kenneth Carlton	14	10	0	0	0%	\$0	14	10	100%	\$140	\$0	\$140	2000	LWCF
164	Immenschuh	641	640	0	0	0%	\$0	641	640	100%	\$1,760	\$0	\$1,760	2000	LWCF
288	Rice	253	0	0	0	0%	\$0	253	0	100%	\$1,140	\$0	\$1,140	2000	LWCF
288a	Rice	1	0	0	0	0%	\$0	1	0	100%	\$3	\$0	\$3	2000	LWCF
200f	TPL (Shinohara I)	85	78	0	0	0%	\$0	85	78	100%	\$2,700	\$0	\$2,700	2001	LWCF
288b	Rice	286	6	0	0	0%	\$0	286	6	100%	\$1,332	\$0	\$1,332	2001	LWCF
15	Clarke	38	38	0	0	0%	\$0	38	38	100%	\$170	\$0	\$170	2001	LWCF
200g	TPL (Shinohara II)	40	34	0	0	0%	\$0	40	34	100%	\$1,381	\$0	\$1,381	2002	LWCF
12	Sampo	69	18	0	0	0%	\$0	69	18	100%	\$280	\$0	\$280	2002	LWCF
14	Mills	19	19	0	0	0%	\$0	19	19	100%	\$115	\$0	\$115	2002	LWCF
200h	TPL (Shinohara III)	369	368	0	0	0%	\$0	369	368	100%	\$4,540	\$0	\$4,540	2004	LWCF
16	Baker Trust	19	0	0	0	0%	\$0	19	0	100%	\$100	\$0	\$100	2004	LWCF
16a	Baker Trust	1	1	0	0	0%	\$0	1	1	100%	\$5	\$0	\$5	2004	LWCF
13	Asistoisdmr Holdings	37	0	0	0	0%	\$0	37	0	100%	\$260	\$0	\$260	2004	LWCF
315	Chula Vista 186 LLC	185	0	0	0	0%	\$0	185	0	100%	\$1,302	\$0	\$1,302	2004	LWCF
180	King	5	0	0	0	0%	\$0	5	0	100%	\$175	\$0	\$175	2005	LWCF
295	Roberts	10	0	0	0	0%	\$0	10	0	100%	\$225	\$0	\$225	2005	LWCF

USFWS Acquisitions ^a				State of California Funded				Federal Government Funded							
Track No	Property Name	Total Acres	Total Acres in MSCP MHPA	Prorated Acres Purchased	Prorated Acres in MSCP MHPA	% Contribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP MHPA	% Contribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
230	Mitchell	3	0	0	0	0%	\$0	3	0	100%	\$250	\$0	\$250	2005	LWCF
3a	County of San Diego	22	22	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	2005	None
296	Robinson	10	0	0	0	0%	\$0	10	0	100%	\$55	\$0	\$55	2005	LWCF
175	Kelly, etal	5	0	0	0	0%	\$0	5	0	100%	\$205	\$0	\$205	2006	LWCF
103h	TET	53	0	0	0	0%	\$0	53	0	100%	\$225	\$0	\$225	2006	LWCF
363	Brown	41	41	0	0	0%	\$0	41	41	100%	\$50	\$0	\$50	2007	LWCF
396	Wilhite	41	41	0	0	0%	\$0	41	41	100%	\$480	\$0	\$480	2007	LWCF
297	Catholic Diocese	27	0	0	0	0%	\$0	27	0	100%	\$150	\$0	\$150	2009	LWCF
103a	TET	338	338	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	2009	None
357	Jones	20	0	0	0	0%	\$0	20	0	100%	\$230	\$0	\$230	2010	LWCF
272	TET	261	260	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	2010	None
176	Kennerly	10	0	0	0	0%	\$0	10	0	100%	\$80	\$0	\$80	2011	LWCF
302	Salerno	10	0	0	0	0%	\$0	10	0	100%	\$80	\$0	\$80	2011	LWCF
251	Nauman	2	0	0	0	0%	\$0	2	0	100%	\$78	\$0	\$78	2011	LWCF
319	Sevel	1	0	0	0	0%	\$0	1	0	100%	\$33	\$0	\$33	2011	LWCF
104	Evans	2	1	0	0	0%	\$0	2	1	100%	\$87	\$0	\$87	2011	LWCF
411	Lauss	2	0	0	0	0%	\$0	2	0	100%	\$52	\$0	\$52	2011	LWCF
266	Peppard	10	0	0	0	0%	\$0	0	0	0%	\$0	\$0	\$250	2012	Other
71	The Nature Conservancy	1858	1309	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	2012	None
127	Cuevas	10	0	0	0	0%	\$0	10	0	100%	\$235	\$0	\$235	2012	LWCF
102b	Trimark	167	167	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	2013	None

USFWS Acquisitions ^a				State of California Funded				Federal Government Funded							
Track No	Property Name	Total Acres	Total Acres in MSCP MHPA	Prorated Acres Purchased	Prorated Acres in MSCP MHPA	% Contribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP MHPA	% Contribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
149	Heuschele	6	0	0	0	0%	\$0	6	0	100%	\$35	\$0	\$35	2013	LWCF
194	Lee	6	0	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	2013	None
388a	Bella Lago	10	10	0	0	0%	\$0	0	0	100%	\$0	\$0	\$0	2014	None
326	Bols	41	9	0	0	0%	\$0	0	0	0%	\$0	\$0	\$220	2014	Other
238	Spring Valley Ranch	43	0	0	0	0%	\$0	43	0	100%	\$435	\$0	\$435	2015	LWCF
503	Pio Pico	82	0	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	2016	None
98	Beaver Hollow	120	0	0	0	0%	\$0	120	0	100%	\$975	\$0	\$975	2016	LWCF
367	Trachtenberg	4	0	0	0	0%	\$0	4	0	100%	\$70	\$0	\$70	2016	LWCF
290	Riedman	41	0	0	0	0%	\$0	41	0	100%	\$285	\$0	\$285	2016	LWCF
312	TNC Schooler	4	4	0	0	0%	\$0	4	4	100%	\$45	\$0	\$45	2016	LWCF
2a	CALTRANS (River Splinter)	21	20	0	0	0%	\$0	0	0	0%	\$0	\$185	\$0	2017	None
2	CALTRANS (Go-Cart)	2	1	0	0	0%	\$0	0	0	0%	\$0	\$375	\$0	2017	None
327	Sickles	10	1	0	0	0%	\$0	10	1	100%	\$235	\$0	\$235	2017	LWCF
114	North	1	0	0	0	0%	\$0	1.00	0	100%	\$7	\$0	\$7	2017	LWCF
2e	CALTRANS (Millar Ranch Rd)	19	0	0	0	0%	\$0	0	0	0%	\$0	\$190	\$0	2018	None
192	Alshadhir	19	8	0	0	0%	\$0	19	8	100%	\$188	\$0	\$188	2018	LWCF
55	Chow	22	3	0	0	0%	\$0	22	3	100%	\$155	\$0	\$155	2018	LWCF

USFWS Acquisitions ^a				State of California Funded				Federal Government Funded							
Track No	Property Name	Total Acres	Total Acres in MSCP MHPA	Prorated Acres Purchased	Prorated Acres in MSCP MHPA	% Contribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP MHPA	% Contribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
2b	CALTRANS (Bonita Meadows)	107	6	0	0	0%	\$0	0	0	0%	\$0	\$1,140	\$0	2018	None
2c	CALTRANS (Bonita Meadows)	127	119	0	0	0%	\$0	0	0	0%	\$0	\$1,140	\$0	2018	None
2d	CALTRANS (94/54 Corridor)	52	1	0	0	0%	\$0	0	0	0%	\$0	\$510	\$0	2018	None
505, 505a	Journey Partners	58	47	0	0	0%	\$0	55	44	100%	\$1,730	\$0	\$1,730	2019	LWCF
249	Offutt	1	0	0	0	0%	\$0	1	1	100%	\$10	\$0	\$10	2019	TADF
Otay-Sweet-water	TNC Lyons Valley Partners	121	72	0	0	0%	\$0	121	72	100%	650	\$0	\$650	2020	LWCF
Total		11,905	8,717	217	216		\$1,300	4,989	2,796		\$31,511	\$4,390	\$32,631		

^a All acquisitions are part of the San Diego National Wildlife Refuge. USFWS is the land manager and fee title owner of all acquisitions in table.

TABLE B-2. WILDLIFE AGENCY TRACKED ACQUISITIONS – BUREAU OF LAND MANAGEMENT

CaseNum	Property Name	Total Acres	Agency's Prorated Acres Purchased	Acres in MHPA only	Prorated acres in MHPA only	Acres in MHPA Amendment Area	Prorated acres in MHPA Amendment Area	Acres in MSCP MHPA (both)	Prorated Acres in MSCP MHPA (both)	Agency % Contribution	Agency's Cost (000s)	Total Cost of Property (000s)	Fund Authority	Year Acquired
CACA037104	Helix/Lambron	381	381	381	381	0	0	381	381	100%	\$1,090.0	\$1,090.0	LWCF	1997
CACA039258	TPL (Sycamore Canyon)	354	354	167	167	23	23	190	190	100%	\$750.0	\$750.0	LWCF	1998
CACA040203	Anderson	126	126	1	1	0	0	1	1	100%	\$250.0	\$250.0	LWCF	2000
CACA040237	TPL (Rancho Jamul)	1,093	1093	253	253	7	7	260	260	100%	\$2,000.0	\$2,000.0	LWCF	1999
CACA040314	TET (Marron Valley)	332	332	332	332	0	0	332	332	100%	\$1,021.0	\$1,021.0	LWCF	1999
CACA041430	Anderson/Hendron	31	31	0	0	0	0	0	0	100%	\$60.0	\$60.0	LWCF	2000
CACA041516	TET	33	33	33	33	0	0	33	33	100%	\$80.0	\$80.0	LWCF	2000
CACA042687	TPL (Clark Ranch)	947	947	4	4	0	0	4	4	100%	\$3,867.0	\$3,867.0	LWCF	2001
CACA043168	Fetters	162	162	0	0	162	162	162	162	100%	\$325.1	\$325.1	LWCF	2002
CACA044234	Cain	461	461	23	23	437	437	461	461	100%	\$1,320.0	\$1,320.0	LWCF	2002
CACA045193	Brailsford/Keller	42	42	1	1	0	0	1	1	100%	\$140.0	\$140.0	LWCF	2004
CACA045308	Klein	118	118	1	1	0	0	1	1	100%	\$470.0	\$470.0	LWCF	2004
CACA046156	TPL	359	359	4	4	0	0	4	4	100%	\$1,436.0	\$1,436.0	LWCF	2004
CACA050366	TET (O'Neal Cnyn) Donation	167	0	0	0	167	0	167	0	0.00%	\$0.0	\$0.0	None	2009
		4,606	4,439	1,200	1,200	796	629	1,997	1,830		\$12,809.1	\$12,809.1		

TABLE B-3. WILDLIFE AGENCY TRACKED ACQUISITIONS— CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

CDFW Acquisitions in County Subarea Since 1998 ^a				State of California Funded				Federal Government Funded							
Parcel History #	Parcel Name	Total Acres	Total Acres in MSCP	Prorated Acres Purchased	Prorated Acres in MSCP	% Contribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP	% Contribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
Boden Canyon Ecological Reserve															
821737	Boden Canyon (Phase I)	572	506	524	463	92%	\$2,172	0	0	0%	\$0	\$442	\$2,372	1998	Prop 117
821826	Boden Canyon (Expansion #1)	604	548	558	506	92%	\$2,180	0	0	0%	\$0	\$430	\$2,360	1999	Prop 117
821858	Boden Canyon (Expansion #2)	67	64	67	64	100%	\$210	0	0	0%	\$0	\$105	\$210	1999	Prop 117
Canada de San Vicente															
822300	Monte Vista Ranch (Iron Mountain, Expansion #3)	392	390	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	2008	Mitigation
822399	Monte Vista Ranch	4,026	1,558	2,453	949	61%	\$9,700	1,573	609	39%	\$6,221	\$0	\$15,921	2009	Prop 12 and Section 6
822506	Monte Vista Ranch (Iron Mountain, Expansion #4)	314	11	0	0	0%	\$0	314	11	100%	\$2,100	\$300	\$2,100	2010	Section 6
822883	Bonfils	266	9	93	3	35%	\$158	173	6	65%	\$293	\$0	\$450	2014	Prop 117 and Section 6
Crestridge Ecological Reserve															
821774	Crestridge	2,372	1,958	857	707	36%	\$3,506	0	0	0%	\$0	\$1,889	\$3,506	1999	Prop 117
821964	Crestridge Expansion #1	256	256	0	0	0%	\$0	0	0	0%	\$0	\$0	\$2,258	2002	Mitigation

TABLE B-3. WILDLIFE AGENCY TRACKED ACQUISITIONS— CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

CDFW Acquisitions in County Subarea Since 1998 ^a				State of California Funded				Federal Government Funded							
Parcel History #	Parcel Name	Total Acres	Total Acres in MSCP	Prorated Acres Purchased	Prorated Acres in MSCP	% Contribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP	% Contribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
822003	Rancho Montana Unit Pilgrim Mitigation Bank (CALTRANS)	125	125	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	2002	N/A
Hollenbeck Canyon Wildlife Area															
821913	Hollenbeck Canyon (Expansion #1 - Original CDFG Segment)	3241	945	3,170	925	98%	\$10,997	0	0	0%	\$0	\$0	\$11,240	2001	General Fund & Prop12
822132	Hollenbeck Canyon (Expansion #2 - Honey Springs Ranch)	2012	82	2,012	82	100%	\$7,420	0	0	0%	\$0	\$0	\$7,420	2004	Prop 12
822257	Hollenbeck Canyon (Expansion #3)	304	0	50	0	17%	\$205	254	0	83%	\$1,031	\$0	\$1,235	2006	Prop 12 and Section 6
822632	Hollenbeck Canyon Wildlife Area, Expansion #4	577	34	178	10	31%	\$693	393	23	68%	\$1,532	\$87	\$2,250	2011	Prop 40 and Section 6
822907	Hollenbeck Canyon Wildlife Area, Expansion #5	381	79	88	18	23%	\$361	0	0	0%	\$0	\$0	\$1,564	2015	Prop 117
822908	Hollenbeck Canyon Wildlife Area, Expansion #6	187	166	66	58	35%	\$253	121	108	65%	\$467	\$0	\$720	2016	Prop 117

TABLE B-3. WILDLIFE AGENCY TRACKED ACQUISITIONS— CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

CDFW Acquisitions in County Subarea Since 1998 ^a				State of California Funded				Federal Government Funded							
Parcel History #	Parcel Name	Total Acres	Total Acres in MSCP	Prorated Acres Purchased	Prorated Acres in MSCP	% Contribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP	% Contribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
12-2016 rptd "pending"; 12-2017 rptd 822915	Hollenbeck Canyon Wildlife Area, Expansion #7 HabiTrak 17-123	27	0	10	0	35%	\$84	18	0	65%	\$156	\$0	\$240	2016	Prop 117
HabiTrak 17-124; Hist# 822923	Hollenbeck Canyon Wildlife Area APNs 59710009, 59710011, 59710012 11/7/2016	113													
Lake Hodges Ecological Reserve															
821996	Pilgrim Mitigation Parcels (CALTRANS)	19	19	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	2002	N/A
McGinty Mountain Ecological Reserve															
821486	McGinty Mountain Expansion #2 - Willow Glen	200	200	110	110	55%	\$357	0	0	0%	\$0	\$583	\$647	1996	Prop 70
HabiTrak 20-012	McGinty Mountain APN 51909104	86	86											2020	

TABLE B-3. WILDLIFE AGENCY TRACKED ACQUISITIONS— CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

CDFW Acquisitions in County Subarea Since 1998 ^a				State of California Funded				Federal Government Funded							
Parcel History #	Parcel Name	Total Acres	Total Acres in MSCP	Prorated Acres Purchased	Prorated Acres in MSCP	% Contribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP	% Contribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
Otay Mountain Ecological Reserve															
821509	Otay Mt North	211	211	211	211	100%	\$2,880	0	0	0%	\$0	\$0	\$2,880	1996	Prop 117 and Prop 70
822061	Otay Village 15	1,037	1,037	392	392	38%	\$7,376	436	436	42%	\$8,200	\$0	\$19,500	2004	Prop 12 and Section 6
Rancho Jamul Ecological Reserve															
821560	Rancho Jamul (Phase 1)	2,268	1,532	627	423	28%	\$1,050	1,641	1,108	72%	\$2,750	\$0	\$3,800	1997	Prop 117 and Section 6
821809	Rancho Jamul (Expansion #1)	1,398	986	466	329	33%	\$800	932	657	67%	\$1,600	\$800	\$2,400	1998	Natural Resources Infrastructure Fund and Prop 117
821962	Rancho Jamul ER (Expansion #2 - HQ)	40	4	40	4	100%	\$2,000	0	0	0%	\$0	\$0	\$2,000	2001	Prop 12
822037	Rancho Jamul Proctor Valley Unit (Villages 14 and 16) ^b	1,463	811	421	233	29%	\$6,475	1,042	577	71%	\$16,025	\$0	\$22,500	2003	Prop 12 and Section 6
	Expansion 4	3	1	0	0	0%	\$0	0	0	0%	\$0	\$0	\$0	2018	Mitigation
822074	Rancho Jamul Expansion #3 (CalMat Quarry)	551	551	551	551	100%	\$6,450	0	0	\$0	\$0	\$0	\$6,450	2004	Prop 12

TABLE B-3. WILDLIFE AGENCY TRACKED ACQUISITIONS— CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

CDFW Acquisitions in County Subarea Since 1998 ^a				State of California Funded				Federal Government Funded							
Parcel History #	Parcel Name	Total Acres	Total Acres in MSCP	Prorated Acres Purchased	Prorated Acres in MSCP	% Contribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP	% Contribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
San Vicente Highlands															
821881	Iron Mountain Wildlife Area - Boys & Girls Club	240	240	0	0	0%	\$0	0	0	\$0	\$0	\$803	\$0	2000	N/A
		1,181	1,181	1,181	1,181	100%	\$3,800	0	0	\$0	\$0	\$0	\$3,800	2000	Prop 12
	Briles	7	7	7	7	100%	\$115	0	0	\$0	\$0	\$0	\$115	2018	Prop 117
822584	Environmental Trust Bankruptcy (San Vicente)	0	0	0	0	0%	\$0	0	0	\$0	\$0	\$2,160	\$0	2009	Mitigation
Sycuan Peak Ecological Reserve															
821488	Sycuan Peak (Expansion #1)	122	122	122	122	100%	\$413	0	0	\$0	\$0	\$0	\$413	1996	EEMP
821554	Sycuan Peak (Expansion #2)	297	297	78	78	26%	\$250	0	0	\$0	\$0	\$0	\$950	1997	Prop 117, ISTEPA, EEMP
821740	Sycuan Peak (Expansion #3)	253	252	253	252	100%	\$700	0	0	\$0	\$0	\$123	\$700	1998	Prop 70 and Prop 117
822292	Sycuan Peak (Expansion #4)	601	177	150	44	25%	\$367	451	132	75%	\$1,100	\$0	\$1,467	2006	Prop 12 and Section 6
822900	Sycuan Peak (Expansion #5)	76	69	27	24	35%	\$53	49	45	65%	\$97	\$0	\$150	2015	Prop 117
822909	Sycuan Peak (Expansion #6)	2	2	1	1	35%	\$11	1	1	65%	\$19	\$0	\$30	2016	Prop 117

TABLE B-3. WILDLIFE AGENCY TRACKED ACQUISITIONS— CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

CDFW Acquisitions in County Subarea Since 1998 ^a				State of California Funded				Federal Government Funded							
Parcel History #	Parcel Name	Total Acres	Total Acres in MSCP	Prorated Acres Purchased	Prorated Acres in MSCP	% Contribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP	% Contribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
822914	Sycuan Peak (Expansion #7) HabiTrak 17-121	10	0	4	0	35%	\$11	7	0	65%	\$21	\$0	\$32	2016	Prop 117
17-122; Hist# 822920	Sycuan Peak Ecological Reserve APN 52109008 10/25/2016	40													
HabiTrak 20-013	Sycuan Peak Ecological Reserve APNs 52101005, 52108004	172	42											2020	
		26,115	14,558	14,766	7,750		\$71,044	7,406	3,714		\$41,613	\$7,723	\$121,680		

NOTES:

^a All acquisitions are owned in fee title and managed by California Department of Fish and Wildlife unless otherwise noted.

^b U.S. Fish and Wildlife Service is the land manager

APPENDIX C

Summary of MSCP Gains

This page intentionally left blank

Summary of Project Gains

MSCP South San Diego County



From 1/1/2022 To 12/31/2022

County of San Diego

Project Tracking #	Project Name	Location	Applicant	APN	Date Cons.	Status	Mgmt Resp.	Conservation Type	Mit. Bank Credits Used	Acres Outside Habitat Preserve	Acres Inside Habitat Preserve	Total Acres
22-063	BP Anbarl		Anbarl		12/23/2022	Gain	Private	Easement	0.00	1.42	0.00	1.42
22-064	BP Empizo		Empizo	520-350-03	12/23/2022	Gain	Private	Easement	0.00	0.08	0.00	0.08
22-062	CRESTLAKE		ENDANGERED HABITATS CONSERVANCY	396-130-02 396-130-03 396-130-04 399-020-04 402-202-17 402-202-39 402-210-19 402-210-20 403-011-01	12/23/2022	Gain	Non-Profit	Acquisition	0.00	204.23	83.03	287.26
22-065	ESMT 29341-ATLAS HOMES L L C		ATLAS HOMES L L C	580-233-03	12/23/2022	Gain	Private	Easement	0.00	1.72	2.80	4.52
22-078	ESMT 45787-SEREDA		SEREDA	269-100-46	12/23/2022	Gain	Private	Easement	0.00	1.98	0.00	1.98
22-066	ESMT 45787-WELSH		WELSH	269-100-47	12/23/2022	Gain	Private	Easement	0.00	2.25	0.00	2.25
22-067	ESMT 9009466-R S F LAND HOLDINGS LLC		R S F LAND HOLDINGS LLC	269-100-27 269-100-50 269-100-51 269-100-52	12/23/2022	Gain	Private	Easement	0.00	13.16	26.15	39.31
22-068	ESMT 9011706-SWEETWATER VISTA		SWEETWATER VISTA		12/23/2022	Gain	Private	Easement	0.00	2.63	0.00	2.63
22-069	ESMT 9011707-SWEETWATER VISTA		SWEETWATER VISTA		12/23/2022	Gain	Private	Easement	0.00	14.03	0.31	14.35
22-070	ESMT 9011708-SWEETWATER VISTA		SWEETWATER VISTA		12/23/2022	Gain	Private	Easement	0.00	4.62	4.04	8.66
22-071	ESMT 9012394-CLARK		CLARK	269-100-48	12/23/2022	Gain	Private	Easement	0.00	1.60	0.00	1.60
22-072	ESMT 9012867-MAHOGANY		MAHOGANY	648-130-08	12/23/2022	Gain	Private	Easement	0.00	0.00	1.92	1.92
22-080	ESMT 9012867-RABAGOZ		RABAGOZ	648-130-07	12/23/2022	Gain	Private	Easement	0.00	0.04	0.96	1.00
22-079	ESMT 9012867-RANCHO VISTA DEL MAR		RANCHO VISTA DEL MAR	648-071-10	12/23/2022	Gain	Private	Easement	0.00	0.00	0.75	0.75
22-073	ESMT 9012981-FERNANDEZ-GUTIERREZ		FERNANDEZ-GUTIERREZ	269-100-28	12/23/2022	Gain	Private	Easement	0.00	0.00	1.63	1.63
22-074	ESMT 9012982-FERNANDEZ-GUTIERREZ		FERNANDEZ-GUTIERREZ	269-100-28	12/23/2022	Gain	Private	Easement	0.00	0.00	1.24	1.24

County of San Diego

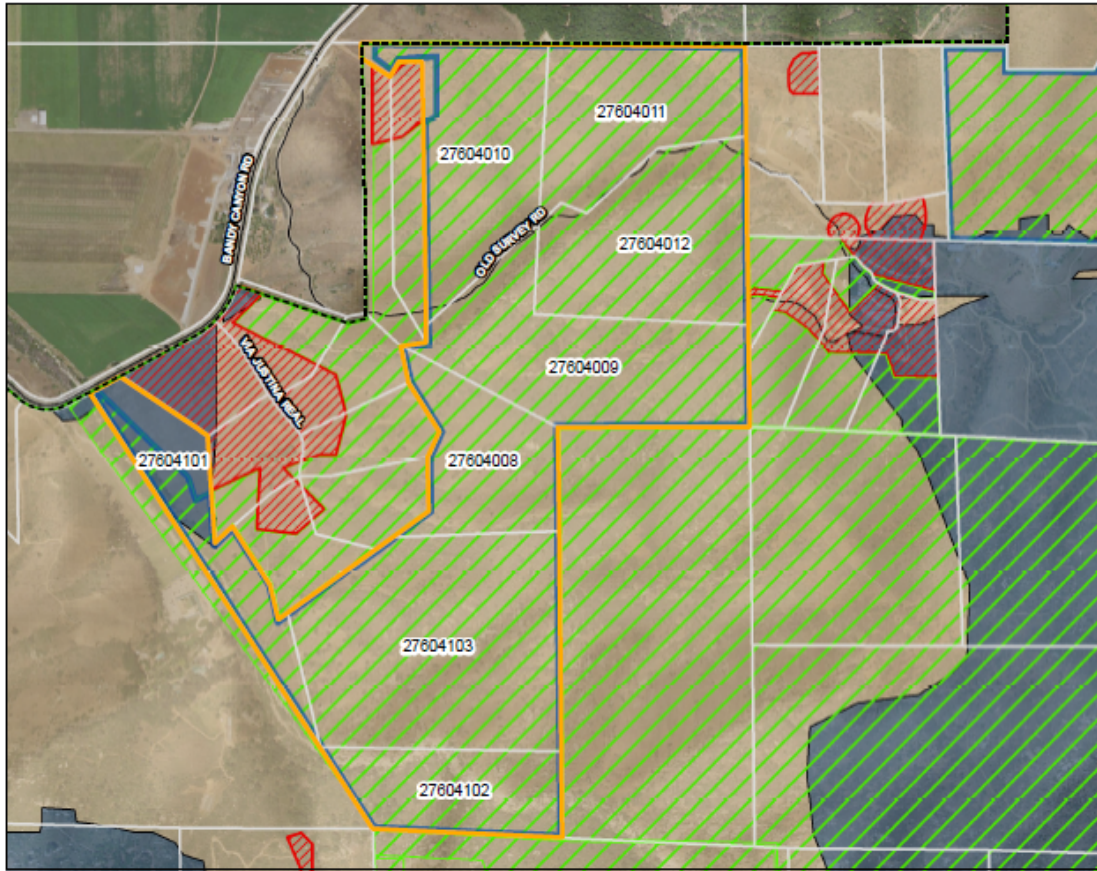
Project Tracking #	Project Name	Location	Applicant	APN	Date Cons.	Status	Mgmt Resp.	Conservation Type	Mit. Bank Credits Used	Acres Outside Habitat Preserve	Acres Inside Habitat Preserve	Total Acres
22-075	ESMT 9012983-FERNANDEZ-GUTIERREZ		FERNANDEZ-GUTIERREZ	269-100-28	12/23/2022	Gain	Private	Easement	0.00	0.24	0.00	0.24
22-076	ESMT 9012984-FERNANDEZ-GUTIERREZ		FERNANDEZ-GUTIERREZ	269-100-28	12/23/2022	Gain	Private	Easement	0.00	4.57	8.68	13.25
22-077	ESMT 9012985-FERNANDEZ-GUTIERREZ		FERNANDEZ-GUTIERREZ	269-100-28	12/23/2022	Gain	Private	Easement	0.00	0.67	0.00	0.67
22-081	Ramona Grasslands (Metzler Property)		County of San Diego	276-040-10 276-041-01	12/27/2022	Gain	Local	Acquisition	0.00	4.62	0.93	5.54
22-082	Ramona Grasslands (Metzler)- Gain Transfer		County of San Diego	276-040-02 276-040-04 276-040-06 276-040-08 276-040-09 276-040-10 276-040-11 276-040-12 276-041-01 276-041-02 276-041-03	12/27/2022	Gain	Local	Acquisition	0.00	4.67	216.35	221.02
Total for Agency: County of San Diego									0.00	262.54	348.81	611.34

APPENDIX D

MSCP Acquisitions by County of San Diego and Local Non-Profit Partners in Reporting Year

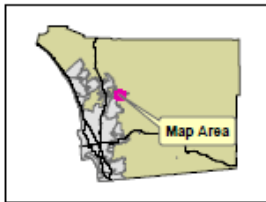
This page is intentionally blank

County of San Diego Ramona Grasslands (Metzler Property)



Acquisition Name:	Ramona Grasslands (Metzler Property)
Owner:	County of San Diego
Management Agency:	Local
GIS Acres:	226.64
Habitrak Acres (Gain):	5.54
Habitrak Acres (Gain Transfer):	221.02
Acquisition Date:	9/16/2022
Habitrak Tracking Number:	22-081 & 22-082
MSCP Segment:	North Metro-Lakeside-Jamul Segment

MSCP Vegetation Type	Acres
Diegan Coastal Sage Scrub	141.82
Southern Mixed Chaparral	28.22
Non-Native Grassland	22.15
Field/Pasture	14.06
Disturbed Habitat	8.76
Southern Cottonwood-Willow Riparian Forest	4.32
Southern Willow Scrub	3.11
Orchards and Vineyards	2.92
Southern Coast Live Oak Riparian Forest	1.21
Valley and Foothill Grassland	0.09

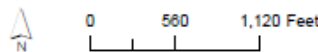


Legend

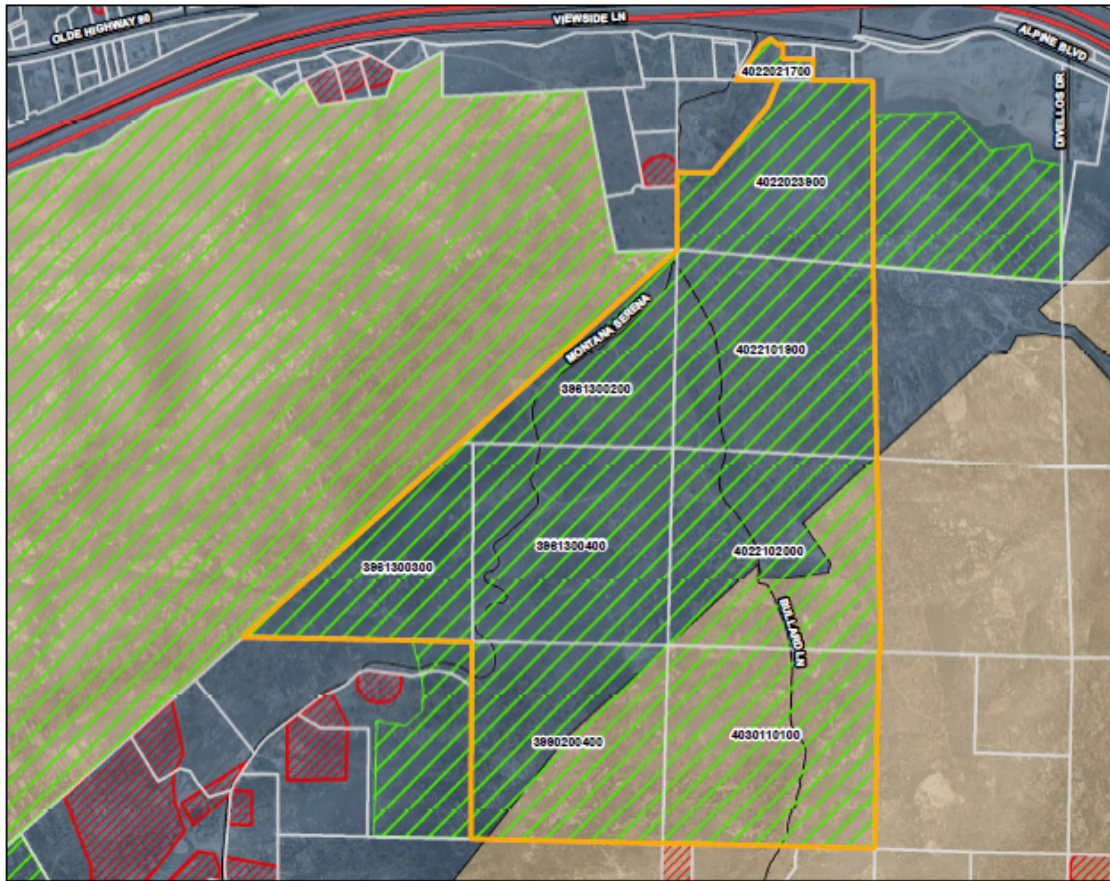
- Acquisition
 - County Preserve Prior to Acquisition
 - Parcel Boundaries
 - Road
 - MSCP Gain
 - MSCP Loss
- MSCP (South County) Designation**
 - Pre-Approved Mitigation Area
 - Unincorporated Land in Metro-Lakeside-Jamul Segment
 - South Plan Boundary

THIS MAP/DATA IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
 Note: This product may contain information from the SANDAG Regional Information System which cannot be reproduced without the written permission of SANDAG. Copyright SanGIS 2020 - All Rights Reserved. Full text of this legal notice can be found at: http://www.sandag.org/legal_notice.htm

Path: P:\mcp\annual_reports\2022\Acq_Ramona_Grasslands_Metzler_2022.mxd - Date:

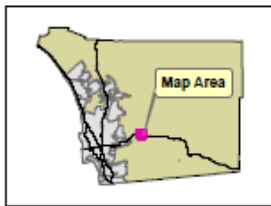


Non-Profit Crestlake



Acquisition Name:	Crestlake
Owner:	Endangered Habitats Conservancy
Management Agency:	Non-Profit
GIS Acres:	287.26
Acquisition Date:	1/14/2022
Habitrak Tracking Number:	22-062
MSCP Segment:	South Metro-Lakeside-Jamul Segment

MSCP Vegetation Type	Acres
Chaparral	235.60
Diegan Coastal Sage Scrub	24.57
Black Oak Woodland	10.56
Valley and Foothill Grassland	9.31
Urban/Developed	7.01
Southern Coast Live Oak Riparian Forest	0.20

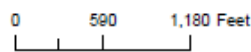


THIS MAP/DATA IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
 Note: This product may contain information from the SANDAG Regional Information System which cannot be reproduced without the written permission of SANDAG. Copyright SanGIS 2020 - All Rights Reserved. Full text of this legal notice can be found at: http://www.sandag.org/legal_notice.htm
 Path: P:\mcap\annual_reports\2022\Acc_Crestlake_Non_Profit_2022.mxd - Date:

Legend

- Acquisition
- County Preserve Prior to Acquisition
- Parcel Boundaries
- Freeway
- Road
- MSCP Gain
- MSCP Loss

- ### MSCP (South County) Designation
- Pre-Approved Mitigation Area
 - Unincorporated Land in Metro-Lakeside-Jamul Segment
 - South Plan Boundary



APPENDIX E

Summary of MSCP Losses

This page intentionally left blank

Summary of Project Losses

MSCP South San Diego County



From 1/1/2022 To 12/31/2022

County of San Diego

Project Tracking #	Project Name	Location	Applicant	APN	Date of Loss	Status	CEQA Doc.	Activity Type	Acres		Total Acres
									Outside Habitat Preserve	Inside Habitat Preserve	
22-026	BP 5725 MOOREFIELD IMPROVEMENTS LLC		5725 MOOREFIELD IMPROVEMENTS LLC	510-090-16	12/23/2022	Loss	0	Single-Family Residential	1.21	0.00	1.21
22-008	BP Adams		Adams	602-061-01	12/23/2022	Loss	0	Single-Family Residential	1.02	0.00	1.02
22-038	BP Baker		Baker	520-350-04	12/23/2022	Loss	0	Single-Family Residential	0.22	0.00	0.22
22-042	BP Clarke-Haron		Clarke-Haron	597-170-26	12/23/2022	Loss	0	Other	0.00	0.28	0.28
22-035	BP Daniels		Daniels	303-050-43	12/23/2022	Loss	0	Single-Family Residential	0.78	0.00	0.78
22-019	BP Dann		Dann	502-231-53	12/23/2022	Loss	0	Single-Family Residential	0.13	0.00	0.13
22-004	BP Echeagaray		Echeagaray	599-042-14	12/23/2022	Loss	0	Single-Family Residential	0.75	0.00	0.75
22-032	BP Empizo		Empizo	520-350-03	12/23/2022	Loss	0	Single-Family Residential	1.20	0.00	1.20
22-018	BP Esshaki		Esshaki	519-351-15	12/23/2022	Loss	0	Single-Family Residential	0.13	0.00	0.13
22-040	BP Goldsmith		Goldsmith		12/23/2022	Loss	0	Single-Family Residential	1.06	0.00	1.06
22-012	BP Gonzales		Gonzales	519-110-22	12/23/2022	Loss	0	Single-Family Residential	1.10	0.00	1.10
22-020	BP Guzman		Guzman	522-121-19	12/23/2022	Loss	0	Single-Family Residential	0.00	1.54	1.54
22-002	BP HIGH MEADOW RANCH L P		HIGH MEADOW RANCH L P	389-062-09	12/23/2022	Loss	0	Single-Family Residential	1.15	0.00	1.15
22-014	BP HIGH MEADOW RANCH L P		HIGH MEADOW RANCH L P	389-062-16	12/23/2022	Loss	0	Single-Family Residential	0.67	0.00	0.67
22-024	BP HIGH MEADOW RANCH L P		HIGH MEADOW RANCH L P	389-082-12	12/23/2022	Loss	0	Single-Family Residential	0.41	0.38	0.79
22-046	BP HIGH MEADOW RANCH L P		HIGH MEADOW RANCH L P	389-062-19	12/23/2022	Loss	0	Single-Family Residential	0.40	0.00	0.40
22-031	BP HIGH MEADOW RANCH L P		HIGH MEADOW RANCH L P	389-020-14	12/23/2022	Loss	0	Single-Family Residential	0.00	0.66	0.66
22-015	BP HIGH MEADOW RANCH L P		HIGH MEADOW RANCH L P	389-071-18	12/23/2022	Loss	0	Single-Family Residential	0.25	0.90	1.15
22-010	BP HIGH MEADOW RANCH L P		HIGH MEADOW RANCH L P	389-062-07	12/23/2022	Loss	0	Single-Family Residential	1.01	0.00	1.01

County of San Diego

Project Tracking #	Project Name	Location	Applicant	APN	Date of Loss	Status	CEQA Doc.	Activity Type	Acres Outside Habitat Preserve	Acres Inside Habitat Preserve	Total Acres
22-044	BP HIGH MEADOW RANCH L P		HIGH MEADOW RANCH L P	389-061-02	12/23/2022	Loss	0	Single-Family Residential	0.83	0.00	0.83
22-003	BP Kolk		Kolk	327-150-12	12/23/2022	Loss	0	Single-Family Residential	1.60	0.00	1.60
22-021	BP Longnecker		Longnecker	396-080-27	12/23/2022	Loss	0	Single-Family Residential	0.19	0.00	0.19
22-045	BP Ly-Juarez		Ly-Juarez	241-040-18	12/23/2022	Loss	0	Single-Family Residential	1.12	0.00	1.12
22-043	BP Manansala		Manansala	599-062-39	12/23/2022	Loss	0	Single-Family Residential	0.00	1.76	1.76
22-016	BP Mangum		Mangum	403-074-02	12/23/2022	Loss	0	Single-Family Residential	0.39	0.00	0.39
22-006	BP Mccullough		Mccullough	267-142-11	12/23/2022	Loss	0	Single-Family Residential	1.99	0.00	1.99
22-022	BP Metzler		Metzler	600-040-45	12/23/2022	Loss	0	Single-Family Residential	3.24	0.00	3.24
22-027	BP MI CIELO RSF LLC		MI CIELO RSF LLC	269-050-13	12/23/2022	Loss	0	Single-Family Residential	0.36	0.00	0.36
22-028	BP MI CIELO RSF LLC		MI CIELO RSF LLC	269-050-13	12/23/2022	Loss	0	Single-Family Residential	1.15	0.00	1.15
22-017	BP Morrin		Morrin	403-110-44	12/23/2022	Loss	0	Single-Family Residential	1.46	0.00	1.46
22-030	BP Murray		Murray	404-341-19	12/23/2022	Loss	0	Single-Family Residential	0.67	0.00	0.67
22-041	BP Orihuela		Orihuela	518-060-25	12/23/2022	Loss	0	Single-Family Residential	1.62	0.00	1.62
22-025	BP Ottonello		Ottonello	329-120-51	12/23/2022	Loss	0	Single-Family Residential	1.43	0.00	1.43
22-011	BP Pagni		Pagni	393-200-03	12/23/2022	Loss	0	Single-Family Residential	0.11	0.00	0.11
22-033	BP Poorbaugh		Poorbaugh	597-230-28	12/23/2022	Loss	0	Single-Family Residential	0.79	0.00	0.79
22-007	BP Principe		Principe	522-020-61	12/23/2022	Loss	0	Single-Family Residential	0.76	0.00	0.76
22-039	BP Rose		Rose	599-051-30	12/23/2022	Loss	0	Single-Family Residential	0.68	0.41	1.09
22-034	BP SDE ONE L L C		SDE ONE L L C	597-090-33	12/23/2022	Loss	0	Single-Family Residential	2.88	0.00	2.88
22-029	BP Shellstrom		Shellstrom	597-041-26	12/23/2022	Loss	0	Single-Family Residential	0.19	0.00	0.19
22-009	BP Smith		Smith	404-471-26	12/23/2022	Loss	0	Single-Family Residential	0.13	0.00	0.13
22-023	BP Stathorakis		Stathorakis	599-101-11	12/23/2022	Loss	0	Single-Family Residential	0.00	1.87	1.87

County of San Diego

Project Tracking #	Project Name	Location	Applicant	APN	Date of Loss	Status	CEQA Doc.	Activity Type	Acres Outside Habitat Preserve	Acres Inside Habitat Preserve	Total Acres
22-005	BP Tabbert		Tabbert	520-152-29	12/23/2022	Loss	0	Single-Family Residential	0.91	0.00	0.91
22-001	BP Thompson		Thompson	329-132-34	12/23/2022	Loss	0	Mobile Homes	1.05	0.00	1.05
22-037	BP Vincent		Vincent	283-032-84	12/23/2022	Loss	0	Single-Family Residential	0.72	0.00	0.72
22-013	BP Weingarten		Weingarten	269-201-16	12/23/2022	Loss	0	Single-Family Residential	1.11	0.00	1.11
22-036	BP Young		Young	511-250-18	12/23/2022	Loss	0	Single-Family Residential	0.57	0.00	0.57
22-050	COI Davila		Davila	278-233-03	12/23/2022	Loss	0	Single-Family Residential	2.87	0.00	2.87
22-052	COI Ferrell&Calsada		Ferrell&Calsada	522-250-07	12/23/2022	Loss	0	Single-Family Residential	4.43	0.00	4.43
22-059	COI J M S5 LLC		J M S5 LLC	377-370-47	12/23/2022	Loss	0	Single-Family Residential	0.19	0.00	0.19
22-055	COI Klimenko		Klimenko	579-378-39	12/23/2022	Loss	0	Single-Family Residential	0.45	0.00	0.45
22-053	COI Klitzing		Klitzing	272-252-63	12/23/2022	Loss	0	Single-Family Residential	0.43	1.52	1.96
22-057	COI Maclachlan		Maclachlan	324-010-70	12/23/2022	Loss	0	Single-Family Residential	0.00	2.06	2.06
22-049	COI Mclean		Mclean	329-132-13	12/23/2022	Loss	0	Single-Family Residential	4.15	0.00	4.15
22-048	COI Paradise		Paradise	404-013-44	12/23/2022	Loss	0	Single-Family Residential	1.28	0.00	1.28
22-056	COI Paradise		Paradise	404-012-47	12/23/2022	Loss	0	Single-Family Residential	1.55	0.00	1.55
22-047	COI Schenk		Schenk	303-014-05	12/23/2022	Loss	0	Single-Family Residential	2.47	0.00	2.47
22-054	COI Villas		Villas	520-302-10	12/23/2022	Loss	0	Single-Family Residential	5.00	0.00	5.00
22-051	COI Weingarten		Weingarten	269-201-15	12/23/2022	Loss	0	Single-Family Residential	0.99	0.00	0.99
22-058	COI Zako		Zako	502-022-66	12/23/2022	Loss	0	Single-Family Residential	0.10	0.00	0.10
22-060	TM 5608 SWEETWATER VISTAS		SWEETWATER VISTAS		12/23/2022	Loss	0	Multi-Family Residential	21.28	2.09	23.37
22-061	TPM-21207		FERNANDEZ-GUTIERREZ MARTA	269-100-28	12/23/2022	Loss	0	Single-Family Residential	6.42	1.71	8.13
Total for Agency: County of San Diego									89.05	15.19	104.24

APPENDIX F

Summary of Habitat Losses and Gains

This page intentionally left blank

Summary of Habitat Losses and Gains



Plan: MSCP South San Diego County

Project Gain Status: Gain

Date Range: 1/1/2022 - 12/31/2022

Project Loss Status: Loss

County of San Diego

Habitat Type	Target Cons.	Acres Inside the Habitat Preserve Planning Area					Acres Outside the Habitat Preserve				Total Acres			
		Habitat Loss		Habitat Gain			Habitat Loss		Habitat Gain		Habitat Loss		Habitat Gain	
		Current Period	Cummulative	Current Period	Cummulative	Cons. to Date %	Current Period	Cummulative	Current Period	Cummulative	Current Period	Cummulative	Current Period	Cummulative
Beach	0	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Saltpan	0	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Southern Foredunes	0	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Southern Coastal Bluff Scrub	0	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coastal Sage Scrub	42,873	3.79	780.60	195.34	30,168.33	70.37 %	10.18	1,436.06	47.30	8,084.91	13.97	2,216.66	242.64	38,253.24
Maritime Succulent Scrub	6	0.00	0.00	0.00	3.89	64.77 %	0.00	0.00	0.00	8.23	0.00	0.00	0.00	12.12
Chaparral	39,871	6.46	315.67	101.12	34,424.83	86.34 %	31.81	2,980.71	153.81	10,140.59	38.28	3,296.38	254.94	44,565.41
Southern Maritime Chaparral	5	0.00	1.95	0.00	5.82	116.31 %	0.00	11.36	0.00	22.66	0.00	13.31	0.00	28.47
Coastal Sage-Chaparral Scrub	1,325	0.00	12.40	0.00	1,008.94	76.15 %	0.00	138.81	0.00	1,115.49	0.00	151.21	0.00	2,124.43
Grassland	3,171	0.05	69.49	14.07	1,956.11	61.69 %	5.97	1,269.12	9.40	963.78	6.01	1,338.60	23.46	2,919.89
Southern Coastal Salt Marsh	0	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Freshwater Marsh	233	0.00	0.10	0.00	143.25	61.48 %	0.09	4.55	1.19	60.93	0.09	4.65	1.19	204.18
Riparian Forest	348	0.00	0.45	6.89	311.73	89.58 %	0.00	2.88	0.00	76.32	0.00	3.33	6.89	388.05
Oak Riparian Forest	2,192	0.00	34.35	0.84	1,012.56	46.19 %	0.28	50.29	0.00	476.56	0.28	84.64	0.84	1,489.11
Riparian Woodland	20	0.00	0.00	0.00	10.88	54.39 %	0.00	0.00	0.00	6.45	0.00	0.00	0.00	17.33
Riparian Scrub	383	0.00	7.57	2.01	122.95	32.10 %	1.64	17.06	10.90	78.48	1.64	24.64	12.91	201.43
Oak Woodland	2,211	0.01	50.98	0.95	1,145.47	51.81 %	4.89	171.83	9.87	527.37	4.89	222.80	10.81	1,672.85
Torrey Pine Forest	0	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tecate Cypress Forest	5,589	0.00	0.00	0.00	5,601.41	100.22 %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,601.41
Eucalyptus Woodland	105	0.00	9.03	1.41	45.90	43.71 %	0.00	415.54	0.00	68.22	0.00	424.57	1.41	114.12
Open Water	149	0.00	0.50	0.00	38.93	26.13 %	0.00	6.24	0.88	38.30	0.00	6.74	0.88	77.23
Disturbed Wetland	90	0.00	1.99	0.00	78.99	87.77 %	0.00	16.25	0.00	26.00	0.00	18.24	0.00	104.99
Natural Floodchannel	225	0.45	0.45	3.30	34.07	15.14 %	0.00	0.00	0.00	4.83	0.45	0.45	3.30	38.90
Shallow Bays	0	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pacific Ocean/Deep Bay	0	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Disturbed Land	0	2.13	118.52	13.39	469.03		11.55	743.48	4.20	376.39	13.68	862.00	17.59	845.42
Agriculture	0	0.00	119.49	8.27	551.30		5.76	1,620.48	7.85	2,340.84	5.76	1,739.97	16.12	2,892.14
Urban/Developed	0	2.30	45.07	1.22	74.61		16.88	2,158.83	17.13	617.23	19.18	2,203.90	18.35	691.85
Agency Total:		15.19	1,568.61	348.81	77,209.00		89.05	11,043.49	262.54	25,033.58	104.24	12,612.10	611.34	102,242.58

Note: The Agriculture and Urban/Developed category is included to account for all land included within a project and habitat preserve planning area.

APPENDIX G

Habitat Conservation Accounting Model

This page intentionally left blank

Habitat Conservation Accounting Model

MSCP South San Diego County



From 1/1/2022 To 12/31/2022

Project Gain Status: Gain

Project Loss Status: Loss

<i>County of San Diego</i>	Total Subarea Habitat Preserve	Conservation Target	Estimated Take	Conservation Ratio	Cumulative Conservation Inside Habitat Preserve	Max. Allowable Impacts for the Current Period	Actual Loss Inside Habitat Preserve for Current Period	+ or - Max. Allowable Impacts
Beach	0	0	0	0.00	0.00	0.00	0.00	n/a
Saltpan	0	0	0	0.00	0.00	0.00	0.00	n/a
Southern Foredunes	0	0	0	0.00	0.00	0.00	0.00	n/a
Southern Coastal Bluff Scrub	0	0	0	0.00	0.00	0.00	0.00	n/a
Coastal Sage Scrub	23,569	18,717	4,852	3.86	12,546.66	3,412.42	5.31	-
Maritime Succulent Scrub	0	0	0	0.00	0.00	0.00	0.00	n/a
Chaparral	22,179	18,662	3,517	5.31	14,352.97	2,786.14	38.28	-
Southern Maritime Chaparral	0	0	0	0.00	0.00	0.00	0.00	n/a
Coastal Sage-Chaparral Scrub	1,366	1,152	214	5.38	824.29	159.21	0.00	-
Grassland	2,145	1,741	404	4.31	1,085.10	267.02	3.53	-
Southern Coastal Salt Marsh	0	0	0	0.00	0.00	0.00	0.00	n/a
Freshwater Marsh	15	15	0	0.00	6.75	0.00	0.00	n/a
Riparian Forest	84	84	0	0.00	86.09	0.00	0.00	n/a
Oak Riparian Forest	2,044	2,043	1	2,043.00	939.41	0.51	0.28	-
Riparian Woodland	6	6	0	0.00	4.24	0.00	0.00	n/a
Riparian Scrub	298	298	0	0.00	56.12	0.00	0.00	n/a
Oak Woodland	2,355	1,912	443	4.32	1,030.06	259.09	4.89	-
Torrey Pine Forest	0	0	0	0.00	0.00	0.00	0.00	n/a
Tecate Cypress Forest	0	0	0	0.00	0.00	0.00	0.00	n/a
Eucalyptus Woodland	53	41	12	3.42	13.38	4.72	0.00	-
Open Water	124	124	0	0.00	18.39	0.00	0.00	n/a
Disturbed Wetland	52	52	0	0.00	47.10	0.00	0.00	n/a
Natural Floodchannel	197	197	0	0.00	12.92	0.00	0.04	+
Shallow Bays	0	0	0	0.00	0.00	0.00	0.00	n/a
Pacific Ocean/Deep Bay	0	0	0	0.00	0.00	0.00	0.00	n/a
Disturbed Land	1,259	0	1,259	0.00	253.70	0.00	8.71	+
Agriculture	1,608	0	1,608	0.00	485.77	0.00	5.76	+

County of San Diego	Total Subarea Habitat Preserve	Conservation Target	Estimated Take	Conservation Ratio	Cumulative Conservation Inside Habitat Preserve	Max. Allowable Impacts for the Current Period	Actual Loss Inside Habitat Preserve for Current Period	+ or - Max. Allowable Impacts
Urban/Developed	0	0	0	0.00	30.30	0.00	5.44	+
Total Acres for Agency: County of San Diego					31,793.25		72.24	

Note: The Agriculture and Urban/Developed category is included to account for all land included within a project and habitat preserve planning area.

This report only pertains to the Metro-Lakeside-Jamul segment of the County 's subarea plan. It includes gains that occur within the Preapproved Mitigation Area (PAMA) while counting all losses within the entire segment.

APPENDIX H

Mitigation Bank Status

This page is intentionally blank

	Coast Live Oak Woodland	Coastal Sage Scrub	Disturbed/ Ruderal	Engelmann Oak Woodland	Marsh/ Riparian Scrub/Floodplain	Mixed Chaparral	Native Grasslands	Non-Native Grasslands	Southern Willow Scrub	Southern Riparian/ Oak Woodland	Totals
Boden Canyon											
Total	0.8	10.2	0	2.5	0	14.9	0.1	1	0	10	39.5
Used	0.8	10.2	0	2.5	0	0	0	0.32	0	10	23.82
Remaining	0	0	0	0	0	14.9	0.1	0.68	0	0	15.68
Old Castle											
Total	0.62	41.2	0	0	0	17.95	0	0	0.25	0	60.02
Used	0.62	40.856	0	0	0	3.53	0	0	0.11	0	45.116
Remaining	0	0.344	0	0	0	14.42	0	0	0.14	0	14.904
Rancho San Diego											
Total	4.8	226.2	80.3	0	2.4	19.6	3.4	0	0	72.5	409.2
Used	2.85	126.2597	6.215	0	0.34	7.63	0.51	0	0	16.7	160.5047
Remaining	1.95	99.9403	74.085	0	2.06	11.97	2.89	0	0	55.8	248.6953
Singing Hills											
Total	0	69.7	0	0	0	0	0	0	0	0	69.7
Used	0	0.695	0	0	0	0	0	0	0	0	0.695
Remaining	0	69.005	0	0	0	0	0	0	0	0	69.005
Sweetwater											
Total	0	0	0	0	24.33	0	0	0	0	0	24.33
Used	0	0	0	0	19.14	0	0	0	0	0	19.14
Remaining	0	0	0	0	5.19	0	0	0	0	0	5.19
Total Remaining	1.95	169.2893	74.085	0	7.25	41.29	2.99	0.68	0.14	55.8	353.4743

APPENDIX I

COIs Issued for Agricultural Clearing

This page is intentionally blank

	Date Issued	APN	Permit Number	Site Name	Acres
1	12/11/00	399-020-17	AE301	Gibson	28.60
2	03/16/01	513-080-23	AE01-005	Boney	2.00
3	01/14/04	285-030-10	AD03-051	Royden	9.86
4	01/14/04	327-011-03	AD03-051	Royden	42.72
5	08/09/04	375-171-03	AD 04-048	Shank	1.00
6	08/09/04	375-171-04	AD 04-048	Shank	1.00
7	3/31/2011	Portions of 389-091-05, -06, -25	None	High Meadow Ranch	6.55
8	8/10/2011	240-270-58, 242-010-71, -72, 242-030-37, -38, 242-031-03, 242-080-01, -07, 243-110-01, -04, 243-150-	AD 11-017	Rancho Guejito	763.00
9	10/13/2011	242-070-07	AD 09-058	Rockwood Ranch	29.30
10	2/12/2015	242-070-07	None	Rancho Guejito	13.77
11	7/2/2015	243-020-05, -07, -10, 243-030-02, 243-070-01,-08	PDS2015-LDGRMN-20025	Vineyard Ranch	35.9
12	12/3/2015	242-010-71, -73, 242-030-38, 242-070-09, -12, -13, -14, 242-270-57	PDS2015-LDGRMJ-30016	Rancho Guejito	279.1
13	1/14/2016	585-113-22	PDS2015-AD-15-013	Nencini	10.9
Total					1,223.7

APPENDIX J

Species and Habitat Conservation in County Preserves

This page is intentionally blank

List of Tables

Table J-1. Habitat Conservation within Subarea Segments in County Preserves 2
Table J- 2. MSCP Covered Species Documented in County Preserves 9
Table J- 3. MSCP Covered Species Documented by County Preserve 19

Table J-1. Habitat Conservation within Subarea Segments in County Preserves

Preserve/Habitat Types	Acres
Barnett Ranch County Preserve	665
Agriculture	112
Chaparral	310
Coastal Sage Scrub	95
Eucalyptus Woodland	<1
Grassland	143
Oak Woodland	5
Urban/Developed	1
Boulder Oaks County Preserve	2,019
Agriculture	1
Chaparral	1,575
Coastal Sage Scrub	104
Disturbed Land	15
Grassland	101
Oak Riparian Forest	24
Oak Woodland	187
Open Water	2
Urban/Developed	11
Cactus County Park	62
Agriculture	<1
Coastal Sage Scrub	38
Open Water	<1
Riparian Scrub	<1
Urban/Developed	22
Damon Lane County Park	30
Agriculture	<1
Coastal Sage Scrub	9
Eucalyptus Woodland	5
Grassland	1
Riparian Forest	10
Urban/Developed	5
Del Dios Highlands County Preserve	269
Chaparral	235
Coastal Sage Scrub	21
Disturbed Land	<1
Oak Woodland	5

Preserve/Habitat Types	Acres
Urban/Developed	9
Dictionary Hill Preserve	176
Chaparral	23
Coastal Sage Scrub	147
Disturbed Land	2
Riparian Scrub	<1
Urban/Developed	4
Dos Picos County Park	78
Agriculture	1
Chaparral	29
Coastal Sage Scrub	2
Oak Woodland	24
Urban/Developed	21
EI Capitan County Preserve	2,377
Chaparral	1,799
Coastal Sage Scrub	274
Coastal Sage-Chaparral Scrub	107
Disturbed Land	<1
Oak Riparian Forest	30
Oak Woodland	163
Urban/Developed	3
EI Monte County Park	87
Chaparral	<1
Coastal Sage Scrub	30
Oak Riparian Forest	18
Oak Woodland	16
Riparian Scrub	1
Urban/Developed	22
Flinn Springs County Park	73
Chaparral	44
Coastal Sage-Chaparral Scrub	9
Disturbed Land	5
Oak Riparian Forest	12
Urban/Developed	4
Furby-North	79
Coastal Sage Scrub	44
Disturbed Land	30

Preserve/Habitat Types	Acres
Grassland	4
Urban/Developed	1
Goodan Ranch/Sycamore Canyon County Preserve	2,733
Agriculture	30
Chaparral	1,712
Coastal Sage Scrub	690
Coastal Sage-Chaparral Scrub	25
Disturbed Land	2
Grassland	154
Oak Riparian Forest	35
Oak Woodland	80
Riparian Scrub	<1
Riparian Woodland	4
Urban/Developed	2
Iron Mountain Preserve	162
Chaparral	162
Oak Woodland	1
Lakeside Linkage Preserve	209
Coastal Sage Scrub	188
Disturbed Land	1
Grassland	<1
Urban/Developed	20
Lawrence & Barbara Daley Preserve	581
Agriculture	<1
Chaparral	124
Coastal Sage Scrub	391
Coastal Sage-Chaparral Scrub	<1
Disturbed Land	5
Grassland	12
Oak Riparian Forest	49
Urban/Developed	<1
Lindo Lake County Park	55
Eucalyptus Woodland	10
Freshwater Marsh	2
Open Water	19
Urban/Developed	23

Preserve/Habitat Types	Acres
Los Peñasquitos Canyon County Preserve	199
Chaparral	72
Coastal Sage Scrub	6
Disturbed Land	14
Disturbed Wetland	1
Freshwater Marsh	3
Grassland	51
Riparian Scrub	2
Riparian Woodland	40
Urban/Developed	11
Louis A. Stelzer County Park	369
Chaparral	6
Coastal Sage Scrub	328
Grassland	15
Oak Riparian Forest	19
Urban/Developed	<1
Luelf Pond County Preserve	87
Chaparral	60
Oak Woodland	27
Urban/Developed	<1
Lusardi Creek County Preserve	226
Chaparral	30
Coastal Sage Scrub	138
Coastal Sage-Chaparral Scrub	3
Disturbed Land	12
Disturbed Wetland	1
Eucalyptus Woodland	1
Freshwater Marsh	2
Grassland	25
Natural Flood Channel/Streambed	1
Riparian Forest	3
Riparian Scrub	6
Urban/Developed	3
Oakoasis County Preserve	391
Chaparral	338
Grassland	8
Oak Woodland	43

Preserve/Habitat Types	Acres
Urban/Developed	3
Old Ironsides County Park	4
Oak Riparian Forest	3
Urban/Developed	1
Otay Lakes County Park	10
Coastal Sage Scrub	10
Shallow Bays	<1
Otay Ranch POM	3,964
Agriculture	14
Chaparral	615
Coastal Sage Scrub	2,486
Coastal Sage-Chaparral Scrub	118
Disturbed Land	<1
Eucalyptus Woodland	10
Freshwater Marsh	10
Grassland	231
Maritime Succulent Scrub	83
Natural Floodchannel/Streambed	122
Oak Riparian Forest	6
Oak Woodland	20
Riparian Scrub	41
Tecate Cypress Forest	160
Urban/Developed	48
Otay Valley Regional Park	433
Agriculture	58
Coastal Sage Scrub	268
Disturbed Land	1
Eucalyptus Woodland	<1
Freshwater Marsh	3
Grassland	45
Maritime Succulent Scrub	10
Riparian Forest	2
Riparian Scrub	18
Urban/Developed	27
Peutz Valley	255
Chaparral	235
Coastal Sage Scrub	11

Preserve/Habitat Types	Acres
Coastal Sage-Chaparral Scrub	4
Oak Riparian Forest	4
Urban/Developed	1
Ramona Grasslands County Preserve	533
Agriculture	<1
Chaparral	292
Coastal Sage Scrub	227
Grassland	1
Oak Riparian Forest	6
Oak Woodland	1
Riparian Forest	2
Urban/Developed	2
San Vicente	117
Coastal Sage Scrub	114
Oak Riparian Forest	<1
Oak Woodland	4
Santa Fe Valley Preserve	299
Agriculture	18
Chaparral	47
Coastal Sage Scrub	170
Disturbed Land	2
Disturbed Wetland	<1
Eucalyptus Woodland	4
Freshwater Marsh	14
Grassland	15
Natural Floodchannel/Streambed	2
Oak Riparian Forest	<1
Oak Woodland	1
Open Water	4
Riparian Forest	6
Riparian Scrub	11
Urban/Developed	4
Skyline Preserve	262
Chaparral	240
Coastal Sage Scrub	15
Oak Woodland	7

Preserve/Habitat Types	Acres
Stoneridge Preserve	247
Chaparral	67
Coastal Sage Scrub	155
Coastal Sage-Chaparral Scrub	7
Oak Riparian Forest	15
Oak Woodland	3
Urban/Developed	<1
Sweetwater Regional Park	186
Grassland	148
Urban/Developed	37
Tijuana River Valley Regional Park	1,779
Agriculture	641
Bog and Marsh	13
Coastal Sage Scrub	257
Disturbed Land	21
Disturbed Wetland	11
Eucalyptus Woodland	<1
Freshwater Marsh	1
Grassland	11
Open Water	105
Riparian Scrub	549
Urban/Developed	168

SOURCE: County of San Diego, LUEG-GIS

Table J- 2. MSCP Covered Species Documented in County Preserves

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
Plants			
Aphanisma			
California Orcutt grass			
Coast (San Diego) barrel cactus <i>5 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Dictionary Hill Preserve^a • Furby-North Property • Lusardi Creek Preserve • Otay Ranch Preserve • Tijuana River Valley Regional Park
Coast wallflower			
Coastal (Shaw's) agave			
Coastal Dunes Milkvetch			
Dehesa beargrass			
Del Mar manzanita <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> • Lusardi Creek Preserve
Del Mar Mesa sandaster			
Dunn's mariposa lily <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> • Otay Ranch Preserve
Encinitas Baccharis <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> • Del Dios Highlands Preserve
Felt-leaved monardella <i>3 County Preserves</i>	✓		<ul style="list-style-type: none"> • Boulder Oaks Preserve • El Capitan Preserve • Otay Ranch Preserve
Fire (Dense) redgrass			
Gander's butterweed			
Gander's pitcher sage <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> • Otay Ranch Preserve
Heart-leaf pitcher sage <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> • Iron Mountain Preserve^a
Lakeside ceanothus <i>4 County Preserves</i>	✓		<ul style="list-style-type: none"> • Boulder Oaks Preserve • El Capitan Preserve • Louis A. Stelzer Park • Oakoasis Preserve
Nevin's barberry			
Orcutt's bird's beak <i>2 County Preserves</i>	✓		<ul style="list-style-type: none"> • Otay Valley Regional Park • Tijuana River Valley Regional Park

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
Orcutt's brodiaea <i>4 County Preserves</i>	✓		<ul style="list-style-type: none"> • Boulder Oaks Preserve • Los Peñasquitos Canyon Preserve • Otay Ranch Preserve • Santa Fe Valley Preserve
Otay manzanita <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> • Otay Ranch Preserve
Otay mesa mint <i>2 County Preserves</i>	✓		<ul style="list-style-type: none"> • Otay Lakes County Park • Otay Ranch Preserve
Otay tarplant <i>3 County Preserves</i>	✓		<ul style="list-style-type: none"> • Furby-North Property • Otay Ranch Preserve • Otay Valley Regional Park
Palmer's goldenbush (Palmer's ericameria) <i>2 County Preserves</i>	✓		<ul style="list-style-type: none"> • Lawrence and Barbara Daley Preserve • Otay Ranch Preserve
Parry's tetracoccus			
Prostrate/Nuttall's lotus			
Purple (Narrow-leaved) nightshade			
Salt marsh bird's beak			
San Diego ambrosia			
San Diego button-celery <i>3 County Preserves</i>	✓		<ul style="list-style-type: none"> • Louis A. Stelzer Park • Otay Ranch Preserve • Otay Valley Regional Park
San Diego goldenstar <i>5 County Preserves</i>	✓		<ul style="list-style-type: none"> • Dictionary Hill Preserve • Los Peñasquitos Canyon Preserve • Louis A. Stelzer Park • Otay Ranch Preserve • Sycamore Canyon and Goodan Ranch Preserve
San Diego mesa mint			
San Diego thorn-mint <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> • Sycamore Canyon and Goodan Ranch Preserve
San Miguel savory <i>2 County Preserves</i>	✓		<ul style="list-style-type: none"> • Boulder Oaks Preserve • Otay Ranch Preserve
Short-leaf dudleya			
Slender-pod jewelflower (California mustard)			
Small-leaved rose			

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
Snake cholla <i>2 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> Furby-North Property^a Otay Ranch Preserve
Spreading (Prostrate) navarretia <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> Otay Ranch Preserve
Sticky dudleya			
Tecate cypress <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> Otay Ranch Preserve
Thread-leaf brodiaea			
Torrey pine <i>1 County Preserve</i>		✓	<ul style="list-style-type: none"> Tijuana River Valley Regional Park^a (planted)
Variegated dudleya <i>6 County Preserves</i>	✓		<ul style="list-style-type: none"> Dictionary Hill Preserve Lusardi Creek Preserve Otay Lakes Regional Park Otay Ranch Preserve Otay Valley Regional Park Sycamore Canyon / Goodan Ranch Preserve
Wart-stemmed ceanothus <i>2 County Preserves</i>	✓		<ul style="list-style-type: none"> Del Dios Highlands Preserve Tijuana River Valley Regional Park
Willow monardella <i>2 County Preserves</i>	✓		<ul style="list-style-type: none"> Otay Ranch Preserve Sycamore Canyon and Goodan Ranch Preserve
Invertebrates			
Riverside fairy shrimp			
San Diego fairy shrimp <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> Otay Ranch Preserve
Thorne's hairstreak butterfly <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> Otay Ranch Preserve
Wandering skipper			

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
Amphibians and Reptiles			
Arroyo toad			
Belding’s orange-throated whiptail <i>18 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve • Boulder Oaks Preserve^a • Del Dios Highlands Preserve^a • Dictionary Hill Preserve^a • El Capitan Preserve • Furby-North Property • Iron Mountain Preserve • Lakeside Linkage Preserve • Lawrence and Barbara Daley Preserve • Louis A Stelzer Park^a • Lusardi Creek Preserve • Otay Ranch Preserve • Peutz Valley Preserve • Ramona Grasslands Preserve • Skyline Preserve • Stoneridge Preserve • Sycamore Canyon and Goodan Ranch Preserve • Tijuana River Valley Preserve
California red-legged frog			

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
Blainville's (Coast, San Diego) horned lizard <i>19 County Preserve</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve • Boulder Oaks Preserve ^a • Del Dios Highlands Preserve ^a • Dictionary Hill Preserve • El Capitan Preserve ^a • Furby-North Property^a • Iron Mountain Preserve • Lakeside Linkage Preserve • Lawrence and Barbara Daley Preserve • Louis A. Stelzer Park • Lusardi Creek Preserve • Oakoasis Preserve ^a • Otay Ranch Preserve • Peutz Valley Preserve • Ramona Grasslands Preserve • Skyline Preserve • Stoneridge Preserve • Sycamore Canyon and Goodan Ranch Preserve • Tijuana River Valley Preserve ^a
Southwestern pond turtle			
Birds			
Bald eagle			
Belding's savannah sparrow			
Burrowing owl <i>2 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Otay Ranch Preserve • Sycamore Canyon and Goodan Ranch Preserve^a
California brown pelican			
California least tern			
Canada goose			
Coastal (San Diego) Cactus wren <i>7 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • El Capitan Preserve^a • Furby-North Property • Lakeside Linkage Preserve • Otay Ranch Preserve • Otay Valley Regional Park • Sweetwater Regional Park • Tijuana River Valley Regional Park
Coastal California gnatcatcher <i>15 County Preserves</i>	✓		<ul style="list-style-type: none"> • Boulder Oaks Preserve • Del Dios Highlands Preserve

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
			<ul style="list-style-type: none"> • Dictionary Hill Preserve • Furby-North Property • Lakeside Linkage Preserve • Louis A. Stelzer Park • Lusardi Creek Preserve • Otay Lakes Regional Park • Otay Ranch Preserve • Otay Valley Regional Park • Santa Fe Valley Preserve • Stoneridge Preserve • Sweetwater Regional Park • Sycamore Canyon and Goodan Ranch Preserve • Tijuana River Valley Regional Park
Cooper's hawk <i>15 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a • Boulder Oaks Preserve^a • Del Dios Highlands Preserve • Dictionary Hill Preserve^a • El Capitan Preserve^a • Iron Mountain Preserve • Lakeside Linkage Preserve^a • Lawrence and Barbara Daley Preserve^a • Lusardi Creek Preserve • Oakoasis Preserve^a • Otay Ranch Preserve • Skyline Preserve • Stoneridge Preserve • Sycamore Canyon and Goodan Ranch Preserve^a • Tijuana River Valley Regional Park
Elegant tern			
Ferruginous hawk <i>1 County Preserve</i>		✓	<ul style="list-style-type: none"> • Del Dios Highlands Preserve^a
Golden eagle <i>7 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a • Del Dios Highlands Preserve • El Capitan Preserve • Otay Ranch Preserve • Ramona Grasslands Preserve • Skyline Preserve • Sycamore Canyon and Goodan Ranch Preserve^a

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
Large-billed savannah sparrow			
Least Bell's vireo <i>8 County Preserves</i>	✓		<ul style="list-style-type: none"> • Furby-North Property • Los Peñasquitos Canyon Preserve • Lusardi Creek Preserve • Otay Lakes Regional Park • Otay Ranch Preserve • Otay Valley Regional Park • Sweetwater Regional Park • Tijuana River Valley Regional Park
Light-footed Ridgway's rail <i>1 County Park</i>	✓		<ul style="list-style-type: none"> • Tijuana River Valley Regional Park
Long-billed curlew			
Mountain plover			
Northern harrier <i>9 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Del Dios Highlands Preserve • Furby-North Property^a • Lawrence and Barbara Daley Preserve^a • Louis A. Stelzer Preserve • Lusardi Creek Preserve^a • Otay Ranch Preserve • Skyline Preserve • Sycamore Canyon and Goodan Ranch Preserve^a • Tijuana River Valley Regional Park
Peregrine falcon <i>4 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Del Dios Highlands • Peutz Valley Preserve • Otay Ranch Preserve • Tijuana River Valley^a
Reddish egret			
Southern California rufous-crowned sparrow <i>19 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a • Boulder Oaks Preserve^a • Del Dios Highlands Preserve^a • Dictionary Hill Preserve^a • El Capitan Preserve^a • El Monte Park^a • Furby-North Preserve^a • Iron Mountain Preserve • Lakeside Linkage Preserve^a • Lawrence and Barbara Daley Preserve^a • Louis A. Stelzer Park^a

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
			<ul style="list-style-type: none"> • Lusardi Creek Preserve^a • Oakoasis Preserve^a • Otay Ranch Preserve • Peutz Valley Preserve • Skyline Preserve • Stoneridge Preserve^a • Sycamore Canyon and Goodan Ranch Preserve^a • Tijuana River Valley Regional Park^a
Southwestern willow flycatcher <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> • Tijuana River Valley Regional Park
Swainson's hawk <i>2 County Preserve</i>		✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a • Skyline Preserve
Tricolored blackbird <i>2 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a • Tijuana River Valley Regional Park
Western bluebird <i>11 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a • Boulder Oaks Preserve^a • Del Dios Highlands Preserve^a • El Capitan Preserve^a • El Monte Park^a • Lakeside Linkage Preserve^a • Lawrence and Barbara Daley Preserve • Oakoasis Preserve^a • Peutz Valley Preserve • Stoneridge Preserve • Sycamore Canyon and Goodan Ranch Preserve
Western snowy plover			<ul style="list-style-type: none"> •
White-faced ibis <i>1 County Preserve</i>		✓	<ul style="list-style-type: none"> • Del Dios Highlands Preserve^a
Mammals			
American badger			
Mountain lion <i>8 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a • Boulder Oaks Preserve^a • Del Dios Highlands Preserve • El Capitan Preserve • Iron Mountain Preserve • Otay Ranch Preserve • Peutz Valley Preserve • Sycamore Canyon and Goodan

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
			Ranch Preserve ^a
Southern mule deer <i>15 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a • Boulder Oaks Preserve • Del Dios Highlands Preserve • El Capitan Preserve • El Monte Park^a • Lakeside Linkage Preserve^a • Lawrence and Barbara Daley Preserve^a • Louis A. Stelzer Preserve • Lusardi Creek Preserve • Oakoasis Preserve • Otay Ranch Preserve^a • Peutz Valley Preserve • Ramona Grasslands Preserve^a • Stoneridge Preserve • Sycamore Canyon and Goodan Ranch Preserve

NOTES:

^a Species documented in County Preserve in a report rather than in GIS. Reports are referenced in the sources below.

SOURCES:

AECOM. 2019. Baseline Biodiversity Survey Report for the Holly Oaks County Park, Luelf Pond Preserve, and Barnett Ranch Preserve Properties County of San Diego Department of Parks and Recreation. Prepared for Department of Parks and Recreation County of San Diego. June.

California Natural Diversity Database. 2020. Occurrences points and polygons documenting species sightings from 1998 to present included for MSCP species occurrences.

County of San Diego Land Use and Environmental Group-GIS. 2020. SanBIOS. Occurrences points and polygons documenting species sightings from 1998 to present included for MSCP species occurrences.

County of San Diego Department of Parks and Recreation. 2018. Draft Boulder Oaks Resource Management Plan. March.

County of San Diego Department of Parks and Recreation. 2011. Del Dios Highlands Preserve Resource Management Plan. June.

County of San Diego Department of Parks and Recreation. 2009. Final El Capitan Preserve Resource Management Plan. June.

County of San Diego Department of Parks and Recreation. 2009. El Monte County Park Resource Management Plan. June.

County of San Diego Department of Parks and Recreation. 2012. Furby-North Property Resource Management Plan. June.

- County of San Diego Department of Parks and Recreation. 2010. Lakeside Linkage Preserve Resource Management Plan. August.
- County of San Diego Department of Parks and Recreation. 2011. Lawrence and Barbra Daley Preserve Resource Management Plan. June.
- County of San Diego Department of Parks and Recreation. 2009. Lusardi Creek Preserve Resource Management Plan. June.
- County of San Diego Department of Parks and Recreation. 2009. Oakoasis Preserve Resource Management Plan. June.
- County of San Diego Department of Parks and Recreation. 2018. Draft Sycamore Canyon and Goodan Ranch Preserve Resource Management Plan. April.
- County of San Diego Department of Parks and Recreation. 2009. Louis A. Stelzer County Park Resource Management Plan. April
- County of San Diego Department of Parks and Recreation. 2013. Stoneridge Preserve Resource Management Plan. April.
- County of San Diego Department of Parks and Recreation. 2007. Tijuana River Valley Regional Park Area Specific Management Objectives. June.
- Environmental Science Associates. 2019. Baseline Biodiversity Report for the Dictionary Hill Preserve County of San Diego Department of Parks and Recreation. Prepared for Department of Parks and Recreation County of San Diego. October
- Helix. 2019. Baseline Biodiversity Survey Report Tijuana River Valley Regional Park. Prepared for Department of Parks and Recreation County of San Diego. August.
- San Diego Management and Monitoring Program. 2020. MSP Species Master Occurrence Matrix databases. Occurrences points documenting species sightings from 1998 to present included for MSCP species occurrences.
- U.S. Fish and Wildlife Service. 2020. Regss Locations of Sensitive Species Sightings database. Occurrences points documenting species sightings from 1998 to present included for MSCP species occurrences.
- U.S. Fish and Wildlife Service. 2020. Sensitive Species (polygons). Occurrence polygons documenting species sightings from 1998 to present included for MSCP species occurrences.
-

Table J- 3. MSCP Covered Species Documented by County Preserve

County Preserves	MSCP Covered Species Documented
Barnett Ranch County Preserve	<i>10 MSCP covered species</i>
Reptiles	Belding's orange-throated whiptail Blainville's (Coast, San Diego) horned lizard
Birds	Cooper's hawk ^a Golden eagle ^a Southern California rufous-crowned sparrow ^a Swainson's hawk ^a Tricolored blackbird ^a Western bluebird ^a
Mammals	Mountain lion ^a Southern mule deer ^a
Boulder Oaks County Preserve	<i>12 MSCP covered species</i>
Plants	Felt-leaved monardella Lakeside ceanothus Orcutt's brodiaea San Miguel savory
Reptiles	Belding's orange-throated whiptail ^a Blainville's (Coast, San Diego) horned lizard ^a
Birds	Coastal California gnatcatcher Cooper's hawk ^a Southern California rufous-crowned sparrow ^a Western bluebird ^a
Mammals	Mountain lion Southern mule deer
Del Dios Highlands County Preserve	<i>15 MSCP covered species</i>
Plants	Encinitas baccharis Wart-stemmed ceanothus
Reptiles	Belding's orange-throated whiptail ^a Blainville's (Coast, San Diego) horned lizard ^a
Birds	Coastal California gnatcatcher Cooper's hawk Golden eagle Northern harrier Peregrine falcon Southern California rufous-crowned sparrow ^a Ferruginous hawk ^a

County Preserves	MSCP Covered Species Documented
Birds (cont.)	White-faced Ibis ^a
	Western bluebird
Mammals	Mountain lion
	Southern mule deer
Dictionary Hill County Preserve	<i>8 MSCP covered species</i>
Plants	Coast (San Diego) barrel cactus ^a
	San Diego goldenstar
	Variiegated dudleya
Reptiles	Blainville’s (Coast, San Diego) horned lizard
	Belding’s orange-throated whiptail ^a
Birds	Coastal California gnatcatcher
	Cooper’s Hawk ^a
	Southern California Rufous-crowned sparrow ^a
El Capitan County Preserve	<i>11 MSCP covered species</i>
Plants	Felt-leaved monardella
	Lakeside ceanothus
Reptiles	Belding’s orange-throated whiptail
	Blainville’s (Coast, San Diego) horned lizard ^a
Birds	Coastal (San Diego) cactus wren
	Cooper’s hawk ^a
	Golden eagle
	Southern California rufous-crowned sparrow ^a
	Western bluebird ^a
Mammals	Mountain lion
	Southern mule deer
El Monte County Park	<i>3 MSCP covered species</i>
Birds	Southern California rufous-crowned sparrow ^a
	Western bluebird ^a
Mammals	Southern mule deer ^a
Furby-North Property	<i>10 MSCP covered species</i>
Plants	Coast (San Diego) barrel cactus
	Otay tarplant
	Snake cholla ^a
Reptiles	Belding’s orange-throated whiptail
	Blainville’s (Coast, San Diego) horned lizard ^a

County Preserves	MSCP Covered Species Documented
Birds	Coastal (San Diego) cactus wren
	Coastal California gnatcatcher
	Least Bell's vireo
	Northern harrier ^a
	Southern California rufous-crowned sparrow ^a
Iron Mountain County Preserve	<i>6 MSCP Covered Species</i>
Plants	Heart-leaved pitcher sage
Reptiles	Belding's orange-throated whiptail
	Blainville's (Coast, San Diego) horned lizard
Birds	Cooper's hawk
	Southern California rufous-crowned sparrow
Mammals	Mountain lion
Lakeside Linkage County Preserve	<i>8 MSCP Covered Species</i>
Reptiles	Belding's orange-throated whiptail
	Blainville's (Coast, San Diego) horned lizard
Birds	Coastal cactus wren
	Coastal (San Diego) California gnatcatcher
	Cooper's hawk ^a
	Southern California rufous-crowned sparrow ^a
	Western bluebird ^a
Mammals	Southern mule deer ^a
Lawrence and Barbara Daley County Preserve	<i>8 MSCP covered species</i>
Plants	Palmer's goldenbush
Reptiles	Blainville's (Coast, San Diego) horned lizard
	Belding's orange-throated whiptail
Birds	Cooper's hawk
	Northern harrier
	Southern California rufous-crowned sparrow ^a
	Western bluebird
Mammals	Southern mule deer ^a
Los Peñasquitos Canyon County Preserve	<i>4 MSCP covered species</i>
Plants	Orcutt's brodiaea
	San Diego button-celery
	San Diego goldenstar
Birds	Least Bell's vireo
Louis A. Stelzer County Park	<i>8 MSCP covered species</i>
Plants	Lakeside ceanothus

County Preserves	MSCP Covered Species Documented
	San Diego goldenstar
Reptiles	Belding's orange-throated whiptail ^a
	Blainville's (Coast, San Diego) horned lizard ^a
Birds	Coastal California gnatcatcher
	Northern harrier ^a
	Southern California rufous-crowned sparrow ^a
Mammals	Southern mule deer
Lusardi Creek County Preserve	11 MSCP covered species
Plants	Coast (San Diego) barrel cactus
	Del Mar manzanita
	Variegated dudleya
Reptiles	Belding's orange-throated whiptail
	Blainville's (Coast, San Diego) horned lizard
Birds	Coastal California gnatcatcher
	Cooper's hawk
	Least Bell's vireo
	Northern harrier
	Southern California rufous-crowned sparrow
Mammals	Southern mule deer ^a
Oakoasis County Preserve	6 MSCP covered species
Plants	Lakeside ceanothus
Reptiles	Blainville's (Coast, San Diego) horned lizard ^a
Birds	Cooper's hawk ^a
	Southern California rufous-crowned sparrow ^a
	Western bluebird ^a
Mammals	Southern mule deer
Otay Lakes County Park	2 MSCP covered species
Plants	Otay mesa mint
	Variegated dudleya
Otay Lakes Regional Park	2 MSCP covered species
Birds	Costal California gnatcatcher
	Least Bell's vireo
Otay Ranch Preserve	32 MSCP covered species
Plants	Coast (San Diego) barrel cactus
	Dunn's mariposa lily
	Felt-leaf monardella
	Gander's pitcher sage

County Preserves	MSCP Covered Species Documented
	Orcutt's brodiaea
	Otay manzanita
	Otay mesa mint
	Otay tarplant
	Palmer's goldenbush
	San Diego button-celery
	San Diego goldenstar
Plants (cont.)	San Miguel savory
	Snake cholla
	Spreading (prostrate) navarretia
	Tecate cypress
Invertebrates	San Diego fairy shrimp
	Thorne's hairstreak butterfly
	Variegated dudleya
Reptiles	Belding's orange-throated whiptail
	Blainville's (Coast, San Diego) horned lizard
	Willoway monardella
Birds	Burrowing owl
	Coastal (San Diego) cactus wren
	Coastal California gnatcatcher
	Cooper's hawk
	Golden eagle
	Least Bell's vireo
	Northern harrier
	Peregrine falcon
	Southern California rufous-crowned sparrow
Mammals	Mountain lion
	Southern mule deer
Otay Valley Regional Park	<i>7 MSCP covered species</i>
Plants	San Diego button-celery
	Orcutt's bird's beak
	Otay tarplant
	Variegated dudleya
Birds	Coastal (San Diego) cactus wren
	Coastal California gnatcatcher
	Least Bell's vireo
Peutz Valley County Preserve	<i>7 MSCP covered species</i>

County Preserves	MSCP Covered Species Documented
Reptile	Belding's orange-throated whiptail
	Blainville's (Coast, San Diego) horned lizard
Birds	Peregrine falcon
	Southern California rufous-crowned sparrow
	Western bluebird
Mammals	Mountain lion
	Southern mule deer
Ramona Grasslands County Preserve	<i>4 MSCP covered species</i>
Reptiles	Belding's orange-throated whiptail
	Blainville's (Coast, San Diego) horned lizard
Birds	Golden eagle
Mammals	Southern mule deer
Santa Fe Valley Preserve	<i>2 MSCP covered species</i>
Plants	Orcutt's brodiaea
Birds	Coastal California gnatcatcher
Skyline County Preserve	<i>7 MSCP covered species</i>
Reptiles	Belding's orange-throated whiptail
	Blainville's (Coast, San Diego) horned lizard
Birds	Cooper's hawk
	Golden eagle
	Northern harrier
	Southern California rufous-crowned sparrow
	Swainson's hawk
Stoneridge County Preserve	<i>7 MSCP covered species</i>
Reptiles	Belding's orange-throated whiptail
	Blainville's (Coast, San Diego) horned lizard
Birds	Coastal California gnatcatcher
	Cooper's hawk
	Southern California rufous-crowned sparrow
	Western bluebird
Mammals	Southern mule deer
Sweetwater Regional Park	<i>3 MSCP covered species</i>
Birds	Coastal (San Diego) cactus wren
	Coastal California gnatcatcher
	Least Bell's vireo
Sycamore Canyon and Goodan Ranch County Preserve	<i>15 MSCP covered species</i>
Plants	San Diego goldenstar

County Preserves	MSCP Covered Species Documented
	San Diego thornmint Variegated dudleya Willow monardella
Reptiles	Belding's orange-throated whiptail Blainville's (Coast, San Diego) horned lizard
Birds	Burrowing owl ^a Coastal California gnatcatcher Cooper's hawk ^a Golden eagle ^a Northern harrier ^a Southern California rufous-crowned sparrow ^a Western bluebird
Mammals	Mountain lion ^a Southern mule deer
Tijuana River Valley Regional Park	16 MSCP covered species
Plants	Coast (San Diego) barrel cactus Orcutt's bird's-beak Torrey pine ^a (planted) Wart-stemmed ceanothus
Reptiles	Belding's orange-throated whiptail Blainville's horned lizard ^a
Birds	Coastal (San Diego) cactus wren Coastal California gnatcatcher Cooper's hawk Least Bell's vireo Light-footed Ridgway's rail Northern harrier Peregrine falcon Southern California rufous-crowned sparrow ^a Southwestern willow flycatcher Tricolored blackbird

NOTES:

^a Species documented in County Preserve in a report rather than in GIS. Reports are referenced in the sources below.

SOURCES:

- AECOM. 2019. Baseline Biodiversity Survey Report for the Holly Oaks County Park, Luelf Pond Preserve, and Barnett Ranch Preserve Properties County of San Diego Department of Parks and Recreation. Prepared for Department of Parks and Recreation County of San Diego. June.
- California Natural Diversity Database. 2020. Occurrences points and polygons documenting species sightings from 1998 to present included for MSCP species occurrences.
- County of San Diego Land Use and Environmental Group-GIS. 2020. SanBIOS. Occurrences points and polygons documenting species sightings from 1998 to present included for MSCP species occurrences.
- County of San Diego Department of Parks and Recreation. 2018. Draft Boulder Oaks Resource Management Plan. March.
- County of San Diego Department of Parks and Recreation. 2011. Del Dios Highlands Preserve Resource Management Plan. June.
- County of San Diego Department of Parks and Recreation. 2009. Final El Capitan Preserve Resource Management Plan. June.
- County of San Diego Department of Parks and Recreation. 2009. El Monte County Park Resource Management Plan. June.
- County of San Diego Department of Parks and Recreation. 2012. Furby-North Property Resource Management Plan. June.
- County of San Diego Department of Parks and Recreation. 2010. Lakeside Linkage Preserve Resource Management Plan. August.
- County of San Diego Department of Parks and Recreation. 2011. Lawrence and Barbra Daley Preserve Resource Management Plan. June.
- County of San Diego Department of Parks and Recreation. 2009. Lusardi Creek Preserve Resource Management Plan. June.
- County of San Diego Department of Parks and Recreation. 2009. Oakoasis Preserve Resource Management Plan. June.
- County of San Diego Department of Parks and Recreation. 2018. Draft Sycamore Canyon and Goodan Ranch Preserve Resource Management Plan. April.
- County of San Diego Department of Parks and Recreation. 2009. Louis A. Stelzer County Park Resource Management Plan. April
- County of San Diego Department of Parks and Recreation. 2013. Stoneridge Preserve Resource Management Plan. April.
- County of San Diego Department of Parks and Recreation. 2007. Tijuana River Valley Regional Park Area Specific Management Objectives. June.
- Environmental Science Associates. 2019. Baseline Biodiversity Report for the Dictionary Hill Preserve County of San Diego Department of Parks and Recreation. Prepared for Department of Parks and Recreation County of San Diego. October
- Helix. 2019. Baseline Biodiversity Survey Report Tijuana River Valley Regional Park. Prepared for Department of Parks and Recreation County of San Diego. August.

San Diego Management and Monitoring Program. 2020. MSP Species Master Occurrence Matrix databases. Occurrences points documenting species sightings from 1998 to present included for MSCP species occurrences.

U.S. Fish and Wildlife Service. 2020. Regss Locations of Sensitive Species Sightings database. Occurrences points documenting species sightings from 1998 to present included for MSCP species occurrences.

U.S. Fish and Wildlife Service. 2020. Sensitive Species (polygons). Occurrence polygons documenting species sightings from 1998 to present included for MSCP species occurrences.

Preserve/Habitat Types	Acres
Stoneridge Preserve	247
Chaparral	67
Coastal Sage Scrub	155
Coastal Sage-Chaparral Scrub	7
Oak Riparian Forest	15
Oak Woodland	3
Urban/Developed	<1
Sweetwater Regional Park	186
Grassland	148
Urban/Developed	37
Tijuana River Valley Regional Park	1,779
Agriculture	641
Bog and Marsh	13
Coastal Sage Scrub	257
Disturbed Land	21
Disturbed Wetland	11
Eucalyptus Woodland	<1
Freshwater Marsh	1
Grassland	11
Open Water	105
Riparian Scrub	549
Urban/Developed	168

SOURCE: County of San Diego, LUEG-GIS

Table J- 2. MSCP Covered Species Documented in County Preserves

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
Plants			
Aphanisma			
California Orcutt grass			
Coast (San Diego) barrel cactus <i>5 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Dictionary Hill Preserve^a • Furby-North Property • Lusardi Creek Preserve • Otay Ranch Preserve • Tijuana River Valley Regional Park
Coast wallflower			
Coastal (Shaw's) agave			
Coastal Dunes Milkvetch			
Dehesa beargrass			
Del Mar manzanita <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> • Lusardi Creek Preserve
Del Mar Mesa sandaster			
Dunn's mariposa lily <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> • Otay Ranch Preserve
Encinitas Baccharis <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> • Del Dios Highlands Preserve
Felt-leaved monardella <i>3 County Preserves</i>	✓		<ul style="list-style-type: none"> • Boulder Oaks Preserve • El Capitan Preserve • Otay Ranch Preserve
Fire (Dense) redgrass			
Gander's butterweed			
Gander's pitcher sage <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> • Otay Ranch Preserve
Heart-leaf pitcher sage <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> • Iron Mountain Preserve^a
Lakeside ceanothus <i>4 County Preserves</i>	✓		<ul style="list-style-type: none"> • Boulder Oaks Preserve • El Capitan Preserve • Louis A. Stelzer Park • Oakoasis Preserve
Nevin's barberry			
Orcutt's bird's beak <i>2 County Preserves</i>	✓		<ul style="list-style-type: none"> • Otay Valley Regional Park • Tijuana River Valley Regional Park

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
Orcutt's brodiaea <i>4 County Preserves</i>	✓		<ul style="list-style-type: none"> Boulder Oaks Preserve Los Peñasquitos Canyon Preserve Otay Ranch Preserve Santa Fe Valley Preserve
Otay manzanita <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> Otay Ranch Preserve
Otay mesa mint <i>2 County Preserves</i>	✓		<ul style="list-style-type: none"> Otay Lakes County Park Otay Ranch Preserve
Otay tarplant <i>3 County Preserves</i>	✓		<ul style="list-style-type: none"> Furby-North Property Otay Ranch Preserve Otay Valley Regional Park
Palmer's goldenbush (Palmer's ericameria) <i>2 County Preserves</i>	✓		<ul style="list-style-type: none"> Lawrence and Barbara Daley Preserve Otay Ranch Preserve
Parry's tetracoccus			
Prostrate/Nuttall's lotus			
Purple (Narrow-leaved) nightshade			
Salt marsh bird's beak			
San Diego ambrosia			
San Diego button-celery <i>3 County Preserves</i>	✓		<ul style="list-style-type: none"> Louis A. Stelzer Park Otay Ranch Preserve Otay Valley Regional Park
San Diego goldenstar <i>5 County Preserves</i>	✓		<ul style="list-style-type: none"> Dictionary Hill Preserve Los Peñasquitos Canyon Preserve Louis A. Stelzer Park Otay Ranch Preserve Sycamore Canyon and Goodan Ranch Preserve
San Diego mesa mint			
San Diego thorn-mint <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> Sycamore Canyon and Goodan Ranch Preserve
San Miguel savory <i>2 County Preserves</i>	✓		<ul style="list-style-type: none"> Boulder Oaks Preserve Otay Ranch Preserve
Short-leaf dudleya			
Slender-pod jewelflower (California mustard)			
Small-leaved rose			

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
Snake cholla <i>2 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> Furby-North Property^a Otay Ranch Preserve
Spreading (Prostrate) navarretia <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> Otay Ranch Preserve
Sticky dudleya			
Tecate cypress <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> Otay Ranch Preserve
Thread-leaf brodiaea			
Torrey pine <i>1 County Preserve</i>		✓	<ul style="list-style-type: none"> Tijuana River Valley Regional Park^a (planted)
Variegated dudleya <i>6 County Preserves</i>	✓		<ul style="list-style-type: none"> Dictionary Hill Preserve Lusardi Creek Preserve Otay Lakes Regional Park Otay Ranch Preserve Otay Valley Regional Park Sycamore Canyon / Goodan Ranch Preserve
Wart-stemmed ceanothus <i>2 County Preserves</i>	✓		<ul style="list-style-type: none"> Del Dios Highlands Preserve Tijuana River Valley Regional Park
Willow monardella <i>2 County Preserves</i>	✓		<ul style="list-style-type: none"> Otay Ranch Preserve Sycamore Canyon and Goodan Ranch Preserve
Invertebrates			
Riverside fairy shrimp			
San Diego fairy shrimp <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> Otay Ranch Preserve
Thorne's hairstreak butterfly <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> Otay Ranch Preserve
Wandering skipper			

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
Amphibians and Reptiles			
Arroyo toad			
Belding's orange-throated whiptail <i>15 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve • Boulder Oaks Preserve^a • Del Dios Highlands Preserve^a • Dictionary Hill Preserve^a • El Capitan Preserve • Furby-North Property • Lakeside Linkage Preserve • Lawrence and Barbara Daley Preserve • Louis A Stelzer Park^a • Lusardi Creek Preserve • Otay Ranch Preserve • Ramona Grasslands Preserve • Stoneridge Preserve • Sycamore Canyon and Goodan Ranch Preserve • Tijuana River Valley Preserve
California red-legged frog			
Blainville's (Coast, San Diego) horned lizard <i>16 County Preserve</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve • Boulder Oaks Preserve^a • Del Dios Highlands Preserve^a • Dictionary Hill Preserve • El Capitan Preserve^a • Furby-North Property^a • Lakeside Linkage Preserve • Lawrence and Barbara Daley Preserve • Louis A. Stelzer Park • Lusardi Creek Preserve • Oakoasis Preserve^a • Otay Ranch Preserve • Ramona Grasslands Preserve • Stoneridge Preserve • Sycamore Canyon and Goodan Ranch Preserve • Tijuana River Valley Preserve^a
Southwestern pond turtle			

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
Birds			
Bald eagle			
Belding's savannah sparrow			
Burrowing owl <i>2 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Otay Ranch Preserve • Sycamore Canyon and Goodan Ranch Preserve^a
California brown pelican			
California least tern			
Canada goose			
Coastal (San Diego) Cactus wren <i>7 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • El Capitan Preserve^a • Furby-North Property • Lakeside Linkage Preserve • Otay Ranch Preserve • Otay Valley Regional Park • Sweetwater Regional Park • Tijuana River Valley Regional Park
Coastal California gnatcatcher <i>15 County Preserves</i>	✓		<ul style="list-style-type: none"> • Boulder Oaks Preserve • Del Dios Highlands Preserve • Dictionary Hill Preserve • Furby-North Property • Lakeside Linkage Preserve • Louis A. Stelzer Park • Lusardi Creek Preserve • Otay Lakes Regional Park • Otay Ranch Preserve • Otay Valley Regional Park • Santa Fe Valley Preserve • Stoneridge Preserve • Sweetwater Regional Park • Sycamore Canyon and Goodan Ranch Preserve • Tijuana River Valley Regional Park

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
Cooper's hawk <i>15 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a • Boulder Oaks Preserve^a • Del Dios Highlands Preserve • Dictionary Hill Preserve^a • El Capitan Preserve^a • Iron Mountain Preserve • Lakeside Linkage Preserve^a • Lawrence and Barbara Daley Preserve^a • Lusardi Creek Preserve • Oakoasis Preserve^a • Otay Ranch Preserve • Skyline Preserve • Stoneridge Preserve • Sycamore Canyon and Goodan Ranch Preserve^a • Tijuana River Valley Regional Park
Elegant tern			
Ferruginous hawk <i>1 County Preserve</i>		✓	<ul style="list-style-type: none"> • Del Dios Highlands Preserve^a
Golden eagle <i>6 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a • Del Dios Highlands Preserve • El Capitan Preserve • Otay Ranch Preserve • Ramona Grasslands Preserve • Sycamore Canyon and Goodan Ranch Preserve^a
Large-billed savannah sparrow			
Least Bell's vireo <i>8 County Preserves</i>	✓		<ul style="list-style-type: none"> • Furby-North Property • Los Peñasquitos Canyon Preserve • Lusardi Creek Preserve • Otay Lakes Regional Park • Otay Ranch Preserve • Otay Valley Regional Park • Sweetwater Regional Park • Tijuana River Valley Regional Park
Light-footed Ridgway's rail <i>1 County Park</i>	✓		<ul style="list-style-type: none"> • Tijuana River Valley Regional Park
Long-billed curlew			
Mountain plover			

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
Northern harrier <i>8 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Del Dios Highlands Preserve • Furby-North Property^a • Lawrence and Barbara Daley Preserve^a • Louis A. Stelzer Preserve • Lusardi Creek Preserve^a • Otay Ranch Preserve • Sycamore Canyon and Goodan Ranch Preserve^a • Tijuana River Valley Regional Park
Peregrine falcon <i>4 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Del Dios Highlands • Peutz Valley Preserve • Otay Ranch Preserve • Tijuana River Valley^a
Reddish egret			
Southern California rufous-crowned sparrow <i>16 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a • Boulder Oaks Preserve^a • Del Dios Highlands Preserve^a • Dictionary Hill Preserve^a • El Capitan Preserve^a • El Monte Park^a • Furby-North Preserve^a • Lakeside Linkage Preserve^a • Lawrence and Barbara Daley Preserve^a • Louis A. Stelzer Park^a • Lusardi Creek Preserve^a • Oakoasis Preserve^a • Otay Ranch Preserve • Stoneridge Preserve^a • Sycamore Canyon and Goodan Ranch Preserve^a • Tijuana River Valley Regional Park^a
Southwestern willow flycatcher <i>1 County Preserve</i>	✓		<ul style="list-style-type: none"> • Tijuana River Valley Regional Park
Swainson's hawk <i>1 County Preserve</i>		✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a
Tricolored blackbird <i>2 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a • Tijuana River Valley Regional Park

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
Western bluebird <i>10 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a • Boulder Oaks Preserve^a • Del Dios Highlands Preserve^a • El Capitan Preserve^a • El Monte Park^a • Lakeside Linkage Preserve^a • Lawrence and Barbara Daley Preserve • Oakoasis Preserve^a • Stoneridge Preserve • Sycamore Canyon and Goodan Ranch Preserve
Western snowy plover			<ul style="list-style-type: none"> •
White-faced ibis <i>1 County Preserve</i>		✓	<ul style="list-style-type: none"> • Del Dios Highlands Preserve^a
Mammals			
American badger			
Mountain lion <i>6 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a • Boulder Oaks Preserve^a • Del Dios Highlands Preserve • El Capitan Preserve • Otay Ranch Preserve • Sycamore Canyon and Goodan Ranch Preserve^a
Southern mule deer <i>14 County Preserves</i>	✓	✓	<ul style="list-style-type: none"> • Barnett Ranch Preserve^a • Boulder Oaks Preserve • Del Dios Highlands Preserve • El Capitan Preserve • El Monte Park^a • Lakeside Linkage Preserve^a • Lawrence and Barbara Daley Preserve^a • Louis A. Stelzer Preserve • Lusardi Creek Preserve • Oakoasis Preserve • Otay Ranch Preserve^a • Ramona Grasslands Preserve^a • Stoneridge Preserve • Sycamore Canyon and Goodan Ranch Preserve

NOTES:

^a Species documented in County Preserve in a report rather than in GIS. Reports are referenced in the sources below.

SOURCES:

AECOM. 2019. Baseline Biodiversity Survey Report for the Holly Oaks County Park, Luelf Pond Preserve, and Barnett Ranch Preserve Properties County of San Diego Department of Parks and Recreation. Prepared for Department of Parks and Recreation County of San Diego. June.

California Natural Diversity Database. 2020. Occurrences points and polygons documenting species sightings from 1998 to present included for MSCP species occurrences.

County of San Diego Land Use and Environmental Group-GIS. 2020. SanBIOS. Occurrences points and polygons documenting species sightings from 1998 to present included for MSCP species occurrences.

County of San Diego Department of Parks and Recreation. 2018. Draft Boulder Oaks Resource Management Plan. March.

County of San Diego Department of Parks and Recreation. 2011. Del Dios Highlands Preserve Resource Management Plan. June.

County of San Diego Department of Parks and Recreation. 2009. Final El Capitan Preserve Resource Management Plan. June.

County of San Diego Department of Parks and Recreation. 2009. El Monte County Park Resource Management Plan. June.

County of San Diego Department of Parks and Recreation. 2012. Furby-North Property Resource Management Plan. June.

County of San Diego Department of Parks and Recreation. 2010. Lakeside Linkage Preserve Resource Management Plan. August.

County of San Diego Department of Parks and Recreation. 2011. Lawrence and Barbra Daley Preserve Resource Management Plan. June.

County of San Diego Department of Parks and Recreation. 2009. Lusardi Creek Preserve Resource Management Plan. June.

County of San Diego Department of Parks and Recreation. 2009. Oakoasis Preserve Resource Management Plan. June.

County of San Diego Department of Parks and Recreation. 2018. Draft Sycamore Canyon and Goodan Ranch Preserve Resource Management Plan. April.

County of San Diego Department of Parks and Recreation. 2009. Louis A. Stelzer County Park Resource Management Plan. April

County of San Diego Department of Parks and Recreation. 2013. Stoneridge Preserve Resource Management Plan. April.

County of San Diego Department of Parks and Recreation. 2007. Tijuana River Valley Regional Park Area Specific Management Objectives. June.

Environmental Science Associates. 2019. Baseline Biodiversity Report for the Dictionary Hill Preserve County of San Diego Department of Parks and Recreation. Prepared for Department of Parks and Recreation County of San Diego. October

Helix. 2019. Baseline Biodiversity Survey Report Tijuana River Valley Regional Park. Prepared for Department of Parks and Recreation County of San Diego. August.

San Diego Management and Monitoring Program. 2020. MSP Species Master Occurrence Matrix databases. Occurrences points documenting species sightings from 1998 to present included for MSCP species occurrences.

U.S. Fish and Wildlife Service. 2020. Regss Locations of Sensitive Species Sightings database. Occurrences points documenting species sightings from 1998 to present included for MSCP species occurrences.

U.S. Fish and Wildlife Service. 2020. Sensitive Species (polygons). Occurrence polygons documenting species sightings from 1998 to present included for MSCP species occurrences.

APPENDIX K

Stewardship and Adaptive Management in County
Parks and Preserves in Reporting Year

This page is intentionally blank

Preserve	Status	Habitat Restoration	Hazardous or Non-Native Tree Removal	Invasive Species Control	Access Control, Trail and Infrastructure Installation and Maintenance	Fire Management	Environmental Education
Barnett Ranch Preserve	Open	52 trees planted <ul style="list-style-type: none"> coast live oak Engelmann oak Planted toyon, California broom, and white sage plants.		6 acres <ul style="list-style-type: none"> goats head Russian thistle mustard milk thistle 	<ul style="list-style-type: none"> 5 interpretive signs and 1 no off-trail use sign installed. Daily patrols to prevent dumping and littering and keep dogs on leash. 1 solar gate was also repaired. 	Firebreak maintained	4 programs 103 visitors
Boulder Oaks Preserve	Closed	65 trees planted <ul style="list-style-type: none"> coast live oak Engelmann oak 	3 trees removed	15 acres <ul style="list-style-type: none"> black mustard Dyer's rocket milk thistle 	<ul style="list-style-type: none"> 6 new no trespassing signs installed. 100 feet of ranch fencing repaired and a new gate installed. Game cameras installed throughout Preserve. 	Firebreak maintained along 2-mile access road	
Damon Lane Park	Open	30 trees planted <ul style="list-style-type: none"> coast live oak Torrey pine 	1 tree removed	2 acres <ul style="list-style-type: none"> castor bean fan palms 	<ul style="list-style-type: none"> 3 new no off-roading and off-leash dog signs were installed. 	Firebreak maintained	
Del Dios Highlands Preserve	Open	3 trees planted <ul style="list-style-type: none"> palo verde 		1 acre <ul style="list-style-type: none"> black mustard castor bean tree tobacco ox tongue 	<ul style="list-style-type: none"> 6 new no off-roading and off-leash dog signs were installed. 	Firebreak maintained along SDGE trail	Bike tour attended by 150 visitors
Dictionary Hill Preserve	Open	2 trees planted <ul style="list-style-type: none"> coast live oak 		6 acres <ul style="list-style-type: none"> black mustard thistle 	<ul style="list-style-type: none"> 4 new signs for regulations installed Boulders installed at trailheads 	Firebreak maintained	Multiple ranger-led hikes Attended by 51 visitors

Preserve	Status	Habitat Restoration	Hazardous or Non-Native Tree Removal	Invasive Species Control	Access Control, Trail and Infrastructure Installation and Maintenance	Fire Management	Environmental Education
Dos Picos Park	Open	57 trees planted <ul style="list-style-type: none"> coast live oak 	20 dead trees were removed	12 acres <ul style="list-style-type: none"> black mustard thistle 		Firebreak maintained	Several live animal presentations and talks to approximately 1,100 visitors
El Capitan Preserve	Open	Trail maintenance to prevent sediment traps and erosion along 6 miles of trail			<ul style="list-style-type: none"> Installed new signage to discourage littering and prevent unauthorized entry. 20 feet of concrete wall restored. 	Firebreak maintained	County Park Rangers guided “warrior hikes” on Memorial Day and Veteran’s Day. 427 visitors attended.
El Monte Park	Open	110 trees planted <ul style="list-style-type: none"> Engelmann oak coast live oak sycamore cottonwood white alder palo verde 45 shrubs planted	2 dead trees were removed	8 acres <ul style="list-style-type: none"> black mustard tamarisk goats head tree tobacco 	<ul style="list-style-type: none"> 5 new informational signs installed 1 new metal gate and 2 wooden fences installed Patrols increased to prevent unauthorized trails use and graffiti 	Firebreak around ranger office, garage and ranger residence maintained	Several programs 1,500 visitors
Flinn Springs Park	Open	375 trees planted <ul style="list-style-type: none"> coast live oak Engelmann oak arroyo willow cottonwood 100 native shrubs planted	1 dead tree removed	<ul style="list-style-type: none"> papyrus arrundo cane Mexican fan palm star thistle castor bean 	10 new signs installed to deter off-trail activity. 2 new lodgepole fences installed. Erosion control measures implemented for trail rehabilitation	Firebreak maintained	Multiple programs 900 visitors

Preserve	Status	Habitat Restoration	Hazardous or Non-Native Tree Removal	Invasive Species Control	Access Control, Trail and Infrastructure Installation and Maintenance	Fire Management	Environmental Education
Furby-North Property	Closed				<ul style="list-style-type: none"> 5 new interpretive signs installed. 20 feet of fencing repaired 3 new enforcement signs installed 	Firebreak maintained	
Holly Oaks County Park	Open	5 new cedar trees planted		7 acres <ul style="list-style-type: none"> black mustard goats head 	<ul style="list-style-type: none"> Repaired 300 feet of fencing 	Firebreak maintained	
Iron Mountain Preserve	Closed			Black mustard removal efforts over 1 acre	<ul style="list-style-type: none"> No signs of illegal activities observed during patrols 		
Lakeside Linkage Preserve	Open			21 acres <ul style="list-style-type: none"> Short-pod mustard 	<ul style="list-style-type: none"> 2 new restriction signs installed 	Firebreak maintained	
Lawrence and Barbara Daley Preserve	Closed				<ul style="list-style-type: none"> New restriction signs installed 	Firebreak maintained	
Los Penasquitos Canyon Preserve	Open	145 trees planted <ul style="list-style-type: none"> coast live oak Englemann oak California sycamore coast live oak cottonwood 		31 acres <ul style="list-style-type: none"> black mustard castor bean fennel Russian thistle stinkwort 	<ul style="list-style-type: none"> 2 new memorial signs and 1 split rail fence installed Removed trash and litter from former homeless encampments 	Firebreak maintained	
Louis A. Stelzer Park	Open	200 trees planted	15 dead tree removed	4 acres <ul style="list-style-type: none"> castor bean black mustard poison oak 	<ul style="list-style-type: none"> 8 restriction signs were replaced Patrol increased to prevent illegal access and dumping 	Firebreak maintained	1 program 180 visitors

Preserve	Status	Habitat Restoration	Hazardous or Non-Native Tree Removal	Invasive Species Control	Access Control, Trail and Infrastructure Installation and Maintenance	Fire Management	Environmental Education
Luelf Pond Preserve	Open			1 acre <ul style="list-style-type: none"> tree tobacco black mustard 		Firebreak maintained	
Lusardi Creek Preserve	Open			4 acres <ul style="list-style-type: none"> giant reed black mustard 	<ul style="list-style-type: none"> 30 feet of new lodgepole fencing installed Illegal trash dumping removed 	Firebreak maintained	
Oakosis Preserve	Open	250 trees planted <ul style="list-style-type: none"> coast live oak 		6 acres <ul style="list-style-type: none"> stinkwort black mustard poison oak 	<ul style="list-style-type: none"> Patrols increased to prevent trash dumping and unauthorized parking Habitat restoration signs installed to prevent unauthorized access 10 feet of fencing repaired 	Maintained firebreaks around ranger residence and volunteer pads	Monthly star gazing program 750 visitors
Old Ironsides County Park	Open			2 acres <ul style="list-style-type: none"> fan palm castor bean giant reed 	<ul style="list-style-type: none"> 2 restriction signs added 		
Otay Lakes County Park	Open	140 trees planted <ul style="list-style-type: none"> coast live oak 		15 acres <ul style="list-style-type: none"> black mustard Russian thistle 		Firebreak maintained	12 hikes 2 events 454 visitors
Otay Valley Regional Park	Open			5 acres <ul style="list-style-type: none"> Russian thistle black mustard chrysanthemums 	<ul style="list-style-type: none"> New no off-roading signs installed Patrols increased to prevent illegal use of motorized vehicles 		

Preserve	Status	Habitat Restoration	Hazardous or Non-Native Tree Removal	Invasive Species Control	Access Control, Trail and Infrastructure Installation and Maintenance	Fire Management	Environmental Education
Ramona Grasslands Preserve	Open	2 trees planted <ul style="list-style-type: none"> coast live oak 	1 dead tree removed	60 acres <ul style="list-style-type: none"> tree tobacco tamarisk Russian thistle milk thistle artichoke thistle 	<ul style="list-style-type: none"> 20 new no parking, trail, boundary signs installed 2 metal gates and 150 feet of wooden fence installed Game cameras posted and maintained 	Firebreak maintained	4 events 1,600 visitors
Stoneridge Preserve	Closed			<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Patrols increased to prevent illegal use of motorized vehicles 	Firebreak maintained along Kelley Drive	
Sweetwater Regional Park	Open	34 trees planted <ul style="list-style-type: none"> coast live oak 25 native shrubs planted		1 acre <ul style="list-style-type: none"> bristly oxtongue tree tobacco black mustard castor bean 	<ul style="list-style-type: none"> Rocks at entry points to prevent off-road activity 4 new directional signs installed 100 feet of lodgepole fencing repaired 	Firebreak maintained	2 programs 155 visitors
Sycamore Canyon/ Goodan Ranch Preserve	Open	292 trees planted <ul style="list-style-type: none"> Engelmann oak coast live oak California sycamore 140 shrubs planted, including sugar bush, laurel sumac, lemonade berry, and white sage	12 trees removed	20 acres <ul style="list-style-type: none"> pampas grass black mustard artichoke thistle 	<ul style="list-style-type: none"> 20 new signs installed to prevent off-road activity Patrol increased to prevent illegal access and dumping 	Firebreak maintained	Multiple programs 208 visitors

Preserve	Status	Habitat Restoration	Hazardous or Non-Native Tree Removal	Invasive Species Control	Access Control, Trail and Infrastructure Installation and Maintenance	Fire Management	Environmental Education
Tijuana River Valley Regional Park	Open	113 trees planted <ul style="list-style-type: none"> • laurel sumac • cottonwood • lemonadeberry • western sycamore 		157 acres <ul style="list-style-type: none"> • Russian thistle • castor bean • tree tobacco • hottentot-fig • nasturtium • crown daisy • grasses (<i>Poaceae</i>) 	<ul style="list-style-type: none"> • 125 new informational and directional signs installed to prevent off-trail activity • 20 feet of fencing installed to prevent unauthorized access • Daily patrols to prevent illegal access and dumping 	Firebreak maintained	Multiple programs 374 visitors

APPENDIX L

Private Mitigation Land Monitoring and Maintenance in Reporting Year

This page is intentionally blank

RMP Number		RMP Name	RMP Date	Habitat Manager	Annual Report Due	Surveys ¹	Project Status	Monitoring / Maintenance Status
1	PDS2008-3914-98-001	Bernardo Lakes	Feb-1998	None	Dec	Sensitive Species (annually)	Built-out	Former TET property. The County provided a PAR for the HOA Board to review. Discussions with the HOA will continue in 2022.
<p>APNs: 678-070-30, -31, 678-420-26, -27, 678-421-01, 678-422-01, -02, -04, 678-430-25, 678-432-01, 678-070-35</p> <p>Habitat Conservation Area Description: A total of 111.8 acres of open space is dedicated with 71.8 acres of the 111.8 previously conveyed. The open space is located west of the current western termini of Rancho Bernardo Road, immediately north of Artesian Road and wets of Four Gee Road. The property consists mostly of coastal sage scrub with some freshwater marsh, southern willow scrub, and non-native grassland.</p>								
2	PDS2008-3914-99-001	4S Ranch, Ralphs Family Preserve	Sep-1999	Joaquin Meza	Aug	Report new invasive plants population	Built-out	2021-2022 report was submitted and reviewed by county staff, no major concerns.
<p>APNs: 678-031-02, -03, -04, -05, -06, -07, -08, -09, Portions of 678-031-10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -20</p> <p>Habitat Conservation Area Description: Approximately 1,065 acres immediately south of Lake Hodges, including coastal sage scrub, southern mixed chaparral, native and non-native grassland</p>								
3	PDS2012-3914-99-002-02	4S Ranch, Specific Plan Preserve	Sep-1999	Habitat Restoration Sciences	Sep	Report new invasive plants populations	Built-out	2021-2022 report was submitted and reviewed by county staff, no major concerns.
<p>APNs: <i>Lusardi Creek Portion</i> (south) 312-284-01, 312-285-01, 312-150-04; <i>North</i> 678-050-49, 678-030-08, 678-050-51</p> <p>Habitat Conservation Area Description: A total of approximately 547 acres of open space is located on this property. 312 acres are located in the northern portion of the project, adjacent to the Ralph's Family Reserve, and 230 acres is located in the southerly portion of the site within La Jolla Valley, surrounding the Lusardi Creek riparian corridor</p>								
4	PDS2008-3914-99-003	Golem, East Gorge	Jan-2000	San Dieguito River Valley Joint Powers Authority	Dec	CAGN (twice annually)	Built-out	2021-2022 report was submitted and reviewed by county staff, no major concerns.
<p>APNs 678-020-02, -03, 678-021-02, -03, 265-320-03</p> <p>Habitat Conservation Area Description 154 acres of open space was set aside to preserve California adolphia, southwestern spiny rush, San Diego marsh elder, Del Mar manzanita, wart-stemmed ceanothus, California gnatcatcher, southern California rufous-crowned sparrow, coastal western whiptail, and mountain lion.</p>								

RMP Number		RMP Name	RMP Date	Habitat Manager	Annual Report Due	Surveys ¹	Project Status	Monitoring / Maintenance Status
5	PDS2008-3914-99-004	Starwood, Santa Fe Valley	Jun-2004	Rincon Consultants	Mar	Sensitive Species (annually)	Built-out	2021-2022 report was submitted and reviewed by county staff, no major concerns.
<p>APNs: <i>Open Space I</i> 265-320-18, -22, -30, 265-291-21, -23, -25, -26, -27, 265-290-41, -43, 267-050-42, -44, -46, 267-190-01, 267-132-18, 267-050-57, 267-132-11, 267-051-05, 30, Portion of 267-190-02, <i>Open Space II</i> Portions of 267-190-32, 267-290-35, 267-180-72, 267-191-01, -02, -11</p> <p>Habitat Conservation Area Description: The open space is equivalent to approximately 170 acres, located in the north-central San Diego County, along the San Dieguito River corridor south of Del Dios Highway at Bing Crosby Boulevard. 14 sensitive plant species and 12 sensitive wildlife species were observed onsite: California adolphia, San Diego mesa mint, San Diego button celery, spreading navarretia, Orcutt's brodiaea, San Diego ambrosia, Del Mar manzanita, Nuttall's scrub oak, San Diego barrel cactus, San Diego marsh elder, San Diego sagewort, southwestern spiny rush, summer holly, wart-stemmed ceanothus, San Diego fairy shrimp, orange-throated whiptail, Bell's sage sparrow, California horned lark, California gnatcatcher, Cooper's hawk, great blue heron, loggerhead shrike, northern harrier, southern California rufous-crowned sparrow, white-tailed kite, and San Diego black-tailed jackrabbit.</p>								
6	PDS2008-3914-99-005	Woodridge	Updated-2016	Center For Natural Lands Management	Dec	CSS (2 out of 5 years) CAGN (2 out of 5 years) Delicate Clarkia (1 out of 5 years)	Built-out	2021-2022 report was submitted and reviewed by county staff, no major concerns.
<p>APNs: 395-151-69, -70, 395-432-23, -24, -30, -31</p> <p>Habitat Conservation Area Description: Located south of Pino Drive and west of Lakeview Drive in Lakeside, about 1/2 mile west of Lake Jennings. The site has approximately 55 acres of Diegan coastal sage scrub and native grasslands, and a small patch of eucalyptus woodland, and supports the federally-listed threatened coastal California gnatcatcher. The Center for Natural Lands Management received title to the property in the December of 1999 at which time the Woodridge habitat conservation areas management commenced. The County of San Diego holds an Open Space Easement on the conservation area.</p>								
7	PDS2008-3914-01-001	Blossom Valley	Updated-2012	Center for Natural Lands Management	Dec	DCSS and SMC (1 out of 5 years) Oak Tree for GSOB (annually) CAGN (2 out of 5 years) Rush-like Bristleweed and Englemann Oak (1 out of 5 years)	Built-out	2021-2022 report was submitted and reviewed by county staff, no major concerns.
<p>APNs: 390-061-03, -04</p> <p>Habitat Conservation Area Description: The 286-acre habitat conservation area was dedicated in fee to the Center for Natural Lands Management in July 2009 as off-site mitigation for the Blossom Valley Estates development. The site is located in Blossom Valley, about 2 miles east of Lake Jennings. The site supports Diegan coastal sage scrub, southern mixed chaparral, and coast live oak woodland that all burned completely during the Cedar Fire in 2003. The site's terrain is very steep and rugged.</p>								

RMP Number		RMP Name	RMP Date	Habitat Manager	Annual Report Due	Surveys ¹	Project Status	Monitoring / Maintenance Status
8	PDS2008-3914-02-001	McCrink Ranch, Santa Fe Valley	Jan-2003	None	Jan	Sensitive Species (annually)	Partially built-out	The County provided a PAR for the developer to review. Discussions with the developer will continue in 2022.
<p>APNs: 265-320-25, 267-060-48, -49</p> <p>Habitat Conservation Area Description: This 270-acre preserve area is located in west-central San Diego County, approximately 5 miles east of Interstate 5 and 3 miles west of Interstate 15, south of Del Dios Highway. The site primarily supports coastal sage scrub and southern mixed chaparral.</p>								
9	PDS2008-3914-02-003	Maranatha Chapel	Oct-2002	None	Dec	CAGN (every two years) Rare Plant (every two years)	Built-out	The County is drafting a PAR for the Maranatha Chapel to review. Discussions with the Maranatha Chapel will continue in 2022.
<p>APN: 267-060-37, Portion of 267-060-38</p> <p>Habitat Conservation Area Description: The preserve is located at the western terminus of Rancho Bernardo Road, between Artesian Road and Del Dios Highway. Approximately 82 acres of open space is located in two sections (Open Space 1 North and Open Space 1 South). Nearly half of the property is Diegan coastal sage scrub habitat, with the remaining habitat as non-native grassland, chaparral, oak woodland, freshwater marsh, eucalyptus woodland, disturbed (roads), and developed land.</p>								
10	PDS2008-3914-03-002	El Apajo	Jun-2003	None	Dec	Avian and Amphibian (annually) Floral Inventory (every 5 years)	Built-out	Discussions with County Counsel regarding enforcement options will continue in 2022.
<p>APN: 268-360-15</p> <p>Habitat Conservation Area Description: This 25.6-acre open space area was conserved for annual grassland and wetlands. It is located within the San Dieguito River Valley along Via de Santa Fe Road northwest of its junction with El Apajo Road.</p>								

RMP Number		RMP Name	RMP Date	Habitat Manager	Annual Report Due	Surveys ¹	Project Status	Monitoring / Maintenance Status
11	PDS2010-3914-05-004	Greenhills Ranch	Sep-2006	Habitat Restoration Sciences	Jan	CAGN (every 2 years) San Diego Cactus Wren (every 2 years)	Built-out	2021-2022 report was submitted and reviewed by county staff, no major concerns.

APN: 395-452-01

Habitat Conservation Area Description: The 44.04-acre open space is located south of Lake Jennings Road and west of Interstate 8. Observed on the property were California gnatcatcher, southern California rufous-crowned sparrow, silvery legless lizard, Coronado skink, western spadefoot, black-tailed jackrabbit, mule deer, turkey vulture, Bewick's wren, San Diego sunflower, prostrate spineflower, and ashy spike-moss.

12	PDS2009-3914-06-005	Artesian Trail	Apr-2007	San Dieguito River Park Conservancy	Sep	Thread-leaf Brodiaea (annually)	Built-out	Discussions with County Counsel regarding enforcement options will continue in 2022.
----	---------------------	----------------	----------	-------------------------------------	-----	---------------------------------	-----------	--

APNs: 267-142-33, -34, -35, -36

Habitat Conservation Area Description: The project dedicated approximately 3.2 acres of land into open space in response to a four-lot subdivision. The site is located in the Community of Rancho Santa Fe, four miles west of Interstate 15, south of Artesian Road. The property preserves approximately 2.6 acres of non-native grassland and 0.6-acre of coastal sage scrub. Observed on the property were approximately 688 federally threatened thread-leaf brodiaea (*Brodiaea filifolia*), and approximately 155 California adolphia (*Adolphia californica*).

13	PDS2012-3914-11-002	Lonestar	Dec-2011	San Diego Habitat Conservancy	Jan	Sensitive Plant Species (every 5 years) CAGN (2 out of every 5 years) Fairy Shrimp (2 out of every 5 years)	Built-out	2021-2022 report was submitted and reviewed by county staff, no major concerns.
----	---------------------	----------	----------	-------------------------------	-----	---	-----------	---

APNs: 646-030-21-00, 646-070-36-00, 646-070-37-00

Habitat Conservation Area Description: Non-native grassland and CSS in East Otay Mesa. The Preserve provides habitat for several sensitive animal species, including the California gnatcatcher, Coronado skink burrowing owl, and white-tailed kite.

RMP Number		RMP Name	RMP Date	Habitat Manager	Annual Report Due	Surveys ¹	Project Status	Monitoring / Maintenance Status
14	PDS2014-RMPM-10-003	East Otay Mesa	Feb-2012	Open Space Management, Inc.	Jan	CAGN (every 3 years) Burrowing Owl and Raptor (annually) QCB (every 3 years) Sensitive Plant (every 3 years)	Built-out	2021-2022 report was submitted and reviewed by county staff, no major concerns.
<p>APNs: 648-050-20, 648-011-06, Portions 648-040-31, 648-040-55, 648-040-57</p> <p>92 acres located on the west and east sides of Alta Road north of Calzada de la Fuente in East Otay Mesa. Habitats are coastal sage scrub, chaparral, and non-native grassland. Supports burrowing owls, barrel cactus, Matilija poppy, and San Diego sunflower.</p>								
15	PDS2015-RMPM-12-002	Sloane Canyon	Nov-2013	Open Space Management, Inc.	Feb	Plant and Animal Species (every 3 years)	Built-out	2021-2022 report was submitted and reviewed by county staff, no major concerns.
<p>APN: 521-080-11</p> <p>Habitat Conservation Area Description: The Sloane Canyon open space comprises 39.3 acres on Sloane Canyon Road in Jamul. It includes 4.72 acres of riparian woodland, 6.0 acres of Diegan coastal sage scrub, 9.71 acres of Diegan coastal sage scrub/chaparral, 17.2 acres of southern mixed chaparral, and 1.67 acres of disturbed habitat.</p>								
16	PDS2015-RMPM-12-003	Trevi Hills	Feb-2013	Open Space Management, Inc.	Feb	Lakeside Ceanothus (every 5 years)	In process	2021-2022 report was submitted and reviewed by county staff, no major concerns.
<p>APNs: 389-071-17, 389-101-01, -02, -03, 389-072-03, 389-102-01, -02, 389-020-12</p> <p>Habitat Conservation Area Description: The Trevi Hills/ High Meadow Ranch open space comprises approximately 350 acres off Muth Valley Road and High Meadow Road. The open space provides for the long-term conservation of intact southern mixed chaparral habitat and the Lakeside ceanothus or Lakeside wild lilac (<i>Ceanothus cyaneus</i>).</p>								
17	PDS2016-RMP-16-004	Otay Crossings Commerce Park	Aug-2017	San Diego Habitat Conservancy	Jan	Burrowing Owl (annually) QCB (every 3 years) Fairy Shrimp (2 out of every 5 years) Sensitive Plant (varies)	In process	2021-2022 report was submitted and reviewed by county staff, no major concerns.
<p>APNs: 648-071-15, 648-080-31, 648-080-32</p> <p>Habitat Conservation Area Description: The Otay Crossing Commerce Park on-site biological open space is comprised of 24.3 acres. It includes 0.03 acres of wetland, 6.8 acres of coastal sage scrub, 16.2 acres of non-native grassland, and 1.2 acres of disturbed habitat.</p>								

RMP Number		RMP Name	RMP Date	Habitat Manager	Annual Report Due	Surveys ¹	Project Status	Monitoring / Maintenance Status
18	PDS2019-RMP-19-004	OMC	March- 2019	Urban Corps San Diego	Jan	Burrowing Owl (annually)	Graded	2021-2022 report was submitted and reviewed by county staff, no major concerns.

APNs: 646-080-34

Habitat Conservation Area Description: This land is being conserved as required for non-native grassland mitigation for the project located in East Otay Mesa. The purpose of the RMP is to provide measures to establish a self-sustaining colony of California ground squirrels as to provide suitable habitat for the burrowing owl.

NOTES:

¹ Subject to change due to RMP updates and/or adaptive management.

APN – Assessor Parcel Number

CAGN – coastal California gnatcatcher

CSS – Coastal Sage Scrub

DCSS – Diegan Coastal Sage Scrub

GSOB – gold-spotted oak borer

HOA – Homeowners Association

HM – habitat manager

QCB – Quino checkerspot butterfly

RMP – Resource Management Plan

SMC – Southern Maritime Chaparral

TET – The Environmental Trust, Inc.

SOURCE:

County of San Diego Department of Planning and Development Services

APPENDIX M

Stewardship and Management on Private Mitigation Lands

This page is intentionally blank

Preserve	Status	Habitat Restoration	Invasive Species Control	Access Control, Trail and Infrastructure Installation and Maintenance	Fire Management	Environmental Education
Bernardo Lakes	Non-reporting					
4S Ranch Ralphs	Reporting		<ul style="list-style-type: none"> • Less than 1/2 acres Artichoke thistle 	<ul style="list-style-type: none"> • Weekly patrolling • Minimal road repairs 		
4S Ranch Specific Plan	Reporting		<ul style="list-style-type: none"> • Salt cedar • Fennel • Artichoke Thistle 	<ul style="list-style-type: none"> • Regular trash removal • Repair of damaged fence due to off-road vehicle • Monitoring of illegal off-road vehicle and trail access 		
Golem	Reporting		<p>Coastal Sage</p> <ul style="list-style-type: none"> • 2.1 acres <p>Floodplain</p> <ul style="list-style-type: none"> • Non-native grasslands • 9 canary palms • 17 castor beans • 9 eucalypti • 239 eucalyptus saplings 	<ul style="list-style-type: none"> • Almost daily patrols • Daily security guard at front entrance • Graffiti removal • Plants and rocks to block illegal to CAGN habitat 		<ul style="list-style-type: none"> • Outreach with trail users • Coordinated hikes and restoration projects
Starwood (Crosby)	Reporting	<p>Upland Habitat</p> <ul style="list-style-type: none"> • California adolphia • Chalk Dudleya • Deer weed • California sagebrush • California buckwheat 	<ul style="list-style-type: none"> • Perennial Weed • American Bullfrog • Brown-headed cowbird 		<ul style="list-style-type: none"> • Defensible space maintained 	<ul style="list-style-type: none"> • Regular website updates

Preserve	Status	Habitat Restoration	Invasive Species Control	Access Control, Trail and Infrastructure Installation and Maintenance	Fire Management	Environmental Education
		Chapparal Habitat <ul style="list-style-type: none"> • Wart-stemmed Ceanothus • Coyote brush, Bush sunflower • Chamise • California sagebrush • Ramona Lilac • Toyon • Lemonade Berry 				
Woodridge	Reporting	<ul style="list-style-type: none"> • 500 cacti for coastal cactus wren habitat 	<ul style="list-style-type: none"> • 0.25 acre black mustard 	<ul style="list-style-type: none"> • Weekly to bi-weekly patrols to prevent vandalism and illegal activities • Illegal trails repaired and blocked • Minimal trash removed 	<ul style="list-style-type: none"> • Fuel zones maintained 	<ul style="list-style-type: none"> • Kiosks updated quarterly
Blossom Valley	Reporting		<ul style="list-style-type: none"> • Tumble pigweed • Ripgut brome 	<ul style="list-style-type: none"> • Weekly to bi-weekly patrols • Minimal trash removed 		<ul style="list-style-type: none"> • Outreach with trail users
McCrink Ranch	Non-Reporting					
Maranatha Chapel	Non-reporting					
El Apajo	Non-reporting					

Preserve	Status	Habitat Restoration	Invasive Species Control	Access Control, Trail and Infrastructure Installation and Maintenance	Fire Management	Environmental Education
Greenhills Ranch	Reporting		5 acres <ul style="list-style-type: none"> • Mustard • Tecolote 	<ul style="list-style-type: none"> • Quarterly patrols • 7 maintenance visits • Minimal trash removed 		<ul style="list-style-type: none"> • Coordination with HOA
Artesian Trail	Non-reporting					
Lonestar	Reporting	<ul style="list-style-type: none"> • Coordination with San Diego Zoo Wildlife Alliance to install brush piles • Received grant for the Jewish Teen Foundation to improve BUOW habitat 	<ul style="list-style-type: none"> • Herbicide and line trimming invasive species 	<ul style="list-style-type: none"> • 20 ft linear of fencing • Gate installed to prevent off-road vehicle trespass • Trash removed along fencing near road 		<ul style="list-style-type: none"> • Attended San Diego County Burrowing Owl meeting
East Otay Mesa	Reporting		<ul style="list-style-type: none"> • Pampas grass • Fennel • Artichoke thistle 	<ul style="list-style-type: none"> • Fence repaired • Minimal trash removed • 		<ul style="list-style-type: none"> • Communication with adjacent property owner regarding encroachments
Sloane Canyon	Reporting		<ul style="list-style-type: none"> • Monitoring of invasives: Arundo 	<ul style="list-style-type: none"> • Biannual patrols 		<ul style="list-style-type: none"> • Communication with adjacent property owner regarding brush clearing limits
High Meadow Ranch (Trevi Hills)	Reporting		<ul style="list-style-type: none"> • 170 individual tamarisks 	<ul style="list-style-type: none"> • Patrolled and maintained fencing and signs • Minimal trash was removed 		

Preserve	Status	Habitat Restoration	Invasive Species Control	Access Control, Trail and Infrastructure Installation and Maintenance	Fire Management	Environmental Education
Otay Crossings Commerce Park	Reporting		<ul style="list-style-type: none"> • Fennel • Black mustard • Tocalote • Tamarisk • Russian thistle • Iceplant • Australian saltbush 	<ul style="list-style-type: none"> • Monthly patrols • Minimal trash removed • Coordination with Border Patrol to limit preserve access • Installed signs to notify public of private preserve 		
OMC	Reporting			<ul style="list-style-type: none"> • Monthly monitoring • Removal of 6 tires and other metal objects • Repaired fencing from off-road vehicle • Repaired 6 signs 		<ul style="list-style-type: none"> • Coordination with Off Road Enforcement Team to help educate the public on legal areas to ride off-road vehicles.

APPENDIX N

Annual Report for the Otay Ranch Preserve, Johnson Canyon Otay
Tarplant Preserve, and Piper Ranch

January 1 – December 31, 2022



Annual Report for the Otay Ranch Preserve,
Johnson Canyon Otay Tarplant Preserve, and
Piper Ranch
January 1–December 31, 2022

Prepared for
City of Chula Vista
276 Fourth Avenue
Chula Vista, CA 91910
Contact: Mr. Dai Hoang

County of San Diego
5510 Overland Avenue, Suite 310
San Diego, CA 92123
Contact: Ms. Jennifer Price

Prepared by
RECON Environmental, Inc.
3111 Camino del Rio North, Suite 600
San Diego, CA 92108
P 619.308.9333

RECON Number 5256
January 23, 2023

A handwritten signature in black ink, appearing to read "Anna Leavitt".

Anna Leavitt, Senior Biologist

A handwritten signature in black ink, appearing to read "Kayo Valenti".

Kayo Valenti, Associate Biologist

TABLE OF CONTENTS

Acronyms and Abbreviations.....ix

1.0 Introduction 1

2.0 Preserve Monitoring..... 6

 2022 Weather Summary 6

 Task 1: Surveys..... 9

 Task 2: Land Stewardship..... 25

 Task 3: Meetings and Coordination..... 50

 Task 4: Reporting 57

3.0 Operations/Maintenance 61

 Task 5: Access Control 61

 Task 6: Invasive Species Treatment..... 72

4.0 Future Tasks to be Performed 85

5.0 Climate Change Adaptation Strategy..... 87

6.0 Additional Habitat Restoration Projects within the Otay Ranch Preserve..... 90

 6.1 Otay 2nd Pipeline Emergency Repair Project..... 90

 6.2 San Diego Gas & Electric Habitat Restoration Project..... 91

 6.3 Quino Checkerspot Butterfly Recovery Program at Otay Ranch Preserve
 Salt Creek Parcels..... 93

 6.4 Shinohara II Restoration Project - Authorized Cactus Collection..... 93

7.0 References Cited 94

FIGURES

1: Regional Location of Otay Ranch Preserve, Johnson Canyon Otay Tarplant Preserve,
 and Piper Ranch 3

2: Otay Ranch Preserve, Johnson Canyon Otay Tarplant Preserve, and Piper Ranch Location
 on USGS Map..... 4

3: Otay Ranch Preserve, Johnson Canyon Otay Tarplant Preserve, and Piper Ranch on
 Aerial Photograph 5

TABLE OF CONTENTS (cont.)

GRAPHS

1: July 2021 through June 2022 Rainfall Compared to Normal Rainfall at Brown Field 7
 2: July 2021 through June 2022 Average Maximum Temperatures Compared to Normal Maximum Temperatures at Brown Field 8

TABLES

1: Conveyed Preserve Parcels, Assessor’s Parcel Numbers, and Acreages as of December 2022 2
 2: Rolling Hills Ranch Preserve – Johnson Canyon Otay Tarplant Preserve Parcel Conveyed Preserve Parcel, Assessor’s Parcel Number, and Acreage..... 2
 3: July 2021 through June 2022 Rainfall Compared to Normal Rainfall..... 7
 4: July 2021 through June 2022 Average Maximum Temperatures Compared to Normal Maximum Temperatures 8
 5: Focused Rare Plant Surveys Dates and Locations 9
 6: Focused Rare Plant Survey Locations and Focal Plant Type 10
 7: Non-IMG Focused Rare Plant Survey Results for Priority Group 1 Species 10
 8: 2022 Management Strategic Plan Inspect and Manage Rare Plant Survey Results 11
 9: Incidental Rare Plant Observations 12
 10: Quino Checkerspot Butterfly Surveys Dates and Locations..... 13
 11: Vegetation Mapping Survey Dates and Locations..... 14
 12: Vegetation Communities within the Northern Salt Creek Parcels: Holland and San Diego Association of Governments Crosswalk..... 15
 13: 2022 Vegetation Mapping Results for the Northern Salt Creek Parcels: 2022 Compared to 2012 Results..... 16
 14: Photographic Monitoring Dates and Locations 16
 15: 2022 Coastal California Gnatcatcher Protocol Survey Effort and Conditions – Piper Ranch Parcels..... 17
 16: 2022 Tree Health Survey Results..... 18
 17: Hermes Copper Butterfly Surveys Dates and Locations..... 19
 18: Hermes Copper Butterfly Survey Dates, Personnel, Times, and Conditions for the Otay Ranch Preserve– Dulzura, Jamul Mountains, Little Cedar Canyon, McMillin, Northern San Ysidro, Proctor Valley (North), Proctor Valley (South), Ridge, Salt Creek, and San Ysidro Parcels..... 19
 19: Golden Eagle Camera Survey Dates, Locations, and Tasks 20
 20: Vernal Pool Plant Surveys Dates and Locations..... 22
 21: 2021–2022 Wet Season Ponding Site Check Dates, Personnel, and Notes for the Otay Ranch Preserve – Piper Ranch Parcels 23
 22: Wet Season Fairy Shrimp Surveys Dates and Locations 23
 23: Rapid Assessment Results: Container Plant Area 24
 24: Rapid Assessment Results: Seed by Hand Area 24

TABLE OF CONTENTS (cont.)

TABLES (cont.)

25:	Rapid Assessment Results: Hydroseed Area	24
26:	Site Visit Dates and Locations	25
27:	San Diego Management and Monitoring Program, SANDAG, and Management and Monitoring Strategic Plan Meetings: January 1, 2022 through December 31, 2022	51
28:	2022 LBVI Survey Results: Salt Creek, Northern Salt Creek, Otay River Restoration Area, and Wolf Canyon.....	61
29:	Dulzura Parcels and Adjacent USFWS and CDFW Property: Fencing, Sign, and Gate Installation and Repairs.....	65
30:	Jamul Mountain Parcels: Fencing, Sign, and Gate Installation and Repairs.....	65
31:	Northern Salt Creek Parcels: Fencing, Sign, and Gate Installation and Repairs	66
32:	Salt Creek Parcels: Fencing, Sign, and Gate Installation and Repairs.....	66
33:	Wolf Canyon Parcels: Fencing, Sign, and Gate Installation and Repairs.....	67
34:	Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage.....	73
35:	Cross-walk of 2022 Annual Report Tasks with Climate Change Adaptation Strategies.....	89

ATTACHMENTS

1:	Figures
4:	Focused Rare Plant Survey Results, Johnson Canyon (East) and Piper Ranch Parcels
5:	Focused Rare Plant Survey Results, Johnson Canyon Otay Tarplant Preserve
6:	MSP IMG Rare Plant Survey Results, Jamul Mountains Parcels
7:	MSP IMG Rare Plant Survey Results, Dulzura Parcels
8:	MSP IMG Rare Plant Survey Results, Northern San Ysidro and San Ysidro Parcels
9:	MSP IMG Rare Plant Survey Results, Northern Salt Creek and Salt Creek Parcels
10:	MSP IMG Rare Plant Survey Results, Western Wolf Canyon and Wolf Canyon Parcels
11:	MSP IMG Rare Plant Survey Results, Millenia Parcels
12:	Noteworthy Plants, Piper Ranch and Johnson Canyon (East) Parcels
13:	Noteworthy Plants, Johnson Canyon Otay Tarplant Preserve
14:	Noteworthy Plants and Wildlife, Proctor Valley (North) Parcels
15:	Noteworthy Plants and Wildlife, and Access Issues, Dulzura Parcels
16:	Noteworthy Plants and Wildlife, and Access Issues, McMillin and Little Cedar Canyon
17:	Noteworthy Plants and Wildlife, Photo Monitoring, and Access Issues, Northern San Ysidro and San Ysidro Parcels
18:	Noteworthy Plants, Wildlife, and Access Issues, Northern Salt Creek and Salt Creek Parcels
19:	Noteworthy Plants and Wildlife, and Access Issues, Millenia Parcels
20:	Noteworthy Plants and Wildlife, and Access Issues, Western Wolf Canyon and Wolf Canyon Parcels

TABLE OF CONTENTS (cont.)

ATTACHMENTS (cont.)

- 1: Figures (cont.)
- 21: 2022 QCB Survey Area on USGS Map: Proctor Valley (South), Jamul Mountains, Dulzura, Little Cedar Canyon, McMillin, Northern San Ysidro, Salt Creek, and Millenia Parcels
 - 22: 2022 QCB Photo Monitoring Locations: Jamul Mountains, Dulzura, Little Cedar Canyon, McMillin, and Northern San Ysidro Parcels
 - 23: Northern Salt Creek Parcels Vegetation Communities
 - 24: General Landscape Photographic Monitoring, Northern Salt Creek Parcel
 - 25: 2022 CAGN Surveys, Piper Ranch Parcels
 - 26: Focused LBVI and YBCU Survey Areas: Salt Creek and Northern Salt Creek Parcels
 - 27: Focused LBVI Survey Area: Wolf Canyon Parcels
 - 28: SHB Monitoring Results and Potential Fusarium Fungus Sampling Locations, Salt Creek, Northern Salt Creek, and Wolf Canyon Parcels
 - 29: Gold-spotted Oak Borer Monitoring Location, Dulzura Parcels
 - 30: Noteworthy Plants and Wildlife, and Access Issues, Proctor Valley, Proctor Valley Extension, Proctor Valley (South), and Bonita Glen Parcels
 - 31: Noteworthy Plants, Wildlife, and Access Issues, Jamul Mountains Parcels
 - 32: Noteworthy Plants, Wildlife, and Access Issues, Ridge Parcels
 - 33: Golden Eagle Camera Survey Locations: Proctor Valley (North), Ridge, McMillin, and Dulzura Parcels
 - 34: Vernal Pool Survey Area, Piper Ranch
 - 35: Quantitative Monitoring Areas, Dulzura Parcels
 - 36: Noteworthy Wildlife and Access Issues, Johnson Canyon (East), Johnson Canyon Otay Tarplant Preserve, and Piper Ranch
 - 37: Photo Monitoring Locations, Salt Creek and Western Wolf Canyon Parcels
 - 38: Vernal Pool Preservation Area Monitoring, Salt Creek, Piper Ranch, and Millenia
 - 39: 2022 QCB Host and Nectar Plants, Dulzura
 - 40: 2022 QCB Host and Nectar Plants, Jamul Mountains
 - 41: 2022 QCB Host and Nectar Plants, Little Cedar Canyon
 - 42: 2022 QCB Host and Nectar Plants, McMillin
 - 43: 2022 QCB Host and Nectar Plants, Northern San Ysidro
 - 44: 2022 QCB Host and Nectar Plants, Northern San Ysidro
 - 45: 2022 QCB Host and Nectar Plants, Proctor Valley (South)
 - 46: 2022 QCB Host and Nectar Plants, Salt Creek
 - 47: 2022 QCB Locations on USGS 7.5' Topographic Map: Otay Ranch Preserve
 - 48: 2022 BHCO Trapping and LBVI and YBCU Survey Results, Wolf Canyon, Northern Salt Creek, and Salt Creek
 - 49: 2022 Vegetation Removal and Treatment Areas, Salt Creek and Northern Salt Creek Parcels
 - 50: 2022 Vegetation Removal and Treatment Areas, Millenia Parcels
 - 51: 2022 Vegetation Removal and Treatment Areas, Piper Ranch Parcels

TABLE OF CONTENTS (cont.)

ATTACHMENTS (cont.)

- 1: Figures (cont.)
 - 52: 2022 Vegetation Treatment Areas and Incidental Wildlife Observations, County of San Diego Parcel
 - 53: 2022 Vegetation Removal and Treatment Areas, Western Wolf Canyon and Wolf Canyon Parcels
 - 54: 2022 Vegetation Removal and Treatment Areas, San Ysidro and Northern San Ysidro Parcels

- 2: Photographs 1 through 45
 - 1: Otay Tarplant, Northern Salt Creek Parcels, May 18, 2022
 - 2: Otay Tarplant, Millenia Parcels, May 19, 2022
 - 3: Variegated Dudleya, Jamul Mountains Parcels, March 22, 2022
 - 4: San Diego Goldenstar, San Ysidro Parcels, January 5, 2022
 - 5: Quino Checkerspot Butterfly Larvae, Northern San Ysidro Parcels, February 9, 2022
 - 6: Quino Checkerspot Butterfly Pair Mating, McMillin Parcels, March 1, 2022
 - 7: Quino Checkerspot Butterfly on Host Plant, Dot-seed Plantain, McMillin Parcels, March 3, 2022.
 - 8: Quino Checkerspot Butterfly Nectar Plant, Common Goldfields, McMillin Parcels, March 25, 2022
 - 9: Photo Monitoring Location 4b, Northern Salt Creek Parcels, Established May 1, 2012
 - 10: Photo Monitoring Location 4b, Northern Salt Creek Parcels, Updated May 18, 2022
 - 11: Photo Monitoring Location 8c, Northern Salt Creek Parcels, Established April 25, 2019
 - 12: Photo Monitoring Location 8c, Northern Salt Creek Parcels, Updated May 18, 2022
 - 13: Shot Hole Borer Tree Health Surveys, Riparian Photo Monitoring Location Number 1a, Salt Creek Parcels, June 3, 2022
 - 14: Hermes Copper Butterfly Host Plant, Spiny redberry, Dulzura Parcels, June 1, 2022
 - 15: Golden Eagle Captured at Golden Eagle Camera Survey Location, Dulzura Parcels, February 4, 2022
 - 16: Basin with Saturated Soils, Piper Ranch Parcels, March 31, 2022
 - 17: Blainville’s Horned Lizard, Jamul Mountains Parcels, March 22, 2022
 - 18: Trash Observed Within Drainage, Northern San Ysidro Parcels, October 21, 2022
 - 19: Overview of the Salt Creek and Northern Salt Creek Parcels, Looking Northwest, October 25, 2022
 - 20: All-terrain Vehicle Tire Tracks in Coastal Sage Scrub Habitat, Looking South, Salt Creek Parcels, October 25, 2022
 - 21: All-terrain Vehicle Tire Tracks in Coastal Sage Scrub Habitat, Looking Northeast, Salt Creek Parcels, October 25, 2022
 - 22: Pre-fire Photo Monitoring Location 11d, San Ysidro Parcels, June 20, 2018
 - 23: Post-fire Photo Monitoring Location 11d, San Ysidro Parcels, July 28, 2022
 - 24: Pre-fire Photo Monitoring Location 12d, San Ysidro Parcels, June 20, 2018
 - 25: Post-fire Photo Monitoring Location 12d, San Ysidro Parcels, July 28, 2022

TABLE OF CONTENTS (cont.)

ATTACHMENTS (cont.)

- 2: Photographs 1 through 45 (cont.)
- 26: Pre-fire Photo Monitoring Location 13b, San Ysidro Parcels, June 20, 2022
 - 27: Post-fire Photo Monitoring Location 13b, San Ysidro Parcels, July 28, 2022
 - 28: Overview of the Wolf Canyon and Western Wolf Canyon Parcels, Looking Northeast, October 25, 2022
 - 29: RECON Crew Repairing Fence, Jamul Mountains Parcels, December 5, 2022
 - 30: RECON Crew Repairing Fence, Salt Creek Parcels, February 22, 2022
 - 31: RECON Crew Hand Weeding Vernal Pool, Salt Creek Parcels, April 19, 2022
 - 32: RECON Crew Applying Herbicide to Non-natives within Cactus Wren Habitat, Western Wolf Canyon Parcels, January 27, 2022
 - 33: RECON Crew Applying Herbicide to Mustard within Cactus Wren Habitat, Salt Creek Parcels, March 23, 2022
 - 34: NSC_1, Facing West, Northern Salt Creek Parcels, October 25, 2022
 - 35: NSC_SC_1, SC_1, and NSC_1, Facing West, Salt Creek and Northern Salt Creek Parcels, October 25, 2022
 - 36: NSC_SC_1 and SC_1, Facing North-Northeast, Salt Creek and Northern Salt Creek Parcels, October 25, 2022
 - 37: SC_2 and SC_3, Facing North, Salt Creek Parcels, October 25, 2022
 - 38: SC_31, Facing Northwest, Salt Creek Parcels, October 25, 2022
 - 39: SC_23, Facing Southwest, Salt Creek Parcels, October 25, 2022
 - 40: WWC_1, Facing West-Southwest, Western Wolf Canyon Parcels, October 25, 2022
 - 41: WWC_3, Facing Northwest, Western Wolf Canyon Parcels, October 25, 2022
 - 42: WWC_6, Facing Northwest, Western Wolf Canyon Parcels, October 25, 2022
 - 43: RECON Crew Applying Herbicide to Non-natives within Otay Tarplant Area, Wolf Canyon Parcels, May 11, 2022
 - 44: WWC_4 and WWC_5, Facing Northwest, Western Wolf Canyon Parcels, October 25, 2022
 - 45: WWC_2, Facing Northwest, Western Wolf Canyon Parcels, October 25, 2022
- 3: Photo Monitoring Locations Established in 2010 for EMP Grant 5001133, Repeated in 2022
- 1: Viewing North from the Southern End of the 1.0-acre Restoration Site Prior to Planting, 2010
 - 2: Same View, August 26, 2022
 - 3: Viewing South at the Southern Half of the 1.0-acre Restoration Site Prior to Planting, 2010
 - 4: Same View, August 26, 2022
 - 5: Viewing South at the Southern Portion of the 1.0-acre Restoration Site Following Planting, 2010
 - 6: Same View, August 26, 2022

TABLE OF CONTENTS (cont.)

ATTACHMENTS (cont.)

- 3: Photo Monitoring Locations Established in 2010 for EMP Grant 5001133, Repeated in 2022 (cont.)
- 7: Viewing South at the Northern Half of the 1.0-acre Restoration Site Following Planting, 2010
 - 8: Same View, August 26, 2022
 - 9: Habitat Restoration Crews Planting Cactus at the 1.0-acre Restoration Site, 2010
 - 10: Same View, August 26, 2022
 - 11: Viewing Southwest at the Northern Portion of the 1.0-acre Restoration Site, 2010
 - 12: Same View, August 26, 2022
 - 13: Viewing South from the Northern End of the 1.0-acre Restoration Site. Photo Taken on May 24, 2010
 - 14: Same View, August 26, 2022
 - 15: Viewing Northeast at the Eastern Portion of the 0.4-acre Restoration Site Following Initial Planting, 2010
 - 16: Same View, August 26, 2022
 - 17: Viewing West at Transect 1 (0.4-acre Restoration Site). Photo Taken September 9, 2010
 - 18: Same View, August 26, 2022
 - 19: Viewing South at Transect 2 (1.0-acre Restoration Site). Photo Taken September 9, 2010
 - 20: Same View, August 26, 2022
 - 21: Viewing Southwest at Transect 3 (Cactus Wren Occupied Habitat). Photo Taken September 10, 2010
 - 22: Same View, September 15, 2022
 - 23: Viewing Southwest at Transect 4 (Cactus Wren Occupied Habitat). Photo Taken September 10, 2010
 - 24: Same View, September 15, 2022
 - 25: Viewing Northwest at Transect 5 (Presumed Suitable but Unoccupied Cactus Wren Habitat). Photo Taken September 10, 2010
 - 26: Same View, September 15, 2022
 - 27: Viewing Southwest at Transect 6 (Presumed Suitable but Unoccupied Cactus Wren Habitat). Photo Taken September 10, 2010
 - 28: Same View, September 15, 2022

TABLE OF CONTENTS (cont.)

ATTACHMENTS (cont.)

- 4: Photo Monitoring Locations Established between 2000 and 2007 for Otay Ranch Village 1 Restoration Projects, Repeated in 2022
 - 1: Nursery Area in 2002
 - 2: Same Location, August 23, 2022
 - 3: Maritime Succulent Scrub Restoration 5-years After Implementation, 2007
 - 4: Same Location, August 23, 2022
 - 5: Maritime Succulent Scrub Restoration Area Prior to Dethatching in 2000
 - 6: Same View, August 23, 2022
 - 7: Newly Planted Maritime Succulent Scrub in 2002
 - 8: Same View, August 23, 2022
 - 9: Wolf Canyon Sunbow Exchange Maritime Succulent Scrub Restoration Area Year 2, 2003
 - 10: Same View, August 23, 2022
 - 11: Sunbow Exchange Maritime Succulent Scrub Restoration Area Brush Piles, with Newly Planted Container Stock 2002
 - 12: Same View, August 23, 2022
 - 13: Wolf Canyon Sunbow Exchange Maritime Succulent Scrub Restoration Area Year 2, 2003
 - 14: Same View, August 23, 2022

Acronyms and Abbreviations

AGOL	ArcGIS online
ATV	all-terrain vehicle
BHCO	Brown-headed cowbird
Cal-IPC	California Invasive Plant Council
CAGN	coastal California gnatcatcher
CDFW	California Department of Fish and Wildlife
CFD	Community Facilities District
City	City of Chula Vista
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	County of San Diego
EMP	Environmental Mitigation Program
FY	Fiscal Year
GIS	geographic information system
GPS	global positioning system
GSOB	gold-spotted oak borer
IMG	Inspect and Manage
LBVI	least Bell's vireo
MSP	Management and Monitoring Strategic Plan
MSCP	Multiple Species Conservation Program
POM	Preserve Owner/Manager (City and County)
Preserve	Otay Ranch Preserve
PSB	Preserve Steward/Biologist (RECON)
QCB	Quino checkerspot butterfly
RMP	Otay Ranch Preserve Phase 1 & Phase 2 Resource Management Plans
SANDAG	San Diego Association of Governments
SDG&E	San Diego Gas & Electric
SDMMP	San Diego Management and Monitoring Program
SDNHM	San Diego Natural History Museum
SHB	Shot hole borer
SR-125	State Route 125
USCBP	U.S. Customs and Border Protection
USDC	U.S. Department of Commerce
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
YBCU	yellow-billed cuckoo

1.0 Introduction

The purpose of the 2022 annual report is to provide a summary of monitoring and management tasks performed on conveyed lands under Preserve Owner/Manager (POM) management in calendar year 2022 using funds generated by Community Facilities District (CFD) 97-2. This annual report also includes a summary of monitoring and management tasks performed within the Johnson Canyon Otay Tarplant Preserve using funds generated by the CFD 11M and Piper Ranch parcels funded through the property owner. Monitoring and management tasks were based on the priorities identified in the Otay Ranch Phase 2 Resource Management Plan Update (RMP; RECON 2018).

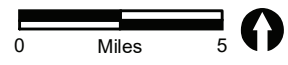
The Otay Ranch Preserve (Preserve) is located in southwestern San Diego County and is composed of three major parcels: Otay River parcel, Proctor Valley parcel, and San Ysidro Mountains parcel (County of San Diego [County] 1993). The Preserve boundaries include lands within the city of Chula Vista (City) and the county of San Diego. Through December 31, 2022, lands that have been conveyed to the Preserve total 4,373.428 acres, including the property owner funded 11,900-acre Piper Ranch parcels (Table 1). Table 2 provides the assessor's parcel number and acreage for the Johnson Canyon Otay Tarplant Preserve parcel that is part of Rolling Hills Ranch Preserve. Figures 1 through 3 show the locations of conveyed land.

The Preserve is a hardline preserve that has been designed and is managed specifically for protection and enhancement of the multiple species present. The Preserve also serves to connect large areas of open space through a series of wildlife corridors, including connections between regional open space areas west and east of Otay Reservoir and north to San Miguel Mountain. The Preserve is managed by the POM (City and County). Preserve monitoring and operations/maintenance tasks were implemented by the Preserve Steward/Biologist (PSB; RECON) in consultation with the POM.

The purpose of this annual report is to document access issues, new site disturbances, previously undetected plant and wildlife species, sensitive species, and management tasks performed between January 1, 2022 and December 31, 2022.

Table 1 Conveyed Preserve Parcels, Assessor's Parcel Numbers, and Acreages as of December 2022		
Parcel(s)	Assessor's Parcel Number	Acreage
Bonita Glen	598-080-10	2.189
Dulzura	598-160-17, 598-170-18, 647-050-06, 647-060-03, 647-060-05 ^a	801.018
Salt Creek	643-070-08, 643-070-16 ^b , 644-080-09, 644-080-11, 644-080-15, 644-090-04	784.500
San Ysidro	647-130-03, 647-140-01	517.422
Proctor Valley Extension	598-090-01, 598-030-01, 598-080-05	399.700
Proctor Valley	598-080-06 ^c	275.286
Ridge	598-140-04, 598-140-05	270.000
Jamul Mountains	598-070-08, 598-070-10 ^d	258.132
McMillin	647-100-08, 647-100-10	230.280
Millenia	646-020-14, 646-030-20	189.200
Little Cedar Canyon	647-110-03, 647-120-03 ^e	160.000
Northern Salt Creek	643-070-14	149.758 ^f
Northern San Ysidro	647-090-07 ^g	118.500
Proctor Valley (North)	597-150-16 ^h	82.381
Proctor Valley (South)	598-020-05	40.000
Western Wolf Canyon	644-313-13, 644-313-14 ⁱ , 644-313-65, 644-313-66, 644-340-25	32.340
Wolf Canyon ^k	644-313-11	29.322
Johnson Canyon (East)	646-030-34 ^j	21.500
Piper Ranch ^l	646-030-27, 646-030-33	11.900
TOTAL		4,373.428
<p>NOTE: Parcel acreages are based on grant deeds provided by the City of Chula Vista. The deed acreages may differ slightly from the acreages calculated using geographic information system due to minor discrepancies in the parcel boundaries.</p> <p>^aPrevious APNs 598-160-14, 598-170-04, 647-050-04, 647-060-01</p> <p>^bPrevious APN 643-070-10</p> <p>^cPrevious APN 598-08-002</p> <p>^dPrevious APNs 598-070-05, 598-070-06</p> <p>^ePrevious APNs 647-110-01, 647-120-01</p> <p>^fNorthern Salt Creek total acreage increased by 1.161 acres due to conveyance of Parcels A through E within the Parcel during 2022.</p> <p>^gPrevious APN 647-090-04</p> <p>^hPrevious APN 597-150-06</p> <p>ⁱPrevious APN 644-313-12</p> <p>^jPrevious APN 646-030-31</p> <p>^kThe current APN is provided along with the original grant deed acreage from APN 644-313-07.</p> <p>^lManagement and monitoring during 2022 was funded through the property owner. A separate CFD will be established in the future.</p>		

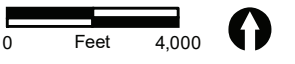
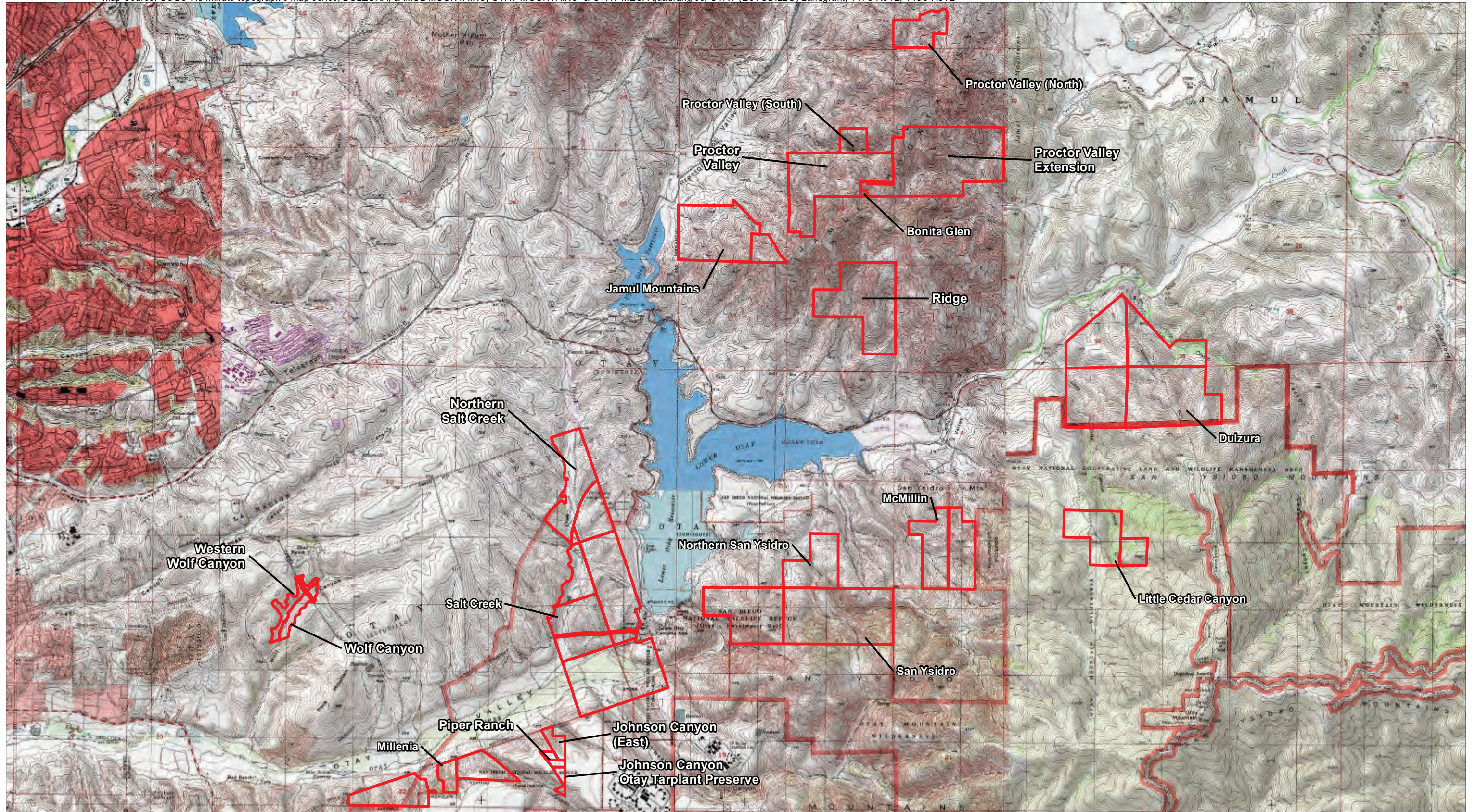
Table 2 Rolling Hills Ranch Preserve – Johnson Canyon Otay Tarplant Preserve Parcel Conveyed Preserve Parcel, Assessor's Parcel Number, and Acreage		
Parcel(s)	Assessor's Parcel Number	Acreage
Johnson Canyon Otay Tarplant Preserve ¹	646-030-32	10.010
TOTAL		10.010
<p>NOTE: Parcel acreage is based on the grant deed provided by the City of Chula Vista. The deed acreage may differ slightly from the acreage calculated using geographic information system due to minor discrepancies in the parcel boundaries.</p> <p>¹Funded by CFD 11M. Management and monitoring activities performed in accordance with the Otay Ranch Resource Management Plan (Helix 2003).</p>		



Conveyed Land Under POM Management

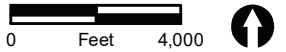
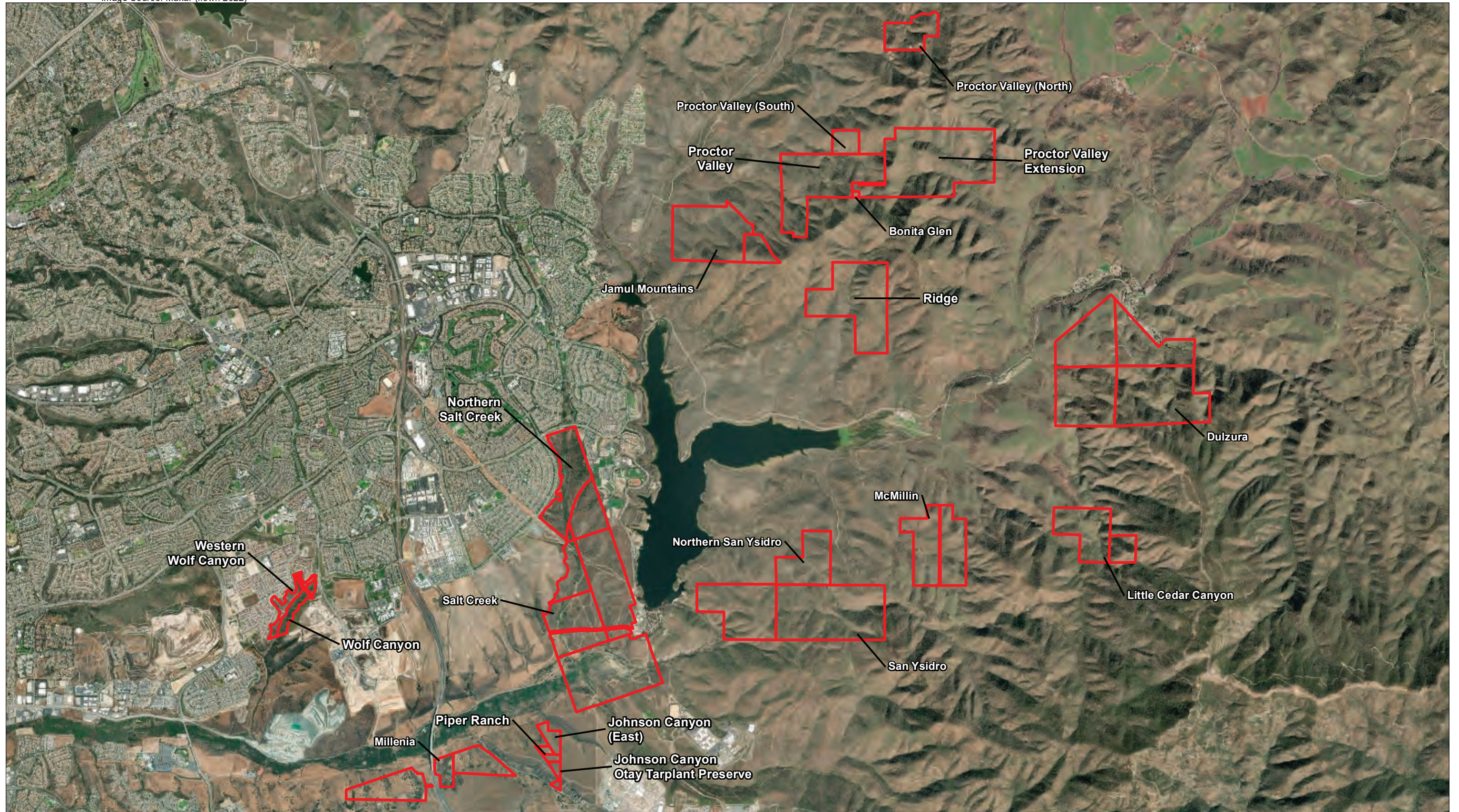
FIGURE 1
 Regional Location of Otay Ranch Preserve,
 Piper Ranch, and Johnson Canyon Otay Tarplant Preserve





 Conveyed Land Under POM Management

FIGURE 2
Otay Ranch Preserve, Piper Ranch, and Johnson Canyon Otay Tarplant Preserve Location on USGS Map



 Conveyed Land Under POM Management

FIGURE 3
Otay Ranch Preserve, Piper Ranch, and Johnson Canyon Otay Tarplant Preserve on Aerial Photograph

2.0 Preserve Monitoring

This chapter describes Preserve monitoring tasks that occurred between January 1 and December 31, 2022. These Preserve monitoring tasks were proposed in the Fiscal Year (FY) 2021–22 and FY 2022–23 annual work plans (RECON 2021 and 2022a). The headings used within this annual report match the associated task numbers in the FY 2021–22 and FY 2022–23 annual work plans. Attachment 1 includes Figures 4 through 54. Attachment 2 includes Photographs 1 through 45.

The following Preserve monitoring tasks were conducted in support of the Otay Ranch Preserve Phase 1 and Phase 2 RMPs (County of San Diego 1993 and RECON 2018): focused rare plant surveys, Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) surveys, vegetation mapping, photographic monitoring, coastal California gnatcatcher (*Polioptila californica californica*; CAGN) surveys, least Bell's vireo (*Vireo bellii pusillus*; LBVI) and yellow-billed cuckoo (*Coccyzus americanus occidentalis*; YBCU) surveys, shot hole borer (*Euwallacea* sp.; SHB) tree health surveys, gold-spotted oak borer (*Agrilus auroguttatus*) monitoring, Hermes copper butterfly (*Lycaena hermes*) surveys, golden eagle (*Aquila chrysaetos*) camera surveys, vernal pool plant monitoring, wet season fairy shrimp surveys, and vegetation rapid assessment monitoring. The Preserve monitoring tasks also included land stewardship consisting of site visits, meetings and coordination, and reporting.

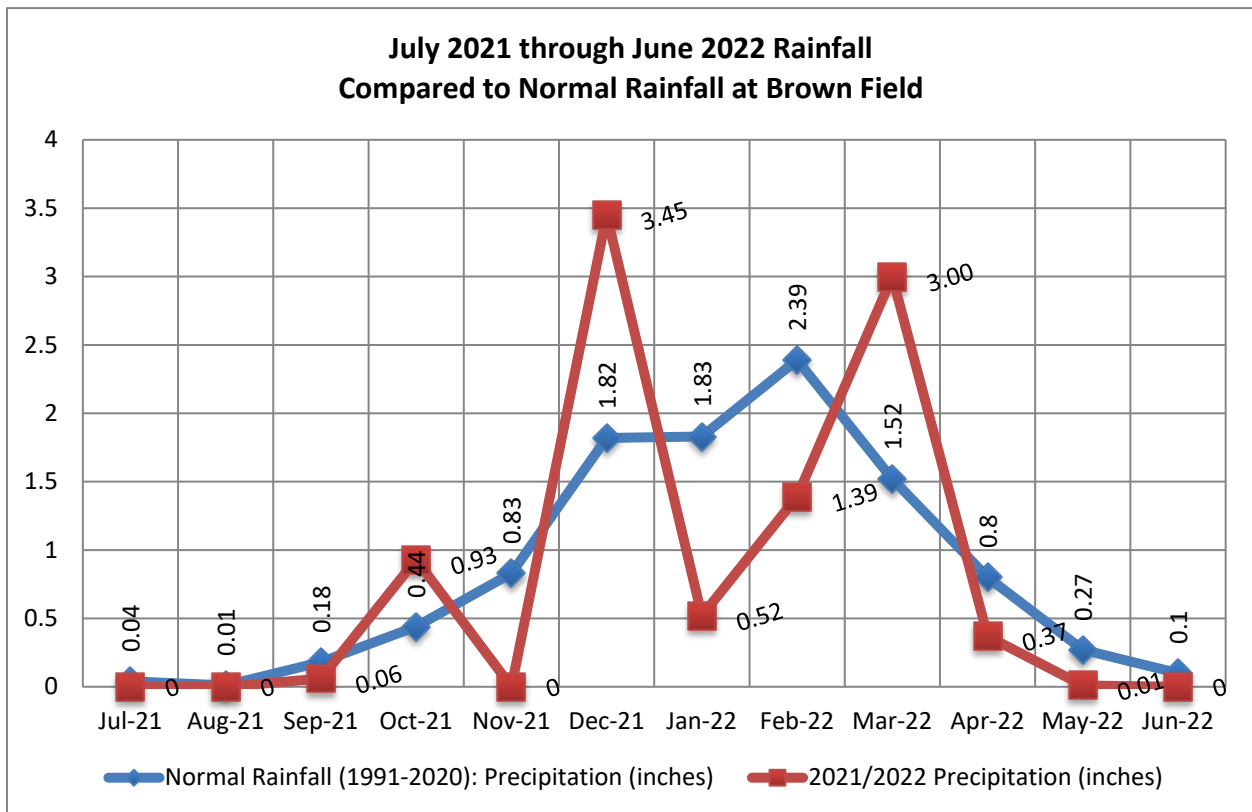
2022 Weather Summary

The total rainfall for the 2021-2022 season was slightly below normal by 0.50 inch. Between July 1, 2021 and June 30, 2022, rainfall at Brown Field (the closest reporting station) was 9.73 inches (Table 3 and Graph 1; U.S. Department of Commerce [USDC] 2022a). At Brown Field, normal rainfall during this time period is approximately 10.23 inches based on rainfall data collected between 1991 and 2020 (USDC 2022b). The entire rainy season (October 2021 through April 2022) generally matched the normal rainfall. While December and March had above-average rainfall, January and February were drier than normal, which led to shorter growing periods for annual plant species.

Temperatures were above normal during most months between June 2021 and July 2022 (Table 4; Graph 2). Only December 2021 had below normal temperatures (see Table 4 and Graph 2). The above average December 2021 rainfall and above-average temperatures led to an earlier growing season during the spring of 2022.

Table 3 July 2021 through June 2022 Rainfall Compared to Normal Rainfall			
Month and Year	Precipitation (inches) ¹	Normal Rainfall: Precipitation (inches) ²	Difference (inches)
July 2021	Trace	0.04	-0.04
August 2021	Trace	0.01	-0.01
September 2021	0.06	0.18	-0.12
October 2021	0.93	0.44	+0.49
November 2021	0.00	0.83	-0.83
December 2021	3.45	1.82	+1.63
January 2022	0.52	1.83	-1.31
February 2022	1.39	2.39	-1.00
March 2022	3.00	1.52	+1.48
April 2022	0.37	0.80	-0.43
May 2022	0.01	0.27	-0.26
June 2022	Trace	0.10	-0.10
Total	9.73	10.23	-0.50

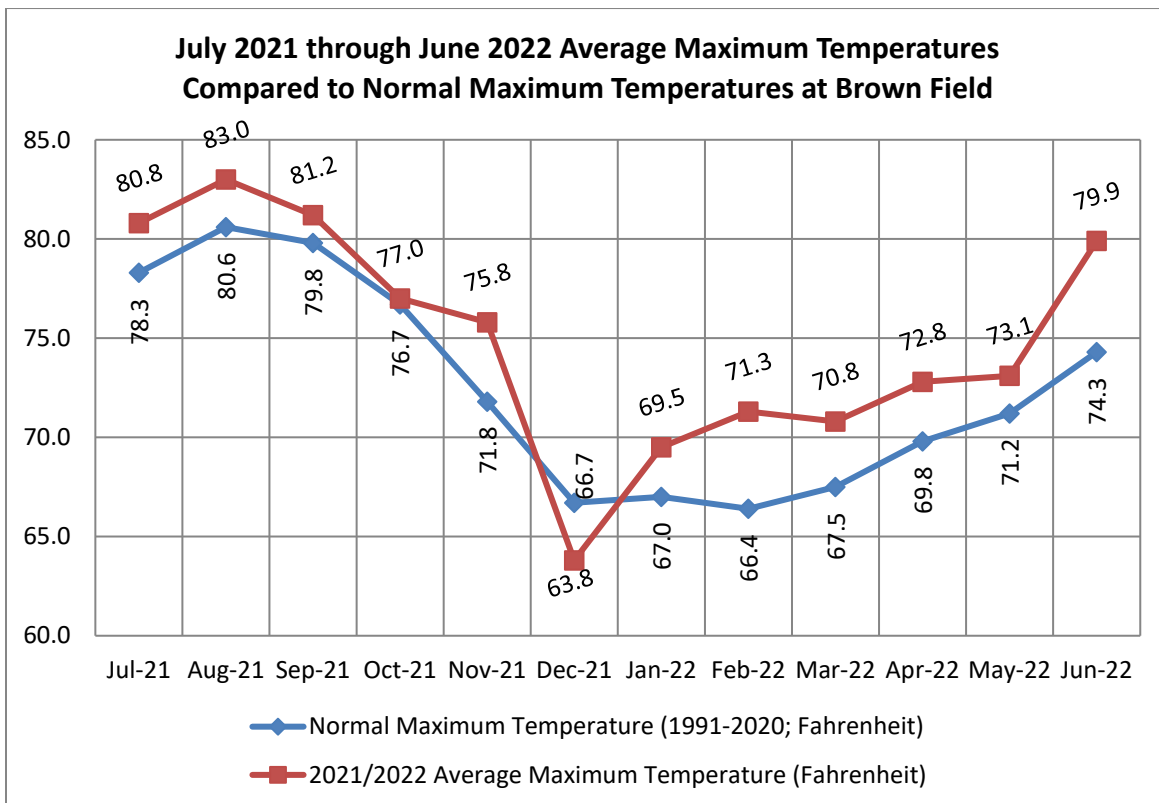
¹SOURCE: USDC 2022a.
²SOURCE: USDC 2022b. Average based on Period of Record from 1991-2020.



GRAPH 1
July 2021 through June 2022 Rainfall Compared to Normal Rainfall at Brown Field

Table 4 July 2021 through June 2022 Average Maximum Temperatures Compared to Normal Maximum Temperatures			
Month	Average Maximum Temperature (Fahrenheit) ¹	Normal Maximum Temperature (Fahrenheit) ²	Difference (Fahrenheit)
July 2021	80.8	78.3	+2.5
August 2021	83.0	80.6	+2.4
September 2021	81.2	79.8	+1.4
October 2021	77.0	76.7	+0.3
November 2021	75.8	71.8	+4.0
December 2021	63.8	66.7	-2.9
January 2022	69.5	67.0	+2.5
February 2022	71.3	66.4	+4.9
March 2022	70.8	67.5	+3.3
April 2022	72.8	69.8	+3.0
May 2022	73.1	71.2	+1.9
June 2022	79.9	74.3	+5.6

¹SOURCE: USDC 2022a.
²SOURCE: USDC 2022b.



GRAPH 2
July 2021 through June 2022 Average Maximum Temperatures
Compared to Normal Maximum Temperatures at Brown Field

Task 1: Surveys

Surveys conducted between January 1, 2022 and December 31, 2022 are discussed in the subtask sections below. The results of the Quino checkerspot butterfly surveys, wet season fairy shrimp surveys, coastal California gnatcatcher surveys, brown-headed cowbird trapping, least Bell’s vireo and yellow-billed cuckoo surveys, are summarized in Section 4, Subtasks 4h (FY2021-22), 4k (FY 2021-22), 4a (FY 2022-23), 4b (FY2022-23), and 4e (FY 2022-23).

Subtask 1b. (FY 2021-22): Focused Rare Plant Surveys

In 2022, surveys focused on rare plant monitoring in accordance with the Management and Monitoring Strategic Plan (MSP) using the Inspect and Manage (IMG) protocol for species identified by MSP IMG group as priority species. On February 15, the POM approved canceling non-IMG rare plant surveys for CFD 97-2 funded parcels during 2022 in order to direct funds to golden eagle camera surveys. However, rare plant surveys were conducted on CFD 11M funded Johnson Canyon Otay Tarplant Preserve and the property owner funded Piper Ranch parcels. Rare plant survey dates are included in Table 5. Table 6 lists the non-IMG focused rare plant survey locations and focal plant types. Surveys for variegated dudleya (*Dudleya variegata*) at Johnson Canyon (East) were completed prior to canceling the remainder of the non-IMG rare plant surveys.

Date	Location (Parcels)
01/19/2022	Jamul Mountains*
01/26/2022	Johnson Canyon (East), Piper Ranch
01/27/2022	Proctor Valley
02/03/2022	Dulzura*
03/08/2022	Jamul Mountains*
03/18/2022	Salt Creek*
03/22/2022	Jamul Mountains*
03/25/2022	Salt Creek*
03/31/2022	Piper Ranch
04/01/2022	San Ysidro*
04/04/2022	Piper Ranch
04/05/2022	Salt Creek*
04/06/2022	Salt Creek*
04/14/2022	San Ysidro*, Northern San Ysidro*
04/19/2022	Salt Creek*
04/22/2022	Salt Creek*
04/25/2022	Northern San Ysidro*, Dulzura*
04/27/2022	Jamul Mountains*
04/28/2022	Piper Ranch
05/17/2022	Northern Salt Creek*
05/18/2022	Northern Salt Creek*
05/19/2022	Millenia*

Table 5 Focused Rare Plant Surveys Dates and Locations	
Date	Location (Parcels)
05/20/2022	Millenia*, Johnson Canyon Otay Tarplant Preserve
05/25/2022	Western Wolf Canyon*
05/27/2022	Wolf Canyon*
06/03/2022	Johnson Canyon Otay Tarplant Preserve
*MSP IMG monitoring location.	

Table 6 Focused Rare Plant Survey Locations and Focal Plant Type	
Parcel(s)	Rare Plant Survey Focus – Plant Type
Piper Ranch	conspicuous perennial species; annual and herbaceous perennial species
Johnson Canyon Otay Tarplant Preserve	conspicuous perennial species; annual and herbaceous perennial species
Johnson Canyon (East)	annual and herbaceous perennial species

At Johnson Canyon Otay Tarplant Preserve rare plant surveys focused on mapping Otay tarplant (*Deinandra conjugens*). Additional rare plants were mapped within the mesa top, as funding allowed. Funding did not allow for additional rare plants to be mapped within the west-facing slope. Piper Ranch rare plant surveys focused on annual and herbaceous perennial species. The Priority Group 1 species results from the rare plant surveys at Johnson Canyon (East), Piper Ranch, and Johnson Canyon Otay Tarplant Preserve are shown on Figures 4 and 5. Non-IMG surveys focused on Priority Group 1 species. Priority Groups 2 through 4 species were monitored incidentally as budget allowed and are discussed below. A description of the criteria that were used to define each priority group can be found in the RMP (RECON 2018). The California Native Plant Society’s (CNPS) Botanical Survey Guidelines were used as a guide for focused rare plant surveys (CNPS 2001). Rare plant occurrences were recorded in a California Natural Diversity Database (CNDDDB) data dictionary created by the PSB. Information collected in the data dictionary included species name, number of individuals, site quality, and additional comments. For species that are highly vulnerable to threats, such as variegated dudleya, the top three threats were recorded for each metapopulation. In the field, surveyors revisited previously mapped locations as well as walked meandering transects to visually search for sensitive plants. Surveys occurred in spring when annual and herbaceous perennial species were most visible. Table 7 shows the results of the non-IMG focused rare plant surveys for Priority Group 1 species. No Priority Group 1 species were mapped at Piper Ranch.

Table 7 Non-IMG Focused Rare Plant Survey Results for Priority Group 1 Species				
Parcel(s)	Priority Group	Common Name	Scientific Name	Number of Individuals
Johnson Canyon (East)	1	Variegated dudleya	<i>Dudleya variegata</i>	111
Johnson Canyon Otay Tarplant Preserve	1	Otay tarplant	<i>Deinandra conjugens</i>	5 ¹ , 22 ²
		Variegated dudleya	<i>Dudleya variegata</i>	5
¹ Inside parcels				
² Outside parcels				

Results of the 2022 MSP IMG rare plant surveys are shown in Table 8 and Figures 6 through 11. Representative photos are shown in Attachment 2: Photographs 1 through 3. RECON established two new IMG survey plots, MSP occurrence DUVA_6DUPA053 at Dulzura parcels and DUVA_6NOSY052 at Northern San Ysidro parcel, as requested by San Diego Management and Monitoring Program (SDMMP). An IMG survey plot, DECO13_3ORVA017 at Salt Creek parcel, that was requested by SDMMP to be established if Otay tarplant was observed present was not established as there was no sign of the rare plant and the location did not contain suitable soils for the species.

Table 8 2022 Management Strategic Plan Inspect and Manage Rare Plant Survey Results				
Common Name	Scientific Name	Parcel(s)	Estimated Number of Individuals	MSP IMG
Variegated dudleya	<i>Dudleya variegata</i>	JM	182	DUVA_3PRVA037_1
		JM	750	DUVA_3PRVA038_1
		DLZ	9,253	DUVA_6DUPA053_1 ^a
		SY	67	DUVA_3OTMT006_2 ^b
		SY	246	DUVA_3SYPA011_1
		NSY	573	DUVA_6NOSY052_1 ^a
		SC	1,552	DUVA_3SCPA008_1, DUVA_3SCPA008_2, DUVA_3SCPA008_3
		SC	358	DUVA_3SCPA032_1, DUVA_3SCPA032_2
		SC	248	DUVA_3ORVA036_1, DUVA_3ORVA036_2
Otay tarplant	<i>Deinandra conjugens</i>	NSC	2,605	DECO13_3SCPA016_1
		WWC & WC	2,960	DECO13_3ORVA018_1
		MLLN	5,525	DECO13_3ORPR035_1
		MLLN	7,585	DECO13_3ORPR037_1
DLZ = Dulzura JM = Jamul MLLN = Millenia NSC = Northern Salt Creek NSY = Northern San Ysidro SC = Salt Creek SY = San Ysidro WC = Wolf Canyon WWC = Western Wolf Canyon ^a Established IMG occurrence in 2022. ^b Formerly sample point 1.				

Additional sensitive species that were incidentally observed are included in Table 9 and Figures 12 through 20. Attachment 2: Photograph 4 shows a representative photo of San Diego goldenstar (*Bloomeria clevelandii*).

Table 9 Incidental Rare Plant Observations*				
Parcel(s)	Priority Group	Common Name	Scientific Name	Number of Individuals
Dulzura	4	California adder's-tongue	<i>Ophioglossum californicum</i>	10
Johnson Canyon Otay Tarplant Preserve	2	San Diego barrel cactus	<i>Ferocactus viridescens</i>	752
	3	Decumbent goldenbush	<i>Isocoma menziesii</i> var. <i>decumbens</i>	62
	4	Ashy Spike-moss	<i>Selaginella cinerascens</i>	33
		Graceful tarplant	<i>Holocarpha virgata</i> ssp. <i>elongata</i>	86
McMillin	1	San Diego goldenstar	<i>Bloomeria clevelandii</i>	13,000
	4	Golden-ray pentachaeta	<i>Pentachaeta aurea</i> ssp. <i>aurea</i>	5
		California adder's-tongue	<i>Ophioglossum californicum</i>	30
Millenia	4	Palmer's grapplinghook	<i>Harpagonella palmeri</i>	515
Northern Salt Creek	3	South coast saltscale	<i>Atriplex pacifica</i>	2
Piper Ranch	2	San Diego barrel cactus	<i>Ferocactus viridescens</i>	79
	3	San Diego bur-sage	<i>Ambrosia chenopodiifolia</i>	25
	4	Ashy spike-moss	<i>Selaginella cinerascens</i>	152
Proctor Valley (North)	1	Dunn's mariposa lily	<i>Calochortus dunnii</i>	50
Salt Creek	2	San Diego barrel cactus	<i>Ferocactus viridescens</i>	14
	4	Palmer's grapplinghook	<i>Harpagonella palmeri</i>	6
San Ysidro	1	San Diego goldenstar	<i>Bloomeria clevelandii</i>	5,075
Western Wolf Canyon	3	Golden-spined cereus	<i>Bergerocactus emory</i>	1
Wolf Canyon	3	South coast saltscale	<i>Atriplex pacifica</i>	46

*Observed during rare plant surveys, other focused surveys, or site visits and maintenance visits.

Subtask 1c. (FY 2021-22): Quino Checkerspot Butterfly (*Euphydras editha quino*, QCB) Surveys

QCB surveys were conducted on the Dulzura, Jamul Mountains, Little Cedar Canyon, McMillin, Millenia, Northern San Ysidro, Proctor Valley (South), and Salt Creek parcels (Figure 21). Five adult flight surveys were conducted between February 18 and March 25, 2022, on 101.3 acres. Incidental butterfly observations were also recorded. QCB survey guidelines require surveys to be conducted weekly beginning the third week of February and ending the second Saturday in May. However, a deviation from these guidelines was approved by U.S. Fish and Wildlife Service (USFWS) project manager Eric Porter for these surveys. The approved deviation allowed for a maximum of five surveys within the survey area rather than continuing surveys to the end of the season or until QCB were detected (RECON 2022b).

Prior to surveys, habitat assessments were conducted to map the presence and density of host plants. The habitat quality of each potentially suitable survey area was given a high, moderate, or excluded rating. This scale was based on presence and density of host and nectar plants; physical

characteristics of the habitat (slope, vegetation density, and soil type); presence and density of invasive species; and proximity to previous QCB occurrences.

Habitat assessment and survey dates and locations are shown in Table 10. Representative photographs from the surveys are shown in Attachment 2: Photographs 5 through 8. In addition to the survey dates, on January 10, the PSB conducted a larval assessment with Spring Strahm (Wild Spring Ecology) at the Northern San Ysidro parcels. On March 25 and April 8, one dead QCB specimen that was collected during focused QCB surveys was delivered to the San Diego Natural History Museum along with a Deed of Gift. On April 6, seven QCB photo monitoring locations were established at the Northern San Ysidro parcels and eight QCB photo monitoring locations were established at the Little Cedar Canyon parcels. QCB photo monitoring locations at Dulzura, Jamul Mountains, and McMillin were established during surveys. Established QCB photo monitoring locations are shown on Figure 22.

Table 10 Quino Checkerspot Butterfly Surveys Dates and Locations		
Date	Location (Parcels)	Survey Type
01/25/2022	Little Cedar Canyon	Habitat Assessments
02/02/2022	Jamul Mountains	Habitat Assessment
02/03/2022	Dulzura	Habitat Assessment
02/04/2022	Dulzura	Habitat Assessment
02/08/2022	McMillin	Habitat Assessment
02/09/2022	Northern San Ysidro	Habitat Assessment
02/10/2022	McMillin	Habitat Assessment
02/11/2022	Salt Creek, Millenia	Habitat Assessment
02/15/2022	Dulzura, Proctor Valley (South)	Habitat Assessment
02/17/2022	McMillin	Habitat Assessment
02/18/2022	Dulzura, Jamul Mountains	Survey 1
02/19/2022	McMillin, Northern San Ysidro	Survey 1
02/20/2022	Dulzura, Little Cedar Canyon	Survey 1
02/25/2022	Dulzura	Habitat Assessment (Polygons 8 and 9)
02/27/2022	Little Cedar Canyon	Survey 2
02/27/2022	Dulzura	Survey 2
02/28/2022	Jamul Mountains	Survey 2
03/01/2022	Dulzura	Survey 2
03/02/2022	Northern San Ysidro	Survey 2
03/02/2022	McMillin	Survey 2
03/08/2022	Dulzura	Survey 3
03/08/2022	Northern San Ysidro	Survey 3
03/08/2022	Jamul Mountains	Survey 3
03/09/2022	Little Cedar Canyon	Survey 3
03/09/2022	Dulzura	Survey 3
03/09/2022	McMillin	Survey 3
03/14/2022	Northern San Ysidro	Survey 4
03/14/2022	Dulzura	Survey 4
03/14/2022	Proctor Valley (South)	Survey 1

Table 10 Quino Checkerspot Butterfly Surveys Dates and Locations		
Date	Location (Parcels)	Survey Type
03/14/2022	Millenia	Survey 1
03/15/2022	Jamul Mountains	Survey 4
03/15/2022	McMillin	Survey 4
03/17/2022	Little Cedar Canyon	Survey 4
03/17/2022	Dulzura	Survey 4
03/21/2022	Northern San Ysidro	Survey 5
03/21/2022	Dulzura	Survey 5
03/22/2022	Jamul Mountains	Survey 5
03/23/2022	McMillin	Survey 5 (canceled due to weather)
03/24/2022	Little Cedar Canyon	Survey 5
03/25/2022	McMillin	Survey 5

Subtask 1d. (FY 2021-22): Vegetation Mapping

The vegetation map prepared in 2012 within the Northern Salt Creek parcels was updated in spring 2022 (Figure 23). The *Vegetation Classification Manual for Western San Diego County* (Sproul et al. 2011), which is consistent with the National Vegetation Classification System, was used to map vegetation. Aerial photography and the 2012 vegetation mapping were examined prior to field work to determine potential vegetation alliances, after which the figure was ground-truthed to verify and refine the vegetation mapping. Vegetation mapping survey dates are included in Table 11. A crosswalk to the Holland (1986) classification system as modified by Oberbauer et al. (2008) has been prepared and is included in Table 12 to compare San Diego Association of Governments (SANDAG) vegetation communities to the County and City Multiple Species Conservation Program (MSCP) Subarea Plan habitat tiers. Table 13 compares 2022 results with 2012 results.

Table 11 Vegetation Mapping Survey Dates and Locations	
Date	Location (Parcels)
05/18/2022	Northern Salt Creek
06/30/2022	Northern Salt Creek

Table 12 Vegetation Communities within the Northern Salt Creek Parcels: Holland and San Diego Association of Governments Crosswalk				
Holland	San Diego Association of Governments	Acres	County of San Diego MSCP Subarea Plan Tier	City of Chula Vista MSCP Subarea Plan Tier
Maritime Succulent Scrub (32400)	<i>Cylindropuntia prolifera</i> - Mixed Coastal Scrub Association	2.33	I	I
Native Grassland (42100)	<i>Nassella [=Stipa] pulchra</i> Association	0.73		
Wildflower Field (42300)	<i>Deinandra fasciculata</i> Association	2.30		
Coastal Scrub (32000)	<i>Isocoma menziesii</i> Provisional Association	0.34	II	II
Diegan Coastal Sage Scrub (32500)	<i>Artemisia californica</i> Association	24.61		
	<i>Artemisia californica</i> – <i>Eriogonum fasciculatum</i> – <i>Malosma laurina</i> Association	27.50		
	<i>Baccharis sarothroides</i> Association	16.43		
	<i>Bahiopsis laciniata</i> – <i>Artemisia californica</i> – <i>Eriogonum fasciculatum</i> Association	16.36		
	<i>Eriogonum fasciculatum</i> Association	0.72		
	<i>Rhus integrifolia</i> Association	33.57		
Non-native Grassland (42200)	<i>Avena (barbata, fatua)</i> Semi-natural Stands	1.03	III	III
	<i>Brachypodium distachyon</i> Semi-Natural Stand Type	0.54		
	<i>Brassica nigra</i> Semi-natural Stand Type	3.04		
	Mediterranean California Naturalized Annual and Perennial Grassland Semi-Natural Stands	2.88		
Coastal and Valley Freshwater Marsh (52410)	<i>Typha domingensis</i> Association	0.84	I	N/A ¹
Southern Riparian Scrub (63300)	<i>Baccharis salicifolia</i> Association	0.26		
	<i>Salix lasiolepis</i> Association	2.48		
Non-native Riparian (65000)	Naturalized Warm-Temperate Riparian and Wetland Semi-Natural Stands	0.42		
	<i>Tamarix spp.</i> Semi-natural Stands	8.82		
Disturbed Wetland (11200)	<i>Lepidium latifolium</i> Semi-natural Stands	1.99		
N/A (Unvegetated)	N/A (Unvegetated)	1.16	N/A	N/A
GRAND TOTAL		148.62		

MSCP = Multiple Species Conservation Program; N/A = Not Applicable
¹Wetlands are considered a sensitive resource by the City’s MSCP Subarea Plan but do not have a tier, as they are addressed separately from upland habitats.
 NOTE: The grand total is the parcel acreage based on the acreages calculated using geographic information system (GIS). The deed acreage provided by the City may differ slightly from the acreages calculated using GIS due to minor discrepancies in the parcel boundaries.

Table 13 2022 Vegetation Mapping Results for the Northern Salt Creek Parcels: 2022 Compared to 2012 Results				
Vegetation Community/Land Cover Type (From Table 12)	Vegetation Community/Land Cover Type (From RECON 2012)	2022 Acreage	2012 Acreage	Difference
Maritime Succulent Scrub	Maritime Succulent Scrub	2.33	0.70	+1.63
Native Grassland	Native Grassland	0.73	2.50	-1.77
Wildflower Field	Wildflower Field	2.30	0.90	+1.40
Coastal Scrub, Diegan Coastal Sage Scrub	Diegan Coastal Sage Scrub	119.80	115.50	+4.30
Non-native Grassland	Non-native Grassland	7.49	9.90	-2.41
Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	0.84	0.41	+0.43
Southern Riparian Scrub	Southern Riparian Scrub	2.74	6.60	-3.86
Non-native Riparian	Non-native Riparian	9.24	11.61	-2.37
Disturbed Wetland	Disturbed Wetland	1.99	0.06	+1.93
N/A (Unvegetated)	Disturbed Habitat	1.16	1.40	-0.24

Subtask 1e. (FY 2021-22): Photographic Monitoring

In 2012, 15 photo monitoring points were established and an additional 8 monitoring locations were added in 2019 at the Northern Salt Creek parcels (Figure 24; RECON 2013 and 2020). In 2022, the photo monitoring locations were revisited using a hand-held global positioning system (GPS) device and repeat photo monitoring occurred. Photos at the monitoring locations were collected so that changes in native vegetation and weed cover could be detected over time. Photographic monitoring dates are included in Table 14. Representative repeat photographs are shown in Attachment 2: Photographs 9 through 12.

Table 14 Photographic Monitoring Dates and Locations	
Date	Location (Parcels)
05/18/2022	Northern Salt Creek
06/30/2022	Northern Salt Creek

Subtask 1f. (FY 2021-22): Coastal California Gnatcatcher (*Poliioptila californica californica*; CAGN) Surveys

CAGN surveys were conducted on approximately 11.9 acres of suitable habitat within Piper Ranch parcels (Figure 25). The CAGN survey methods followed those described in the USFWS protocol (USFWS 1997), which require three survey visits at the parcel set. CAGN survey dates and locations are shown in Table 15.

Table 15 2022 Coastal California Gnatcatcher Protocol Survey Effort and Conditions – Piper Ranch Parcels					
Date	Survey #	Surveyor	Beginning Conditions ¹	Ending Conditions ¹	Acres per Hour/ Team
04/04/2022	1	K. Valenti	10:15 a.m.; 68°F; 2-3 mph; 80% cc	11:05 a.m.; 69°F; 2-4 mph; 10% cc	14.3
05/16/2022	2	K. Valenti	9:45 a.m.; 75°F, wind 4-7 mph; <5% cc	10:55 a.m.; 77°F, wind 5 mph; <5% cc	10.2
06/27/2022	3	K. Valenti	9:10 a.m.; 81°F, wind 0-1 mph; 0% cc	10:20 a.m.; 89°F, wind 0-5 mph; 0% cc	10.2

¹Times are in Daylight Savings Time; °F = degrees Fahrenheit; mph = miles per hour; % = percent; cc = cloud cover

Subtask 1g. (FY 2021-22): Baseline Surveys

The Bonita Glen and the Eastlake Self Storage parcels were not conveyed before March 1, 2022. No baseline surveys were conducted in 2022.

Subtask 1h. (FY 2021-22) and Subtask 1a (FY2022-23): Least Bell’s Vireo (*Vireo bellii pusillus*, LBVI) & Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*, YBCU) 2022 Surveys

Eight LBVI presence/absence surveys and nest monitoring visits were conducted by San Diego Natural History Museum (SDNHM; subcontractor) on approximately 39 acres of suitable habitat within the Salt Creek parcels, 19 acres within the Northern Salt Creek parcel, and 6 acres within the Wolf Canyon parcels following the survey methods described in the USFWS protocol (Figures 26 and 27; USFWS 2001).

In conjunction with the LBVI surveys, four YBCU presence/absence surveys were conducted by SDNHM on approximately 2.5 acres of suitable habitat within the Salt Creek parcels between June 30, 2022 and August 15, 2022 according to established protocol (see Figure 26; Halterman et al. 2015).

Subtask 1i. (FY 2021-22): Shot Hole Borer (*Euwallacea* sp.; SHB) Tree Health Surveys

Tree health surveys were conducted to document the effects of SHB within riparian vegetation at the Northern Salt Creek, Salt Creek, and Wolf Canyon parcels on June 3 and 6, 2022. Surveys were conducted at the end of spring as any lack of vigor would be obvious in the tree crown, and signs of the SHB would be fresh and easier to see. Seven photo monitoring points established in 2021 within riparian areas with willow stands were revisited. Attachment 2: Photograph 13 shows a representative riparian photo monitoring location. Tree health surveys consisted of a visual inspection of all willow trees for signs of SHB and Fusarium Dieback such as SHB entry/exit holes, frass, bark staining, sugary

exudate, gumming, and branch die back. Any trees with visible signs of SHB infestation and/or potential Fusarium Dieback were mapped with a GPS unit. Samples were collected and sent to Dr. Akif Eskalen’s lab at the University of California, Davis on June 28, 2022. On November 30, the PSB sent a follow-up email to Dr. Akif Eskalen at University of California, Davis regarding the tree tissue sample results. Dr. Eskalen responded that day and confirmed his lab found invasive SHB/*Fusarium kuroshium* only from sample number 6. The 2022 field observation results of the SHB tree health surveys are included in Table 16. Figure 28 shows 2022 survey sampling areas and results.

Parcel(s)	Location	Survey Area (acres)	Number of Trees Sampled with Potential SHB ¹	Number of Trees Confirmed with SHB
Salt Creek and Northern Salt Creek	Salt Creek drainage	51.62	7 willows	1 willow
Salt Creek	Otay River	5.27	1 willow	0
Wolf Canyon	Unnamed drainage	4.30	0	0

¹Trees sampled with potential signs of Shot Hole Borer (SHB) infestation and Fusarium Dieback.

Subtask 1j. (FY 2021-22): Gold-spotted Oak Borer (*Agrilus auroguttatus*, GSOB) Monitoring

GSOB monitoring was conducted once within the oak woodland at the Dulzura parcels. A field visit to visually inspect trees for GSOB sign was conducted by RECON licensed arborist J.R. Sundberg on June 14, 2022. No signs of GSOB were observed. The GSOB monitoring location is shown on Figure 29.

Subtask 1k. (FY 2021-22): Hermes Copper Butterfly (*Lycaena hermes*) Surveys

On June 1, the PSB conducted a focused survey for Hermes copper butterfly at the Dulzura parcels on approximately 5.63 acres. Site visits were timed to occur during the adult flight season at the following parcel sets where scattered spiny redberry (*Rhamnus crocea*) occurs at the San Ysidro, Jamul Mountains, Northern San Ysidro, McMillin, Little Cedar Canyon, Proctor Valley (North), Proctor Valley (South), Salt Creek, and Ridge parcels. The PSB mapped the host plant, spiny redberry, and recorded the proximity to California buckwheat (*Eriogonum fasciculatum*) on the dates and locations listed in Table 17. Mapped spiny redberry locations are shown on Figures 14 through 18 and 30 through 32. No Hermes copper butterfly was detected during the surveys. Survey dates, personnel, and weather conditions are shown in Table 18. Attachment 2: Photograph 14 shows a spiny redberry shrub in fruit at Dulzura.

Table 17 Hermes Copper Butterfly Surveys Dates and Locations	
Date	Location (Parcels)
05/26/2022	Proctor Valley (North) ¹
06/01/2022	Dulzura
06/08/2022	Proctor Valley (South) ¹ , Jamul Mountains ¹
06/09/2022	Little Cedar Canyon ¹ , McMillin ¹
06/13/2022	Ridge ¹
06/15/2022	Salt Creek ¹
06/20/2022	Jamul Mountains ¹
06/24/2022	Northern San Ysidro ¹ , San Ysidro ¹
¹ Habitat mapping conducted during site visits.	

Table 18 Hermes Copper Butterfly Survey Dates, Personnel, Times, and Conditions for the Otay Ranch Preserve— Dulzura, Jamul Mountains, Little Cedar Canyon, McMillin, Northern San Ysidro, Proctor Valley (North), Proctor Valley (South), Ridge, Salt Creek, and San Ysidro Parcels				
Date	Parcel(s)	Surveyors	Beginning Conditions ¹	Ending Conditions ¹
05/26/2022	Proctor Valley (North)	J. Sundberg J. Woll	11:40 a.m.; N/A	N/A
06/01/2022	Dulzura	J. Sundberg A. Leavitt	10:00 a.m.; 76°F; wind 0-2 mph; 0% cc	3:10 p.m.; 91°F wind 5-8 mph; 0% cc
06/08/2022	Jamul Mountains and Proctor Valley (South)	A. Leavitt	10:15 a.m.; N/A	N/A
06/09/2022	Little Cedar Canyon and McMillin	J. Sundberg J. Woll	10:45 a.m.; 77°F winds 2-5 mph; 5% cc	12:40 p.m.; 85°F Winds 1-4 mph; 0% cc
06/13/2022	Ridge	J. Sundberg J. Woll	10:00 a.m.; 76°F; winds 2-6 mph; 0% cc	2:30 p.m.; 77°F; winds 2-5 mph; 0% cc
06/15/2022	Salt Creek	J. Sundberg C. Poley	10:00 a.m.; 77°F winds 0-2 mph; 0% cc	1:40 p.m.; 86°F winds 1-3 mph; 0% cc
06/20/2022	Jamul Mountains	A. Leavitt C. Poley	10: 20 a.m.; N/A	1:45 p.m.; N/A
06/24/2022	San Ysidro, Northern San Ysidro	K. Valenti J. Sundberg	10:00 a.m.; 86°F winds 1-3 mph; 0% cc	1:50 p.m.; 88°F winds 1-4 mph; 0% cc
¹ Times are in Daylight Savings Time; °F = degrees Fahrenheit; mph = miles per hour; % = percent; cc = cloud cover; N/A = not available				

Subtask 1l. (FY 2021-22): Golden Eagle Camera Surveys

The golden eagle camera surveys were initiated in 2021 to document golden eagle usage within the Preserve, as well as eagle responses to disturbance. The data will assist the U.S. Geological Survey (USGS) with their regional data collection and long-term raptor management plan preparation. The data will be reviewed for golden eagle presence, behavior, ID tags, age, prey items, and human presence.

Golden eagle camera survey dates, locations, and tasks are included in Table 19. In 2021 and 2022, seventeen wildlife monitoring cameras were installed within the Preserve (7 at McMillin, 5 at Ridge, 3 at Dulzura, and 2 at Proctor Valley [North]) (Figure 33). Attachment 2: Photograph 15 shows a golden eagle image that was captured by a wildlife camera. All cameras were monitored monthly through June 2022 to check on placement angles, check for theft, and to replace SIM cards and batteries.

Table 19 Golden Eagle Camera Survey Dates, Locations, and Tasks		
Date	Location (Parcels)	Task ¹
12/07/2021	Dulzura	Camera installation
12/15/2021	Proctor Valley (North)	Camera installation
12/17/2021	Dulzura	Camera serviced
01/04/2022	Proctor Valley (North)	Camera serviced
01/10/2022	Ridge	Camera installation
01/13/2022	McMillin	Camera installation
01/14/2022	Ridge	Camera serviced
01/17/2022	Dulzura	Camera serviced
01/20/2022	McMillin	Camera serviced
01/28/2022	Proctor Valley (North)	Camera serviced
02/01/2022	McMillin	Stabilize cameras
02/10/2022	Ridge	Camera serviced
02/11/2022	Dulzura	Camera serviced
02/17/2022	McMillin	Camera serviced
02/19/2022	Dulzura	Install kickers to stabilize cameras during wind events
02/25/2022	Proctor Valley (North)	Camera serviced and stabilized
03/10/2022	Ridge	Camera serviced and stabilized
03/15/2022	Dulzura	Camera serviced
03/17/2022	McMillin	Camera serviced
03/23/2022	McMillin	Camera serviced and stabilized
03/25/2022	Proctor Valley (North)	Camera serviced
04/20/2022	Ridge	Camera serviced
04/21/2022	Dulzura	Camera serviced
04/27/2022	McMillin	Camera serviced
05/04/2022	Proctor Valley (North)	Camera serviced
05/25/2022	Ridge	Camera serviced
05/26/2022	Dulzura	Camera serviced
06/01/2022	McMillin	Camera serviced
06/08/2022	Proctor Valley (North)	Camera serviced

¹Cameras were serviced to replace SD cards and replace batteries, as needed. Camera positions were adjusted, as needed. Cameras were resecured, as needed. T-posts were hammered further into the ground, as needed.

The following is a summary of the photo data captured in 2022:

- **McMillin:** The most migrant foot traffic, many common gray fox (*Urocyon cinereoargenteus*), great horned owl (*Bubo virginianus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), and other small mammals and passerines were observed. A large amount of white wash and bones (including skulls, white wash, and feathers) were observed at the nearby boulder.
- **Ridge:** Many small mammals, great horned owl, red-tailed hawk (*Buteo jamaicensis*), common raven, American crow, small passerines, and one occurrence of bobcat were observed.
- **Dulzura:** Two occurrences of golden eagle (same camera location), red-tailed hawk, many common gray fox, southern mule deer (*Odocoileus hemionus fuliginata*), and small mammals were observed. Very little to no common raven or American crow activity was observed. Golden eagle was captured on camera on 2/4/2022 at 4:04 p.m. and on 4/22/2022 at 9:50 a.m.
- **Proctor Valley (North):** The most bobcat was observed at this location, as well as many common ravens.

On July 7, Beth Procsal (RECON), Anna Leavitt (RECON), Dai Hoang (City of Chula Vista), Beth Principe (County of San Diego), and Jennifer Price (County of San Diego) met through a Teams meeting to discuss the 2022 golden eagle camera survey results and the future of the project. On July 11, Ms. Procsal and Mr. Hoang had a phone meeting to discuss the future of the project and schedule a meeting with the agencies and USGS. On July 12, Ms. Procsal emailed representatives from USFWS, USGS, and the POM a summary of the 2022 GOEA camera survey results. On July 26, Ms. Procsal and Mr. Hoang had a phone meeting to discuss the next steps for the surveys and Ms. Procsal emailed the representatives to discuss potential meeting dates. On August 1, Ms. Procsal sent a Doodle Poll to the representatives to help select a meeting date and time. All photo data was provided to USGS on August 10, 2022.

On September 21, a meeting was held to discuss next steps for monitoring golden eagle on the preserve. Susan Wynn (USFWS), Eric Porter (USFWS), Heather Schmalbach (California Department of Fish and Wildlife; CDFW), Karen Drewe (CDFW), Melanie Burlaza (CDFW), Kris Preston (USGS), Robert Fisher (USGS), Dai Hoang (City of Chula Vista), Bethany Principe (County of San Diego), Jennifer Price (County of San Diego), Anna Leavitt (RECON), Beth Procsal (RECON), and Sarah Thomsen (USGS) attended the meeting.

On October 4, Beth Procsal emailed Robert Fisher with a description of bycatch photos collected during the FY 2021-22 golden eagle camera surveys. Ms. Procsal sent a Doodle Poll email to the participants on October 5 to select a date for a meeting to discuss the details of the FY 2022-23 golden eagle camera surveys.

Ms. Procsal prepared and sent a Doodle Poll email to Robert Fisher (USGS), Kristine Preston (USGS), Jennifer Price (County of San Diego), Bethany Principe (County of San Diego), and Dai Hoang (City of Chula Vista) on December 13 to select a date to discuss the next steps for the 2023 golden eagle camera surveys and how RECON can continue to assist USGS with this golden eagle camera project.

Subtask 1m. (FY 2021-22): Vernal Pool Plant Monitoring

Vernal pool plant surveys were conducted at Piper Ranch. Survey dates and locations are listed in Table 20. Surveys were conducted within the entire parcel set. Surveys consisted of identifying and recording plant species present in depressions. Basins were mapped during site visits conducted in November 2021 and March 2022, based on the presence of spike rush (*Eleocharis* sp.), and canary grass (*Phalaris* sp.) which are dependent on ponded conditions. In addition, one potential vernal pool and three basins were mapped during baseline surveys conducted in May 2021. This effort was not duplicated. Figure 34 shows all mapped basins within Piper Ranch. Pale spike-rush (*Eleocharis macrostachya*) observed during 2022 is shown on Figure 12. In addition to mapped depressions, potential ponding areas were mapped as rye grass (*Festuca perennis*) invasive plant points and are shown on Figure 12. These locations contained saturated soils within basin features but did not contain vernal pool indicator plants. In addition to these species, in May 2021, one vernal pool indicator species, annual hair grass (*Deschampsia danthonioides*), was observed within the mapped vernal pool.

Date	Location (Parcels)
04/04/2022	Piper Ranch
04/28/2022	Piper Ranch

Subtask 1n. (FY 2021-22): Wet Season Fairy Shrimp Surveys

The parcels were checked for ponding following substantial rain events (at least 0.5 inch) during the rainy season of 2021-22 (see Table 21). Figure 34 shows all mapped basins within Piper Ranch that were focused on following rain events. However, the entire 11.9-acre parcel set was searched for inundation during each site check. Only one basin was observed with standing water (approximately 1 inch) on March 31. Wet season fairy shrimp surveys did not commence at Piper Ranch in 2021-22, as sufficient ponding was not observed following rain events. Attachment 2: Photograph 16 shows a basin with saturated soils taken during the March 31 survey.

Table 21 2021–2022 Wet Season Ponding Site Check Dates, Personnel, and Notes for the Otay Ranch Preserve – Piper Ranch Parcels		
Ponding Site Check Date	Personnel	Notes
11/02/2021	JR Sundberg, Kayo Valenti	No ponding observed
12/17/2022	Vanessa Tang	No ponding observed
12/26/2022	JR Sundberg	No ponding observed
01/03/2022	Mark Doderio	No ponding observed
01/26/2022	JR Sundberg, Kevin Israel	No ponding observed
02/24/2022	Alex Fromer	No ponding observed
03/07/2022	Jade Woll	No ponding observed
03/31/2022	JR Sundberg	Approximately 1 inch of ponded water was observed within one basin. Evidence of brief ponding such as drift deposits was observed in several basins.

Subtask 1d. (FY2022-23): Wet Season Fairy Shrimp Surveys

Wet season fairy shrimp surveys were initiated at the Salt Creek parcels. Survey dates are included in Table 22. Surveys will continue in 2023 during the rainy season. Results will be included in the 2023 annual report.

Table 22 Wet Season Fairy Shrimp Surveys Dates and Locations		
Date	Survey Visit Number	Location (Parcels)
11/17/2022	1	Salt Creek
11/21/2022	1	Salt Creek
12/22/2022	2	Salt Creek
12/23/2022	2	Salt Creek

Subtask 1e. (FY 2022-23): Vegetation Rapid Assessment (Potential SANDAG TransNet EMP Grant Matching/Complementary Work)

The PSB conducted a rapid assessment on October 7 within the future SANDAG TransNet Environmental Mitigation Program (EMP) grant QCB threat reduction project area within 0.73 acre at the Dulzura parcels. Figure 35 shows the quantitative monitoring area. Repeat photographs were taken at four previously established locations. Photographs were also taken to show general site conditions. Three rapid assessment forms were completed, one for each of the following areas: proposed seed by hand, proposed container plants, and proposed hydroseed. The CDFW-CNPS

Protocol for the Combined Vegetation Rapid Assessment and Relevé Field Form (CNPS 2019) was followed for this effort. Tables 23 through 25 present the results of the survey.

Table 23 Rapid Assessment Results: Container Plant Area		
Scientific Name	Common Name	Percent Cover
<i>Acmispon glaber</i>	deerweed	0.01
<i>Artemisia californica</i>	California sagebrush	0.01
<i>Bromus rubens</i>	Red brome	0.01
<i>Centaurea melitensis</i>	Maltese star-thistle	0.25
<i>Eriogonum fasciculatum</i>	California buckwheat	0.01
<i>Erodium</i> sp.	filaree, storksbill	0.25
<i>Hirschfeldia incana</i>	short-pod mustard	0.01
<i>Salsola</i> sp.	thistle	0.01
<i>Sisymbrium</i> sp.	mustard	0.01
Total Percent Absolute Cover		0.57

Table 24 Rapid Assessment Results: Seed by Hand Area		
Scientific Name	Common Name	Percent Cover
<i>Acmispon glaber</i>	deerweed	0.25
<i>Adenostoma fasciculatum</i>	chamise	5.00
<i>Artemisia californica</i>	California sagebrush	0.25
<i>Bromus rubens</i>	Red brome	0.25
<i>Centaurea melitensis</i>	Maltese star-thistle	0.25
<i>Erodium</i> sp.	filaree, storksbill	0.25
<i>Festuca myuros</i>	rattail sixweeks grass	1.00
<i>Gastridium phleoides</i>	nit grass	0.01
<i>Logfia gallica</i>	daggerleaf cottonrose	0.25
<i>Plantago erecta</i>	dot-seed plantain	0.01
<i>Stipa</i> sp.	needle grass	0.01
<i>Xylococcus bicolor</i>	mission manzanita	0.25
Total Percent Absolute Cover		7.78

Table 25 Rapid Assessment Results: Hydroseed Area		
Scientific Name	Common Name	Percent Cover
<i>Acmispon glaber</i>	deerweed	0.01
<i>Artemisia californica</i>	California sagebrush	0.25
<i>Avena</i> sp.	Oats	0.01
<i>Baccharis sarothroides</i>	broom baccharis	0.01
<i>Bromus rubens</i>	Red brome	0.25
<i>Eriogonum fasciculatum</i>	California buckwheat	0.25
<i>Erodium</i> sp.	filaree, storksbill	3.00
<i>Centaurea melitensis</i>	Maltese star-thistle	3.00

Table 25 Rapid Assessment Results: Hydroseed Area		
Scientific Name	Common Name	Percent Cover
<i>Deinandra fasciculata</i>	fascicled tarweed	1.00
<i>Festuca myuros</i>	rattail sixweeks grass	0.25
<i>Gutierrezia</i> sp.	matchweed	0.25
<i>Hirschfeldia incana</i>	short-pod mustard	0.25
<i>Plantago erecta</i>	dot-seed plantain	0.01
<i>Salsola</i> sp.	thistle	0.01
<i>Sisymbrium</i> sp.	mustard	0.01
<i>Stipa</i> sp.	needle grass	0.01
Total Percent Absolute Cover		8.57

Task 2: Land Stewardship

Subtask 2a. (FY 2021-22 and FY 2022-23): Site Visits

Regularly scheduled site visits were conducted January 1 through December 31, 2022 to document access issues, sensitive species, newly detected species, weeds, and the overall health of the sites. Site visit dates and locations are shown in Table 26.

Table 26 Site Visit Dates and Locations	
Date	Location (Parcels)
01/03/2022	Salt Creek, Millenia, Dulzura
01/04/2022	Jamul Mountains
01/05/2022	San Ysidro, Northern San Ysidro
01/12/2022	Northern Salt Creek, Salt Creek
01/13/2022	Western Wolf Canyon, Wolf Canyon, Millenia
01/14/2022	Ridge ¹
01/17/2022	Dulzura ¹
01/19/2022	Jamul Mountains
01/20/2022	McMillin ¹
01/25/2022	Little Cedar Canyon
01/26/2022	Johnson Canyon (East), Johnson Canyon Otay Tarplant Preserve, Piper Ranch
01/27/2022	Northern Salt Creek, Salt Creek, Proctor Valley Extension, Proctor Valley (South), Proctor Valley
01/28/2022	Millenia, Dulzura, Proctor Valley (North) ¹
01/31/2022	Salt Creek ¹
02/01/2022	Western Wolf Canyon ¹
02/02/2022	Northern San Ysidro, San Ysidro, Jamul Mountains, Western Wolf Canyon ¹
02/03/2022	Salt Creek ¹ , Dulzura ¹ , Western Wolf Canyon ¹
02/04/2022	Dulzura ¹ , Millenia ¹
02/07/2022	Millenia ¹
02/08/2022	McMillin, Millenia ¹

Table 26 Site Visit Dates and Locations	
Date	Location (Parcels)
02/09/2022	Northern Salt Creek, Salt Creek, Northern San Ysidro ¹
02/10/2022	Ridge ¹ , Western Wolf Canyon, Wolf Canyon, McMillin ¹ , Salt Creek ¹
02/11/2022	Dulzura ¹ , Millenia, Salt Creek ¹
02/15/2022	Jamul Mountains, Dulzura ¹ , Proctor Valley (South) ¹
02/17/2022	McMillin ¹
02/18/2022	Dulzura ¹ , Jamul Mountains ¹
02/19/2022	McMillin ¹ , Northern San Ysidro ¹ , Dulzura ¹
02/20/2022	Dulzura ¹ , Little Cedar Canyon ¹
02/21/2022	Western Wolf Canyon, Wolf Canyon ¹
02/22/2022	Salt Creek ¹
02/24/2022	Dulzura ¹ , Salt Creek ¹
02/25/2022	Proctor Valley (North) ¹ , Dulzura ¹
02/26/2022	Dulzura
02/27/2022	Little Cedar Canyon, Dulzura
02/28/2022	Jamul Mountains, Millenia
03/01/2022	Dulzura, Salt Creek
03/02/2022	McMillin, Northern San Ysidro, Salt Creek
03/08/2022	Dulzura, Jamul Mountains, Northern San Ysidro
03/09/2022	Dulzura, McMillin, Little Cedar Canyon, Wolf Canyon, Western Wolf Canyon
03/10/2022	Salt Creek, Ridge, Millenia
03/14/2022	Northern San Ysidro, Dulzura, Proctor Valley (South), Millenia, Salt Creek
03/15/2022	Dulzura, Jamul Mountains, McMillin, Salt Creek
03/16/2022	Salt Creek
03/17/2022	Little Cedar Canyon, Dulzura, McMillin
03/18/2022	Salt Creek
03/21/2022	Northern San Ysidro, Dulzura
03/22/2022	Jamul Mountains, Salt Creek
03/23/2022	Northern Salt Creek, Salt Creek, McMillin
03/24/2022	Salt Creek, Northern Salt Creek, Little Cedar Canyon
03/25/2022	Salt Creek, McMillin, Proctor Valley (North)
03/30/2022	Salt Creek
04/01/2022	San Ysidro
04/04/2022	Johnson Canyon (East), Johnson Canyon Otay Tarplant Preserve, Piper Ranch
04/05/2022	Millenia, Salt Creek
04/06/2022	Little Cedar Canyon, San Ysidro, Northern San Ysidro, Salt Creek, Millenia
04/07/2022	Millenia
04/11/2022	Millenia, Salt Creek
04/14/2022	McMillin, Northern San Ysidro, San Ysidro, Little Cedar Canyon
04/18/2022	Millenia
04/19/2022	Salt Creek
04/20/2022	Ridge
04/21/2022	Dulzura
04/22/2022	Northern Salt Creek, Salt Creek
04/25/2022	Northern San Ysidro, Dulzura

Table 26 Site Visit Dates and Locations	
Date	Location (Parcels)
04/27/2022	Jamul Mountains, McMillin
04/28/2022	Millenia, Piper Ranch
04/29/2022	Jamul Mountains
05/04/2022	Proctor Valley (North)
05/05/2022	Northern Salt Creek
05/17/2022	Northern Salt Creek
05/18/2022	Northern Salt Creek, Salt Creek
05/19/2022	Millenia
05/20/2022	Millenia
05/25/2022	Western Wolf Canyon, Wolf Canyon, Ridge
05/26/2022	Proctor Valley (North), Dulzura
05/27/2022	Wolf Canyon, Salt Creek
06/01/2022	Dulzura, McMillin
06/03/2022	Salt Creek
06/06/2022	Wolf Canyon, Northern Salt Creek
06/08/2022	Proctor Valley (South), Proctor Valley, Jamul Mountains, Proctor Valley (North)
06/09/2022	Little Cedar Canyon, McMillin
06/13/2022	Ridge
06/14/2022	Dulzura
06/15/2022	Salt Creek, Ridge
06/20/2022	Jamul Mountains
06/24/2022	San Ysidro, Northern San Ysidro
06/27/2022	Salt Creek, Johnson Canyon (East), Western Wolf Canyon, Wolf Canyon
06/30/2022	Salt Creek, Northern Salt Creek
07/05/2022	Salt Creek, Northern Salt Creek
07/06/2022	Salt Creek, Northern Salt Creek
07/28/2022	San Ysidro, Northern San Ysidro
07/29/2022	Salt Creek, Northern Salt Creek, Wolf Canyon, Western Wolf Canyon
08/02/2022	Jamul Mountains, Dulzura, Millenia
08/08/2022	Ridge, Little Cedar Canyon
08/12/2022	Salt Creek, Northern Salt Creek, Millenia, Western Wolf Canyon, Wolf Canyon
08/16/2022	Jamul Mountains, Dulzura
08/17/2022	Northern San Ysidro, San Ysidro, McMillin
08/26/2022	Millenia, Salt Creek, Northern Salt Creek
08/22/2022	Salt Creek
08/23/2022	Western Wolf Canyon, Wolf Canyon
08/26/2022	Salt Creek, Northern Salt Creek, Millenia
08/29/2022	Jamul Mountains, Dulzura
08/31/2022	Proctor Valley Extension, Proctor Valley, Proctor Valley (South), Proctor Valley (North)
09/12/2022	Johnson Canyon (East), Johnson Canyon Otay Tarplant Preserve
09/13/2022	Dulzura
09/14/2022	San Ysidro, Northern San Ysidro
09/15/2022	Salt Creek, Northern Salt Creek
09/16/2022	Wolf Canyon, Western Wolf Canyon, Millenia

Table 26 Site Visit Dates and Locations	
Date	Location (Parcels)
09/19/2022	Jamul Mountains, Salt Creek
09/27/2022	Jamul Mountains, Dulzura
09/30/2022	Salt Creek, Northern Salt Creek, Millenia
10/07/2022	Dulzura, Salt Creek
10/10/2022	Dulzura, Jamul Mountains
10/11/2022	Salt Creek, Northern Salt Creek
10/12/2022	Millenia, Western Wolf Canyon, Wolf Canyon, Salt Creek
10/13/2022	Northern Salt Creek, Salt Creek
10/14/2022	Northern Salt Creek, Salt Creek
10/20/2022	Salt Creek, Northern Salt Creek
10/21/2022	San Ysidro, Northern San Ysidro
10/24/2022	Jamul Mountains, Dulzura, Salt Creek
10/25/2022	Northern Salt Creek, Salt Creek, Western Wolf Canyon, Wolf Canyon
10/26/2022	Northern Salt Creek, Salt Creek, Millenia
11/02/2022	Salt Creek
11/03/2022	Wolf Canyon, Western Wolf Canyon, Dulzura
11/04/2022	Ridge, Salt Creek, Northern Salt Creek, Little Cedar Canyon
11/07/2022	Salt Creek, Northern Salt Creek
11/11/2022	Jamul Mountains, Millenia
11/15/2022	McMillin, Northern San Ysidro, San Ysidro
11/17/2022	Salt Creek
11/21/2022	Salt Creek
11/22/2022	Proctor Valley (South), Proctor Valley Extension, Bonita Glen, Proctor Valley, Jamul Mountains, Dulzura
11/23/2022	Salt Creek, Northern Salt Creek, Proctor Valley (North)
11/28/2022	Johnson Canyon (East), Johnson Canyon Otay Tarplant Preserve, Millenia
12/01/2022	Northern Salt Creek, Salt Creek
12/05/2022	Jamul Mountains, Salt Creek
12/07/2022	Jamul Mountains, Millenia, Salt Creek
12/09/2022	Dulzura, San Ysidro, Northern San Ysidro
12/13/2022	Wolf Canyon, Western Wolf Canyon
12/19/2022	Salt Creek ¹
12/21/2022	Northern Salt Creek, Salt Creek, Millenia, Johnson Canyon (East)
12/22/2022	Salt Creek ¹
12/23/2022	Salt Creek ¹
12/29/2022	Jamul Mountains, Dulzura
¹ Site visit conducted in conjunction with other scheduled monitoring and/or maintenance tasks.	

Noteworthy events documented from site visits are described below for each parcel set.

Bonita Glen

- On November 22, lightly used foot routes were noted and photographed.

Dulzura Parcels

Figure 15 shows noteworthy data collected in 2022.

- On January 17, it was noted that the previously installed fence on-site near the western parcel boundary is still being actively driven around. Unauthorized vehicles are driving through and parking in QCB habitat. An unauthorized point was mapped. The full extent of the unauthorized route was not mapped.
- On February 11,
 - Two barbed wire fence locations along the central portion of the northwest parcel boundary were noted as needing to be repaired.
 - The previously repaired fence along the northwestern parcel boundary had been cut and recent vehicle tracks were observed entering the preserve.
- On February 18, recent vehicle tracks were observed in coastal sage scrub habitat where a vehicle had driven around a previously installed T-post fence.
- On March 1,
 - All-terrain vehicle (ATV) tire tracks were observed and mapped in occupied QCB habitat. The tracks appeared to have been recent and the route was used one time.
 - Several motor bike tracks were observed going around the recently installed T-post barbless wire fence on USFWS property. The tracks lead into the Dulzura parcels to the west.
- On March 9, a downed wooden telecommunication pole was observed.
- On April 21,
 - A tube steel gate was observed open and the locks had been cut. Vehicle tire tracks were observed past the gate but appeared to only be present due to the vehicle turning around. On April 26, the PSB sent Amber Craig (U.S. Customs and Border Protection; USCBP) an email notifying her that the USCBP lock was missing from the tube steel gate.
 - Three geocache containers were located and removed from the parcels.
- On June 1,
 - Vehicle tracks were mapped in sensitive habitat.
 - Two routes created for foot traffic were mapped. The routes were partially created with hand tools and are frequently used by migrants. Trash consisting of personal hygiene items and food and beverage containers were scattered under shrubs. The amount of

- foot traffic in this area has increased in the last few years and the surrounding habitat shows signs of impact due to trampling.
- Spiny redberry individuals were mapped. The proximity to California buckwheat was noted. No Hermes copper individuals were observed.
 - On August 2,
 - Damaged fence that needs repair was mapped on USFWS property west of the Dulzura parcels.
 - One tube steel gate along Minnewawaw Truck Trail was noted as needing a new chain or lock to connect the chains to allow it to be secured.
 - On August 29, areas where fencing needed repair and proposed fence installation areas were mapped.
 - On September 27, damage to the fence installed on September 13 was observed. The fence installed at the base of the slope had been removed.
 - On October 7, it was noted that the downed T-post barbless wire fence on CDFW property north of the Dulzura parcels was still in need of repair and recent two-track tire tracks were evident. CDFW was notified of the breach on September 7, 2022.
 - On October 24, the previously installed and repaired fence was observed intact.
 - On November 22, locations where T-post barbed wire fence was in need of repair were mapped.
 - On December 29, recent fence repairs were noted to be in good condition, except for one location that was cut with recent vehicle tracks observed.
 - Approximately 2,065 spiny redberry individuals were mapped. Spiny redberry is a host plant for Hermes copper butterfly.
 - Approximately 2,001 California buckwheat shrubs were mapped adjacent to spiny redberry. California buckwheat is a nectar plant for Hermes copper butterfly.
 - Common plant observations included: 13 coast live oak (*Quercus agrifolia*) trees and 36 chocolate lilies (*Fritillaria biflora*).
 - One Blainville's [=coast] horned lizard (*Phrynosoma blainvillii*; Priority Group 2) observation was made.
 - Two California horned lark (*Eremophila alpestris actia*; Priority Group 4) detections were made.
 - One common wildlife greater roadrunner (*Geococcyx californianus*) observation was made.

Jamul Mountains Parcels

Figure 31 shows noteworthy data collected in 2022.

- On January 4, it was noted that the previously laid rock and branch barrier at the top of the route where cholla was previously installed on City of San Diego property had been moved. The unauthorized Horseshoe Mountain Trail is on City of San Diego property and continues onto POM property. The trail primarily impacts coastal sage scrub, QCB habitat, and habitat for a variety of other sensitive plants and wildlife.
- On January 19, vehicle tracks on the old ranch road within the Jamul Mountains parcels were observed.
- On February 2,
 - Vehicle tracks were observed in high quality QCB habitat with unknown occupancy and within a Munz's sage (*Salvia munzii*) population on City of San Diego property. The route appeared to have only been used one time.
 - Locations where fence repairs were needed were mapped on City of San Diego property.
- On February 18, a USCBP vehicle was observed driving through coastal sage scrub habitat on City of San Diego property. The vehicle was later observed within the Jamul Mountains parcels on the former ranch road. The PSB notified Kim Wehinger on March 4.
- On February 28, locations where fencing needed repair on the off-site City of San Diego property were mapped.
- On March 15, the PSB observed the City of San Diego parking lot off Proctor Valley Road was full of vehicles. Two groups of four people and one group of three people were observed along the old ranch road in the Jamul Mountains parcels.
- On March 22, the PSB observed four groups consisting of two people each, one group of four people hiking with a dog, and one mountain bicyclist along the old ranch road in the Jamul Mountains parcels.
- On April 27, one geocache container was located and removed.
- On June 8, spiny redberry locations were mapped. No Hermes copper butterflies were observed.
- On June 20, the upper and lower extent of spiny redberry locations were mapped along a seasonal drainage. The proximity to California buckwheat was noted. No Hermes copper butterflies were observed.

- On August 2,
 - A previously mapped unauthorized foot route was noted as being actively used. The unauthorized foot route starts on City of San Diego property and leads onto the Otay Ranch Preserve Jamul Mountains parcels.
 - One preserve sign was noted as missing along the southern boundary of the Jamul Mountains parcels.
 - Fencing in need of repair on City of San Diego property was mapped.
- On August 29,
 - Proposed sign locations were mapped to discourage unauthorized entry into the preserve.
 - Vehicle tracks were observed on the main old ranch road. The width of the tires impacted the vegetation on the edge of the road as well as coastal sage scrub vegetation where the vehicle drove around a preserve sign.
- On September 19, unauthorized mountain bike routes were mapped leading into the Jamul Mountains parcels. An email was sent to the POM on September 28 to notify of the unauthorized mountain bike routes.
- On September 27, unauthorized mountain bike routes were mapped. The mountain bike routes were in the beginning phase of becoming established. Unapproved flagging had been placed along the route to make it more visible. The PSB removed the flagging. An email was sent to Kim Wehinger (City of San Diego) and the POM on October 4 to notify of the unauthorized bike route within POM and the adjacent City of San Diego property in addition to an unauthorized bike route within City of San Diego property near the Proctor Valley parcels.
- On October 24, two-track tire tracks and a foot route were mapped.
- On November 11,
 - A migrant foot route was mapped in the northwestern section of the parcels. The southern half of the route had visible bicycle tire tracks.
 - A foot route used by hikers was mapped within coastal sage scrub habitat. The route was not well established. Trash was observed throughout the route. The PSB created a rock barrier along the road to deter use of the foot route.
- On November 22, the northern extent of the migrant route observed on November 11 was mapped.
- On December 29, recent fence repairs were noted to be in good condition.

- Approximately 744 spiny redberry individuals were mapped. Spiny redberry is a host plant for Hermes copper butterfly.
- Two fennel (*Foeniculum vulgare*; California Invasive Plant Council [Cal-IPC] Rating: Moderate) individuals were observed. Non-native weed species ranked as 'moderate' have substantial, but generally not severe, ecological impacts; moderate to high rates of dispersal and establishment; and limited- to wide-spread distribution. In general, successful establishment of weed species ranked as 'moderate' is dependent upon ecological disturbance (Cal-IPC 2022).
- Sixteen artichoke thistle (*Cynara cardunculus* ssp. *flavescens*; Cal-IPC Rating: Moderate) individuals were observed.
- One LBVI (Priority Group 1) detection was made.
- Two CAGN (Priority Group 1) detections were made.
- Four Blainville's horned lizard (Priority Group 2) observations were made. Attachment 2: Photograph 17 shows one individual.
- One southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*; Priority Group 2) detection was made.

Johnson Canyon (East) Parcels

Figures 12 and 36 show noteworthy data collected in 2022.

- On January 26, ATV vehicle tracks were observed in non-native grassland. The tracks were recent and the route showed signs of infrequent use.
- On April 4, two grasshopper sparrow (*Ammodramus savannarum*) individuals were mapped within the parcels.
- On June 27, ATV and motor bike tire tracks were mapped primarily in non-native grassland. The tracks appeared to have been used one time.
- On August 31, Google Earth aerial imagery from March 2022 was examined to map ATV and single-track routes.
- On September 12, it was noted that the recent rain event did not cause ponding within the parcels.
- On November 28, evidence of ponding was searched for, but no clear evidence such as drift deposits or water marks were observed.
- On December 21, potential vernal pool ponding areas were checked. Four depressions were noted as known to pond or likely to pond.

- Approximately 300 pale spike-rush individuals were mapped. Pale spike-rush is a vernal pool plant species.
- Approximately 280 Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*; Cal-IPC Rating: Moderate) were mapped. The locations were mapped in basins as potential ponding locations.
- One San Diego black-tailed jackrabbit (*Lepus californicus bennettii*; Priority Group 3) detection was made.
- Two grasshopper sparrow (Priority Group 3) detections were made.

Johnson Canyon Otay Tarplant Preserve

Figures 13 and 36 show noteworthy data collected in 2022.

- On January 26,
 - The unauthorized road through the parcel showed signs of continued use and is widening.
 - No Otay tarplant seedlings were observed.
 - Non-native grass cover is high in the historic Otay tarplant locations.
 - Dot-seed plantain (*Plantago erecta*) was mapped.
- On April 4,
 - An older used ATV route was mapped within the parcel. There were no signs of recent use observed.
 - Common goldfields (*Lasthenia gracilis*) were mapped.
- On November 28, the PSB:
 - Checked for Otay tarplant seedlings. None were observed.
 - Checked for evidence of inundation in the basins within the mesa top. No strong evidence of previous inundation was observed.
- Approximately 600 dot-seed plantain individuals were mapped. Dot-seed plantain is a host plant for QCB.
- Approximately 3,000 common goldfield individuals were mapped. Common goldfield is a potential nectar plant for QCB.
- Thirty individuals of common plant fascicled tarweed (*Deinandra fasciculata*) were observed.

- Thirty-seven coast cholla (*Cylindropuntia prolifera*) individuals were observed. Coast cholla is a nesting plant for coastal cactus wren.
- Six potential ponding depressions were mapped.
- One California horned lark (Priority Group 4) observation was made.

Little Cedar Canyon Parcels

Figure 16 shows noteworthy data collected in 2022.

- On January 25,
 - A significant amount of trash in the canyon along the migrant route was observed.
 - The migrant route showed signs of frequent use.
- On March 9, single-track motor bike tracks were observed and mapped in habitat occupied by QCB. The tracks appeared to be recent.
- On April 6, a previously installed preserve sign was observed missing, with the rebar post on the ground.
- On April 14, a marine helicopter was observed landing off-site of the Little Cedar Canyon parcels.
- On June 9,
 - Spiny redberry locations were mapped. No Hermes copper butterflies were observed.
 - Recent vehicle tracks were observed within the unauthorized route in the northwestern section of the parcels.
- Approximately 208 spiny redberry individuals were mapped. Spiny redberry is a host plant for Hermes copper butterfly.
- Six pampas grass (*Cortaderia selloana*; Cal-IPC Rating: High) individuals were observed. Non-native weed species ranked as 'high' have severe ecological impacts, moderate to high rates of dispersal and establishment, and are widely distributed (Cal-IPC 2022).
- One Thorne's hairstreak (*Callophrys thornei*; Priority Group 1) observation was made.

McMillin Parcels

Figure 16 shows noteworthy data collected in 2022.

- On January 20, ATV tire tracks near the golden eagle cameras and within dot-seed plantain patches were observed.

- On February 19,
 - Single tire tracks from a dirt bike were observed and mapped in high-quality habitat occupied by QCB. The route appears to be used regularly.
 - ATV tracks were observed and mapped in high-quality habitat occupied by QCB. The route appeared to have only been used one time.
- On March 2, ATV and motor bike tire tracks were observed in QCB occupied habitat.
- On March 9, fresh motor bike vehicle tracks were observed in QCB occupied habitat. The tracks were new since the last storm and since the last QCB focused survey on March 2.
- On March 15, single tire tracks from a dirt bike were observed and mapped in multiple locations in high-quality habitat occupied by QCB. One of the routes appeared to have been used one time recently and the other route is used regularly and is widening.
- On March 25, the PSB mapped a location where an Area Closed to Vehicle Traffic sign is in need of repair.
- On April 14, off-site locations where future fencing and signs could be installed to block unauthorized access into the McMillin parcels were mapped.
- On June 9, spiny redberry locations were mapped. No Hermes copper butterflies were observed.
- On August 17, one CAGN was mapped.
- On August 31, Google Earth aerial imagery from March 2022 was examined to map ATV and single-track routes.
- On November 15,
 - A truck route was mapped in coastal sage scrub habitat. The route was not used frequently.
 - A well-established migrant route was mapped near the central western boundary of the parcels.
- Approximately 775 spiny redberry individuals were mapped. Spiny redberry is a host plant for Hermes copper butterfly.
- Fifty common plant Danny's skullcap (*Scutellaria tuberosa*) individuals were observed.
- One LBVI (Priority Group 1) detection was made.
- One CAGN (Priority Group 1) detection was made.

- Three northern harrier (*Circus hudsonius*; Priority Group 1) detections were made.
- One Blainville's horned lizard (Priority Group 2) detection was made.
- One southern mule deer (Priority Group 2) detection was made.
- Three common wildlife Gabb's checkerspot (*Chlosyne gabbii*) observations were made.

Millenia Parcels

Figure 19 shows noteworthy data collected in 2022.

- On February 28, Palmer's grapplinghook (*Harpagonella palmeri*) was observed and mapped.
- On April 4, one American bullfrog (*Lithobates catesbeiana*) was observed off-site adjacent to the parcels to the north.
- On April 5, the PSB visited the previously mapped location where stinknet (*Oncosiphon piluliferum*) had been observed. No stinknet individuals were observed.
- On August 2, issues with road conditions were mapped.
- On August 26, one ATV route that showed signs of infrequent use was mapped.
- On August 31, Google Earth aerial imagery from March 2022 was examined to map ATV and single-track routes.
- On October 12,
 - Approximately 150 stinkwort (Cal-IPC Rating: Moderate/Alert) individuals were removed by hand and mapped at the Millenia parcels.
 - A fire pit that appeared to have been used one time was mapped. Beer bottles were located nearby.
 - The PSB visited treatment polygon MLLN_Oncosiphon and searched for stinknet. No stinknet individuals were observed.
- On November 11, ATV routes were mapped. The routes appeared to have been used once.
- On December 21,
 - It was noted that a new ranch gate made from T-posts and wire was installed on the dirt access road south of the eastern parcels.
 - One tree tobacco (*Nicotiana glauca*; Cal-IPC Rating: Moderate) was mapped for removal.
- Thirty common plant desert tea (*Ephedra californica*) individuals were observed.
- One white-tailed kite (*Elanus leucurus*; Priority Group 4) detection was made.

Northern Salt Creek Parcels

Figure 18 shows noteworthy data collected in 2022.

- On January 27, areas where lemonade berry (*Rhus integrifolia*) showed signs of die-off were mapped for potential pathogen sampling in the future.
- On February 9, the gate at the northern parcel boundary was off its hinges and had been shifted to allow bikes to pass through. The PSB placed the gate back on the hinges as a temporary fix.
- On March 23, the previously installed fence along Hunte Parkway was intact.
- On April 22, a new bike route was observed leading from Olympic Parkway to the parcels through non-native grassland.
- On May 5, the status of Otay tarplant was checked to determine proper timing for conducting IMG rare plant surveys.
- On July 5, an unauthorized ATV route was mapped within coastal sage scrub habitat.
- On August 12, stinkwort was mapped for treatment.
- On August 31, Google Earth aerial imagery from July 2021 was examined to map ATV and single-track routes.
- On September 30, two south coast saltscale (*Atriplex pacifica*; RMP Priority Group 3) individuals were mapped.
- On October 13, an ATV route was mapped in coastal sage scrub.
- On October 25, drone footage was collected of the 2021 cactus wren shrub thinning areas.
- On December 1, the trailheads to a route that avoids having to walk through water along the western side of the Salt Creek drainage were mapped.
- Two arroyo willow (*Salix lasiolepis*) individuals were noted as appearing healthy, with no evidence of SHB during SHB tree health surveys.
- Approximately 330 stinkwort (Cal-IPC Rating: Moderate/Alert) individuals were observed within and adjacent to the Parcels. These individuals were later hand-pulled and bagged for removal.
- Two CAGN (Priority Group 1) detections were made.
- One LBVI (Priority Group 1) detection was made.
- One yellow-breasted chat (*Icteria virens*; Priority Group 3) detection was made.

Northern San Ysidro Parcel

Figure 17 shows noteworthy data collected in 2022.

- On April 6, motorcycle tire tracks were observed in the east side of the parcels within a previously mapped unauthorized motor bike route. The disturbance was estimated to have occurred within one week since the last rain event.
- On April 14, off-site locations where future fencing and signs could be installed to block unauthorized access near a large QCB population near the Northern San Ysidro parcels were mapped.
- On June 24,
 - An attempt at finding and removing a geocache was made. The location description was found, but the container was not.
 - Spiny redberry individuals were mapped. The proximity to California buckwheat was noted. No Hermes copper individuals were observed.
- On July 28,
 - Proposed no trespassing/preserve sign locations were mapped to reduce unauthorized ATV use within sensitive habitat.
 - It was observed that the main road leading to the southern boundary of the parcels had been graded. Fire crews likely graded the road to gain access during the Border 27 Fire.
- On August 17,
 - One motor bike route was mapped within soil crust.
 - One monarch was mapped.
- On October 21, the PSB observed a substantial amount of migrant trash within the drainage (Attachment 2: Photograph 18).
- On November 15, a 911 station for emergencies was observed within the parcels. The station consisted of a trailer with solar panels, batteries, a 911 flag, and an alert button.
- On December 9,
 - Multiple illegal dirt bike and ATV routes were mapped.
 - The 911 station for emergencies was observed at the same location as November.
- Five spiny redberry individuals were observed. Spiny redberry is a host plant for Hermes copper butterfly.

- One grasshopper sparrow (Priority Group 3) detection was made.
- One common wildlife monarch (*Danaus plexippus*) observation was made.

Piper Ranch Parcels

Figures 12 and 36 show noteworthy data collected in 2022.

- On March 31, lightly used ATV tracks were observed and mapped within the east side of the parcel.
- Twenty dot-seed plantain individuals were observed. Dot-seed plantain is a host plant for QCB.
- Approximately 1,140 common goldfields were observed. Common goldfields is a potential nectar plant for QCB.
- Approximately 500 pale spike-rush individuals were observed. Pale spike-rush is a vernal pool plant species.
- One common plant wide-throat yellow monkeyflower individual was observed.
- Eighteen coast cholla individuals were observed. Coast cholla is a nesting plant for coastal cactus wren.
- Invasive plant observations included: 3,000 rye grass (Cal-IPC Rating: Moderate) individuals, 900 Mediterranean barley (Cal-IPC Rating: Moderate) individuals, 30 Australian saltbush (*Atriplex semibaccata*; Cal-IPC Rating: Moderate) individuals, 30 hood canary grass (*Phalaris paradoxa*) individuals, 32 cheat grass (*Bromus tectorum*; Cal-IPC Rating: Moderate) individuals, and 500 soft chess (*Bromus hordeaceus*; Cal-IPC Rating: Limited) individuals. Non-native weed species ranked as 'limited' have minor ecological impacts; low to moderate rates of invasiveness; and limited distribution, but these species may be locally persistent and problematic (Cal-IPC 2022). The rye grass locations were mapped as potential ponding locations that contained saturated soils within basin features but did not contain vernal pool indicator plants.
- Two San Diego black-tailed jackrabbit (Priority Group 3) observations were made.
- Two grasshopper sparrow (Priority Group 3) detections were made.

Proctor Valley Extension Parcels

Figure 30 shows noteworthy data collected in 2022.

- On January 27, recent evidence of cattle use was observed in the parcels.

- On August 31,
 - One location where truck tire tracks were observed was mapped.
 - One location where a migrant foot route was observed was mapped.
 - One individual San Diego black-tailed jackrabbit (Priority Group 3) was mapped directly adjacent to the parcels.
- On November 22, actively used foot routes were noted and photographed.

Proctor Valley Parcels

Figure 30 shows noteworthy data collected in 2022.

- On June 8, spiny redberry locations were mapped. No Hermes copper butterflies were observed. Twenty-three spiny redberry individuals were observed. Spiny redberry is a host plant for Hermes copper butterfly.
- On November 22, a frequently used foot route was noted and photographed.

Proctor Valley (North) Parcel

Figure 14 shows noteworthy data collected in 2022.

- On January 28,
 - The unauthorized foot routes that were observed built and cut in 2021 did not show signs of recent use.
 - The geocache boxes removed by the PSB in 2021 had not been replaced.
- On May 4, Dunn's mariposa lily was observed in flower and was mapped.
- On May 26,
 - Spiny redberry locations were mapped. No Hermes copper butterflies were observed. Approximately 140 spiny redberry individuals were observed. Spiny redberry is a host plant for Hermes copper butterfly.
 - It was noted that foot traffic along the main trail to the parcels appears to have increased.
 - Signs of heavy foot traffic such as vegetation trampling and trash were observed in the drainage. The foot traffic has impacted Harbison dun skipper (*Euphyes vestris harbisoni*) habitat.
- One Harbison dun skipper (Priority Group 1) observation was made.

Proctor Valley (South) Parcel

Figure 30 shows noteworthy data collected in 2022.

- On June 8, spiny redberry locations were mapped. No Hermes copper butterflies were observed. Twelve spiny redberry individuals were observed. Spiny redberry is a host plant for Hermes copper butterfly.
- On November 22, recent ATV tire tracks were observed within the ridge line of the Proctor Valley (South) parcels and ending just to the west of the northwestern corner of the Proctor Valley Extension parcels.
- One southern California rufous-crowned sparrow (Priority Group 2) detection was made.

Ridge Parcels

Figure 32 shows noteworthy data collected in 2022.

- On January 14, two Quino checkerspot butterfly larvae were observed. An email notification was sent to USFWS and the POM on January 14.
- On March 10, an off-site area where dot-seed plantain occurs in the road was mapped for avoidance during the QCB season. Two QCB adults were incidentally observed off-site south of the parcel boundary.
- On June 13,
 - Two routes that possibly formed from foot traffic were mapped. The PSB will qualitatively monitor the locations in the future to determine if management actions are needed.
 - Vehicle tracks were mapped within sensitive habitat.
 - Spiny redberry individuals were mapped. The proximity to California buckwheat was noted. No Hermes copper individuals were observed. Three hundred and seven spiny redberry individuals were observed. Spiny redberry is a host plant for Hermes copper butterfly.
 - It was noted that a lock had been cut at the main gate off Otay Lakes Road. An additional lock is needed to secure the daisy chain.
- On August 8,
 - One ATV route that showed signs of infrequent use was mapped.
 - A family of CAGN consisting of a pair and juvenile was mapped.
 - A wooden deck/stage was observed southwest of the parcels off-site. It was noted that this may cause access issues in the future.

- On November 4, a barbed wire fence was observed with cut wire offsite. A footpath passed through the opening in the fence and continued north into the parcel and up onto a hilltop.
- Two CAGN (Priority Group 1) detections were made.
- One southern California rufous-crowned sparrow (Priority Group 2) detection was made.
- One southern mule deer (Priority Group 2) detection was made.
- One common wildlife rosy boa (*Lichanura orcuttii*) detection was made.

Salt Creek Parcels

Figure 18 shows noteworthy data collected in 2022.

- On January 3, it was observed that the fence that protects the vernal pool mesa in the southeastern section of the parcels had been cut. ATV tire tracks were observed in the surrounding upland vegetation as well as in several of the vernal pools.
- On January 27, additional ATV vehicle tracks were observed in the vernal pool mesa. The location of a proposed fence was mapped to restrict vehicles from entering into this sensitive resource area.
- On March 10, the PSB observed that the recently repaired fence at the vernal pool mesa in the southeastern section of the parcels had been cut again. ATV vehicle tracks were observed in sensitive habitat in the mesa, and within the southwestern slope in coastal sage scrub and maritime succulent scrub habitat. The vehicle damaged coast cholla cactus that had been planted for the City of Chula Vista EMP Grant 5001970 (former RECON project 6649). The vehicle also ran over snake cholla (*Cylindropuntia californica* var. *californica*; County of San Diego and City of Chula Vista Narrow Endemic/MSCP covered, Otay Ranch Preserve Priority Group 1).
- On April 5,
 - The PSB visited the previously mapped location where stinknet had been observed. No stinknet individuals were observed.
 - One motorcycle was observed within the main dirt road within the parcels.
- On April 22, one location where T-post barbless wire fence needed repair was mapped.
- On May 27, Otay mesa mint (*Pogogyne nudiuscula*) locations were mapped. The Otay mesa mint had previously been seeded into restored vernal pools. For more information see Section 6.4 below.

- On June 15,
 - Motorcycle tire tracks were observed near the restored vernal pools on the mesa in the southern section of the parcels. The tire tracks indicated the motorcycle spun out in this area.
 - Spiny redberry individuals were mapped. The proximity to California buckwheat was noted. No Hermes copper individuals were observed.
- On June 27, multiple locations where unauthorized vehicles have damaged primarily coastal cactus wren habitat were mapped.
- On July 6, the PSB observed the fence immediately south of the chain-link gate west of Wueste Road had been cut and vehicles were entering the preserve at this location. Proposed fence repair was mapped to prevent unauthorized vehicle access.
- On July 29,
 - Multiple unauthorized ATV, mountain bike, and foot routes were mapped in the central portion of the parcels within coastal sage scrub and maritime succulent scrub habitat.
 - Proposed no trespassing/preserve/habitat restoration in progress sign locations were mapped to reduce unauthorized vehicle use.
 - Proposed coastal cholla installation locations were mapped to restore damaged habitat and to close unauthorized routes caused by ATVs and mountain bikes.
 - Proposed T-post barbless wire fence locations were mapped to restrict the use of unauthorized vehicle routes.
- On August 12, vehicle tracks were observed in coastal sage scrub habitat indicating where a vehicle had driven around fencing.
- On August 26,
 - Two individual coastal cactus wrens were mapped.
 - Ten locations where photos were taken for the County of San Diego Parks and Recreation Department EMP Grant 5001133 (ended summer 2014) were relocated and comparison photos were collected. The locations were recorded with a GPS device. Original photographs are from the Salt Creek Coastal Cactus Wren Habitat Restoration Project 1st Annual Monitoring Report (Merkel & Associates, Inc. 2011). The photographic monitoring locations are shown on Figure 37. Original photographs taken in 2010 compared to 2022 photographs are presented in Attachment 3.
- On August 31, Google Earth aerial imagery from July 2021 and March 2022 was examined to map ATV and single-track routes.

- On September 15,
 - ATV tire tracks were mapped in habitat occupied by coastal cactus wren.
 - Photos were taken at the previously established Photo Points 11 through 14 reference site locations for restoration site SC_2.
- On September 30,
 - ATV routes were mapped.
 - At polygon SC_25, the blue elderberry (*Sambucus mexicana*) previously planted during the 3-year SANDAG TransNet EMP grant project No. 5001970 (former RECON project 6649) were revisited to document whether they were alive and to map the locations.
 - 16 locations were visited (see Figure 18).
 - Two individuals were approximately 1 foot in height and may not have been alive. These locations will be visited again in spring when blue elderberry is in leaf.
 - One individual was over 10 feet tall and may have been a naturally occurring blue elderberry.
 - Six blue elderberry individuals were approximately 7 feet in height and were visibly alive.
 - Seven individuals were dead
- On October 11, a new gate was mapped off-site on County of San Diego property, south of the parcels and north of Alta Road.
- On October 12, the PSB visited treatment polygon SC_Oncosiphon and searched for stinknet. No stinknet individuals were observed.
- On October 24, the fence surrounding SC_16 was qualitatively monitored for signs of damage. No damage was observed.
- On October 25, drone footage was collected of the 2021 cactus wren shrub thinning areas. Attachment 2: Photographs 19 through 21 show still images captured from the drone, one image is an overview of the parcels and two images demonstrate access issues.
- On November 2, locations where fencing needed repair were mapped.
- On November 7, a bicycle route was mapped.
- On November 17, motorcycle tire tracks that occurred within the last week were observed within the southeastern vernal pool mesa.

- On November 23, motorcycle tire tracks were observed within an old ATV route in coastal cactus wren habitat.
- On December 19, three separate fences along an unauthorized bike route were observed to be cut.
- On December 21,
 - The locations where cholla was installed to deter use of an unauthorized bike route were mapped.
 - Recent motorcycle tracks were observed along the unauthorized bike route where coast cholla was recently planted to deter use.
 - Several San Diego barrel cactus (*Ferocactus viridescens*; Priority Group 2) individuals were mapped.
 - At polygon SC_29, the blue elderberry previously planted during the 3-year SANDAG TransNet EMP grant project No. 5001970 (former RECON project 6649) were revisited to document whether they were alive and to map the locations. Ten individuals were visibly alive within two separate areas of the polygon (see Figure 18).
 - The boundary of SC_23 was mapped to match the ground treatment area.
 - Photos were taken to show a dirt road washed out south of the water crossing and exposed pipes.
 - Ponding features identified in the Otay Ranch Preserve Resource Management Plan Phase 2 Appendix F6 Vernal Pool Management Plan were visited to document current conditions. Figure 38 demonstrates the Vernal Pool Management Plan individual vernal pools that were qualitatively monitored; it does not represent all known ponding features in the preserve. The status of previously mapped vernal pools within the Vernal Pool Preservation area were noted, as follows:
 - Five were mapped as known ponding features, including one that was restored.
 - Four were noted as unlikely to pond due to current unsuitable conditions.
 - Nine were noted for restoration potential. A depression was observed but they did not appear to pond.
 - One was noted as a depression with San Diego button-celery (*Eryngium aristulatum* var. *parishii*).
- On December 22,
 - Seven depressions with damp soils were mapped within SC_16 and the vernal pool complex.

- The fence surrounding the vernal pool complex was observed to be intact.
- 364 spiny redberry individuals were mapped. Spiny redberry is a host plant for Hermes copper butterfly.
- Two stinkwort (Cal-IPC Rating: Moderate/Alert) individuals were observed. These individuals were hand-pulled and bagged for removal.
- Smooth boisduvalia (*Epilobium campestre*) was observed. Smooth boisduvalia is a USACE National Wetland Plant Obligate species (USACE 2020).
- The following trees were noted with no evidence of SHB during SHB tree health surveys: fremont cottonwood (*Populus fremontii* ssp. *fremontii*), Goodding's black willow (*Salix gooddingii*), and arroyo willow.
- Three LBVI (Priority Group 1) detections were made.
- Four CAGN (Priority Group 1) detections were made.
- Six coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*; Priority Group 1) detections were made.
- One Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*; Priority Group 2) detection was made.
- One Blainville's horned lizard (Priority Group 2) detection was made.
- One southern mule deer (Priority Group 2) detection was made.
- One red diamond rattlesnake (*Crotalus ruber*; Priority Group 3) detection was made.
- Four San Diego black-tailed jackrabbit (Priority Group 3) detections were made.
- One San Diego desert woodrat (*Neotoma lepida intermedia*; Priority Group 4) detection was made.
- One white-tailed kite (Priority Group 4) detection was made.

San Ysidro Parcels

Figure 17 shows noteworthy data collected in 2022.

- On January 5, an off-site burned area along the road located near the QCB CDFW Local Assistance Grant area was observed. The area was less than 250 square feet based on a visual estimate.
- On February 2, vehicle tracks were observed bypassing the rock barrier near the western parcel boundary. The PSB replaced the rocks that had been moved in the barrier.

- On April 1, multiple motor bike routes were observed in sensitive coastal sage scrub habitat. The routes were mapped using aerial imagery.
- On April 6, no new access issues were observed in the northeast corner of the parcels.
- On June 24, spiny redberry individuals were mapped. The proximity to California buckwheat was noted. No Hermes copper individuals were observed.
- On July 28,
 - A foot route was mapped through coastal sage scrub habitat. The route appeared to have been created with hand tools and may have been created for fire crews to access the Border 27 Fire earlier in July.
 - Four new photographic monitoring locations were established to monitor habitat recovery within the Border 27 Fire footprint.
 - The PSB collected repeat photographs from multiple photographic monitoring locations established in 2010. The purpose of collecting the repeat photos was to document visual changes to the habitat within the Border 27 Fire footprint. Attachment 2: Photographs 22 through 27 demonstrate pre-fire and post fire conditions.
 - It was observed that the main road leading to the northeastern boundary and the road within the central portion of the parcels had been graded. Fire crews likely graded the road to gain access during the Border 27 Fire.
- On August 17, one motor bike route was mapped within soil crust.
- On September 14, two-track tire tracks were mapped leading into the San Ysidro parcels. The tracks indicated the vehicle had driven around previously installed fencing and the route is actively used.
- On October 21,
 - Two track tire tracks were mapped in coastal sage scrub habitat.
 - A stand of approximately 30 San Diego sedge (*Carex spissa*) individuals were mapped. San Diego sedge is the host plant of Harbison dun skipper (Priority Group 1).
- On November 15, dot-seed plantain was observed at treatment polygon SY_1.
- 382 spiny redberry individuals were mapped. Spiny redberry is a host plant for Hermes copper butterfly.
- One CAGN (Priority Group 1) detection was made.
- One southern mule deer (Priority Group 2) detection was made.

Wolf Canyon and Western Wolf Canyon Parcels

Figure 20 shows noteworthy data collected in 2022.

- At Western Wolf Canyon:
 - On May 25,
 - A water drain leading from the upslope residential development into the preserve was mapped.
 - Locations where off-site upslope irrigation is eroding Otay tarplant soil were mapped.
 - One location with friable clay soil suitable for San Diego thornmint (*Acanthomintha ilicifolia*) was mapped.
 - On August 23, nine locations where photographs were taken for the Specific Plan Area 1, Village One South restoration project (former RECON project 3173) were relocated and comparison photographs were collected. The locations were recorded with a GPS device. The photographic monitoring locations are shown on Figure 37. Original photographs compared to 2022 photographs are presented in Attachment 4. Original photographs 1, 3, 5, and 7 are from the Otay Ranch Village 1 Maritime Succulent Scrub Restoration Program Year 5 Annual Report for Wolf Canyon (RECON 2007). Original photographs 9, 11, and 13 are from the Otay Ranch Village 1 Phase VIWS Maritime Succulent Scrub Restoration Program Years 1-5 (RECON 2008).
 - On October 25, drone footage was collected of the 2021 cactus wren shrub thinning areas. Attachment 2: Photograph 28 shows a still image of the parcels.
 - One CAGN (Priority Group 1) detection was made.
- At Wolf Canyon:
 - On May 25, the PSB observed hazardous road conditions at the concrete water crossing. An email with a photo of the road damage was attached and sent to the City to notify them of hazard.
 - On May 27, two temporary signs were installed on either side of the concrete water crossing that is eroding. The signs stated there was a road hazard and the road is closed.
 - On June 1, the City of Chula Vista Public Works Department placed folding barricades at the water crossing and signs stating "Crossing is Closed".
 - On June 27,
 - The folding barricades and signs stating the "Crossing is Closed" with Public Works Operations contact information that were previously installed by Public Works on June 1 were in place and showed no signs of vandalism.

- Spanish false-fleabane (*Pulicaria paludosa*), a previously undocumented non-native plant species, was mapped. Approximately 100 individuals were observed.
- On July 29 and August 23, the previously installed folding barricades to block access to the eroding water crossing were intact.
- On October 12, one stinkwort individual was removed by hand.
- On November 3, areas that had been hydroseeded recently for the Otay 2nd Pipeline Emergency Repair Project were mapped.
- One arroyo willow individual was noted as appearing healthy, with no evidence of SHB during SHB tree health surveys.
- One stinkwort (Cal-IPC Rating: Moderate/Alert) individual was observed.
- One CAGN (Priority Group 1) detection was made.
- One Belding's orange-throated whiptail (Priority Group 2) detection was made.

Task 3: Meetings and Coordination

The PSB attended various land manager meetings and workshops through December 31, 2022. Meeting topics and dates are described in detail below.

Subtask 3a. (FY 2021-22 and FY 2022-23): SDMMP & MSP Meetings

The PSB attended monthly SDMMP, quarterly SANDAG Regional Habitat Conservation Taskforce, and quarterly MSP meetings to assure consistency with regional conservation efforts and plans. An SDMMP meeting was not held in November. Table 27 provides a list of the meetings attended and dates meeting notes were submitted.

Table 27 San Diego Management and Monitoring Program, SANDAG, and Management and Monitoring Strategic Plan Meetings: January 1, 2022 through December 31, 2022				
Meeting Date	Meeting	Presenter	Topic	Meeting Note Submittal Date
01/26/2022	SDMMP	Scarlett Howell – USGS Barbara Kus – USGS	Abundance and Distribution of Southwestern Willow Flycatchers in San Diego County Demography of Southwestern Willow Flycatchers in San Diego County	01/26/2022
02/10/2022	MSP	Various	Land Manager Updates E-bikes SDMMP Project Update Wildlife Photo Processing Tool Feral Pig Update	02/10/2022
02/23/2022	SDMMP	Staci Amburgey - University of Washington, Washington Cooperative Fish and Wildlife Research Unit	Conservation in changing ecosystems, from fragmentation to invasive species	02/25/2022
03/23/2022	SDMMP	Loren Merrill – AECOM Andrew Fisher – AECOM	2021 Northern Harrier (<i>Circus hudsonius</i>) Surveys Across Western San Diego County 2021 Tricolored Blackbird (<i>Agelaius tricolor</i>) Surveys Across Western San Diego County	03/28/2022
04/27/2022	SDMMP	Kris Preston – USGS, SDMMP Emily Perkins – USGS, SDMMP	Management Strategic Plan 2022-2026 Objectives and State of the Preserve Update State of the Preserve Dashboard Overview and Ecological Integrity Update	04/28/2022

Table 27 San Diego Management and Monitoring Program, SANDAG, and Management and Monitoring Strategic Plan Meetings: January 1, 2022 through December 31, 2022				
Meeting Date	Meeting	Presenter	Topic	Meeting Note Submittal Date
05/26/2022	SDMMP	Brian Myers – California State Polytechnic University, Pomona Amy Vandergast – USGS Robert Fisher – USGS	Integrating 20 years of site-specific bat surveys to help inform a regional bat management plan Bat virome study and ties to emerging infectious diseases	05/31/2022
07/19/2022 (reschedule from 6/22/2022)	SDMMP	Amy Vandergast – USGS	Subspecies differentiation and range- wide genetic structure are driven by climate in the California gnatcatcher, a flagship species for coastal sage scrub conservation	07/19/2022
07/27/2022	SDMMP	Andrew Myer – SD Audubon Cristina Santa Maria – SD Audubon Dr. Elsa Cleland – UCSD	Improving fencing and signage at the Southern Wildlife Refuge to protect dune habitat for nesting and resting birds The influence of drought, fire and invasion on coastal sage scrub ecosystems in San Diego	07/27/2022
08/10/2022	MSP	Jason Giessow (Dendra, Inc.) David Hogan (Chaparral Lands Conservancy) Robert Fisher (USGS)	Annual Update for San Diego Regional Invasive Plant Control: (1) Eradication: EDRR Program Work Update, (2) Containment: Regional Oncosiphon (stinknet) control, and (3) Containment: Arundo re-treatments at the watershed scale Mutt Kupshuw - 'Éexil Kwáavichush National Monument: Protecting the chaparral ecosystems along the Pacific Crest USGS Project Updates and Resource Advisor Coordination	08/10/2022

Table 27 San Diego Management and Monitoring Program, SANDAG, and Management and Monitoring Strategic Plan Meetings: January 1, 2022 through December 31, 2022				
Meeting Date	Meeting	Presenter	Topic	Meeting Note Submittal Date
08/24/2022	SDMMP	James Bartolome, Lynn Huntsinger, Larry Ford, Michael White, Matthew Shapero, Felix Ratcliff, Kaveh Motamed, Joyce Qiao, Chris Nygard (UC Berkeley Grazing Team)	SANDAG Grazing Study Progress Report	08/30/2022
09/13/2022	SANDAG Regional Habitat Conservation Taskforce	Kim Smith (SANDAG) Keith Greer (SANDAG)	FY 2023 Work Plan; Regional Funding; Regional Management and Monitoring FY 2023-24 Work Plan and FY 2023 Annual Funding	09/13/2022
		Emily Perkins (SDMMP)	Preserve Metrics Dashboard	
		Kim Smith (SANDAG) Kris Preston (SDMMP)	Regional Management and Monitoring Access Permits	
9/28/2022	SDMMP	Ann Baldrige (Resource Conservation District of Greater San Diego)	Regional Priority Plan	9/28/2022
		Diana Brand Ramirez (AECOM)	Assessment of Willowy Monardella Status, Habitat, and Threats on Conserved Lands in San Diego County	
		Emily Perkins (SDMMP/USGS)	Preserve Metrics Dashboard	
10/26/2022	SDMMP	Tito Marchant (Nature Collective)	Ecosystem Restoration - From Coastal Dunes to Riparian Forest	10/26/2022

Table 27 San Diego Management and Monitoring Program, SANDAG, and Management and Monitoring Strategic Plan Meetings: January 1, 2022 through December 31, 2022				
Meeting Date	Meeting	Presenter	Topic	Meeting Note Submittal Date
11/16/2022	MSP	Rusty Rhodes and Dario Lombardo (County of San Diego- Department of Parks and Recreation) Jessie Vinje (CBI)	Lemonade berry dieback/ pistachio canker 2022 Rare Plant Discovery Surveys, Inspect and Manage Monitoring, and Valley Fire Surveys	-
12/14/2022	SDMMP	Trish Smith (TNC) and Nancy Frost (Caltrans) Winston Vickers and Justin Dellinger (UC Davis) Jennifer Price (County of San Diego) Robert Fisher (USGS) Kim Smith and Courtney Pesce (SANDAG) and Kris Preston, Emily Perkins, Chris Brown, Annabelle Bernabe, Beth Roesler, and Sarah McCutcheon (SDMMP)	Wildlife Crossing Planning Efforts for Interstate 15 in the Santa Ana-Palomar Mountains Linkage Mountain lion study update - combining multiple methods for monitoring the regional population County of San Diego Department of Parks and Recreation Management and Monitoring Program USGS Western Ecological Research Center Project Updates 2022 Review and 2023 Plans	12/14/2022

Subtask 3b. (FY 2021-22 and FY 2022-23): Land Manager Meetings

Additional meetings were attended by the PSB to coordinate with other agencies and land managers. The following includes a list of meetings attended by the PSB:

- On March 10, the PSB notified San Diego Gas & Electric (SDG&E) of a downed pole on the Dulzura parcels. It was determined that the downed pole was a telecommunication pole. On March 24, the PSB coordinated with AT&T staff to notify them of the downed pole. The PSB provided an AT&T technician with directions for finding the pole.
- The PSB attended the SANDAG TransNet EMP working group meeting on June 14.
- On September 2, the PSB scheduled and attended a Teams meeting with the City of Chula Vista, County of San Diego, and City of San Diego to plan for the annual MSCP workshop.
- The PSB coordinated and attended a meeting on September 6 with Kristine Preston (USGS), Robert Fisher (USGS), and James Gannon (BLM) to discuss how the POM can support regional fire management efforts.
- The PSB assisted the City with planning the annual MSCP workshop. Tasks included preparing the workshop flyer, collecting and editing drone footage and other video footage, preparing virtual meeting backgrounds, coordinating with the partners, coordinating and sending doodle polls, preparing and sending save the dates, scheduling meetings with the partners, coordinating with the partners to determine the list of presenters, scheduling meetings with presenters, preparing for the practice session, preparing the itinerary, preparing Microsoft Teams meeting settings, conducting dry runs for hosting the meeting and for presenting, responding to public questions, editing the recording of the workshop, providing an attendance report to the presenters, and providing follow up information to the presenters after the workshop.
- On October 5, Anna Leavitt (RECON), Dai Hoang (City of Chula Vista), Jennifer Price (County of San Diego), and Beth Principe (County of San Diego) met to discuss the annual MSCP workshop. On October 7, the PSB met with the partners via Microsoft Teams to plan for the MSCP workshop. On October 13, Anna Leavitt (RECON), Dai Hoang (City of Chula Vista), and Sarah McCutcheon (SDMMP) met via Microsoft Teams to discuss the logistics of moderating a Microsoft Teams meeting.
- On November 17, the PSB attended the 2023 Project Coordination meeting hosted by SANDAG and USGS. Meeting notes were sent to Mr. Hoang on November 17.
- On December 9, Ms. Leavitt provided support and presented at the annual MSCP workshop.
- On December 14, the PSB responded to Kim Wehinger (City of San Diego) regarding the City of San Diego potentially collecting larger pieces of coast cholla to supplement their cactus wren habitat restoration project immediately east of the Salt Creek parcels.

Subtask 3c. (FY 2021-22 and FY 2022-23): Meeting Notes

Meeting notes were prepared for submittal to the POM for SDMMP and SANDAG Regional Habitat Conservation Taskforce meetings described under Subtask 3a. Meeting note submittal dates are listed in Table 27 above. Meeting notes for the SANDAG TransNet EMP working group meeting were

submitted to the POM on June 14. Meeting notes for the 2023 Project Coordination meeting were sent to Mr. Hoang on November 17.

Subtask 3d. (FY 2021-22 and FY 2022-23): POM

The POM and PSB coordinated Preserve monitoring and management tasks via phone, email, and meetings. Coordination included:

- On February 14, the PSB provided the City of Chula Vista with recommendations on where potential coastal sage scrub restoration could be proposed in the Salt Creek parcels as well as the Wolf Canyon parcels.
- The PSB filled out a CDFW properties list spreadsheet and submitted it to the POM on May 4.
- The PSB met virtually with Cheryl Goddard on May 10 to discuss ongoing tasks.
- The PSB sent the draft strategic plan, operational plan, and fire management plan to the City on May 11. The PSB sent the draft figures for the fire management plan to the City on May 12. The figures were posted to an FTP site due to the file size.
- The PSB calculated and prepared a spreadsheet that showed the estimated ballpark costs for habitat management and monitoring on lands conveyed to the preserve in and after 2012 to assist SANDAG in determining the cost of regional conservation. A Word file was created explaining how the estimates were prepared. The spreadsheet and Word file were submitted to the POM on June 10, 2022.
- On July 20, the PSB emailed the POM to notify them of the Border 27 Fire that occurred within the San Ysidro parcels and the intent to conduct repeat photos to compare photos of the burned area.
- On July 22, Anna Leavitt, Kayo Valenti, and Beth Principe met in a Teams meeting to discuss the FY 2022-23 annual work plan and other preserve related items.
- On July 29, the PSB had a phone meeting with Scott McMillan (Dudek) to discuss potentially suitable areas within the preserve for maritime succulent scrub mitigation.
- The PSB gathered information on management and monitoring requirements within the FUDS for discussing the Otay River Restoration Project with SWCA. On August 24, the PSB attended a Teams meeting with the City and SWCA to discuss vernal pool management and monitoring within the preserve.
- On September 7, the PSB attended a Teams meeting with the City and SWCA to discuss vernal pool monitoring and restoration in the preserve.
- The PSB gathered information on the former bombing range within the Otay Ranch Preserve for discussing the Otay River Restoration Project with SWCA. In September, the PSB provided information to SWCA and the City regarding the former bombing range within the Otay

Ranch Preserve. The PSB also discussed potential areas for maritime succulent scrub restoration within the preserve with the City in September.

- On November 17, the PSB coordinated with ESA regarding their proposed cholla collection at Salt Creek and Wolf Canyon.

Task 4: Reporting

The following section describes reports that were submitted to the POM in support of the FY 2021–22 and FY 2022–23 annual work plans.

Subtask 4b. (FY 2021-22) and Subtask 4c (FY 2022-23): Database Management and Contributions

Data collected between January 1, 2021 and December 31, 2021 were submitted to California Natural Diversity Database, San Diego Biological Information and Observation System, and South Coast Multi-taxa Database on February 28, 2022.

MSP IMG field forms, photographs, and spatial data collected in 2022 were finalized and submitted to Emily Perkins (SDMMP) on October 6, 2022.

GIS staff compiled data from the preserve for preserve biologists to complete their required CDFW Scientific Collecting Permit (SCP) reporting requirements. On August 15, sensitive wildlife species data collected in 2022 were submitted to CNDDDB as part of the preserve biologists CDFW SCP requirement.

GIS staff prepared an ArcGIS online (AGOL) map for the SANDAG TransNet EMP short-term QCB threat reduction project to help guide the PSB once they begin tasks outlined in the FY 2022-23 work plan that support the EMP grant project.

GIS staff created an AGOL map showing relevant features from the RMP2 Update figures and an AGOL map showing relevant features from the Otay Trail Alignment Study. These AGOL maps will be used for future management and monitoring activities within Otay Ranch Preserve.

Subtask 4d. (FY 2021-22): Annual Report

The 2021 Annual Report for the Otay Ranch Preserve was submitted to the POM on January 21, 2022 (RECON 2022c). The annual report summarized all Preserve monitoring and operations/maintenance tasks performed between January 1 and December 31, 2021.

Subtask 4e. (FY 2021-22): Coastal California Gnatcatcher Pre-survey Notification Letter

The PSB submitted the CAGN pre-survey notification letter to USFWS and the POM on January 28, 2022 (RECON 2022d). CAGN surveys were conducted according to USFWS protocol (USFWS 1997).

Subtask 4f. (FY 2021-22): FY 2022–23 Annual Work Plan

The draft FY 2022–23 Annual Work Plan was submitted to the POM on February 11, 2022. The work plan proposed Preserve monitoring and operations/maintenance tasks to be performed between July 1, 2022 and June 30, 2023. The County provided the PSB with comments on August 3. The draft watermark was removed, and the final work plan was submitted to the POM on August 8, 2022 (RECON 2022a).

Subtask 4g. (FY 2021-22): Quino Checkerspot Butterfly Pre-survey Notification Letter

The PSB submitted the QCB pre-survey notification letter to USFWS and the POM on January 17, 2022 (RECON 2022b). Eric Porter (USFWS) approved the pre-survey notification letter via email on January 18, 2022. QCB surveys were conducted according to USFWS protocol (USFWS 2014) except where deviations were approved.

Subtask 4h. (FY 2021-22): Quino Checkerspot Butterfly Post-survey Report

The PSB submitted the QCB post-survey report to USFWS and the POM on May 6, 2022 (RECON 2022e). Figures 39 through 46 show the QCB host and nectar plants mapped in 2022. All QCB larva and adult observations made between January 14 and April 6, 2022 are shown on a USGS 7.5-minute topographic map on Figure 47.

Dot-seed plantain, purple owl's-clover, and thread-leaved bird's-beak were found to occur within the Dulzura parcels (see Figure 39). In addition, potential host plant Parish's owl's clover (*Castilleja densiflora* ssp. *gracilis*) was observed. Dot-seed plantain and purple owl's-clover were found to occur within the Jamul Mountains parcels (see Figure 40). Dot-seed plantain was found to occur within the Little Cedar Canyon parcel (see Figure 41). Dot-seed plantain was found to occur within the McMillin parcels, in particularly high densities in high-quality habitat in the northern portion of the site. Purple owl's-clover and thread-leaved bird's beak occurred in several locations in the McMillin parcels as well (see Figure 42). Dot-seed plantain was found to occur within the Northern San Ysidro parcel, in particularly high densities in the high-quality habitat in the eastern portion of the site. In addition, purple owl's-clover and potential host plant Parish's owl's-clover was observed (see Figure 43). Dot-seed plantain was found to occur in very low density in all the polygons except polygon 4 of the Millenia parcels (see Figure 44). Dot-seed plantain was found to occur in very low density only near the center of the survey area and just outside of the parcel boundary to the west at the Proctor Valley

(South) parcel (see Figure 45). Dot-seed plantain and purple owl's-clover was found to occur within the survey area with particularly high densities near the southern edge of the survey area at the Salt Creek parcels (see Figure 46).

A total of 2,842 butterfly and skipper observations were made during the focused surveys, representing 13 species (and 5 unidentified species) (RECON 2022e). Unidentified species included mainly unknown blue butterflies or unknown white butterflies that could not be identified to a species level when the individual flew by. The most common butterfly species observed were Behr's metalmark (*Apodemia mormo virgulti*), QCB, Pacific Sara orangetip (*Anthocharis sara sara*), immaculate bramble hairstreak (*Callophrys dumetorum affinis*), and southern blue (*Glaucopsyche lygdamus australis*). A total of 842 QCB observations were made (see Figure 47):

- During the flight season surveys:
 - 601 QCB adult observations were made at 19 different survey polygons within the parcels;
 - 42 QCB adult observations were made outside of the survey polygons within the parcels;
- Additional incidental QCB were observed during other preserve management and monitoring activities:
 - 10 QCB adult incidental observations were made within the parcels;
 - 171 QCB adult incidental observations were made off-site outside of the parcels; and
- Prior to initiating flight surveys:
 - 7 QCB larva incidental observations were made within the parcels;
 - 4 QCB larva incidental observations were made off-site outside of the parcels; and
 - 7 QCB adult incidental observations were made within the parcels.

In addition, a total of two dead QCB adults were observed: one dead QCB adult observation was made within the parcels and one dead QCB adult incidental observation was made off-site outside of the parcels. The two dead QCB were excluded from the total QCB count.

Subtask 4k (FY 2021-22): Wet Season Fairy Shrimp Post-survey Report

The PSB submitted the wet season fairy shrimp post-survey report to USFWS and the POM on June 16, 2022 (RECON 2022f). During the first seven ponding site visits, no ponding was observed within the 11.9-acre parcels. During the March 28 and 29, 2022 rain event, the site received approximately 1.85 inches of rain. On March 31, one basin was observed with approximately 1 inch of standing water. Other basins showed signs of brief ponding such as drift deposits. High temperatures began to rise between April 4 and April 11 with maximum temperatures ranging from 69 degrees Fahrenheit on April 4 to 99 degrees Fahrenheit on April 8. Due to shallow ponding and elevated maximum temperatures likely to cause accelerated evaporation, the one basin that was observed to be inundated on March 31 was not surveyed. No fairy shrimp or other aquatic wildlife species were observed.

Subtask 4a. (FY 2022–23): Coastal California Gnatcatcher 2022 Post-survey Report

The PSB submitted the 2022 CAGN post-survey report to the POM and USFWS on September 7, 2022 (RECON 2022g). Dominant shrub species within the Piper Ranch parcels included California sagebrush (*Artemisia californica*) and California buckwheat. However, the survey area provided marginal foraging and nesting habitat for CAGN as the dominant shrubs were generally scattered throughout mima mound topography with a dense cover of grasses. No CAGN was identified within the Otay Ranch Preserve, Piper Ranch parcels surveyed in 2022. One sensitive avian species, grasshopper sparrow (CDFW Species of Special Concern), was detected within the survey area during the 2022 focused surveys.

Subtask 4b. (FY 2022–23): Brown-headed Cowbird (*Molothrus ater*, BHCO) 2022 Trapping Report

One report detailing 2022 Brown-headed cowbird (*Molothrus ater*; BHCO) removal activities was submitted to the POM on August 19, 2022 (SDNHM 2022a). The PSB reviewed the document prior to submittal. The 2022 mist netting locations are shown on Figure 48.

Nine male and seven female cowbirds were captured at the Preserve in 2022. Fourteen cowbirds were captured at Northern Salt Creek, Salt Creek, and Wolf Canyon parcels and two were captured within Otay River Restoration Area outside the Preserve. This compares to three cowbird captures, all females, during netting in 2019; eleven cowbird captures, including five females, during netting in 2018; and twenty cowbird captures, including only four females, during three months of continuous trapping in 2014. Eight of the males were banded and released. One male (diagnosed with avian pox virus), and seven females were euthanized and taken to the SDNHM to be accessioned into the research collection (SDNHM 2022a).

Six vireo nests were parasitized by cowbirds within the Northern Salt Creek, Salt Creek, and Wolf Canyon parcels and the Otay River Restoration Area between June 1 and July 6 during the 2022 breeding season (SDNHM 2022b). Four of six nests were located in the river channel and two were located in Salt Creek. Four cowbird eggs were removed from nests. Two nests failed directly as a result of parasitism. The remaining four parasitized nests were successful. Although cowbirds were observed within the vireo territory at Wolf Canyon, it is unknown whether they had any nests that were parasitized. In 2022 cowbird parasitism occurred within 12 percent of vireo nests. In comparison, in 2021 cowbird parasitism occurred within 53 percent of vireo nests, and in 2020 cowbird parasitism occurred within 43 percent of vireo nests when no cowbird removals occurred. Cowbird mist-netting in 2018 and 2019 reduced the cowbird parasitism rate to an average of 12 percent across both years (SDNHM 2022a).

Subtask 4d. (FY 2022–23): Baseline Survey Reports

No baseline surveys were conducted in 2022, as Bonita Glen and Eastlake Self Storage parcels were not conveyed by March 1, 2022. No baseline survey reports were prepared.

Subtask 4e. (FY 2022–23): Least Bell’s Vireo and Yellow-billed Cuckoo 2022 Post-survey Report

A post-survey report detailing the results of the 2022 LBVI survey and nest monitoring and YBCU survey was submitted to the POM on December 20, 2022 (SDNHM 2022b). The PSB reviewed the document prior to submittal. Figure 48 shows 2022 LBVI observations. Table 28 shows the 2022 LBVI survey results. YBCU was not observed in 2022.

Locations	Pairs	Individuals	Undetermined	Territories	Nests	Successful Nests
Northern Salt Creek and Salt Creek Parcels	9	3	2	14	19	6
Otay River Restoration Area (within and directly adjacent to Salt Creek Parcels)	16	1	1	18	26	15
Wolf Canyon Parcel	1	1	-	2	NS	NS

NS = Not surveyed.

Subtask 4f. (FY 2022–23): Wet Season Fairy Shrimp Pre-survey Notification Letter

The PSB prepared and submitted the wet season fairy shrimp pre-survey notification letter to USFWS and the POM on October 13. The letter included a proposed deviation request to conduct up to five survey visits at the Salt Creek parcels (RECON 2022h). USFWS approved the deviation request on October 13 via email.

3.0 Operations/Maintenance

This chapter describes operations/maintenance tasks that occurred between January 1 and December 31, 2022. These tasks were proposed in the FY 2021–22 and FY 2022–23 annual work plans (RECON 2021 and 2022a).

Task 5: Access Control

Access control within the Preserve continues to be one of the highest priority tasks. Sensitive habitat, plants, and wildlife are being impacted by unauthorized foot and bicycle traffic, off-highway vehicle, target-shooting activities, and unauthorized route creation. The following sections detail work that was performed in an ongoing effort to minimize damage to the Preserve.

Subtask 5a. (FY 2021-22 and FY 2022-23): USCBP/Agency Access Meetings & Coordination

- On January 18, the PSB coordinated with Tracie Nelson (CDFW) regarding access to the Proctor Valley Extension parcels through Rancho Jamul Ecological Reserve.
- On February 1, the PSB emailed Amber Craig (USCBP) regarding off-highway vehicles observed on January 28 near the Millenia parcels in Otay Valley.
- On February 7, the PSB emailed Kim Wehinger (City of San Diego) regarding vehicle tracks observed in sensitive habitat on City of San Diego property leading into the Jamul Mountains parcels.
- On March 3, the PSB responded to Tracie Nelson (CDFW) regarding shared access issues at and near the McMillin parcels.
- On March 4, the PSB emailed Dwane Binns (USFWS) to notify him of recent illegal access occurring on USFWS property immediately west of the Dulzura parcels. The PSB observed the recently installed fence had been cut and vehicle tracks were present in sensitive habitat. It was noted that the illegal vehicle tracks lead onto the Dulzura parcels into habitat occupied by QCB.
- On April 8, Anna Leavitt and Kayo Valenti (RECON) met virtually with Tracie Nelson (CDFW), Beth Principe (County of San Diego), Tim Dillingham (CDFW), and Kim Wehinger (City of San Diego) regarding access issues east of Lower Otay Reservoir. The group discussed the increase in illegal vehicle use at the McMillin and adjacent CDFW property and potential impacts to QCB. A follow-up meeting was held on April 15 with Anna Leavitt, Kayo Valenti, Tracie Nelson, Beth Principe, Amber Craig (USCBP), Robert (Lance) Lenoir (USCBP), and Patrick Gower (USFWS). On April 18, the PSB emailed Tracie Nelson a zip file with the access issue GIS data the PSB collected on April 14 and the 2022 QCB observations.
- An email was sent to Tracie Nelson (CDFW) on June 15 notifying her of a cut lock at the main gate off Otay Lakes Road to access Ridge parcels. Ms. Nelson sent the email to Dwane Binns (USFWS) on June 15 to inform him that the lock may have belonged to USFWS. Dwane Binns responded on June 21 to notify the group that he would visit the location.
- On May 10, the PSB sent a follow-up email to Amber Craig (USCBP) regarding a USCBP lock that was observed cut along the Minnewawa Truck Trail.
- On May 11, the PSB resent a zip file that contained shape files of access issues and the 2022 QCB observation data near the McMillin and Northern San Ysidro parcels to Tracie Nelson (CDFW).
- On June 24, the PSB sent an email to Robert (Lance) Lenoir (USCBP) to notify him that the USCBP lock is missing from the yellow gate east of Skydive San Diego.

- On July 18, the PSB corresponded with Tracie Nelson (CDFW) regarding the Border 27 Fire that started on July 17 within the San Ysidro parcels. According to National Alliance for Public Safety GIS Foundation, the fire was contained on July 19 and burned 98 acres.
- On July 28, the PSB emailed Robert (Lance) Lenoir (USCBP) to inform him that the road to San Ysidro had recently been graded. The fire crews likely graded the road during the Border 27 Fire to gain access.
- On August 16, the PSB emailed the POM regarding the large wooden deck/stage that had been built southwest of the Ridge parcels off-site.
- On August 29, the PSB emailed Tracie Nelson (CDFW) to ask for an update on the USCBP and CDFW road closure effort for the road that leads into the McMillin parcels.
- On September 6, the PSB notified the POM of the access issues at the Dulzura parcels and the plan to install and repair fence. On September 7, the PSB emailed Ms. Nelson to follow up on potentially installing fencing near the water tanks north of the Dulzura parcels and to notify of breached fencing on CDFW property.
- On September 22, the PSB emailed Tracie Nelson (CDFW) to notify of the September 13 fence installation and repair along the POM and CDFW shared property boundary at the Dulzura parcels. It was noted that future correspondence will be sent to Nicholas (Nick) Aponte (CDFW).
- On October 4, the PSB emailed Kim Wehinger (City of San Diego) to notify of access issues shared by both the POM and City of San Diego observed on September 27 at the Jamul Mountains parcels. The PSB provided maps and photos showing a new extensive mountain bike route that had been flagged on both the Jamul Mountains parcels and on City of San Diego Corner Stone Lands. The City of San Diego was also notified of a breached steel tube barrier along Proctor Valley Road along the border of City of San Diego property. A mountain bike route has been established through the open barrier and cut fence.
- On October 11, the PSB emailed Lisa Murphy (SDG&E), Miguel Rodriguez (SDG&E), Robert (Lance) Lenoir (USCBP), Derek Olivas (City of Chula Vista Fire Department), and Justin Gipson (City of Chula Vista Fire Department) regarding a gate along Minnewawa Truck Trail within the Dulzura parcels in need of new locks to secure it.
- On October 26, the PSB emailed the POM to notify of high levels of migrant traffic within the Northern San Ysidro, San Ysidro, McMillin, Little Cedar Canyon, and Dulzura parcels. Resources are being impacted due to the high level of traffic. A follow-up figure showing the locations was sent to the POM on October 27.
- On November 17, the PSB emailed Agent Lenoir (USCBP) to provide notification that the gate northwest of the GF Bailey Detention Center was missing a USCBP lock. The gate was being held open with tie wire. Agent Lenoir responded that he would place a lock on the gate.

Subtask 5b. (FY 2021-22 and FY 2022-23): Fence and Sign Installation and Repair

Throughout 2022, the PSB observed an increased amount of trespass and habitat damage compared to past years primarily at the following parcels: Salt Creek, Northern Salt Creek, Dulzura, Little Cedar Canyon, Jamul Mountains, and McMillin. Native vegetation was damaged at Northern Salt Creek and Salt Creek due to ATV and mountain bike use; at Dulzura with off-road truck and ATV use; at Little Cedar Canyon with motor bike use; at Jamul Mountains with a new mountain bike route; and at McMillin due to off-road truck, ATV, and motor bike use (see Figures 15, 16, 18, and 31). Additional vegetation was damaged at San Ysidro with a new motor bike route; at Millenia with ATV and motor bike use; and at Johnson Canyon (East), Piper Ranch, and Johnson Canyon Otay Tarplant Preserve due to ATV and motor bike use (see Figures 17, 19, and 36).

The PSB gathered information on geocache locations that occur within the preserve through the Geocaching app. The PSB reviewed recent Google Earth imagery and mapped obvious unauthorized ATV and bike routes. On March 16, the PSB picked up 14 signs stating Off-road Activity Prohibited from Lauren Raduc (County of San Diego Ranger) for installation throughout the Preserve. On August 25 and 31, the PSB ordered and picked up 20 No Trespassing/Preserve signs for installation throughout the Preserve.

The PSB internally discussed potential options for restricting unauthorized access to the McMillin parcels to protect QCB and GOEA. On April 14, the PSB checked illegal access locations to determine potential illegal road closures or seasonal closures for the McMillin and Northern San Ysidro parcels to protect QCB.

On July 8, the PSB meet with Wayne Zarling (City of Chula Vista Open Space Inspector Public Works Department) to receive City of Chula Vista combination locks. Mr. Zarling provided the PSB with three combination locks.

On November 30, the PSB emailed Beth Principe and Jennifer Price at the County to determine if a recently installed gate south of the Salt Creek parcels belonged to the County. Ranger Lauren Raduc at the County confirmed that the gate belongs to the County and locks will be installed.

Access control issues were addressed through December 31, 2022. Tables 29 through 33 summarize access control measures that were implemented per parcel between January 1 and December 31, 2022. Access control issues are described below the tables. The following bullet points provide a summary of total POM property installations/repairs for fence, signs, and gates, and the total off-site adjacent to the Preserve installations/repairs conducted during 2022:

- Total POM property installations/repairs conducted during 2022 include: 713 linear feet of fencing installed, 1,308 linear feet of fencing repaired, and 20 signs installed. Additional access control included T-post installation with concrete and installation of 0.32 acre of coast cholla.
- Total off-site (adjacent to the Preserve Dulzura parcels) USFWS property installations conducted during 2022 include: 15 linear feet of fencing repaired.

Total off-site (adjacent to the Preserve Dulzura parcels) CDFW property installations conducted during 2022 include: 10 linear feet of fencing repaired.

Table 29 Dulzura Parcels and Adjacent USFWS and CDFW Property: Fencing, Sign, and Gate Installation and Repairs								
Parcel	Date	Fencing Installed (linear feet)*	Fencing Repaired (linear feet)*	Signs Installed	Signs Replaced	Signs Repaired	Gate Installed or Repaired	Other Access Control Installed
Dulzura	01/03/2022		65	2	-	-	-	-
Dulzura	02/24/2022	-	25	1	-	-	-	-
Dulzura (off-site USFWS Property)	2/24/2022	-	15	-	-	-	-	-
Dulzura	09/13/2022	23	294	-	-	-	-	-
Dulzura	10/10/2022	-	55	-	-	-	-	T-posts installed with concrete
Dulzura	12/09/2022	-	33	-	-	-	-	-
Dulzura (Off-site on CDFW Property)	12/09/2022	-	10	-	-	-	-	-
TOTAL (POM Property)		23	472	3				T-posts installed with concrete
TOTAL (off-site USFWS & CDFW Property)		-	25	-	-	-	-	-

*Ground length, not total materials used for repair.

Table 30 Jamul Mountain Parcels: Fencing, Sign, and Gate Installation and Repairs								
Parcel	Date	Fencing Installed (linear feet)*	Fencing Repaired (linear feet)*	Signs Installed	Signs Replaced	Signs Repaired	Gate Installed or Repaired	Other Access Control Installed
Jamul Mountains	09/14/2022	-	-	1	-	-	-	-
Jamul Mountains	10/10/2022	-	32	-	-	-	-	-
Jamul Mountains	12/05/2022	-	40	1	-	-	-	T-posts installed with concrete
TOTAL (POM Property)		-	72	2	-	-	-	T-posts installed with concrete

*Ground length, not total materials used for repair.

Table 31 Northern Salt Creek Parcels: Fencing, Sign, and Gate Installation and Repairs								
Parcel	Date	Fencing Installed (linear feet)*	Fencing Repaired (linear feet)*	Signs Installed	Signs Replaced	Signs Repaired	Gate Installed or Repaired	Other Access Control Installed
Northern Salt Creek	01/06/2022	-	20	-	-	-	-	-
TOTAL (POM Property)		-	20	-	-	-	-	-

*Ground length, not total materials used for repair.

Table 32 Salt Creek Parcels: Fencing, Sign, and Gate Installation and Repairs								
Parcel	Date	Fencing Installed (linear feet)*	Fencing Repaired (linear feet)*	Signs Installed	Signs Replaced	Signs Repaired	Gate Installed or Repaired	Other Access Control Installed
Salt Creek	01/06/2022	-	50	-	-	-	-	-
Salt Creek	01/31/2022	-	350	-	-	-	-	-
Salt Creek	02/22/2022	-	266	-	-	-	-	-
Salt Creek	03/02/2022	59	-	-	-	-	-	-
Salt Creek	03/14/2022	-	15	8	-	-	-	-
Salt Creek	03/25/2022	45	-	3	-	-	-	-
Salt Creek	07/29/2022	-	43	-	-	-	-	-
Salt Creek	08/22/2022 08/23/2022	420	20	2	-	-	-	-
Salt Creek	09/15/2022	8	-	-	-	-	-	-
Salt Creek	12/05/2022 & 12/06/2022	158	-	-	-	-	-	-
Salt Creek	12/07/2022	-	-	-	-	-	-	Cholla
Salt Creek	12/19/2022 & 12/20/2022	-	-	-	-	-	-	Cholla (0.32 acre)
TOTAL (POM Property)		690	744	13	-	-	-	Cholla (0.32 acre)

*Ground length, not total materials used for repair.

Table 33 Wolf Canyon Parcels: Fencing, Sign, and Gate Installation and Repairs								
Parcel	Date	Fencing Installed (linear feet)*	Fencing Repaired (linear feet)*	Signs Installed	Signs Replaced	Signs Repaired	Gate Installed or Repaired	Other Access Control Installed
Wolf Canyon	5/27/2022	-	-	2	-	-	-	-
TOTAL (POM Property)		-	-	2	-	-	-	-
*Ground length, not total materials used for repair.								

Dulzura Parcels

Figure 15 shows access control data collected in 2022.

- On January 3,
 - The RECON crew repaired 25 linear feet of 4-strand T-post barbless wire fence along the northwest parcel boundary. Four additional T-posts were added, spaced three feet apart to further restrict vehicles from trespassing. One sign stating no trespassing was affixed to the fence.
 - The RECON crew repaired 40 linear feet of 4-strand T-post barbless wire fence in the canyon along the northwest parcel boundary. One sign stating no trespassing was affixed to the fence.
- On February 24, the RECON crew
 - Tightened the existing barbed wire, reattached the cut barbed wire and added a T-post in the center of the cut fence section along the northwest parcel boundary. Repairs were made along 15 linear feet of 4-strand barbless wire and 10 linear feet of 4-strand barbed wire.
 - Repaired 15 linear feet of 3-strand barbless wire within USFWS property, west of the parcel boundary.
- On September 13,
 - 12 linear feet of T-post 4-strand barbless wire fence was repaired.
 - 15 linear feet of T-post 4-strand barbless wire fence was repaired.
 - 23 linear feet of T-post fence was installed parallel to the existing fence without wire.
 - 267 linear feet of T-post fence was reinforced with additional T-posts.
- On October 10,
 - 15 linear feet of T-post barbless wire fencing was repaired and 15 linear feet of T-post fence was repaired parallel to the existing fence. Seven T-posts were secured with concrete to deter removal.
 - 15 linear feet of T-post barbless wire fencing was repaired. Five T-posts were secured with concrete to deter removal.
 - 10 linear feet of T-post barbless wire fencing was repaired. Five T-posts were secured with concrete to deter removal.

- On December 9,
 - A 15-linear-foot section of barbless wire T-post fencing was repaired along the northern boundary where fence wire had been cut to allow vehicles to drive around the double fence near an existing gate.
 - A 10-linear-foot section of barbless wire T-post fencing was repaired along the northern boundary where fence wire had been cut to allow vehicles to drive around the double fence and within the drainage.
 - A 10-linear-foot section of barbless wire T-post fencing was repaired along Otay Lakes Road within CDFW property to deter unauthorized vehicles from entering POM property.
 - A 4-linear-foot section of barbless wire T-post fencing was repaired to close an opening by the campground. One preserve sign was installed on the T-post barbless wire to dissuade hikers from using the unauthorized foot route.
 - A 4-linear-foot section of barbless wire T-post fencing was repaired to close an opening south of the campground.

Jamul Mountains Parcels

Figure 31 shows access control data collected in 2022.

- On September 14, a signpost and sign and two T-posts were installed adjacent to a previously installed signpost and sign to block a widened route where a vehicle had driven.
- On October 10, 32 linear feet of T-post barbless wire fence was repaired.
- On December 5,
 - 40 linear feet of fencing was repaired (Attachment 2: Photograph 29). T-posts were installed 2-3 feet apart to prevent mountain bikes from crossing through if the wire were to be cut. The T-posts were secured in place with concrete. Rocks and vegetative debris were intermittently placed along the illegal bike route to further discourage use.
 - One preserve sign was installed on the T-post barbless wire to dissuade mountain bikes from using an illegal bike route.

Northern Salt Creek Parcels

Figure 18 shows access control data collected in 2022.

- On January 6, the RECON crew repaired 20 linear feet of 3-strand barbless wire fence at Hunte Parkway, which was observed cut on December 29, 2021.

Salt Creek Parcels

Figure 18 shows access control data collected in 2022.

- On January 6, the RECON crew repaired 50 linear feet of 3-row barbless wire T-post fencing at the vernal pool mesa, which was observed cut during the January 3 site visit.
- On January 31, the RECON crew installed 350 linear feet of 3-row barbless wire T-post fencing along the parcel boundary to prohibit vehicles from entering the southern mesa. Illegal vehicle access has impacted the previously established vernal pools and surrounding habitat.
- On February 22, the RECON crew repaired 266 linear feet of 3-row barbless wire T-post fencing at one location near the southern road rut ponding features where T-posts had been knocked down and bent (Attachment 2: Photograph 30).
- On March 2, 59 linear feet of 3-row barbless wire T-post fence was installed at the vernal pool mesa in the southern section of the parcels. The fence was installed to try to block ATVs from driving up the north facing slope of the mesa.
- On March 14,
 - The following signs were installed at the vernal pool mesa in the southern section of the parcels: two signs stating Sensitive Environmental Resources – Disturbance Restricted, one pictogram sign showing various unauthorized vehicles, four signs stating Area Closed to Vehicle Traffic, and one sign stating No Trespassing.
 - 15 linear feet of 3-row barbless wire T-post fence was repaired at the vernal pool mesa in the southern section of the parcels.
- On March 25, 45 linear feet of 3-row barbless wire T-post fence, one sign stating Off-road Activity Prohibited, one sign stating Sensitive Habitat Area, and one sign stating No Trespassing were installed at the vernal pool mesa in the southern section of the parcels to prevent illegal vehicle access.
- On July 29, the RECON crew repaired T-post barbless wire fencing at three locations along the eastern boundary of the Salt Creek parcels. One location adjacent to the chain-link gate consisted of approximately 30 linear feet of fencing that had been cut and was allowing vehicles to enter the preserve. The two other locations were approximately 10 feet in length and 3 feet in length and allowed mountain bike and foot access into the preserve.
- On August 22 and 23,
 - Two signs stating off-road activity prohibited were installed.
 - 200 linear feet of four-strand T-post barbless wire fence was installed, extending from an existing fence.

- 220 linear feet of four-strand T-post barbless wire fence was installed, extending from an existing fence.
- 20 linear feet of four-strand T-post barbless wire fence was repaired.
- On September 15, 8 linear feet of T-posts without wire was installed.
- On December 5 and 6,
 - A 35-linear-foot section of barbless wire T-post fencing was installed to block an illegal mountain bike route.
 - A 43-linear-foot section of barbless wire T-post fencing was installed to block an illegal ATV route.
 - An 80-linear-foot section of barbless wire T-post fencing was installed to block an illegal mountain bike route.
- On December 7, segments of coast cholla were collected from on-site and planted along an ATV route within coastal cactus wren habitat.
- On December 19 and 20, coast cholla was installed to deter use of an unauthorized bike route north of the Wueste Road gate. In total, coast cholla was installed within a 13,884-square-foot area (0.32 acre) along five separate sections of the unauthorized bike route. Portions of mature coast cholla were collected from adjacent areas for this effort.

Wolf Canyon Parcels

Figure 20 shows access control data collected in 2022.

- The PSB created a temporary sign for placement at the Wolf Canyon parcels. The sign said Danger Road Undercut and Soil Eroding No Vehicles Allowed / Peligro No se Permiten Vehículos Pasar por la Carretera Erosion Debajo de la Carretera. On May 27, two of the temporary signs were installed on rebar on either side of the concrete water crossing at the Wolf Canyon parcels. Photos of the installed signs were sent to the City.
- On June 1, the PSB received an email from the City notifying that folding barricades and signs stating the "Crossing is Closed" with Public Works Operations contact information were installed at the concrete water crossing by Public Works.

Task 6: Invasive Species Treatment

Subtask 6a. (FY 2021-22 and FY 2022-23): Vegetation Treatment and Removal

Vegetation treatment and removal occurred January through December 2022. The RECON crew removed weeds within a variety of habitats described below. RECON biologists coordinated vegetation treatment and removal work, and qualitatively monitored treatment areas to determine proper timing for weed treatment. Otay tarplant (*Deinandra conjugens*), Quino checkerspot host and nectar plants, and small-flowered morning-glory (*Convolvulus simulans*) were flagged for avoidance prior to applying herbicide. Weed species treated with glyphosate herbicide included primarily short-pod mustard (*Hirschfeldia incana*; Cal-IPC Rating: Moderate), tocalote (*Centaurea melitensis*; Cal-IPC Rating: Moderate), non-native annual grasses (*Bromus* spp. and *Avena* spp.; Cal-IPC Rating: Moderate to High), and other species such as horehound (*Marrubium vulgare*), common poison hemlock (*Conium maculatum*), non-sweetclover (*Melilotus* sp.), California burclover (*Medicago polymorpha*), and filaree (*Erodium* sp.). Non-native plants removed by line trimmer consisted primarily of tocalote, oats, and other various grasses. Stinkwort (*Dittrichia graveolens*) was primarily treated by hand removal. The long-term goals of vegetation treatment are to decrease non-native plant cover to (1) maintain and enhance foraging habitat for coastal cactus wren, (2) increase bare ground cover for QCB, (3) increase habitat quality for vernal pool wildlife and plant species, and (4) reduce non-native competition for Otay tarplant. Table 34 lists vegetation treatment and removal dates and locations. Vegetation treatment and removal areas are shown in Figures 49 through 54.

Noteworthy events documented during vegetation treatment and removal activities are described below:

- On February 16, Mark Dodero submitted a summary email to Stephanie Ayerdis, Sara Allen, and Anahi Mendez Lozano (City of San Diego) detailing the 2021 Otay Ranch Preserve vernal pool seed collection accomplishments completed under the City of San Diego Right of Entry Permit for the Cal Terraces Vernal Pool Site.
- The PSB coordinated with Native West Nursery to discuss native seed and container stock availability for the upcoming SANDAG TransNet EMP QCB threat reduction short-term grant project.
- The PSB calculated noise level buffers for line trimmers for future noise avoidance during raptor, LBVI, CAGN, coastal cactus wren, and general bird breeding season.

**Table 34
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage**

Parcel(s)	Name	Specific Location(s)	2022 Polygon Name	Polygon Number	Treatment Type	Treatment Date(s)	Treatment Year(s) Funded through CFD 97-2	Previous SANDAG Grant No.	Previous RECON Project No.	Previous Project Name	Previous Project End Date	Length of Previous Project	Focal Sensitive Species Resource	Focal Plant Species Treated
Salt Creek	Cactus Wren Habitat – Cholla Cactus Cuttings Planted in December 2021 (Community Facility District 97-2 funded CACW habitat restoration) - 0.59 acres	Patch 64	SC_2021_POM_CACW_5	SC_23	Herbicide application	01/06/2022	2021-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	CACW	Various
Salt Creek	Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5001970; ended summer 2015)	Planted Blue Elderberry (<i>Sambucus nigra</i> ssp. <i>caerulea</i>)	SC_2012_RECON6649_CACW_SAMNIG_a SC_2012_RECON6649_CACW_SAMNIG_b	SC_25 SC_29	Herbicide application	01/07/2022	2016-2022	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	CACW	Various
Salt Creek	Cactus Wren Habitat – Shrubs Thinned in January/February 2021 (Community Facility District 97-2 funded CACW habitat restoration) – 0.86 acres	Patch 2021b	SC_2021_POM_CACW_2	SC_33	Herbicide application	01/07/2022	2021-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	CACW	Various
Salt Creek	Cactus Wren Habitat Restoration / Erosion Control / Illegal Road Closure Area (CFD 97-2 funded: planted in 2015) - 0.93 acres	-	SC_2015_POM_ACCESS.ISSUE.CACW	SC_24	Herbicide application	01/07/2022	2015, 2020-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	CACW	Various
Salt Creek	Cactus Wren Habitat Restoration Area (County of San Diego Parks and Recreation Department EMP Grant 5001133; ended summer 2014)	-	SC_2009_Merkel_CACW	SC_2	Herbicide application	01/11/2022, 01/12/2022	2016-2022	5001133	N/A	Salt Creek Coastal Cactus Wren Habitat Restoration Project (County of San Diego Parks and Recreation Department)	Summer 2014	5 years	CACW	Various
Northern Salt Creek	Cactus Wren Habitat – Shrubs Thinned in January/February 2021 (Community Facility District 97-2 funded CACW habitat restoration) – 0.86 acres	Patch 2021d	NSC.SC_2021_POM_CACW_4a, SC_2021_POM_CACW_4b	NSC_SC_1 SC_1	Herbicide application	01/12/2022	2021-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	CACW	Various
Northern Salt Creek	Cactus Wren Habitat – Shrubs Thinned in January/February 2021 (Community Facility District 97-2 funded CACW habitat restoration) – 0.86 acres	Patch 2021c	NSC_2021_POM_CACW_3	NSC_1	Herbicide application	01/12/2022	2021-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	CACW	Various
Millenia	Non-native Plant Treatment (dethatched 2018)	West of State Route 125	MLLN_2018_POM_VP	MLLN_3	Herbicide application	01/13/2022	2018–2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Potential QCB and potential vernal pool habitat	Various
Piper Ranch	Non-native plant treatment area	Northeastern portion	PR_2021_RECON9864_VP	PR_1	Herbicide application	01/14/2022	N/A	N/A	9864	Piper Ranch	N/A	N/A	Vernal pools and native grassland	Non-native annual grasses

Table 34
 Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage

Parcel(s)	Name	Specific Location(s)	2022 Polygon Name	Polygon Number	Treatment Type	Treatment Date(s)	Treatment Year(s) Funded through CFD 97-2	Previous SANDAG Grant No.	Previous RECON Project No.	Previous Project Name	Previous Project End Date	Length of Previous Project	Focal Sensitive Species Resource	Focal Plant Species Treated
Western Wolf Canyon	Cactus Wren Habitat – Shrubs Thinned in December 2020/January 2021 (Community Facility District 97-2 funded CACW habitat restoration)	Patch 2020a	WWC_2001_RECON3173_CACW_1	WWC_6	Herbicide application	01/26/2022, 01/27/2022	2020-2022	N/A	3173	Otay Ranch Habitat Restoration/Wolf Canyon Habitat Restoration	Summer 2009	10 years	CACW	Various
Western Wolf Canyon	Otay Tarplant Habitat – Non-native Plant Treatment Area	-	WWC_2001_RECON3173_DEICON_1, WWC_2001_RECON3173_DEICON_2	WWC_5, WWC_4	Herbicide application	01/26/2022, 01/27/2022	2020-2022	N/A	3173	Otay Ranch Habitat Restoration/Wolf Canyon Habitat Restoration	Summer 2009	10 years	Otay tarplant	Various
Salt Creek	Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5001970; ended summer 2015)	Patch 2	SC_2012_RECON6649_CACW_2	SC_18	Herbicide application	01/31/2022, 02/03/2022	2016-2022	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	CACW	filaree (<i>Erodium</i> spp.), various non-native grasses
Western Wolf Canyon	Cactus Wren Habitat – Shrubs Thinned in December 2020/January 2021 (Community Facility District 97-2 funded CACW habitat restoration)	Patch 2020b	WWC_2001_RECON3173_CACW_2	WWC_3	Herbicide application	02/01/2022	2020-2022	N/A	3173	Otay Ranch Habitat Restoration/Wolf Canyon Habitat Restoration	Summer 2009	10 years	CACW	totalote (<i>Centaurea melitensis</i>)
Western Wolf Canyon	Otay Tarplant Habitat – Non-native Plant Treatment Area	-	WWC_2001_RECON3173_DEICON_3	WWC_2	Herbicide application	02/01/2022	2020-2022	N/A	3173	Otay Ranch Habitat Restoration/Wolf Canyon Habitat Restoration	Summer 2009	10 years	Otay tarplant	totalote (<i>Centaurea melitensis</i>)
Western Wolf Canyon	Non-native Removal Area	-	WC_2020_POM_NN.PLANT_3	WC_Camino	Herbicide application	02/02/2022	2020, 2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	CACW	short-pod mustard (<i>Hirschfeldia incana</i>), garland (<i>Glebionis coronaria</i>)
Western Wolf Canyon	Cactus Wren Habitat – Shrubs Thinned in December 2020/January 2021 (Community Facility District 97-2 funded CACW habitat restoration)	Patch 2020c	WWC_2001_RECON3173_CACW_3	WWC_1	Herbicide application	02/03/2022	2020-2022	N/A	3173	Otay Ranch Habitat Restoration/Wolf Canyon Habitat Restoration	Summer 2009	10 years	CACW	sweetclover (<i>Melilotus</i> sp.)
Millenia	Non-native Plant Treatment (dethatched 2018)	West of State Route 125	MLLN_2018_POM_VP	MLLN_3	Herbicide application	02/04/2022, 02/07/2022	2018-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Potential QCB and potential vernal pool habitat	oats
Millenia	Otay Tarplant Habitat – Non-native Plant Treatment Area (dethatched spring 2018)	Eastern 1.27 acre area	MLLN_2018_POM_DEICON_2	MLLN_2	Herbicide application	02/04/2022, 02/07/2022	2018-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Otay tarplant (<i>Deinandra conjugens</i>)	short-pod mustard
Millenia	Otay Tarplant Habitat – Non-native Plant Treatment Area (dethatched spring 2018)	Western 1.27 acre area	MLLN_2018_POM_DEICON_1	MLLN_1	Herbicide application	02/07/2022, 02/08/2022	2018-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Otay tarplant	oats
Millenia	Otay River Valley and Salt Creek Cactus Wren 3 Year Project (City of Chula Vista EMP Grant 5004731; ended fall 2018)	Patch 9	MLLN_2015_RECON7682_CACW_9	MLLN_7	Herbicide application	02/08/2022	2019, 2021-2022	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	CACW	oats

Table 34
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage

Parcel(s)	Name	Specific Location(s)	2022 Polygon Name	Polygon Number	Treatment Type	Treatment Date(s)	Treatment Year(s) Funded through CFD 97-2	Previous SANDAG Grant No.	Previous RECON Project No.	Previous Project Name	Previous Project End Date	Length of Previous Project	Focal Sensitive Species Resource	Focal Plant Species Treated
Salt Creek	QCB Habitat – Non-native Plant Treatment Area	uplands	SC_2014_RECON7754_QCB	SC_16	Herbicide application	02/09/2022, 02/10/2022	2016-2018, 2022	N/A	7754	Quino Checkerspot Butterfly Recovery Program	summer 2016	1	QCB	filaree, oats
Salt Creek	Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5001970; ended summer 2015)	Planted blue elderberry	SC_2012_RECON6649_CACW_SAMNIG_a SC_2012_RECON6649_CACW_SAMNIG_b	SC_25 SC_29	Removed by hand	02/22/2022	2016-2022	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	CACW	short-pod mustard
Salt Creek	Otay River Valley and Salt Creek Cactus Wren 3 Year Project (City of Chula Vista EMP Grant 5004731; ended fall 2018)	Patch 6	SC_2015_RECON7682_CACW_6	SC_13	Herbicide application	02/24/2022	2019-2022	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	CACW	filaree, various non-native grasses
Millenia	Non-native Plant Treatment (dethatched 2018)	West of State Route 125	MLLN_2018_POM_VP	MLLN_3	Herbicide application	02/28/2022	2018-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Potential QCB and potential vernal pool habitat	oats, filaree
County of San Diego parcel APN 646-010-06	Cactus Wren Habitat Restoration Area	-	CountySD_2016_RECON8116_CACW	County_1	Herbicide application	02/28/2022	2020-2022	5004730	8116	Otay River Valley Cactus Wren EMP Grant	Fall 2018	3 years	CACW	short-pod mustard, filaree
Salt Creek	QCB Habitat – Non-native Plant Treatment Area	uplands	SC_2014_RECON7754_QCB	SC_16	Herbicide application	03/01/2022, 03/02/2022, 03/14/2022, 03/15/2022, 03/16/2022, 03/24/2022, 03/25/2022, 03/30/2022	2016-2018, 2022	N/A	7754	Quino Checkerspot Butterfly Recovery Program	summer 2016	1	QCB	filaree, non-native grasses
Millenia	Non-native Plant Treatment (dethatched 2015)	east of SR-125	MLLN_2015_POM_VP_1	MLLN_8	Removed by hand from vernal pools, cut with line trimmers in uplands	03/10/2022	2015-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Potential QCB and potential vernal pool habitat	oats
Northern Salt Creek	Cactus Wren Habitat – Shrubs Thinned in January/February 2021	Patch 2021c	NSC_2021_POM_CACW_3	NSC_1	Herbicide application	03/23/2022	2021-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	CACW	short-pod mustard, oats
Salt Creek	Cactus Wren Habitat – Shrubs Thinned in January/February 2021	Patch 2021b	SC_2021_POM_CACW_2	SC_33	Herbicide application	03/23/2022	2021-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	CACW	short-pod mustard, totalote
Salt Creek	Cactus Wren Habitat – Shrubs Thinned in January/February 2021	Patch 2021a	SC_2021_POM_CACW_1	SC_31	Herbicide application	03/23/2022	2021-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	CACW	short-pod mustard, totalote
Northern Salt Creek & Salt Creek	Cactus Wren Habitat – Shrubs Thinned in January/February 2021	Patch 2021d	NSC.SC_2021_POM_CACW_4a, SC_2021_POM_CACW_4b	NSC_SC_1 SC_1	Herbicide application	03/24/2022	2021-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	CACW	short-pod mustard, totalote
Salt Creek	Cactus Wren Habitat – Cholla Cactus Cuttings Planted in December 2021	Patch 64	SC_2021_POM_CACW_5	SC_23	Herbicide application	03/30/2022	2021-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	CACW	filaree, red brome (<i>Bromus rubens</i>)

Table 34
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage

Parcel(s)	Name	Specific Location(s)	2022 Polygon Name	Polygon Number	Treatment Type	Treatment Date(s)	Treatment Year(s) Funded through CFD 97-2	Previous SANDAG Grant No.	Previous RECON Project No.	Previous Project Name	Previous Project End Date	Length of Previous Project	Focal Sensitive Species Resource	Focal Plant Species Treated
Millenia	Otay Tarplant Habitat – Non-native Plant Treatment Area (dethatched spring 2018)	east of SR-125	MLLN_2018_POM_DEICON_3	MLLN_6	line trimmers	04/06/2022, 04/07/2022	2018-2019, 2021-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Otay tarplant	short-pod mustard, oats
Millenia	Non-native Plant Treatment Area (dethatched fall 2015)	west of SR-125 within the mesa where San Diego button-celery occurs	MLLN_2015_POM_VP_2	MLLN_4	Removed by hand from vernal pool, cut with line trimmers in uplands	04/18/2022, 04/28/2022	2015-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Vernal pool, variegated dudleya	oats, rye grass (<i>Festuca perennis</i>)
Salt Creek	Vernal Pools Established through Grading in 2015	mesa vernal pools	SC_2015_RECON7754_VP.QCB_38; SC_2015_RECON7754_VP.QCB_40 through 68	SC_Charco	removed by hand	04/19/2022	2019, 2020, 2022	N/A	7754	QCB Recovery Program	Summer 2016	1	vernal pool habitat	sweetclover (<i>Melilotus</i> sp.), sand-spurrey (<i>Spergularia</i> sp.)
Millenia	Non-native Plant Treatment (dethatched 2018)	West of State Route 125	MLLN_2018_POM_VP	MLLN_3	Line trimmers, herbicide application	05/04/2022, 05/05/2022	2018–2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Potential QCB and potential vernal pool habitat	Various
Millenia	Non-native Plant Treatment Area (dethatched fall 2015)	west of SR-125 within the mesa where San Diego button-celery occurs	MLLN_2015_POM_VP_2	MLLN_4	Removed by hand from vernal pool, cut with line trimmers in uplands	05/05/2022	2015-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Vernal pool, variegated dudleya	oats, rye grass
Piper Ranch	N/A	Vernal pool basins throughout parcels	PR_2022_RECON9864_Basin1 PR_2022_RECON9864_Basin2 PR_2022_RECON9864_Basin3 PR_2022_RECON9864_Basin4 PR_2022_RECON9864_Basin5 PR_2022_RECON9864_Basin6 PR_2022_RECON9864_Basin7 PR_2022_RECON9864_Basin8 PR_2022_RECON9864_Basin9	PR_2 PR_3 PR_4 PR_5 PR_6 PR_7 PR_8 PR_9 PR_10	Line trimmers	5/10/2022	N/A	N/A	9864	Piper Ranch	N/A	N/A	Vernal pools	Non-native annual grasses
Western Wolf Canyon	Otay Tarplant Habitat – Non-native Plant Treatment Area	-	WWC_2001_RECON3173_DEICON_1, WWC_2001_RECON3173_DEICON_2	WWC_5 WWC_4	Herbicide application	05/11/2022	2020-2022	N/A	3173	Otay Ranch Habitat Restoration/Wolf Canyon Habitat Restoration	Summer 2009	10 years	Otay tarplant	Various
Western Wolf Canyon	Cactus Wren Habitat – Shrubs Thinned in December 2020/January 2021 (Community Facility District 97-2 funded CACW habitat restoration)	Patch 2020c	WWC_2001_RECON3173_CACW_3	WWC_1	Cut by hand	05/12/2022	2020-2022	N/A	3173	Otay Ranch Habitat Restoration/Wolf Canyon Habitat Restoration	Summer 2009	10 years	CACW	sweetclover
Millenia	Otay Tarplant Habitat – Non-native Plant Treatment Area (dethatched spring 2018)	Western 1.27 acre area	MLLN_2018_POM_DEICON_1	MLLN_1	Cut by hand	05/13/2022	2018–2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Otay tarplant	oats
Millenia	Otay Tarplant Habitat – Non-native Plant Treatment Area (dethatched spring 2018)	Western 1.27 acre area	MLLN_2018_POM_DEICON_1	MLLN_1	Line trimmer	05/16/2022	2018–2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Otay tarplant	oats
Millenia	Otay Tarplant Habitat – Non-native Plant Treatment Area (dethatched spring 2018)	Eastern 1.27 acre area	MLLN_2018_POM_DEICON_2	MLLN_2	Line trimmer	05/17/2022	2018–2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Otay tarplant	oats

**Table 34
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage**

Parcel(s)	Name	Specific Location(s)	2022 Polygon Name	Polygon Number	Treatment Type	Treatment Date(s)	Treatment Year(s) Funded through CFD 97-2	Previous SANDAG Grant No.	Previous RECON Project No.	Previous Project Name	Previous Project End Date	Length of Previous Project	Focal Sensitive Species Resource	Focal Plant Species Treated
Millenia	Otay Tarplant Habitat – Non-native Plant Treatment Area (dethatched spring 2018)	east of SR-125	MLLN_2018_POM_DEICON_3	MLLN_6	Line trimmers, herbicide application	05/18/2022	2018-2019, 2021-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Otay tarplant	short-pod mustard, oats
Millenia	Otay River Valley and Salt Creek Cactus Wren 3 Year Project (City of Chula Vista EMP Grant 5004731; ended fall 2018)	Patch 9	MLLN_2015_RECON7682_CACW_9	MLLN_7	Herbicide application, removed by hand	05/19/2022	2019, 2021-2022	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	CACW	oats
Bread-of-the-Sandwich	Cactus Wren Habitat Restoration Area	-	CountySD_2016_RECON8116_CACW	County_1	Removed by hand	05/20/2022, 05/27/2022	2020-2022	5004730	8116	Otay River Valley Cactus Wren EMP Grant	Fall 2018	3 years	Coastal cactus wren	Stinkwort, non-native grasses, short-pod mustard, tocalote, fascicled tarplant, broom baccharis
Salt Creek	Cactus Wren Habitat – Cholla Cactus Cuttings Planted in December 2021 (Community Facility District 97-2 funded CACW habitat restoration) - 0.59 acres	Patch 64	SC_2021_POM_CACW_5	SC_23	line trimmers, removed by hand around cholla and other natives	07/05/2022	2021-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	CACW	Red brome (<i>Bromus rubens</i>), short-pod mustard (<i>Hirschfeldia incana</i>), dove weed, tocalote (<i>Centaurea melitensis</i>)
Salt Creek	Cactus Wren Habitat – Shrubs Thinned in January/February 2021 (Community Facility District 97-2 funded CACW habitat restoration) - 0.86 acres	Patch 2021b	SC_2021_POM_CACW_2	SC_33	Removed by hand	07/06/2022	2021-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	CACW	Short-pod mustard, tocalote, red brome
Salt Creek	Cactus Wren Habitat – Shrubs Thinned in January/February 2021 (Community Facility District 97-2 funded CACW habitat restoration) - 0.86 acres	Patch 2021d	NSC.SC_2021_POM_CACW_4a, SC_2021_POM_CACW_4b	NSC_SC_1 SC_1	Removed by hand	07/07/2022	2021-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	CACW	Short-pod mustard, tocalote, red brome
Salt Creek	Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5004943; ended August 2018)	Patch 2	SC_2017_RECON8340_CACW_2	SC_3	Removed by hand	07/08/2022	2018-2022	SANDAG TransNet EMP No. 5004943	8340	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	18 months	CACW	Short-pod mustard, tocalote
Salt Creek	Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5004943; ended August 2018)	Patch 2	SC_2017_RECON8340_CACW_2	SC_3	Removed by hand	07/29/2022	2018-2022	SANDAG TransNet EMP No. 5004943	8340	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	18 months	CACW	Short-pod mustard, tocalote
Salt Creek	Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5004943; ended August 2018)	Patch 2	SC_2017_RECON8340_CACW_2	SC_3	Cut with hand tools	08/23/2022	2018-2022	SANDAG TransNet EMP No. 5004943	8340	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	18 months	CACW	Various

**Table 34
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage**

Parcel(s)	Name	Specific Location(s)	2022 Polygon Name	Polygon Number	Treatment Type	Treatment Date(s)	Treatment Year(s) Funded through CFD 97-2	Previous SANDAG Grant No.	Previous RECON Project No.	Previous Project Name	Previous Project End Date	Length of Previous Project	Focal Sensitive Species Resource	Focal Plant Species Treated
Northern Salt Creek	Cactus Wren Habitat – Shrubs Thinned in January/February 2021 (Community Facility District 97-2 funded CACW habitat restoration) – 0.86 acres	Patch 2021c	NSC_2021_POM_CACW_3	NSC_1	Cut with hand tools	08/24/2022 08/25/2022 08/26/2022	2021-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	CACW	Short-pod mustard, tocalote, stinkwort
Salt Creek	Otay River Valley and Salt Creek Cactus Wren 3 Project (City of Chula Vista EMP Grant 5004731; ended fall 2018)	Patch 7	SC_2015_RECON7682_CACW_7	SC_14	Line trimmer	09/14/2022 09/15/2022	2019-2022	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	Tocalote (<i>Centaurea melitensis</i>), short-pod mustard (<i>Hirschfeldia incana</i>)
Salt Creek	Coastal Cactus Wren (<i>Campylorhynchus brunneicapillus sandiegensis</i> ; CACW) Habitat – Non-native Plant Treatment (2015 annual report)	0.86 acre	SC_2015_POM_CACW_1	SC_24.1	Line trimmer	09/16/2022	2015, 2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal cactus wren	Tocalote, short-pod mustard
Salt Creek	Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5001970; ended summer 2015)	Planted blue elderberry	SC_2012_RECON6649_CACW_SAMNIG_a SC_2012_RECON6649_CACW_SAMNIG_b	SC_25 SC_29	Line trimmer	09/16/2022	2016-2022	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	Coastal cactus wren	Tocalote, short-pod mustard, broom baccharis (<i>Baccharis sarothroides</i>)
Salt Creek	Cactus Wren Habitat Restoration / Erosion Control / Illegal Road Closure Area (CFD 97-2 funded; planted in 2015) - 0.93 acres	-	SC_2015_POM_ACCESS.ISSUE.CACW	SC_24	Line trimmer	09/19/2022	2015, 2020-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal cactus wren	Tocalote, non-native grasses
Salt Creek	Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5001970; ended summer 2015)	Planted blue elderberry	SC_2012_RECON6649_CACW_SAMNIG_b	SC_29	Line trimmer	09/20/2022	2016-2022	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	Coastal cactus wren	Tocalote, non-native grasses
Salt Creek	Otay River Valley and Salt Creek Cactus Wren 3 Project (City of Chula Vista EMP Grant 5004731; ended fall 2018)	Patch 3a	SC_2015_RECON7682_CACW_3a	SC_4	Line trimmer	09/21/2022 09/22/2022	2019-2022	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	Tocalote, non-native grasses, broom baccharis
Salt Creek	Vernal Pools Established through Grading in 2015	mesa vernal pools	SC_2015_RECON7754_VP.QCB	SC_Charco	Removed by hand	09/23/2022	2019, 2020, 2022	N/A	7754	QCB Recovery Program	Summer 2016	1	Vernal pools	Dove weed, fascicled tarplant
Northern Salt Creek	Stinkwort Treatment Survey Location	Treated when encountered	NSC_2020_POM_DITGRA	NSC_Dittrichia	Removed by hand, bagged and removed	09/30/2022	2020-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Salt Creek	QCB Habitat – Non-native Plant Treatment Area	uplands	SC_2014_RECON7754_QCB	SC_16	Line trimmer	10/11/2022	2016-2018, 2022	N/A	7754	Quino Checkerspot Butterfly Recovery Program	Summer 2016	1	QCB	Filaree (<i>Erodium</i> spp.), red brome, rattail fescue (<i>Festuca myuros</i>)
Wolf Canyon	Stinkwort Treatment Location	Treated when encountered	WC_2020_POM_DITGRA	WC_Dittrichia	Removed by hand	10/12/2022	2020-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort

**Table 34
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage**

Parcel(s)	Name	Specific Location(s)	2022 Polygon Name	Polygon Number	Treatment Type	Treatment Date(s)	Treatment Year(s) Funded through CFD 97-2	Previous SANDAG Grant No.	Previous RECON Project No.	Previous Project Name	Previous Project End Date	Length of Previous Project	Focal Sensitive Species Resource	Focal Plant Species Treated
Millenia	Stinkwort Treatment Location	Treated when encountered	MLLN_2015_POM_DITGRA	MLLN_Dittrichia	Removed by hand	10/12/2022	2015, 2018, 2020, 2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Salt Creek	QCB Habitat – Non-native Plant Treatment Area	uplands	SC_2014_RECON7754_QCB	SC_16	Line trimmer	10/12/2022	2016-2018, 2022	N/A	7754	Quino Checkerspot Butterfly Recovery Program	Summer 2016	1	QCB	Filaree, red brome, rattail fescue
Northern Salt Creek	Stinkwort Treatment Survey Location	Treated when encountered	NSC_2020_POM_DITGRA	NSC_Dittrichia	Removed by hand	10/13/2022 10/14/2022	2020-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Northern Salt Creek	Stinkwort Treatment Survey Location	Treated when encountered	NSC_2020_POM_DITGRA	NSC_Dittrichia	Removed by hand	10/13/2022	2020-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Salt Creek	Stinkwort Treatment Survey Location	Treated when encountered	SC_2020_POM_DITGRA	SC_Dittrichia_2	Removed by hand	10/13/2022	2020-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Salt Creek	Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5004943; ended August 2018)	Patch 2	SC_2017_RECON8340_CACW_2	SC_3	Line trimmers	10/13/2022 10/14/2022	2018-2022	SANDAG TransNet EMP No. 5004943	8340	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	18 months	Coastal cactus wren	Short-pod mustard, tocalote, non-native grasses
Northern Salt Creek	Stinkwort Treatment Survey Location	Treated when encountered	NSC_2020_POM_DITGRA	NSC_Dittrichia	Removed by hand	10/14/2022	2020-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Salt Creek	Stinkwort Treatment Survey Location - 1.33 acres	-	SC_2010_POM_DITGRA	SC_Dittrichia_1	Removed by hand	10/20/2022	2010-2018, 2020-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Salt Creek	Stinkwort Treatment Survey Location	Treated when encountered	SC_2020_POM_DITGRA	SC_Dittrichia_2	Removed by hand	10/20/2022	2020-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Northern Salt Creek	Stinkwort Treatment Survey Location	Treated when encountered	NSC_2020_POM_DITGRA	NSC_Dittrichia	Removed by hand	10/20/2022	2020-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Northern San Ysidro	Stinkwort Treatment Survey Location	Treated when encountered	SY.NSY_2010_POM_DITGRA	SY_NSY_Dittrichia	Removed by hand, bagged and removed	10/21/2022	2010-2018, 2020-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
San Ysidro	Stinkwort Treatment Survey Location	Treated when encountered	SY.NSY_2010_POM_DITGRA	SY_NSY_Dittrichia	Removed by hand, bagged and removed	10/21/2022	2010-2018, 2020-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Salt Creek	Vernal Pools Established through Grading in 2015	mesa vernal pools	SC_2015_RECON7754_VP.QCB	SC_Charco	Removed by hand	10/24/2022 10/25/2022	2019, 2020, 2022	N/A	7754	QCB Recovery Program	Summer 2016	1	Vernal pools	Red brome (<i>Bromus rubens</i>), fascicled tarplant (<i>Deinandra fasciculata</i>), dove weed (<i>Croton setigerus</i>), oats (<i>Avena</i> spp.)
Bread-of-the-Sandwich	Cactus Wren Habitat Restoration Area	-	CountySD_2016_RECON8116_CACW	County_1	Cut with line trimmers	10/26/2022, 10/27/2022, 10/28/2022	2020-2022	5004730	8116	Otay River Valley Cactus Wren EMP Grant	Fall 2018	3 years	Coastal cactus wren	Stinkwort, non-native grasses, short-pod mustard, tocalote, fascicled tarplant, broom baccharis
Salt Creek	Stinkwort Treatment Survey Location	Treated when encountered	SC_2020_POM_DITGRA	SC_Dittrichia_2	Removed by hand, bagged and removed	11/02/2022	2020-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Bread-of-the-Sandwich	Cactus Wren Habitat Restoration Area	-	CountySD_2016_RECON8116_CACW	County_1	Removed by hand, bagged and removed	11/02/2022	2020-2022	5004730	8116	Otay River Valley Cactus Wren EMP Grant	Fall 2018	3 years	CACW	Stinkwort

**Table 34
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage**

Parcel(s)	Name	Specific Location(s)	2022 Polygon Name	Polygon Number	Treatment Type	Treatment Date(s)	Treatment Year(s) Funded through CFD 97-2	Previous SANDAG Grant No.	Previous RECON Project No.	Previous Project Name	Previous Project End Date	Length of Previous Project	Focal Sensitive Species Resource	Focal Plant Species Treated
Salt Creek	Otay River Valley and Salt Creek Cactus Wren 3 Project (City of Chula Vista EMP Grant 5004731; ended fall 2018)	Patch 7	SC_2015_RECON7682_CACW_7	SC_14	Cut with line trimmers	11/07/2022	2019-2022	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	CACW	Tocalote, non-native grass
Northern Salt Creek	Stinkwort Treatment Survey Location	Treated when encountered	NSC_2020_POM_DITGRA	NSC_Dittrichia	Removed by hand, bagged and removed	11/07/2022	2020-2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Millenia	Stinkwort Survey Location	Treated when encountered	MLLN_2015_POM_DITGRA	MLLN_Dittrichia	Removed by hand, bagged and removed	11/11/2022	2015, 2018, 2020, 2022	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Salt Creek	Otay River Valley and Salt Creek Cactus Wren 3 Project (City of Chula Vista EMP Grant 5004731; ended fall 2018)	Patch 2 Patch 3c Patch 4 Patch 5 Patch 6 Patch 7	SC_2015_RECON7682_CACW_2 SC_2015_RECON7682_CACW_3c SC_2015_RECON7682_CACW_4 SC_2015_RECON7682_CACW_5 SC_2015_RECON7682_CACW_6 SC_2015_RECON7682_CACW_7	SC_30 SC_7 SC_8 SC_9 SC_13 SC_14	Herbicide & Cut with line trimmers	11/21/2022 11/22/2022 11/23/2022	2019-2022	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	CACW	Short-pod mustard, tocalote, non-native grass
	Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5001970; ended summer 2015)	High Tech Middle	SC_2012_RECON6649_CACW_HTM	SC_6		2016-2022	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years			
	Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5004943; ended August 2018)	Patch 4 Patch 5	SC_2017_RECON8340_CACW_4a SC_2017_RECON8340_CACW_4b SC_2017_RECON8340_CACW_5	SC_10a SC_10b SC_15		2018-2022	5004943	8340	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	18 months			
Salt Creek	Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5001970; ended summer 2015)	Planted blue elderberry	SC_2012_RECON6649_CACW_SAMNIG_b	SC_29	Herbicide	12/06/2022	2016-2022	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	CACW	Short-pod mustard, tocalote, non-native grass
Salt Creek	Otay River Valley and Salt Creek Cactus Wren 3 Project (City of Chula Vista EMP Grant 5004731; ended fall 2018)	Patch 3c	SC_2015_RECON7682_CACW_3c	SC_7	Herbicide	12/07/2022	2019-2022	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	CACW	Short-pod mustard, tocalote, non-native grass
Salt Creek	Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5001970; ended summer 2015)	High Tech Middle	SC_2012_RECON6649_CACW_HTM	SC_6	Herbicide	12/07/2022	2016-2022	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	CACW	Short-pod mustard, tocalote, non-native grass
Salt Creek	Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5001970; ended summer 2015)	Planted blue elderberry	SC_2012_RECON6649_CACW_SAMNIG_a	SC_25	Herbicide Cut with line trimmers	12/06/2022	2016-2022	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	CACW	Short-pod mustard, tocalote, non-native grass

**Table 34
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage**

Parcel(s)	Name	Specific Location(s)	2022 Polygon Name	Polygon Number	Treatment Type	Treatment Date(s)	Treatment Year(s) Funded through CFD 97-2	Previous SANDAG Grant No.	Previous RECON Project No.	Previous Project Name	Previous Project End Date	Length of Previous Project	Focal Sensitive Species Resource	Focal Plant Species Treated
Salt Creek	Otay River Valley and Salt Creek Cactus Wren 3 Project (City of Chula Vista EMP Grant 5004731; ended fall 2018)	Patch 5	SC_2015_RECON7682_CACW_5	SC_9	Herbicide Cut with line trimmers	12/08/2022	2019-2022	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	CACW	Short-pod mustard, tocalote, non-native grass
Salt Creek	Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5001970; ended summer 2015)	Patch 6	SC_2012_RECON6649_CACW_6	SC_22	Herbicide Cut with line trimmers	12/09/2022	2016-2022	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	CACW	Short-pod mustard, tocalote, non-native grass
Salt Creek	Otay River Valley and Salt Creek Cactus Wren 3 Project (City of Chula Vista EMP Grant 5004731; ended fall 2018)	Patch 4 Patch 5 Patch 7	SC_2015_RECON7682_CACW_4 SC_2015_RECON7682_CACW_5 SC_2015_RECON7682_CACW_7	SC_8 SC_9 SC_14	Herbicide	12/21/2022 12/22/2022 12/23/2022	2019-2022	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	CACW	Short-pod mustard, tocalote

Vernal Pool Habitat (Salt Creek, Millenia, and Piper Ranch)

The long-term goal within vernal pool habitat vegetation treatment areas is to increase habitat quality for vernal pool wildlife and plant species. Non-native species such as filaree and oat were removed with hand tools within the 30 vernal pools established through grading in 2015 within approximately 0.25 acre at the Salt Creek parcels, in accordance with the Work Plan (FY 21-22) (Figure 49 and Attachment 2: Photograph 31).

Within the Millenia parcels, per the Work Plan (FY 21-22), various non-native grasses were cut with line trimmers within upland habitat in the Non-native Plant Treatment Area west and east of State Route 125 (SR-125; see Figure 50; MLLN_8 and MLLN_4). Weeds were removed with hand tools from the depression and vernal pool within the treatment area. Weeds were also treated with herbicide in the Non-native Plant Treatment Area west of SR-125 where there is potential vernal pool habitat (see Figure 50; MLLN_3).

Per the Work Plan (FY 21-22), up to 1 acre of native grassland within potential vernal pool habitat will be dethatched of weeds and treated with herbicide one time. Various non-native grasses were treated with herbicide within 2.06 acres of potential vernal pool habitat within the Piper Ranch parcels (Figure 51; PR_1). In addition, non-native grasses were dethatched from nine basins that have potential for ponding totaling 0.35 acres (see Figure 51; PR_2 through PR_10).

Cactus Wren Habitat Enhancement (Salt Creek, Northern Salt Creek, Millenia, County of San Diego Property, and Western Wolf Canyon)

In 2022, vegetation within cactus wren habitat enhancement areas was treated with herbicide and removed by hand and line trimmer. Long-term control of weeds and shrubs around coast cholla habitat patches will reduce the risk of catastrophic fires that have the potential to cause loss of coastal cactus wren habitat. Previous coastal cactus wren SANDAG grant areas have continued to be maintained through CFD 97-2 funding after the grant projects ended. A coastal cactus wren grant project (previous SANDAG grant number 5001970; see Figure 49) planted cholla cuttings on approximately 15 acres during the fall/winter of 2012-13. These planting areas have had weed control efforts funded by the CFD 97-2 since 2016. The plants are slowly maturing and are within about 2 to 3 years of becoming tall enough for coastal cactus wren to nest in. The blue elderberry trees planted for this previous SANDAG grant have continued to grow, flower, and set seeds. Weeding was conducted within the elderberry area (SC_25 and SC_29), High Tech Middle coast cholla planting area (SC_6), and SC_18 and SC_22, totaling 12.35 acres of this previous coastal cactus wren grant project. Patches 1, 3, 4, and 5 were assessed for weed treatment and no treatment was necessary in 2022. These patches are shown on Figure 25 of the FY 2021-22 Work Plan (RECON 2021).

Short-pod mustard, tocalote, and various non-native annual grasses were also removed within SC_4, SC_7, SC_8, SC_9, SC_13, SC_14, SC_30 totaling 17.41 acres at the Salt Creek parcels (see Figure 49; previous SANDAG grant number 5004731). Patches 1a, 1b, 1c, and 3b were assessed for weed treatment and no treatment was necessary in 2022. These patches are shown on Figure 25 of the FY 2021-22 Work Plan (RECON 2021). Short-pod mustard, tocalote, and filaree were removed within 1.15 acres at the Salt Creek parcels (see Figure 49; previous SANDAG grant number 5001133; SC_2). Short-pod mustard, tocalote, filaree, red brome, sow thistle, and nightshade were treated within

SC_3, SC_10a, SC_10b, and SC_15 within the previous SANDAG grant number 5004943 (5.51 acres; see Figure 49). Patches 1 and 3 were assessed for weed treatment and no treatment was necessary in 2022. These patches are shown on Figure 25 of the FY 2021-22 Work Plan (RECON 2021).

Short-pod mustard, tocalote, and various non-native grasses were treated with herbicide from the 0.93-acre Salt Creek Cactus Wren Habitat Restoration/Erosion Control/Illegal Road Closure Area in accordance with the Work Plan (FY 22-23) (see Figure 49; SC_24). An additional 0.86 acre of cactus wren habitat was treated for weeds at the Salt Creek parcels (see Figure 49; SC_24.1). This area was initially treated for weeds in 2015. The 0.72-acre shrub thinning effort from January/February 2017 was assessed for weed treatment and no treatment was necessary in 2022. This area is shown on Figure 25 of the FY 2021-22 Work Plan (RECON 2021).

Non-native annuals within the areas thinned of shrubs in 2021 at the Northern Salt Creek and Salt Creek parcels were treated with herbicide, per the Work Plan (FY 21-22 and FY 22-23; Cactus Wren Habitat – Shrubs Thinned in January/February 2021). Short-pod mustard, tocalote, and various non-native annual grasses were removed within NSC_1, NSC_SC_1, SC_1, SC_31, SC_33 at the Northern Salt Creek and Salt Creek parcels totaling 1.78 acres (see Figure 49). Additionally, short-pod mustard, tocalote, and various non-native annual grasses were removed within SC_23 at the Salt Creek parcels totaling 0.76 acre, per the Work Plan (FY 22-23; Cactus Wren Habitat – Cholla Cactus Cuttings Planted in December 2021; see Figure 49).

Various non-native plants including short-pod mustard, tocalote, and filaree were removed from within 3-acres of the previous SANDAG grant number 5004730 at the County of San Diego parcel (see Figure 52). In addition, Figure 52 shows incidental coastal cactus wren observations.

Non-native annuals within the areas thinned of shrubs in winter 2020/2021 at the Western Wolf Canyon parcels were treated with herbicide, per the Work Plan (FY 21-22; Cactus Wren Habitat – Shrubs Thinned in December/January 2020-21). Short-pod mustard, tocalote, and various non-native annual grasses were removed within WWC_1, WWC_3, and WWC_6 at the Western Wolf Canyon parcels totaling 1.58 acres (see Figure 53). In addition, 0.12 acre of non-natives were treated along the road edge at the Wolf Canyon parcels, per the Work Plan (FY 2022-23; see Figure 53; WC_Camino).

Per the Work Plan (FY 21-22), short-pod mustard, tocalote, and various non-native annual grasses were removed within 1.07 acres at the Millenia parcels MLLN_7 (see Figure 50; previous SANDAG grant number 5004731). Patches 8 and 10 were assessed for weed treatment and no treatment was necessary in 2022. These patches are shown on Figure 31 of the FY 2022-23 Work Plan (RECON 2022a).

Although the Work Plan (FY 21-22) states that within the Northern Salt Creek/Salt Creek, Millenia, and Western Wolf Canyon parcels, approximately 56.08 acres, 1.38 acres, and 1.59 acres, respectively, of coastal cactus wren habitat will be treated for weeds one time, as needed, as mentioned above, several areas did not require treatment. Therefore, a total of 40.75 acres, 1.07 acres, and 1.70 acres of coastal cactus wren habitat were treated at the Salt Creek, Millenia, and Western Wolf Canyon parcels in 2022. Several areas required multiple treatments throughout the year.

Attachment 2: Photographs 32 and 33 show the crew applying herbicide within cactus wren habitat. Attachment 2: Photographs 34 through 42 are still images taken from a drone that show the overview of several cactus wren enhancement areas mentioned above.

Quino Checkerspot Butterfly Habitat (Salt Creek)

QCB habitat enhancement continued within approximately 14.28 acres at the Salt Creek parcels during 2022, in accordance with the Work Plan (FY 21-22) (see Figure 49; SC_16). The primary weeds removed were non-native annual grasses.

Otay Tarplant Habitat (Millenia, Western Wolf Canyon)

The long-term goal at the Otay tarplant habitat treatment sites is to decrease non-native plant cover to maintain and enhance habitat for Otay tarplant. Red brome, oats, and short-pod mustard were removed from within 1.63, 0.92, and 1.90 acres of Otay tarplant habitat at MLLN_1, MLLN_2, and MLLN_6, respectively, within the Millenia parcels, in accordance with the Work Plan (FY 21-22) (see Figure 50). A total of 4.45 acres of Otay tarplant habitat were treated at Millenia in 2022. These areas required multiple treatments throughout the year. The boundaries were updated to match the existing treatment area.

Horehound, tocalote, common poison hemlock (*Conium maculatum*), and non-native annual grasses were removed within 1.42 acres of Otay tarplant habitat at WWC_2, WWC_4, and WWC_5 within the Western Wolf Canyon parcels, in accordance with the Work Plan (FY 21-22) (see Figure 53; Attachment 2: Photographs 43 through 45).

Early Detection Rapid Response (Salt Creek, Northern Salt Creek, Wolf Canyon, Northern San Ysidro, San Ysidro, Millenia, and County of San Diego Property)

Stinkwort (CAL-IPC Rating: Moderate/Alert) is sparsely distributed within the treatment survey areas at Salt Creek, Northern Salt Creek, the previous SANDAG grant number 5004730 on County of San Diego property, San Ysidro, Northern San Ysidro, Wolf Canyon, and Millenia. An 'Alert' designation indicates that it has high potential for invasion into wildlands (Cal-IPC 2022). Stinkwort is removed by hand where encountered on the Preserve. Stinkwort was treated throughout the 784.5-acre Salt Creek parcels and 148.6-acre Northern Salt Creek parcels, in accordance with the Work Plan (FY 21-22) (see Figure 49).

Stinkwort was also removed within the previous EMP Grant 5004730 on County of San Diego property (3 acres; see Figure 52). Stinkwort was removed by hand at one location along the dirt road within the Wolf Canyon parcels (see Figure 53). Within the Northern San Ysidro and San Ysidro parcels, stinkwort was removed from within the 5.09-acre treatment survey area, in accordance with the Work Plan (FY 21-22) (see Figure 54). Stinkwort was removed by hand at two locations within Millenia parcels, in accordance with the Work Plan (FY 21-22) (see Figure 50).

Stinknet (CAL-IPC Rating: High) has only been observed at two locations within the Preserve in the past. One individual was previously observed and removed from the Millenia parcels on March 15, 2015 (see Figure 50). One individual was observed and removed from the Salt Creek parcels on April 29, 2019 (see Figure 49). This species typically germinates in spring and flowers from March through July (Jepson Flora Project 2022). On April 5 and October 12, the previously mapped stinknet location west of SR-125 at MLLN_Oncosiphon at the Millenia parcels and SC_Oncosiphon at the Salt Creek parcels were visited, per the Work Plan (FY 21-22 and FY 22-23). No stinknet individuals were observed at either location.

Minnewawa Revegetation Area

The Non-native Treatment Areas at the Dulzura parcels were assessed for weed treatment and no treatment was necessary in 2022.

Herbicide Application

For all herbicide activities, a field crew with annual pesticide training—under the supervision of a Qualified Applicator and project biologist—sprayed weeds.

Subtask 6b. (FY 2021-22): Brown-headed Cowbird 2022 Removal

BHCO mist-net trapping was conducted by subcontractor SDNHM at the Northern Salt Creek, Salt Creek, and Wolf Canyon parcels to manage LBVI and reduce the rate of BHCO parasitism of LBVI nests. BHCO is an obligate brood parasite. Parasitized LBVI nests typically fail to fledge any LBVI. Other species are also subject to lowered reproductive rates due to BHCO parasitism. In 2022, a 12-meter mist-net was used to trap BHCO at five locations (see Figure 48). Mist-netting started on April 14, 2022 and ended on June 30, 2022.

4.0 Future Tasks to be Performed

Anticipated tasks to occur between January 1 and June 30, 2023 are listed below (RECON 2022a). Tasks to be performed between July 1 and December 31, 2023 will be proposed in the draft FY 2023–24 Annual Work Plan, which will be submitted to the POM by February 1, 2023.

- SHB tree health surveys at Salt Creek, Northern Salt Creek, and Wolf Canyon parcels (Subtask 1b).
- Native Shrub Tissue Sampling from up to 15 select lemonade berry or other shrubs such as laurel sumac (*Malosma laurina*) that are exhibiting signs of dieback from Salt Creek, Northern Salt Creek, Western Wolf Canyon, and Wolf Canyon parcels (Subtask 1c).
- Wet season fairy shrimp surveys within Salt Creek parcels (Subtask 1d).
- Focused rare plant surveys focusing on conspicuous perennial species at Dulzura and Little Cedar Canyon (Subtask 1f).

- Focused rare plant MSP IMG surveys at Little Cedar Canyon, Millenia, Northern Salt Creek, Northern San Ysidro, Proctor Valley (North), San Ysidro, Western Wolf Canyon and Wolf Canyon (Subtask 1f).
- Golden eagle camera surveys at Proctor Valley (North), Ridge, McMillin, and Dulzura parcels (Subtask 1g).
- QCB surveys at Proctor Valley Extension parcels (Subtask 1h).
- Vegetation mapping at Proctor Valley (North) and Wolf Canyon parcels (Subtask 1i).
- Photographic monitoring at Proctor Valley (North) and Wolf Canyon parcels (Subtask 1j).
- Vernal Pool Plant Monitoring at Salt Creek parcels (Subtask 1k).
- Least Bell's Vireo and Yellow-billed Cuckoo surveys at Salt Creek, Northern Salt Creek, and Wolf Canyon parcels (Subtask 1l).
- Harbison Dun Skipper Surveys at Proctor Valley (North) and San Ysidro parcels (Subtask 1m).
- Hermes Copper butterfly surveys at Proctor Valley Extension parcels (Subtask 1n).
- Gold-spotted oak borer monitoring at Dulzura parcels (Subtask 1o).

The following deliverables from the FY 2022–23 Annual Work Plan are anticipated to be submitted between January 1 and June 30, 2023:

- Database management and contributions for data collected between January 1, 2022 and December 31, 2023 (Subtask 4c).
- 2022 Annual report (Subtask 4g).
- FY 2023–24 annual work plan for all tasks to be completed within the Otay Ranch Preserve between July 1, 2023 and June 30, 2024 (Subtask 4h).
- QCB pre-survey notification letter (Subtask 4i).
- QCB post-survey report (Subtask 4j).
- Wet Season Fairy Shrimp Post-survey Report (Subtask 4k).

All Land Stewardship (Subtask 2a), Meetings and Coordination (Subtasks 3a–3d), Access Control (Subtasks 5a–5c), and Invasive Species Treatment (Subtasks 6a and 6b) tasks are considered ongoing and will continue through the end of FY 2022–23.

5.0 Climate Change Adaptation Strategy

Climate change adaptation is defined by the National Wildlife Federation as “initiatives and measures to reduce the vulnerability of natural or human systems against actual or expected climate change effects” (National Wildlife Federation 2014). The monitoring strategies conducted in 2022 were intended to provide the PSB and POM with information regarding the responses of species populations to the effects of climate change, as well as early detection of threats to sensitive populations. Management actions, such as invasive species control, were used to improve the resiliency of populations of sensitive vegetation communities, plants, and animals that are considered the most susceptible to these effects.

Following the MSP approach to climate change, the goal of the climate change adaptation strategy for Otay Ranch Preserve is to:

- Maintain and enhance the long-term ecological integrity, resilience and viability of ecosystems, RMP Phase 2 Priority Group species, and vegetation communities on conveyed lands;
- Facilitate range shifts in species and vegetation communities as necessary for long-term persistence in Otay Ranch Preserve within the constraints of the current preserve design.

In 2017, the SDMMP began developing habitat suitability models for plant and animal species and vegetation communities under current and future climate change scenarios. The SDMMP intends to extend the modeling to consider the influence of other types of threats, such as changing fire regimes, land use and invasive species. They proposed to evaluate potential future conditions across the Management and Monitoring Strategic Plan Area to identify where species and vegetation communities may be expected to persist, where they may shift in response to changing environmental conditions, and where threats may be greatest. They also proposed to identify climate refugia and areas where climate change impacts may be the greatest. The SDMMP will consider the results of these modeling efforts when developing species and vegetation monitoring and management plans (SDMMP and The Nature Conservancy [TNC] 2021). The POM and PSB will coordinate with the SDMMP once their climate modeling has been completed to discuss the climate forecast for Otay Ranch Preserve. Tables 1 through 3 in Attachment 10 of the FY 2022-23 work plan provide a list of plant and animal species and vegetation communities with specific climate change management and monitoring objectives identified in the MSP that occur or have potential to occur in Otay Ranch Preserve (RECON 2022a).

Management strategies and monitoring approaches that can be used to respond to the threat of climate change at Otay Ranch Preserve include the following:

1. As funding allows, manage and monitor Priority Group species and vegetation communities identified by MSP to have climate change objectives (see Tables 1 through 3 in Attachment 10 [RECON 2022a]).
2. Coordinate with SDMMP to determine which management and monitoring objectives are of the highest priority based on their modeling studies. Use SDMMP modeling to find areas of

potential refugia in Otay Ranch Preserve and potentially assist with the migration of vulnerable species.

3. As funding allows, manage Priority Group species and vegetation communities to increase resilience by reducing threats from other sources such as non-native species, enhancing food webs, and improving pollinator services (SDMMP and TNC 2017).

Long-term climate predictions for California vary from warmer and drier to warmer and wetter, depending on which models are consulted. Identifying and predicting specific outcomes and changes in climate, attributable to human activities, are difficult because of the inherent natural variation in climate patterns that already exists, regardless of human intervention. The one aspect of climate change that does exhibit a consensus in climate models is that temperatures will be warmer overall. In a warmer environment, there will be greater evaporation. When higher evaporation is combined with a pattern of less rainfall, the negative effects of drought on native habitat systems may be compounded.

Table 35 identifies discrete tasks that were implemented in between January 1 and December 31, 2022 to manage for the threat of climate change. By reducing competition for resources, weeding efforts are likely the most efficient way to mitigate potentially adverse effects of climate change and increase resilience in habitat that supports sensitive species. Photographic monitoring may also provide a means for more easily observing changes in vegetation over a prolonged period.

The current management methods used for vegetation control and shrub thinning on Otay Ranch Preserve increases available water in the habitat which mitigates the threat of climate change. Without vegetation control and shrub thinning, non-native annual grasses reduce the amount of available water, particularly earlier in the growing season, which decreases the available water for native cactus, native annual flowers, and shrubs. Controlling non-native plant species makes more water available for native plant species. By reducing competition for water, native plants and seeds respond favorably. The PSB has observed the positive effects of weeding and shrub removal when seasonal rain totals were below normal. Native plant species have fared well during drier than average conditions. Native plants are adapted to survive drier periods; therefore, they usually fare well even in suboptimal conditions. Cactus in areas where vegetation management has occurred tend to be vibrant green with sufficient water reserves in each segment during late summer/fall compared to cactus in adjacent areas where vegetation management has not occurred that tend to be diminished in color with segments that have begun to desiccate.

Controlling the amount of fuel present is another management method used on Otay Ranch Preserve to reduce the threat of climate change, the negative effects of fire, and the potential loss of habitat, such as cactus habitat. By controlling weeds and implementing shrub thinning programs the amount of fuel available to carry fire and the potential for a fire to become intense is reduced. Vegetation management areas can serve as refugia for wildlife when intense fires burn surrounding areas. By removing shrubs from certain vegetation communities such as cactus patches, coast cholla and other native plant species are more likely to survive a passing fire, since even if some of the shrubs burn, the intensity of the heat produced is lessened.

The PSB has observed variability in the presence of native annual species as well as the presence of native grasses after shrub thinning. Some shrub-thinned sites display an increase of native annual flower species and abundance the next rainy season, like after intact habitat has burned. There are

seemingly “fire follower” effects, were native annuals such a popcornflower (*Plagiobothrys* spp.), cryptantha (*Cryptantha* spp.), and other native annuals and bunch grasses can be quite common after shrub thinning is complete. This increase in native annual species and bunch grasses benefits wildlife species that have been identified in the MSP as having specific climate change management and monitoring objectives such as coastal cactus wren. As part of the long-term monitoring efforts, available climate data, including rainfall and temperature, were reviewed and included in this 2022 annual report to aid in determining how observed changes in species dominance, diversity, and distribution may relate to climate change.

Table 35 Cross-walk of 2022 Annual Report Tasks with Climate Change Adaptation Strategies	
Monitoring Task	Purpose
Botanical Resources	
Repeat Vegetation Mapping, Vegetation Rapid Assessment Monitoring, and Photographic Monitoring (Tasks 1d and 1e)	Vegetation mapping, vegetation rapid assessment monitoring, and photographic monitoring provide biological data for vegetation communities and plant species present within the Preserve at the time the monitoring is conducted. By conducting repeat surveys, these data can be used to track changes in vegetation community and/or plant species diversity or abundance due to the effects of climate change, as well as provide a baseline for recovery should a climate-related catastrophic event, such as fire or severe flooding, occur.
Vernal Pool Plant Monitoring and Focused Surveys for Rare Plants (Tasks 1m and 1a)	Focused surveys monitored the response of vernal pool plants and sensitive plant species populations that are susceptible to the effects of climate change (e.g., increased drought, proliferation of non-native plant species). The 2022 monitoring effort will inform management actions to reduce threats and improve the resiliency of high-priority populations. Management actions may include habitat enhancement and weed control in areas with high-priority sensitive plant populations.
Invasive Species Treatment: Non-native Plants (Task 6a)	Management actions, such as invasive species control, were used in 2022 to improve the resiliency of populations of sensitive vegetation communities, plants, and animals that are considered the most susceptible to these effects.
Zoological Resources	
Focused Surveys for Sensitive Wildlife: Quino Checkerspot Butterfly, Coastal California Gnatcatcher, Least Bell’s Vireo, Yellow-billed Cuckoo, Hermes Copper Butterfly, Golden Eagle and Fairy Shrimp (Tasks 1b, f, h, k, l, and n)	Focused surveys monitored the response of sensitive wildlife species populations that are susceptible to the effects of climate change (e.g., reduced food availability, type conversion of suitable habitat). The 2022 monitoring effort will inform management actions to reduce threats and improve the resiliency of high-priority populations. Management actions may include habitat restoration and enhancement to expand the amount of suitable habitat available, create refugia, increase potential food sources, and connect fragmented or isolated habitat patches.
Invasive Species Treatment: Shot Hole Borer Monitoring, Gold-spotted Oak Borer Monitoring and Brown-headed Cowbird Trapping (Tasks 1i, 1j, and 6b)	Invasive species monitoring provided information regarding new and emerging threats to sensitive habitats and species. The 2022 monitoring effort will inform management actions (e.g., trapping and other control methods) to reduce threats to high-priority populations of sensitive wildlife species, as well as to prevent the establishment of new populations of high-priority invasive species.

6.0 Additional Habitat Restoration Projects within the Otay Ranch Preserve

This chapter describes additional habitat restoration projects that occurred within the Preserve between January 1 and December 31, 2022. These projects did not use funds generated by CFD 97-2.

6.1 Otay 2nd Pipeline Emergency Repair Project

From the Revegetation Plan Otay 2nd Pipeline Emergency Repair Project (Sequoia Ecological Consulting 2022):

The [Otay 2nd Pipeline Emergency Repair] Project consists of emergency repairs to an undermined 36-inch-diameter potable water transmission pipeline within a City of San Diego easement. Construction for the emergency Project initiated on January 4, 2022.

A portion of the Project footprint occurs within a City of San Diego water utility easement, while the remainder is located within the City of Chula Vista and the associated Otay Ranch Preserve [Wolf Canyon parcels]; therefore, regulatory jurisdiction is split between these two municipalities. A total of 0.178 acres of Project-related temporary disturbance, comprised of 0.172 acre of Diegan coastal sage scrub (DCSS) and 0.006 acre of non-native grassland, will be revegetated within the City of San Diego's jurisdiction. The remaining revegetation, totaling 0.318 acre comprised of 0.150 acre of DCSS and 0.168 acre of non-native grassland, will occur outside of the City of San Diego easement within the jurisdiction of the City of Chula Vista. Restoration as mitigation for Project-related impacts to DCSS and non-native grassland is required pursuant to the City of Chula Vista Multiple Species Conservation Program (MSCP) Subarea Plan (Subarea Plan) (City of Chula Vista 2003) and Habitat Loss and Incidental Take (HLIT) Ordinance (City of Chula Vista 2005), as well as the City of San Diego Environmentally Sensitive Lands (ESL) and Land Development Code (LDC) Biology Guidelines (City of San Diego 1999) which uphold the City of San Diego MSCP Subarea Plan (City of San Diego 1997). A detailed discussion of mitigation is provided in the Project Biological Technical Report (Sequoia 2021) and Post-Construction Report.

Following the acceptance of the 120-day Plant Establishment Period (PEP) by City of San Diego/City of Chula Vista representatives, long-term maintenance and monitoring shall begin and continue for 25 months. Long-term maintenance activities will generally be consistent with those conducted during the PEP. Weed abatement will be the primary or most-frequent activity and will be implemented through hand weeding during site visits and/or larger-scale mowing or string-trimming events. Trash should be removed from the revegetation areas on a regular basis as part of general site cleanup. Erosion control Best Management Practices (BMPs) shall be maintained until the 25-month monitoring period is complete.

The Project biologist shall submit quarterly monitoring memos to the City of San Diego/City of Chula Vista representative. At the end of 25 months, the biologist and the City of San Diego/City of Chula Vista will meet at the site for a final walk-through, and a final report will be submitted to within 14 days of the completion of the long-term monitoring period. If success criteria have not been met, the maintenance and monitoring period may be extended.

From the Notification of Completion of Implementation Activities at the Otay 2nd Pipeline Revegetation Site (RECON 2022i):

In order to stabilize the approximately 30,528 square feet (0.70 acre) of disturbed areas, the site was planted with native container stock [adjacent to Otay Ranch Preserve] followed by a hydroseed application [applied within Otay Ranch Preserve on October 21, 2022]. The revegetation areas were divided into the following three areas: Diegan coastal sage scrub hydroseed mix (14,035 square feet); Diegan coastal sage scrub hydroseed mix and native container planting (843 square feet); and non-native grassland hydroseed mix (15,650 square feet). All implementation activities followed the guidelines and specifications outlined in the Final Revegetation Plan for the Otay 2nd Pipeline Emergency Repair Project (Sequoia Ecological Consulting 2022).

On October 20, 2022, under the direction and guidance of RECON restoration biologist Raquel Atik, a RECON field crew performed site preparation activities. First, RECON personnel cut down non-native vegetation with mechanical line trimmers. The non-native biomass was then raked into piles, removed from the site, and disposed of at an off-site facility.

6.2 San Diego Gas & Electric Habitat Restoration Project

Section 6.2 is the Executive Summary from the Salt Creek Substation Project Special Status Plants Mitigation and Monitoring Plan Year 5 Annual Report (September 2021 through August 2022) (AECOM 2022).

This Year 5 Annual Report summarizes the fifth and final year of maintenance and monitoring conducted in association with the SDG&E Salt Creek Substation Project Special Status Plants Mitigation and Monitoring Plan (SSP MMP) (AECOM 2016). The Salt Creek Substation Project consisted of the installation of a new 120-megavolt ampere 69/12-kilovolt substation. The substation was installed to provide additional capacity to serve existing area electrical load and future customer-driven load growth, and the necessary distribution and transmission network to prevent long-term outages or disruptions of service to existing customers in the southeastern portion of SDG&E's service territory.

The SSP MMP includes mitigation for unavoidable permanent impacts to special status plant species present in the Project impact area: Palmer's grappling-hook, San Diego barrel cactus, and San Diego sunflower (*Bahiopsis laciniata*). Construction of

the Project was completed in 2017 and mitigation for permanent impacts to special status plants was implemented later that same year. Mitigation for Project impacts to special status plants is intended to promote the continued persistence of the impacted populations by reestablishing individuals or their bulked seed at an off-site location. The maintenance and monitoring program will continue for 5 years or until required success criteria, as assessed annually, are achieved.

Installation at the three Receiver Sites occurred from November 2017 until the beginning of February 2018. February 1, 2018, marked the beginning of the 120-day maintenance period and the 5-year maintenance and monitoring period. This Year 5 annual report includes a summary of maintenance activities from September 1, 2021 through August 31, 2022, as well as the results of the fifth year of monitoring for the special status plants.

Due to annual variation in population size for Palmer's grappling-hook, success is being measured by a trend analysis between the Receiver and Reference Sites. An evaluation of the density is being used as a secondary, non-required success criterion. Success of San Diego barrel cactus will be met if the one naturally occurring individual is healthy and persisting after the monitoring period is complete. Success criteria for San Diego sunflower will be achieved if a population of at least 197 individuals (1:1 compensation ratio) is healthy and persisting.

In Year 5, the largest population numbers of Palmer's grappling-hook were observed across any year of monitoring for both Receiver and Reference Sites. There were 13,398 Palmer's grappling-hook individuals observed at the Receiver Sites compared to 1,286 individuals in Year 4. This is an average population increase of 942 percent from Year 4. The Palmer's grappling-hook populations in the Reference Sites also increased dramatically, 2,486 individuals in Year 5 vs. 129 individuals in Year 4, which is an 1,827 percent increase from Year 4 to Year 5. In Year 5, the observed Palmer's grappling-hook population extents were also the largest observed across all 5 years of monitoring. Every previously documented population from both the Receiver and Reference sites was expressing and individuals were observed growing outside the previously mapped population boundaries (see Figure 3-3 of the Year 5 Annual Report). Additionally, the average density of Palmer's grappling-hook in Year 5 was higher in the Receiver Sites than the Reference Sites, with observed average densities of 30,516 individuals/acre in the Receiver Sites and 14,734 individuals/acre in the Reference Sites. In Year 5, all 12 of the installed San Diego barrel cactus individuals initially planted at Receiver Sites 1 and 3 were healthy and persisting, and 583 San Diego sunflower individuals were observed at Receiver Sites 1 and 3 in Year 5.

Based on Year 5 annual monitoring of the special status plants, all three species are meeting their respective primary success criteria. The Receiver and Reference Sites have both had a net increase in population over the 5 years of monitoring, however the Receiver Sites' average population trend has increased more than the Reference Sites, 432% vs. 354% growth. Therefore, Palmer's grappling-hook achieved its primary success criteria in Year 5. Both San Diego barrel cactus and San Diego

sunflower achieved their primary success criteria for at least four consecutive years, including Year 5. Therefore, no additional remedial measures are needed and sign-off of all species is requested, marking completion of the project.

6.3 Quino Checkerspot Butterfly Recovery Program at Otay Ranch Preserve Salt Creek Parcels

The following is a summary from the 2022 Annual Report for the Quino Checkerspot Butterfly Recovery Program at Otay Ranch Preserve Salt Creek parcels (RECON 2022j).

Maintenance and monitoring activities were conducted from October 10, 2021, through October 20, 2022, for the federally endangered Quino checkerspot butterfly within a 14.28-acre mesa top in the southeastern portion of the Salt Creek parcels. Activities included weed control, seed bulking, seed dispersal, access control, photo monitoring, a QCB habitat assessment, and sensitive species mapping. Twenty-eight weed control visits were conducted. Several methods were used to control weeds in 2021/2022, including spraying non-natives with glyphosate herbicide, hand pulling of non-natives in the vernal pools, and using line trimmers to clear non-natives surrounding the vernal pools. QCB host and nectar plant locations were flagged by the project biologist prior to the application of herbicide. Seed was bulked at Native West Nursery to increase the amount of QCB host and nectar plants at the site.

Fence and sign installation and repairs were necessary to protect the site from unauthorized access. Installation and repairs were conducted as part of Otay Ranch Preserve maintenance. This effort is included in Section 3.0, Subtask 5b, above.

Repeat photo monitoring at established locations was conducted for the site. QCB host and nectar plants were mapped, as well as Otay mesa mint individuals. A high density of QCB host and nectar plants were mapped; however, the distribution was limited to the southern portion of the site.

Ponding was observed during the rainy season. Woollyheads grew well in most of the established pools. Otay Mesa mint was the only listed plant species that germinated during the 2022 growing season. Otay Mesa mint was observed within 28 of 30 established pools and one additional road rut in 2022, compared to 16 established pools in 2021. Mapped Otay mesa mint is not shown in Section 2.0, Subtask 1b, above, as it is shown in the 2022 Annual Report for the Quino Checkerspot Butterfly Recovery Program at Otay Ranch Preserve Salt Creek parcels (2022j).

6.4 Shinohara II Restoration Project - Authorized Cactus Collection

Cactus was authorized to be collected within the preserve on one occasion for a non-CFD 97-2 restoration project. On November 29, 2022, a crew collected coast prickly-pear and coast cholla from Wolf Canyon and Western Wolf Canyon parcels with guidance from biologist Mark Doderio. Approximately twelve 15-gallon buckets of cactus were collected for Environmental Science Associates managed Shinohara II Restoration Project.

7.0 References Cited

AECOM

- 2016 Salt Creek Substation Project Special Status Plants Mitigation and Monitoring Plan. Prepared for San Diego Gas & Electric. September.
- 2022 Salt Creek Substation Project Special Status Plants Mitigation and Monitoring Plan Year 5 Annual Report (September 2021 through August 2022).

California Invasive Plant Council (Cal-IPC)

- 2022 California Invasive Plant Inventory. Available at <https://www.cal-ipc.org/plants/inventory/>.

California Native Plant Society

- 2001 CNPS Botanical Survey Guidelines. Revised June 2. Available at https://cnps.org/wp-content/uploads/2018/03/cnps_survey_guidelines.pdf.
- 2019 CDFW-CNPS Protocol for the Combined Vegetation Rapid Assessment and Relevé Field Form. February 21.

Halterman, M., M.J. Johnson, J.A. Holmes and S.A. Laymon

- 2015 A Natural History Summary and Survey Protocol for the Western Distinct Population Segment of the Yellow-billed Cuckoo: U.S. Fish and Wildlife Techniques and Methods.

Helix Environmental Planning (Helix)

- 2003 Biological Mitigation, Monitoring, and Reporting Program and Area-specific Management Directives.

Holland, Robert F.

- 1986 Preliminary Descriptions of the Terrestrial Natural Communities of California. Nongame Heritage Program, California Department of Fish and Game. October.

Jepson Flora Project (eds.)

- 2022 *Jepson eFlora*. Revision 9. December 23. <https://ucjeps.berkeley.edu/eflora/>.

Merkel & Associates, Inc.

- 2011 Salt Creek Coastal Cactus Wren Habitat Restoration Project 1st Annual Monitoring Report. January.

National Wildlife Federation

- 2014 Climate-Smart Conservation: Putting Adaptation Principles into Practice.

Oberbauer, T., M. Kelly, and J. Buegge

- 2008 Draft Vegetation Communities in San Diego County. Based on "Preliminary descriptions of the Terrestrial Natural Communities of California," Robert F. Holland, Ph.D. April.

RECON Environmental, Inc. (RECON)

- 2007 Otay Ranch Village 1 Maritime Succulent Scrub Restoration Program Year 5 Annual Report for Wolf Canyon. July 3.
- 2008 Otay Ranch Village 1 Phase VIWS Maritime Succulent Scrub Restoration Program Years 1-5. October 6.
- 2012 2012 Baseline Survey Report for the Salt Creek Formerly Used Defense Site and Northern Salt Creek Parcel of the Otay Ranch Preserve. September 14.
- 2013 Annual Report for the Otay Ranch Preserve January 1-December 31, 2012. January 23.
- 2018 Otay Ranch Phase 2 Resource Management Plan Update. September.
- 2020 Annual Report for the Otay Ranch Preserve January 1-December 31, 2019. June 4.
- 2021 FY 2021–22 Annual Work Plan for Otay Ranch Conveyed Lands Managed by the Otay Ranch Preserve Owner/Manager. July 19.
- 2022a FY 2022–23 Annual Work Plan for the Otay Ranch Conveyed Lands Managed by the Otay Ranch Preserve Owner/Manager. August 8.
- 2022b Proposed Deviation Request and Pre-survey Notification for Focused Surveys for Quino Checkerspot Butterfly at Otay Ranch Preserve, San Diego County. January 17.
- 2022c Annual Report for the Otay Ranch Preserve, Johnson Canyon Otay Tarplant Preserve, and Piper Ranch January 1–December 31, 2021. January 21.
- 2022d Pre-Survey Notification of Focused Surveys for Coastal California Gnatcatcher at Otay Ranch Preserve. January 28.
- 2022e Otay Ranch Preserve – Dulzura, Jamul Mountains, Little Cedar Canyon, McMillin, Millenia, Northern San Ysidro, Proctor Valley (South), and Salt Creek Parcels: 2022 Quino Checkerspot Butterfly Survey Report. May 6.
- 2022f Post-Survey Report of 2021–2022 Wet Season Fairy Shrimp Surveys for Piper Ranch Parcels, Otay Ranch Preserve. June 16.
- 2022g Post-Survey Notification of Protocol Survey Results for the Coastal California Gnatcatcher at Otay Ranch Preserve, Piper Ranch Parcels. September 7.
- 2022h Proposed Deviation Request and Pre-survey Notification for Wet Season Fairy Shrimp Surveys at Otay Ranch Preserve–Salt Creek Parcels. October 13.
- 2022i Notification of Completion of Implementation Activities at the Otay 2nd Pipeline Revegetation Site. October 25.

- 2022j 2022 Annual Report for the Quino Checkerspot Butterfly Recovery Program at Otay Ranch Preserve Salt Creek Parcels (9850.22). October 31.

San Diego, County of

- 1993 Otay Ranch Phase 1 Resource Management Plan. October 28.

San Diego Management and Monitoring Program (SDMMP) and The Nature Conservancy (TNC)

- 2017 Management and Monitoring Strategic Plan for Conserved Lands in Western San Diego County: A Strategic Habitat Conservation Roadmap. 3 Volumes. Prepared for the San Diego Association of Governments. San Diego.

- 2021 Climate Change. Accessed February 9.
https://sdmmp.com/view_threat.php?threatid=TID_20160304_1450.

San Diego Natural History Museum (SDNHM)

- 2022a Brown-headed Cowbird Removals at the Otay River Restoration Area, Salt Creek, Northern Salt Creek, and Wolf Canyon Parcels of the Otay Ranch Preserve, City of Chula Vista, San Diego County. August 19.

- 2022b Least Bell's Vireo (*Vireo bellii pusillus*) Surveys and Nest Monitoring at the Salt Creek, Northern Salt Creek, and Wolf Canyon Parcels of the Otay Ranch Preserve, City of Chula Vista, San Diego County. November 11.

Sequoia Ecological Consulting

- 2022 Revegetation Plan Otay 2nd Pipeline Emergency Repair Project. May 20.

Sproul, Fred, Todd Keeler-Wolf, Patricia Gordon-Reedy, Jonathan Dunn, Anne Klein, and Kyle Harper

- 2011 *Vegetation Classification Manual for Western San Diego County*. February.

U.S. Army Corps of Engineers (USACE)

- 2020 National Wetland Plant List. Accessed from https://wetland-plants.sec.usace.army.mil/nwpl_static/data/DOC/lists_2020/Regions/pdf/reg_AW_2020v1.pdf.

U.S. Department of Commerce (USDC)

- 2022a Chronological RTP Listings by Station (May 1998 – Present). Brown Field Station. Accessed from <http://www.wrh.noaa.gov/sgx/obs/rtp/brown.html>.

- 2022b 1991-2020 Station Monthly Normals of Average Temperature, Precipitation, and Snowfall. Brown Field Station. National Centers for Environmental Information. National Oceanic and Atmospheric Administration. Accessed from <https://www.ncei.noaa.gov/access/us-climate-normals/#dataset=normals-monthly&timeframe=30&location=CA&station=USW00003178>.

U.S. Fish and Wildlife Service (USFWS)

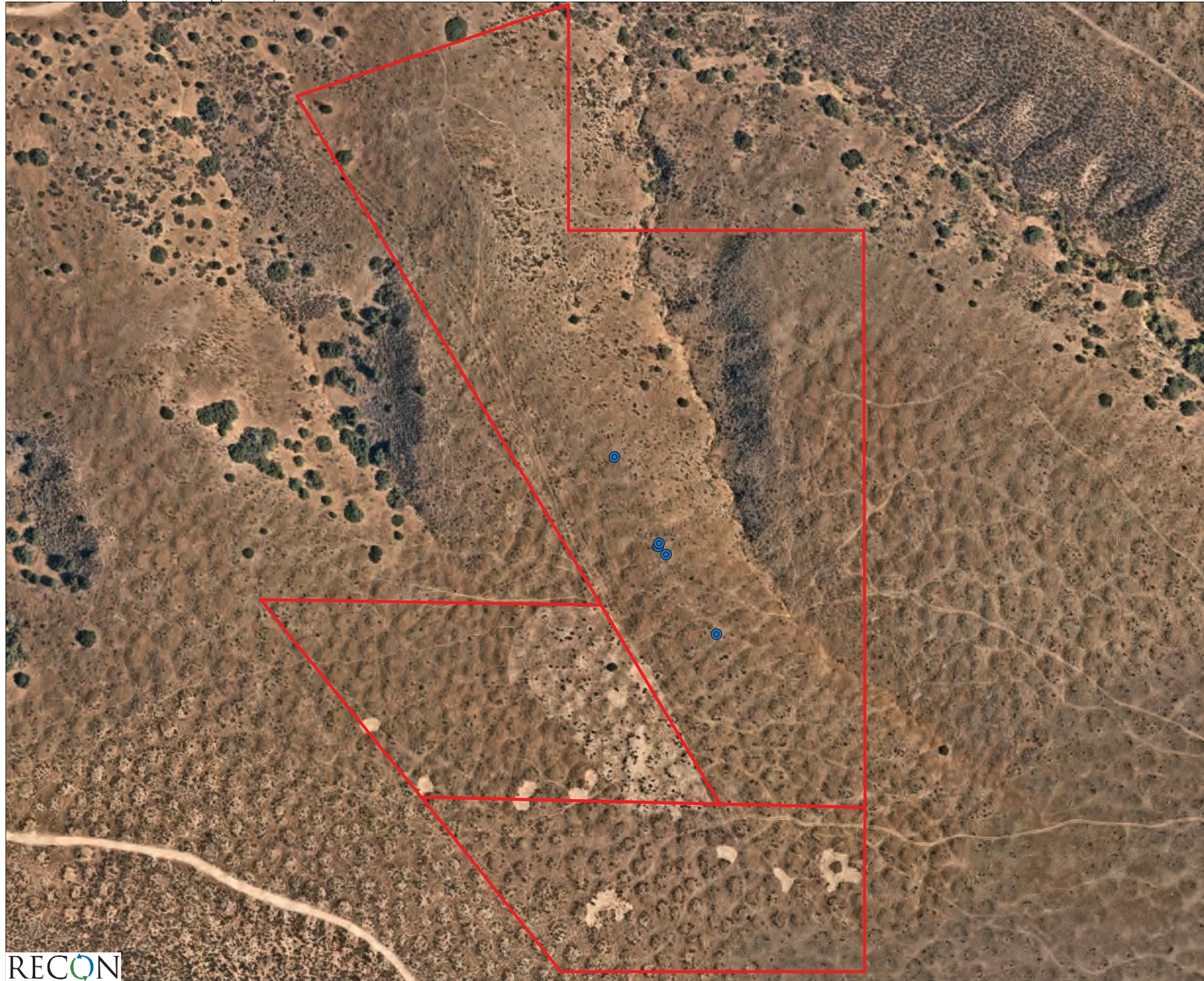
1997 Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/
Absence Survey Protocol. February 28.

2001 Least Bell's Vireo Survey Guidelines. Carlsbad, California. January 19, 2001.

ATTACHMENTS

ATTACHMENT 1

Figures 4–54



 Conveyed Land Under POM Management

Sensitive Plants

Priority Group 1


-  Variegated Dudleya (*Dudleya variegata*)



FIGURE 4
Focused Rare Plant Survey Results,
Johnson Canyon (East)
and Piper Ranch Parcels



 Conveyed Land Under POM Management

Sensitive Plants

Priority Group 1



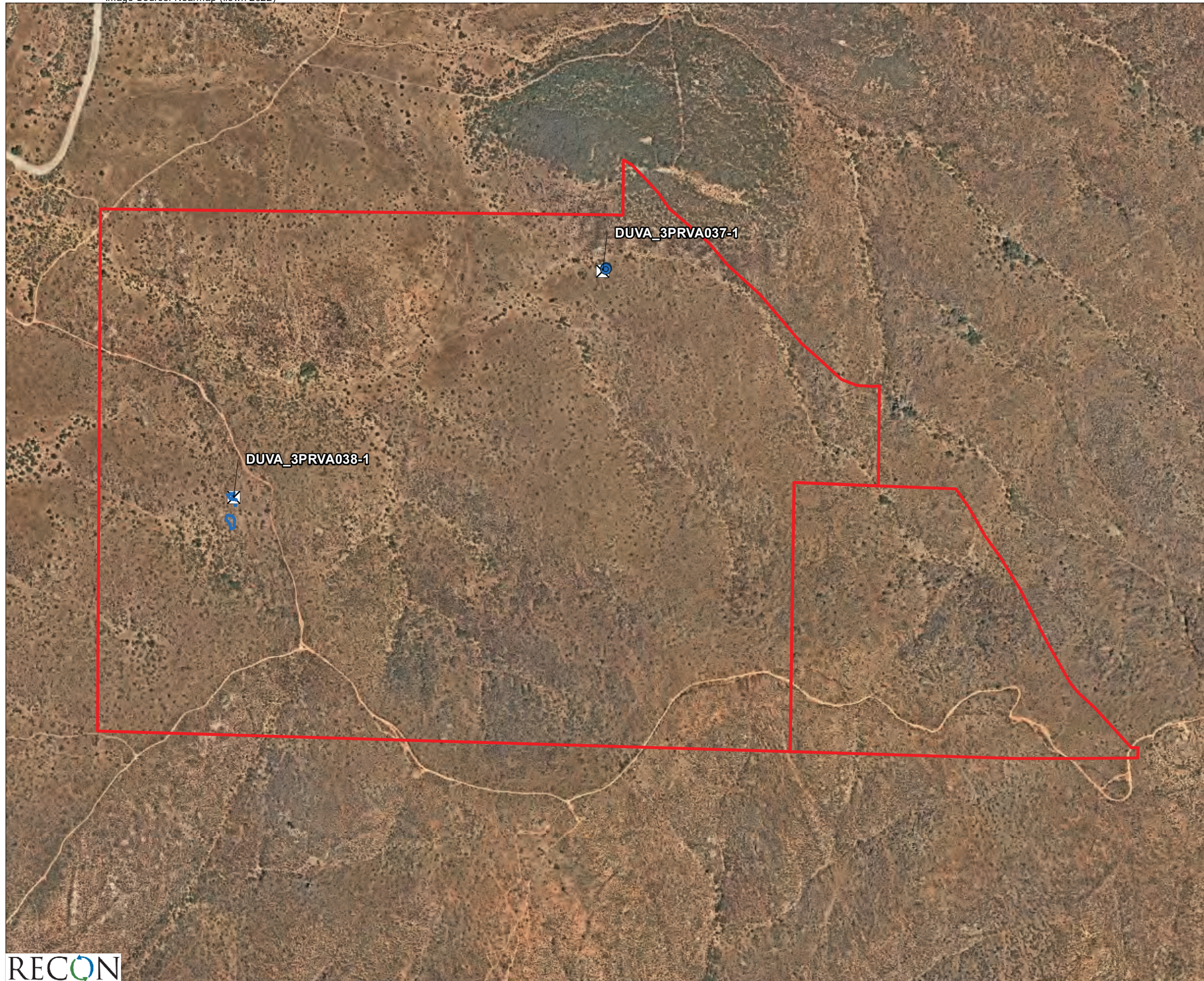
-  Otay Tarplant
(*Deinandra conjugens*)
-  Variegated Dudleya
(*Dudleya variegata*)



FIGURE 5
Focused Rare Plant Survey Results,
Johnson Canyon Otay Tarplant Preserve






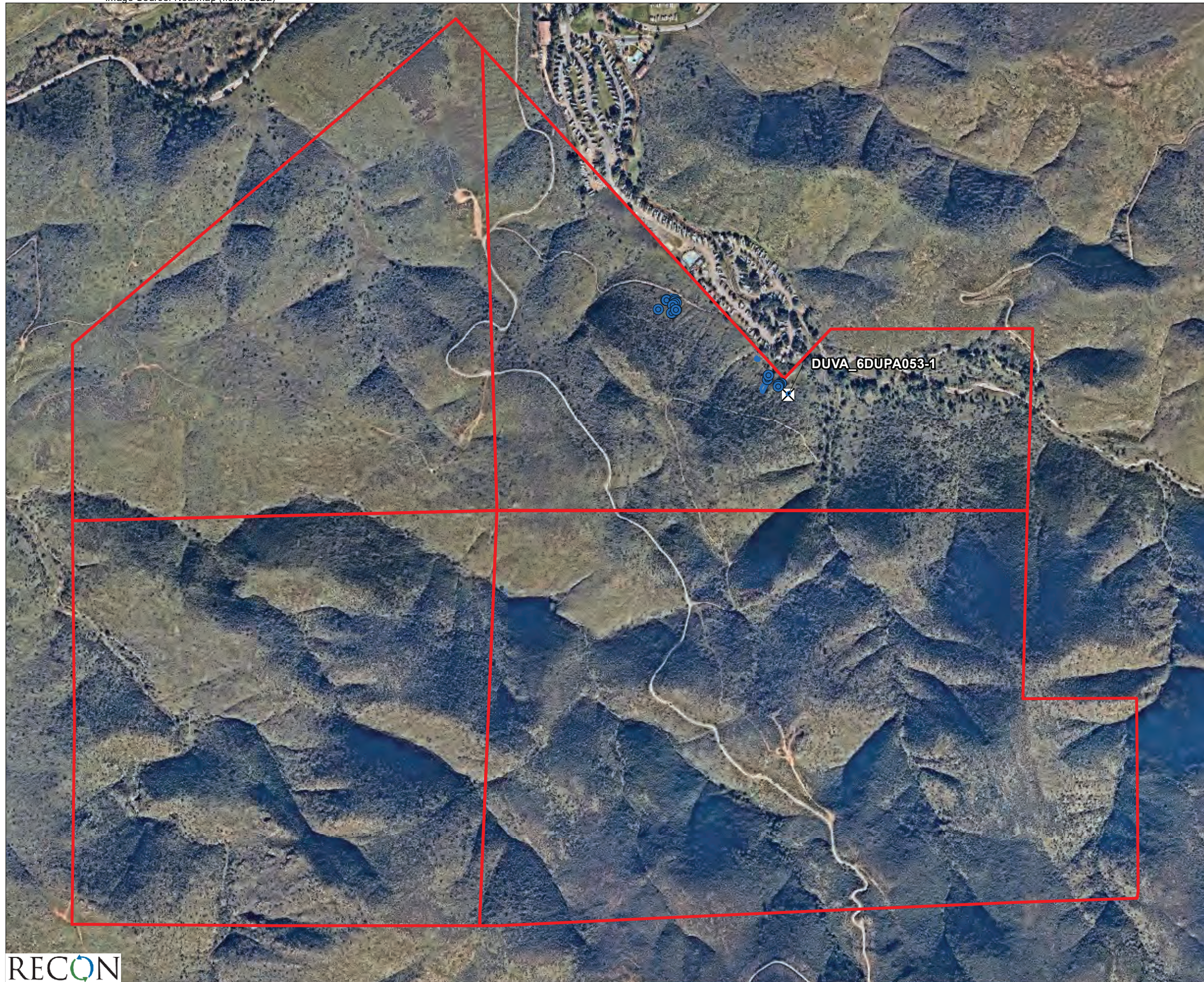
-  Conveyed Land Under POM Management
- IMG MSP/Priority Group 1**
-  Rare Plant Monitoring Locations
-  Variegated Dudleya (*Dudleya variegata*)



FIGURE 6
MSP IMG Rare Plant Survey Results,
Jamul Mountains Parcels






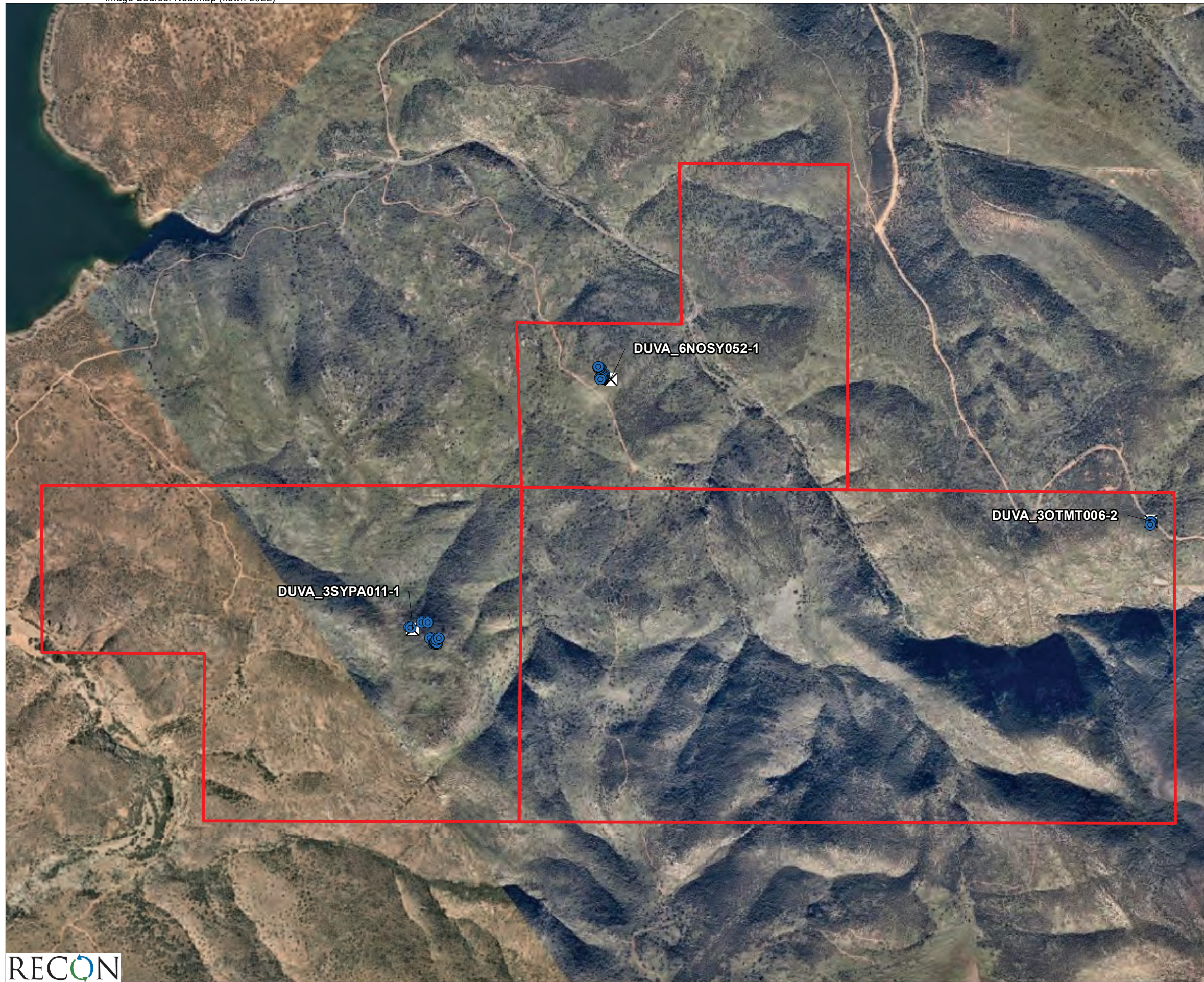
-  Conveyed Land Under POM Management
- IMG MSP/Priority Group 1**
-  Rare Plant Monitoring Locations
-  Variegated Dudleya (*Dudleya variegata*)



FIGURE 7
MSP IMG Rare Plant Survey Results,
Dulzura Parcels



- Conveyed Land Under POM Management
- IMG MSP/Priority Group 1**
- Rare Plant Monitoring Locations
- Variegated Dudleya (*Dudleya variegata*)

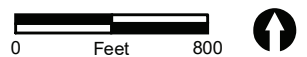


FIGURE 8
MSP IMG Rare Plant Survey Results,
Northern San Ysidro and San Ysidro Parcels







-  Conveyed Land Under IMG MSP/Priority Group 1 POM Management
-  Rare Plant Monitoring Locations
-  Otay Tarplant (*Deinandra conjugens*)
-  Variegated Dudleya (*Dudleya variegata*)



FIGURE 9
MSP IMG Rare Plant Survey Results,
Northern Salt Creek and Salt Creek Parcels









-  Conveyed Land Under POM Management
- IMG MSP/Priority Group 1**
-  Rare Plant Monitoring Locations
-  Otay Tarplant (*Deinandra conjugens*)



FIGURE 10
MSP IMG Rare Plant Survey Results,
Western Wolf Canyon and Wolf Canyon Parcels



-  Conveyed Land Under POM Management
- IMG MSP/Priority Group 1**
-  Rare Plant Monitoring Locations
-  Otay Tarplant (*Deinandra conjugens*)

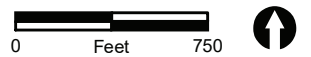
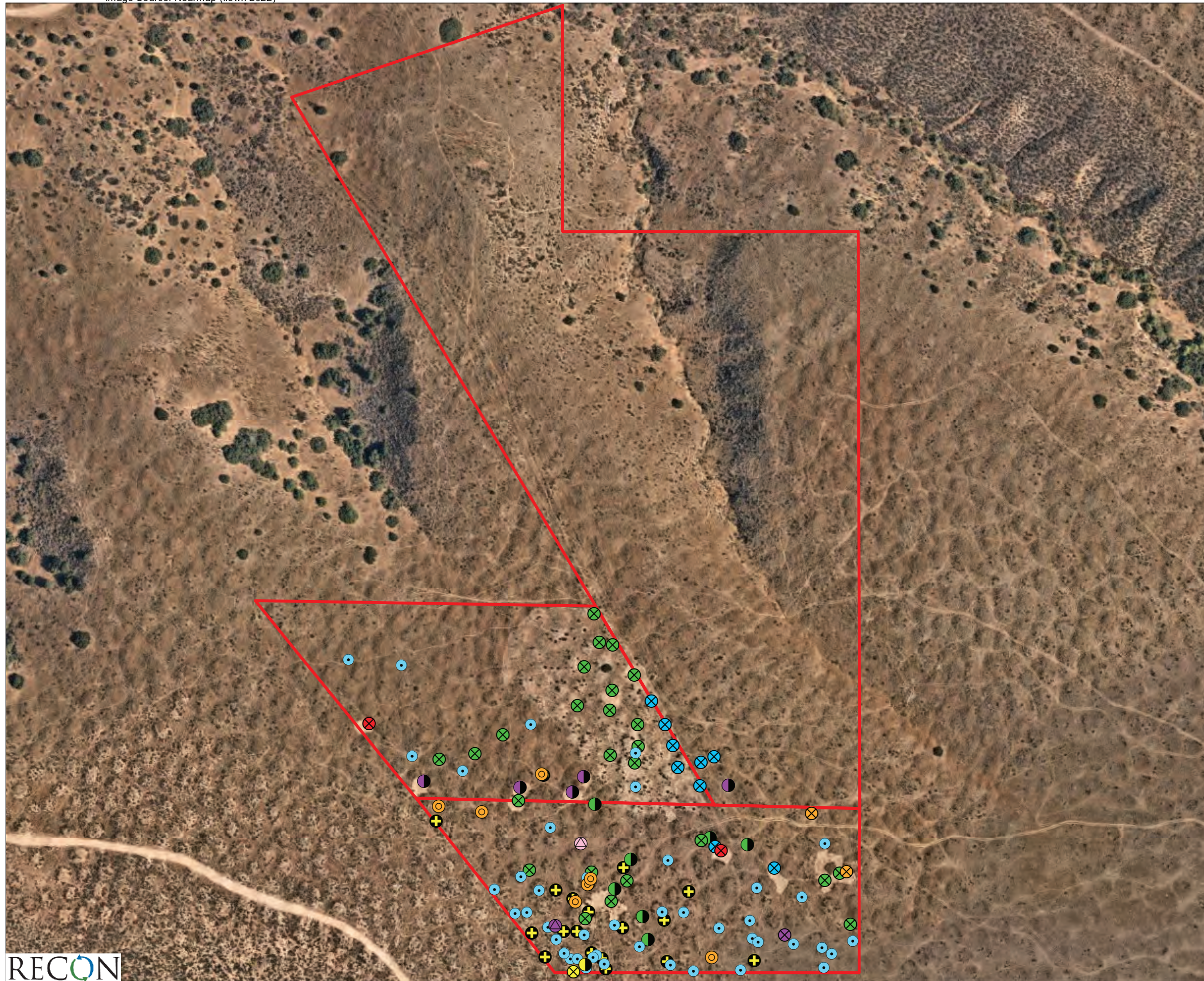


FIGURE 11
MSP IMG Rare Plant Survey Results,
Millenia Parcels



Conveyed Land Under POM Management

Sensitive Plants

Priority Group 2

- San Diego Barrel Cactus
(*Ferocactus viridescens*)

Priority Group 3

- San Diego Bur-sage
(*Ambrosia chenopodiifolia*)

Priority Group 4

- Ashy Spike-moss
(*Selaginella cinerascens*)

Host Plants

- Dot-seed Plantain
(*Plantago erecta*)

Nectar Plants

- + Common Goldfields
(*Lasthenia gracilis*)

Common Plants

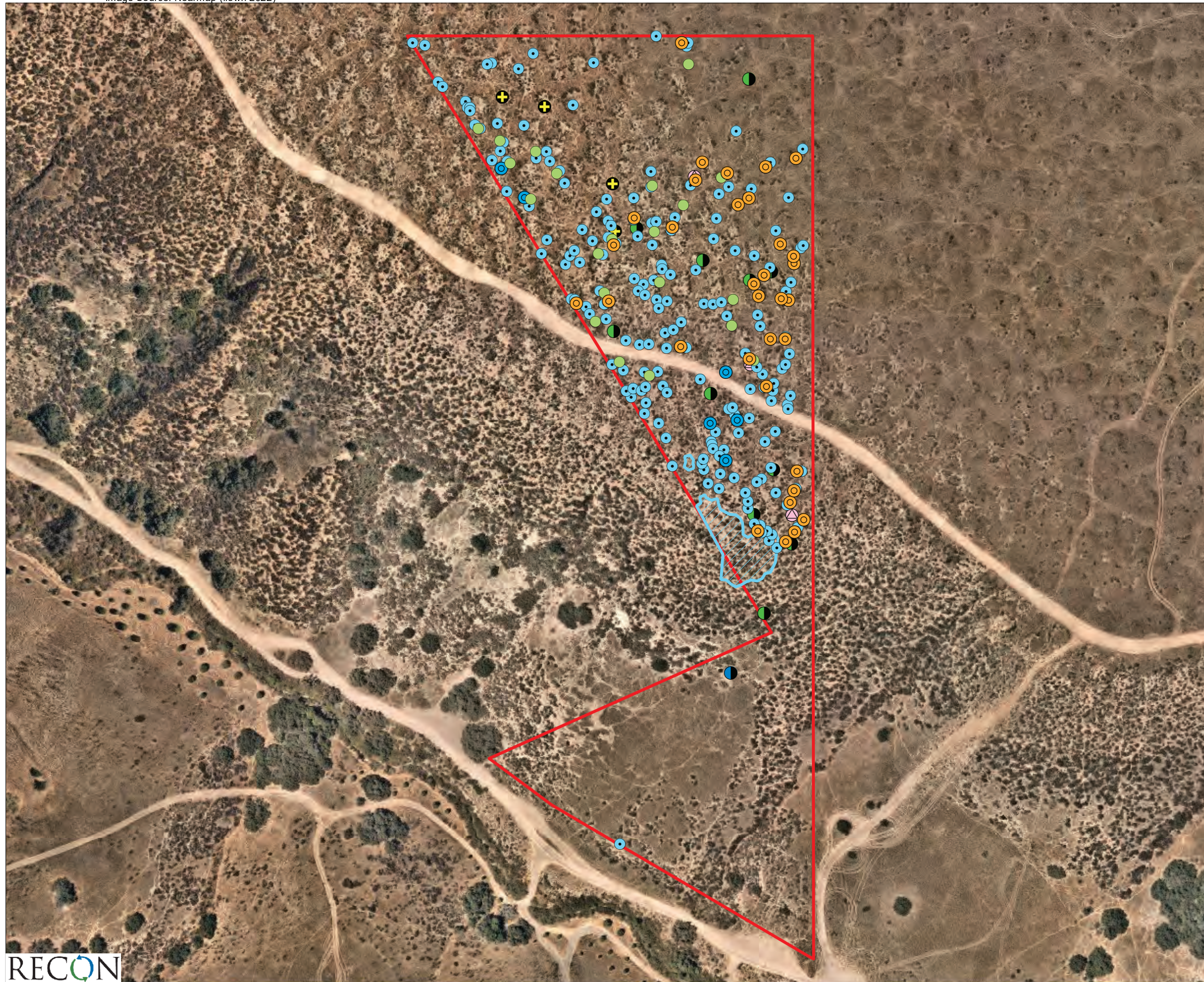
- Coast Cholla
(*Cylindropuntia prolifera*)
- Pale Spike-rush
(*Eleocharis macrostachya*)
- Wide-throat Yellow Monkeyflower
(*Diplacus brevipes*)

Invasive Plants

- ⊗ Rye Grass
(*Festuca perennis*)
- ⊗ Mediterranean Barley
(*Hordeum marinum ssp. gussoneanum*)
- ⊗ Australian Saltbush
(*Atriplex semibaccata*)
- ⊗ Hood Canary Grass
(*Phalaris paradoxa*)
- ⊗ Cheat Grass
(*Bromus tectorum*)
- ⊗ Soft Chess
(*Bromus hordeaceus*)



FIGURE 12
Noteworthy Plants,
Piper Ranch and
Johnson Canyon (East) Parcels



Conveyed Land Under POM Management

Sensitive Plants

Priority Group 2

San Diego Barrel Cactus
(*Ferocactus viridescens*)

Priority Group 3

Decumbent Goldenbush
(*Isocoma menziesii* var. *decumbens*)

Priority Group 4

Ashy Spike-moss
(*Selaginella cinerascens*)

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

Host Plants

Dot-seed Plantain
(*Plantago erecta*)

Nectar Plants

Common Goldfields
(*Lasthenia gracilis*)

Common Plants

Coast Cholla
(*Cylindropuntia prolifera*)

Fascicled Tarweed
(*Deinandra fasciculata*)



FIGURE 13
Noteworthy Plants,
Johnson Canyon Otay Tarplant Preserve




 Conveyed Land Under POM Management

Sensitive Plants

Priority Group 1

 Dunn's Mariposa Lily
(*Calochortus dunnii*)

Host Plants

 Spiny Redberry
(*Rhamnus crocea*)

Wildlife

Priority Group 1


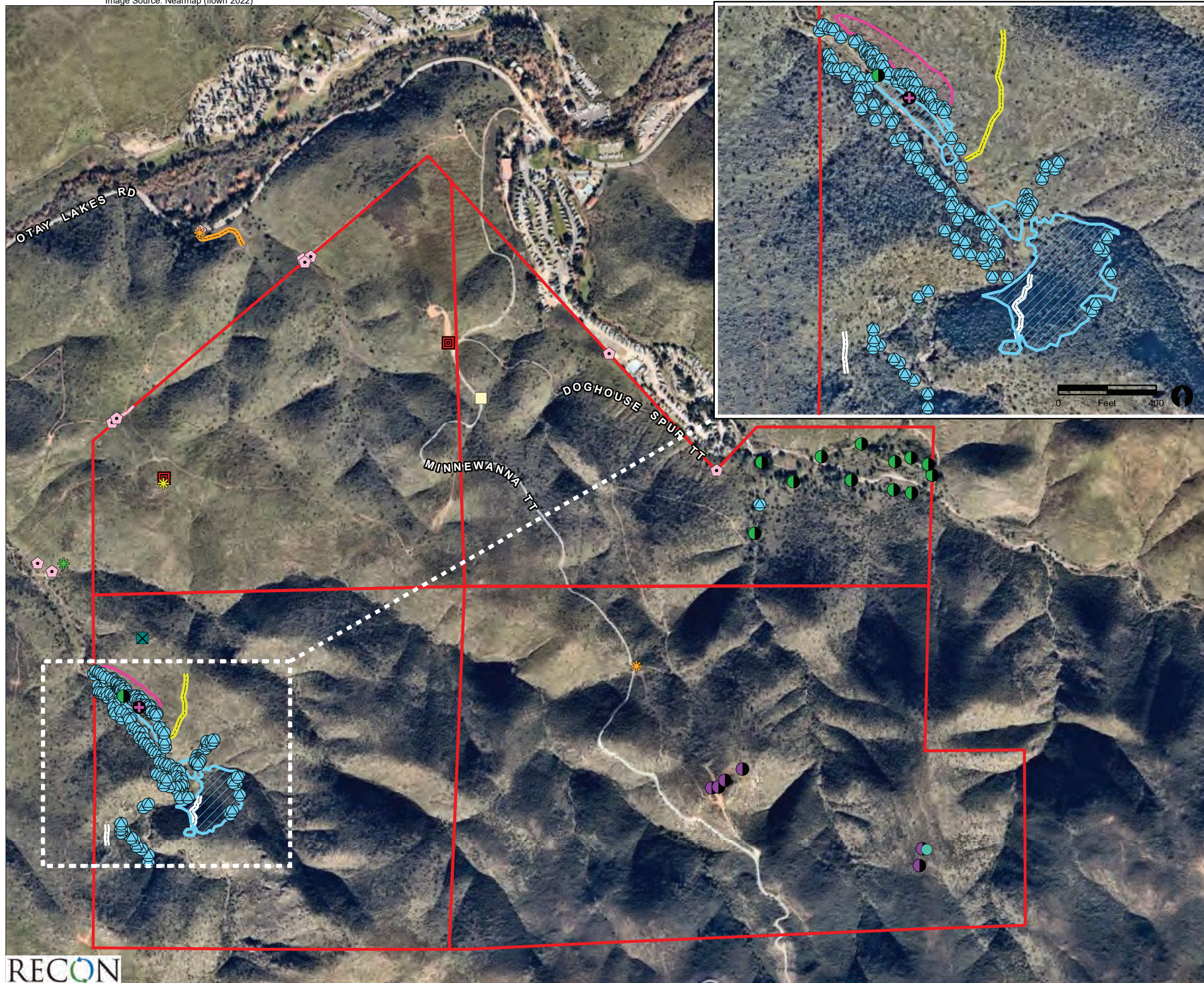
 Harbison Dun Skipper
(*Euphyes vestris harbisoni*)



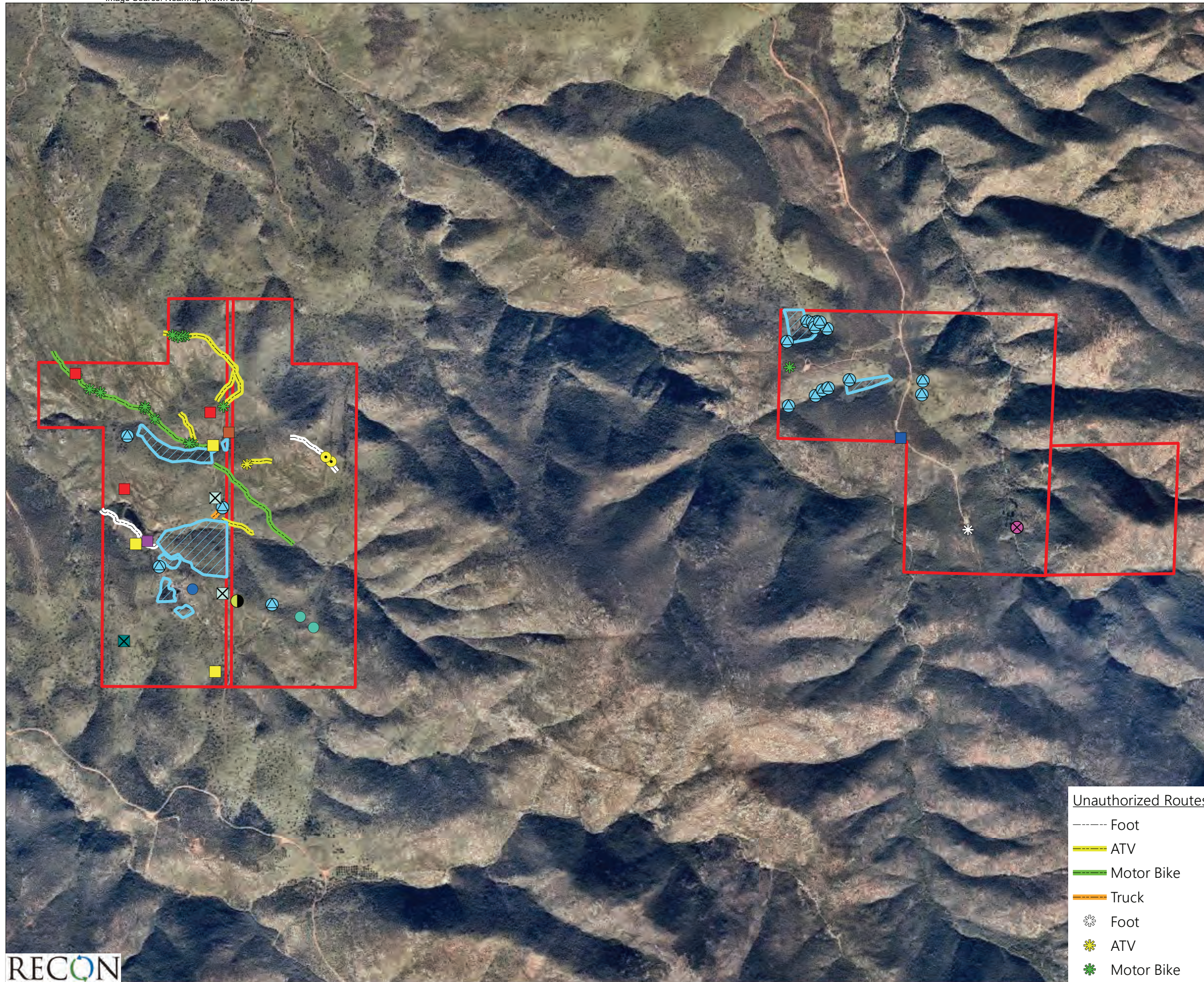
FIGURE 14
Noteworthy Plants and Wildlife,
Proctor Valley (North) Parcels



- Conveyed Land Under POM Management
- Sensitive Plants**
- Priority Group 4**
- California Adder's-tongue (*Ophioglossum californicum*)
- Host Plants**
- Spiny Redberry (*Rhamnus crocea*)
- Nectar Plants**
- + California Buckwheat (*Eriogonum fasciculatum*)
- Common Plants**
- Coast Live Oak (*Quercus agrifolia*)
- Chocolate Lily (*Fritillaria biflora*)
- Wildlife**
- Priority Group 2**
- ⊠ Blainville's [=Coast] Horned Lizard (*Phrynosoma blainvillii*)
- Priority Group 4**
- California Horned Lark (*Eremophila alpestris actia*)
- Common Wildlife**
- Greater Roadrunner (*Geococcyx californianus*)
- Repaired Fence**
- T-post (barbless wire)
- T-post (barbless wire)
- Unauthorized Routes**
- Foot
- ATV
- Truck
- ✱ ATV
- ✱ Motor Bike
- ✱ Truck



FIGURE 15
Noteworthy Plants and Wildlife,
and Access Issues, Dulzura Parcels



Conveyed Land Under POM Management

Sensitive Plants

Priority Group 1

● San Diego Goldenstar
(*Bloomeria clevelandii*)

Priority Group 4

● Golden-ray Pentachaeta
(*Pentachaeta aurea ssp. aurea*)

● California Adder's-tongue
(*Ophioglossum californicum*)

Host Plants

▲ Spiny Redberry
(*Rhamnus crocea*)

Common Plants

● Danny's Skullcap
(*Scutellaria tuberosa*)

Invasive Plants

⊗ Pampas Grass
(*Cortaderia selloana*)

Wildlife

Priority Group 1

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

Coastal California Gnatcatcher
(*Polioptila californica californica*)

Thorne's Hairstreak
(*Callophrys thornei*)

Northern Harrier
(*Circus hudsonius*)

Priority Group 2

Blainville's [=Coast] Horned Lizard
(*Phrynosoma blainvillii*)

⊗ Southern Mule Deer
(*Odocoileus hemionus fuliginata*)

Common Wildlife

Gabb's Checkerspot
(*Chlosyne gabbii*)

Unauthorized Routes

----- Foot

----- ATV

----- Motor Bike

----- Truck

⊗ Foot

⊗ ATV

⊗ Motor Bike

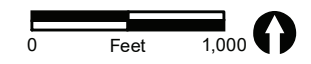
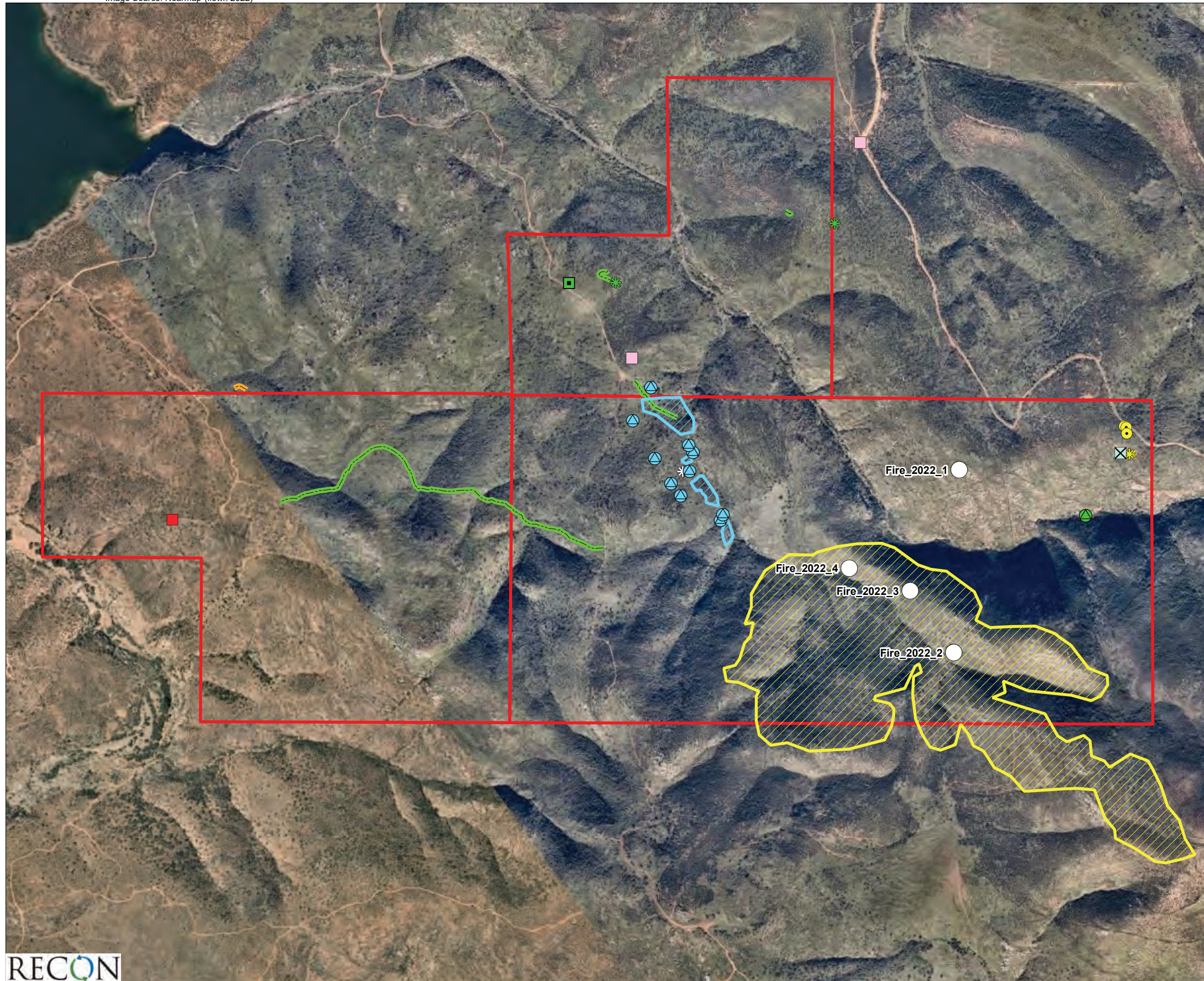


FIGURE 16
Noteworthy Plants and Wildlife,
and Access Issues, McMillin
and Little Cedar Canyon



- Conveyed Land Under POM Management
Border 27 Fire - 98 acres
- (Source: National Alliance for Public Safety GIS Foundation, 2022)
- Photo Monitoring Points –
Established in FY 2022-23
- Sensitive Plants**
- Priority Group 1**
- San Diego Goldenstar (*Bloomeria clevelandii*)
- Host Plants**
- San Diego Sedge (*Carex spissa*)
- Spiny Redberry (*Rhamnus crocea*)
- Wildlife**
- Priority Group 1**
- Coastal California Gnatcatcher (*Polioptila californica californica*)
- Priority Group 2**
- Southern Mule Deer (*Odocoileus hemionus fuliginata*)
- Priority Group 3**
- Grasshopper Sparrow (*Ammodramus savannarum*)
- Common Wildlife**
- Monarch (*Danaus plexippus*)
- Unauthorized Routes**
- ATV
- Motor Bike
- Truck
- ✱ Foot
- ✱ ATV
- ✱ Motor Bike

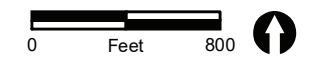


FIGURE 17
Noteworthy Plants and Wildlife,
Photo Monitoring, and Access Issues,
Northern San Ysidro and San Ysidro Parcels

- Conveyed Land Under POM Management
- Sensitive Plants**
- Priority Group 2**
- San Diego Barrel Cactus (*Ferocactus viridescens*)
- Priority Group 3**
- South Coast Saltscale (*Atriplex pacifica*)
- Priority Group 4**
- Palmer's Grapplinghook (*Harpagonella palmeri*)
- Host Plants**
- Spiny Redberry (*Rhamnus crocea*)
- Common Plants**
- Smooth Boisduvalia (*Epilobium campestre*)
- Fremont Cottonwood (*Populus fremontii* ssp. *fremontii*)
- Arroyo Willow (*Salix lasiolepis*)
- Goodding's Black Willow (*Salix gooddingii*)
- Blue Elderberry (*Sambucus mexicana*) Living
- Blue Elderberry (*Sambucus mexicana*) Dead
- Blue Elderberry (*Sambucus mexicana*) Naturally Occurring
- Invasive Plants**
- ⊗ Stinkwort (*Dittrichia graveolens*)
- Wildlife**
- Priority Group 1**
- Least Bell's Vireo (*Vireo bellii pusillus*)
- Coastal California Gnatcatcher (*Polioptila californica californica*)
- Coastal Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*)
- Priority Group 2**
- ⊗ Belding's Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)
- ⊗ Blainville's [=Coast] Horned Lizard (*Phrynosoma blainvillii*)
- ⊗ Southern Mule Deer (*Odocoileus hemionus fuliginata*)
- Priority Group 3**
- Red Diamond Rattlesnake (*Crotalus ruber*)
- San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)
- Yellow-breasted Chat (*Icteria virens*)
- Priority Group 4**
- San Diego Desert Woodrat (*Neotoma lepida intermedia*)
- White-tailed Kite (*Elanus leucurus*)



- | | | | |
|---|---|---|---|
| Installed Fence | Signs | Unauthorized Routes | * Mountain Bike |
| Coast Cholla | ● Installed | Foot | * ATV |
| T-post (barbless wire) | | Mountain Bike | * Motor Bike |
| Repaired Fence | | ATV | |
| T-post (barbless wire) | | Motor Bike | |
| ◆ T-post (barbless wire) | | | |

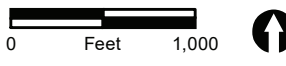
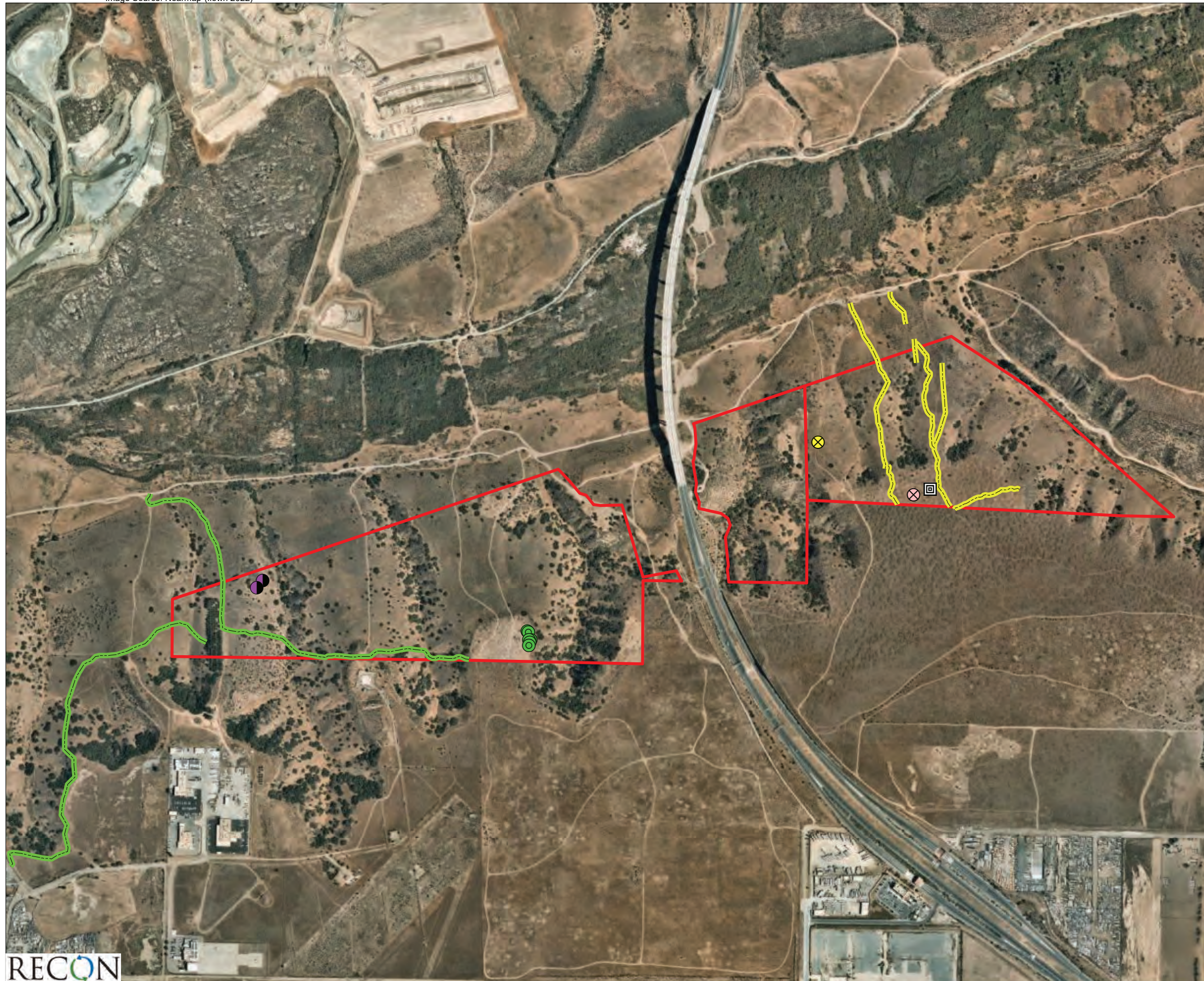


FIGURE 18
Noteworthy Plants, Wildlife, and Access Issues,
Northern Salt Creek and Salt Creek Parcels



Conveyed Land Under POM Management

Sensitive Plants

Priority Group 4

Palmer's Grapplinghook
(*Harpagonella palmeri*)

Common Plants

Desert Tea
(*Ephedra californica*)

Invasive Plants

Stinkwort
(*Dittrichia graveolens*)

Tree Tobacco
(*Nicotiana glauca*)

Wildlife

Priority Group 4

White-tailed Kite
(*Elanus leucurus*)

Unauthorized Routes

ATV

Motor Bike

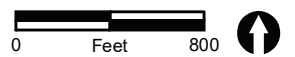


FIGURE 19
Noteworthy Plants and Wildlife,
and Access Issues,
Millenia Parcels



Conveyed Land Under POM Management

Sensitive Plants

Priority Group 3

- Golden-spined Cereus (*Bergerocactus emoryi*)
- South Coast Saltscale (*Atriplex pacifica*)

Common Plants

- Arroyo Willow (*Salix lasiolepis*)

Invasive Plants

- ⊗ Stinkwort (*Dittrichia graveolens*)
- ⊗ Spanish False-fleabane (*Pulicaria paludosa*)

Wildlife

Priority Group 1

- Coastal California Gnatcatcher (*Poliptila californica californica*)

Priority Group 2

- ⊗ Belding's Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)

Signs

- ◇ Installed

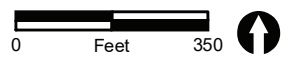
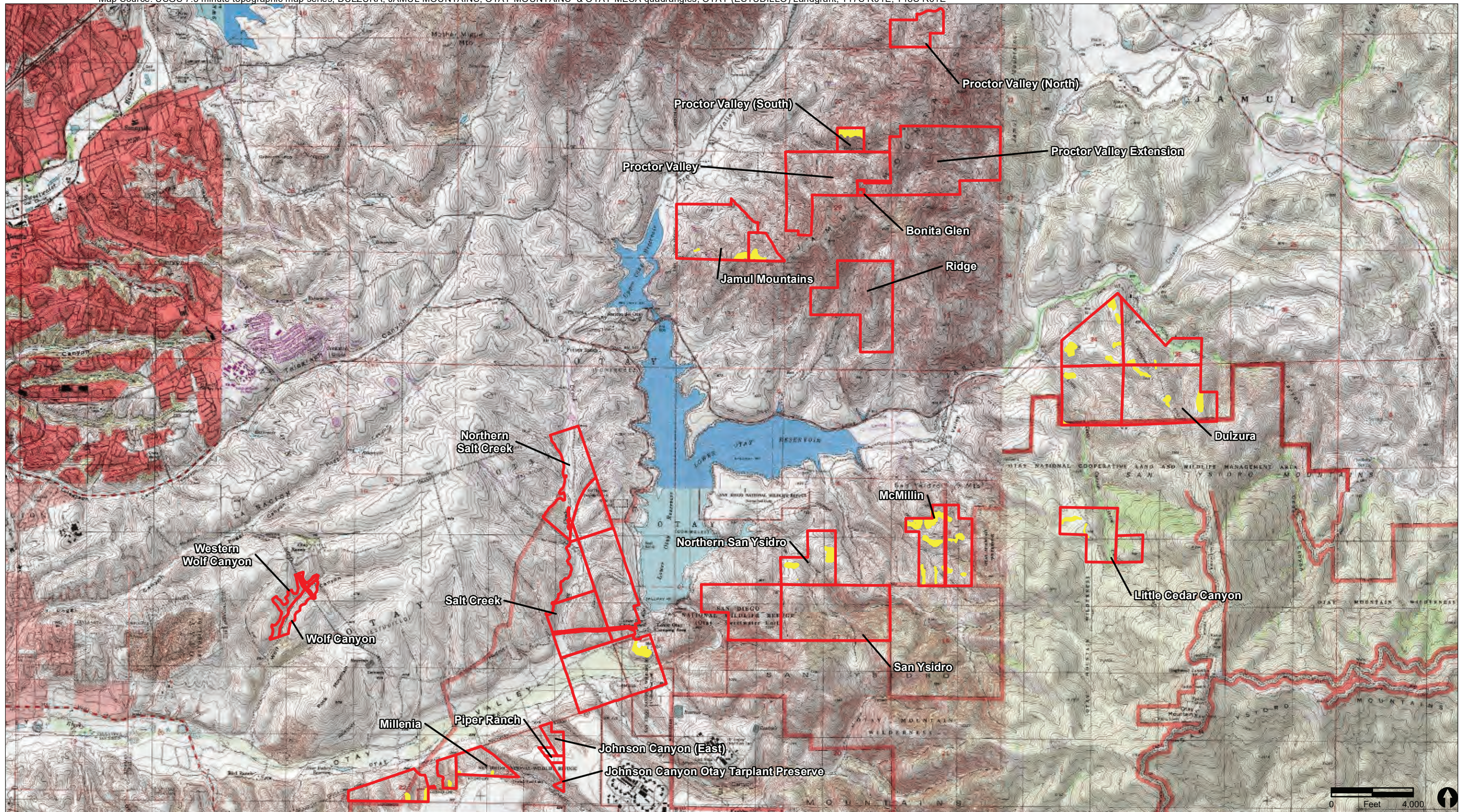


FIGURE 20
 Noteworthy Plants and Wildlife,
 and Access Issues,
 Western Wolf Canyon and Wolf Canyon Parcels





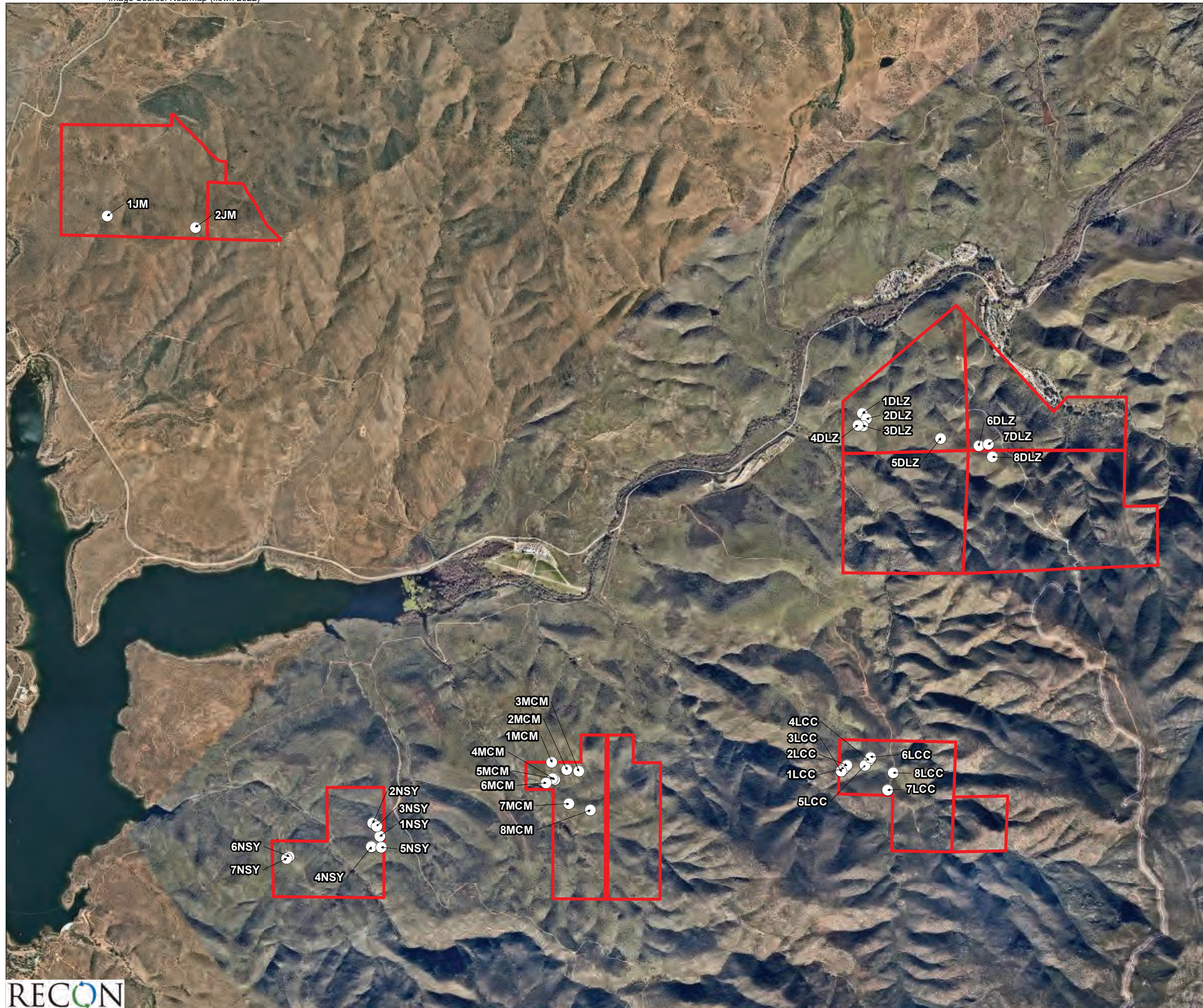
-  Conveyed Land Under POM Management
-  QCB Survey Areas 2022

FIGURE 21

2022 QCB Survey Area on USGS Map:
Proctor Valley (South), Jamul Mountains, Dulzura, Little Cedar Canyon,
McMillin, Northern San Ysidro, Salt Creek, and Millenia Parcels



- Conveyed Land Under POM Management
- QCB Photo Monitoring Locations

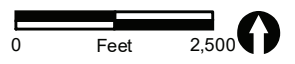


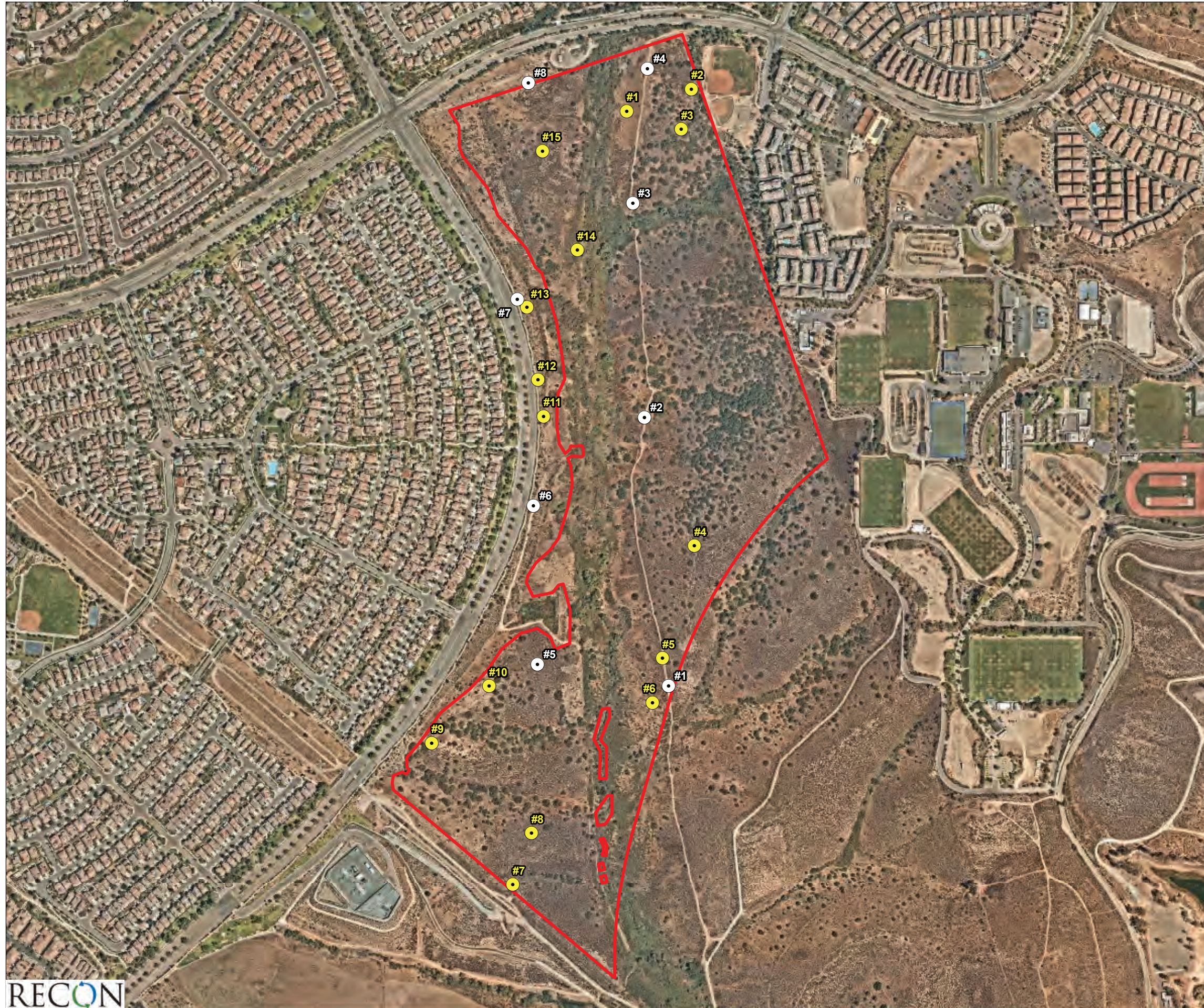
FIGURE 22
2022 QCB Photo Monitoring Locations:
Jamul Mountains, Dulzura, Little Cedar Canyon,
McMillin, and Northern San Ysidro Parcels



- Conveyed Land Under POM Management
- Vegetation Communities**
- 1: *Artemisia californica*-*Eriogonum fasciculatum*-*Malosma laurina* Association
- 2: *Artemisia californica* Association
- 3: *Avena (barbata, fatua)* Semi-natural Stands
- 4: *Baccharis salicifolia* Association
- 5: *Baccharis sarothroides* Association
- 6: *Bahiopsis laciniata*-*Artemisia californica*-*Eriogonum fasciculatum* Association
- 7: *Brachypodium distachyon* Semi-Natural Stand Type
- 8: *Brassica nigra* Semi-natural Stand Type
- 9: *Cylindropuntia prolifera* Mixed Coastal Scrub Association
- 10: *Deinandra fasciculata* Association
- 11: *Eriogonum fasciculatum* Association
- 12: *Isocoma menziesii* Provisional Association
- 13: *Lepidium latifolium* Semi-natural Stands
- 14: Mediterranean California Naturalized Annual and Perennial Grassland Semi-Natural Stands
- 15: Naturalized Warm-Temperate Riparian and Wetland Semi-Natural Stands
- 16: *Rhus integrifolia* Association
- 17: *Salix lasiolepis* Association
- 18: *Salvia apiana*-*Artemisia californica* Association
- 19: *Nassella [=Stipa] pulchra* Association
- 20: *Tamarix* spp. Semi-natural Stands
- 21: *Typha domingensis* Association
- 22: Unvegetated



FIGURE 23
Northern Salt Creek Parcels
Vegetation Communities



- Conveyed Land Under POM Management
- Photo Monitoring Points – Established in FY 2018-19. Repeated in 2022.
- Photo Monitoring Points – Established in FY 2011-12. Repeated in 2022.

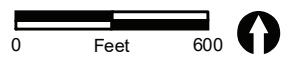


FIGURE 24
General Landscape Photographic Monitoring,
Northern Salt Creek Parcel





-  Conveyed Land Under POM Management
-  2022 CAGN Survey Area



FIGURE 25
2022 CAGN Surveys,
Piper Ranch Parcels



- Conveyed Land Under POM Management
- Yellow-billed Cuckoo (*Coccyzus americanus*; YBCU) Survey Area*
- Least Bell's Vireo (*Vireo bellii pusillus*; LBVI) Survey Area*
- Otay River Restoration Survey Area (SWCA) **

*Surveys will be coordinated with Otay River Restoration Project being managed by SWCA.
** Not Part of the RECON Survey Area

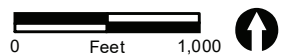


FIGURE 26

Focused LBVI and YBCU Survey Areas:
Salt Creek and Northern Salt Creek Parcels



- Conveyed Land Under POM Management
- Least Bell's Vireo
- (*Vireo bellii pusillus*; LBVI) Survey Area

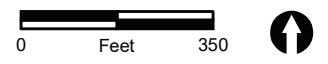


FIGURE 27
 Focused LBVI Survey Area:
 Wolf Canyon Parcels



- Conveyed Land Under POM Management
 - SHB Tree Health Survey Area*
 - Otay River Restoration Survey Area (SWCA)**
- *Surveys will be coordinated with Otay River Restoration Project being managed by SWCA.
 **Not Part of the RECON Survey Area

Riparian Photo Monitoring Points – Established in 2021

Sampling Locations for Fusarium in 2022

- ✱ Fusarium Detected in 2022
- ✱ Fusarium Not Detected in 2022
- ✱ New Sample Point

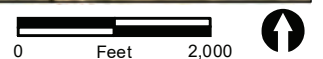
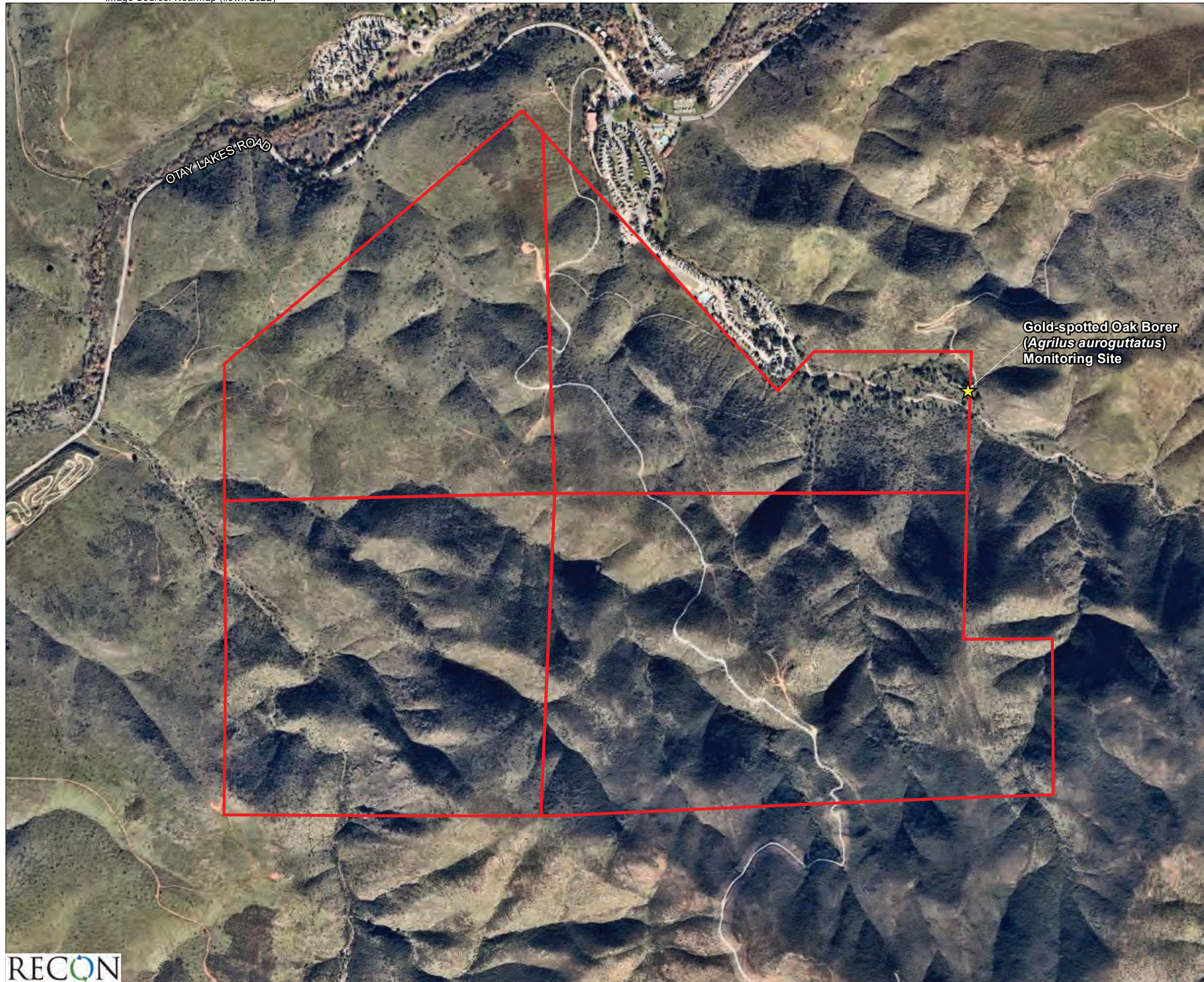


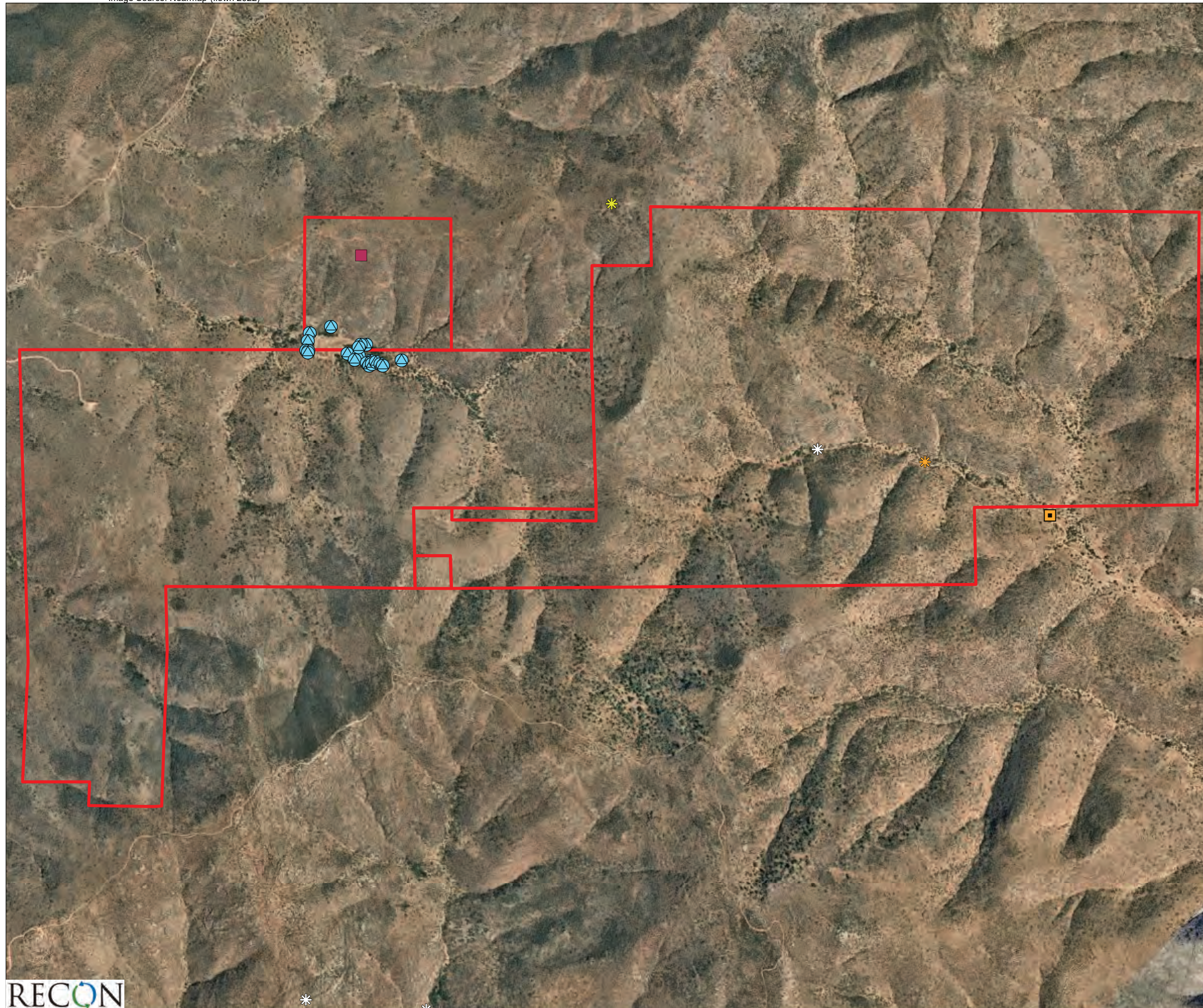
FIGURE 28
 SHB Monitoring Results,
 Salt Creek, Northern Salt Creek, and Wolf Canyon Parcels



- Conveyed Land Under POM Management
- ★ Gold-spotted Oak Borer (*Agrilus auroguttatus*) Monitoring Site



FIGURE 29
Gold-spotted Oak Borer
Monitoring Location, Dulzura Parcels



Conveyed Land Under POM Management

Host Plants

Spiny Redberry
(*Rhamnus crocea*)

Wildlife

Priority Group 2

Southern California Rufous-crowned Sparrow
(*Aimophila ruficeps canescens*)

Priority Group 3

San Diego Black-Tailed Jackrabbit
(*Lepus californicus bennettii*)

Unauthorized Routes

Foot

ATV

Truck

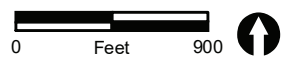
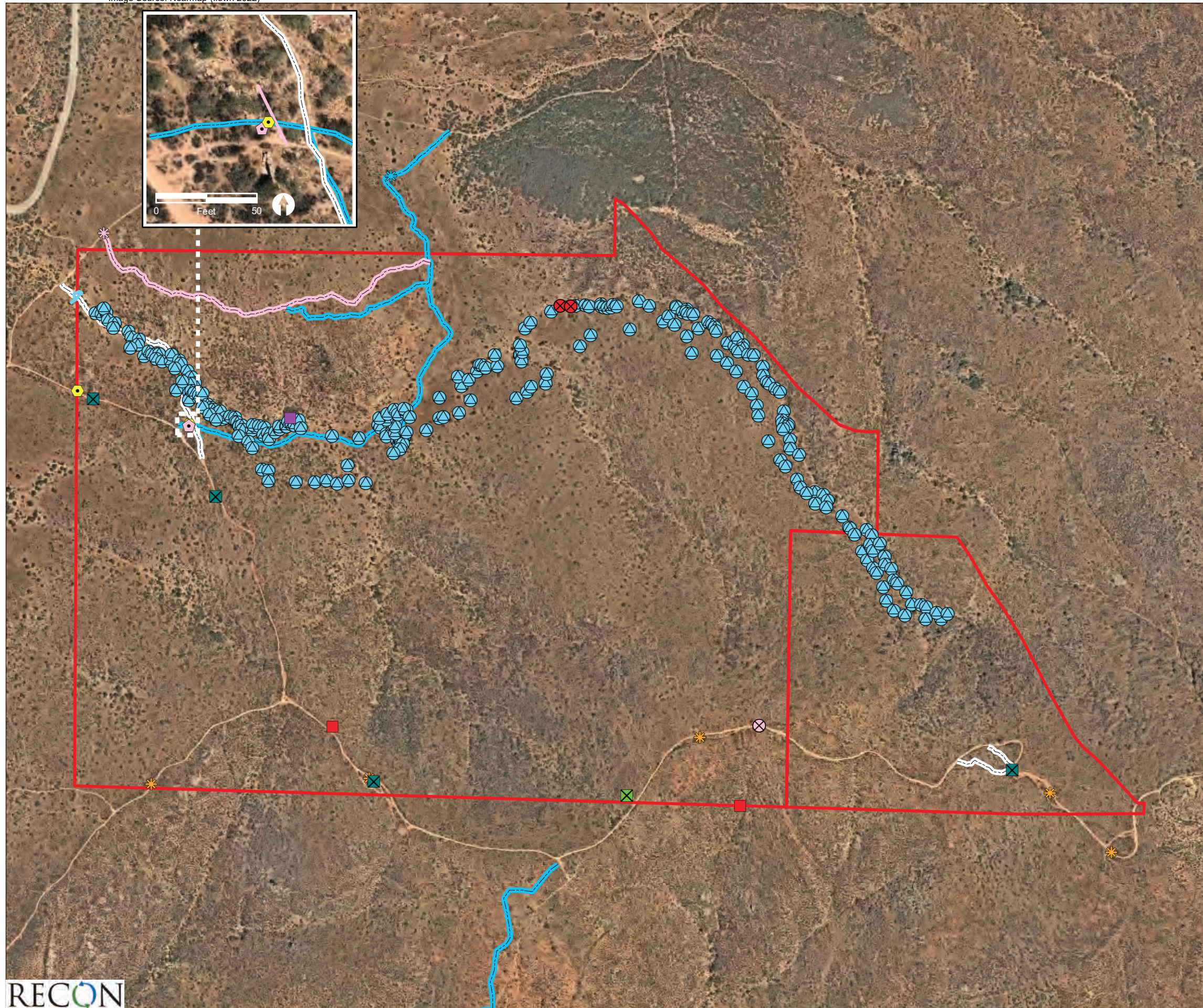


FIGURE 30
Noteworthy Plants and Wildlife,
and Access Issues,
Proctor Valley, Proctor Valley Extension,
Proctor Valley (South), and Bonita Glen Parcels

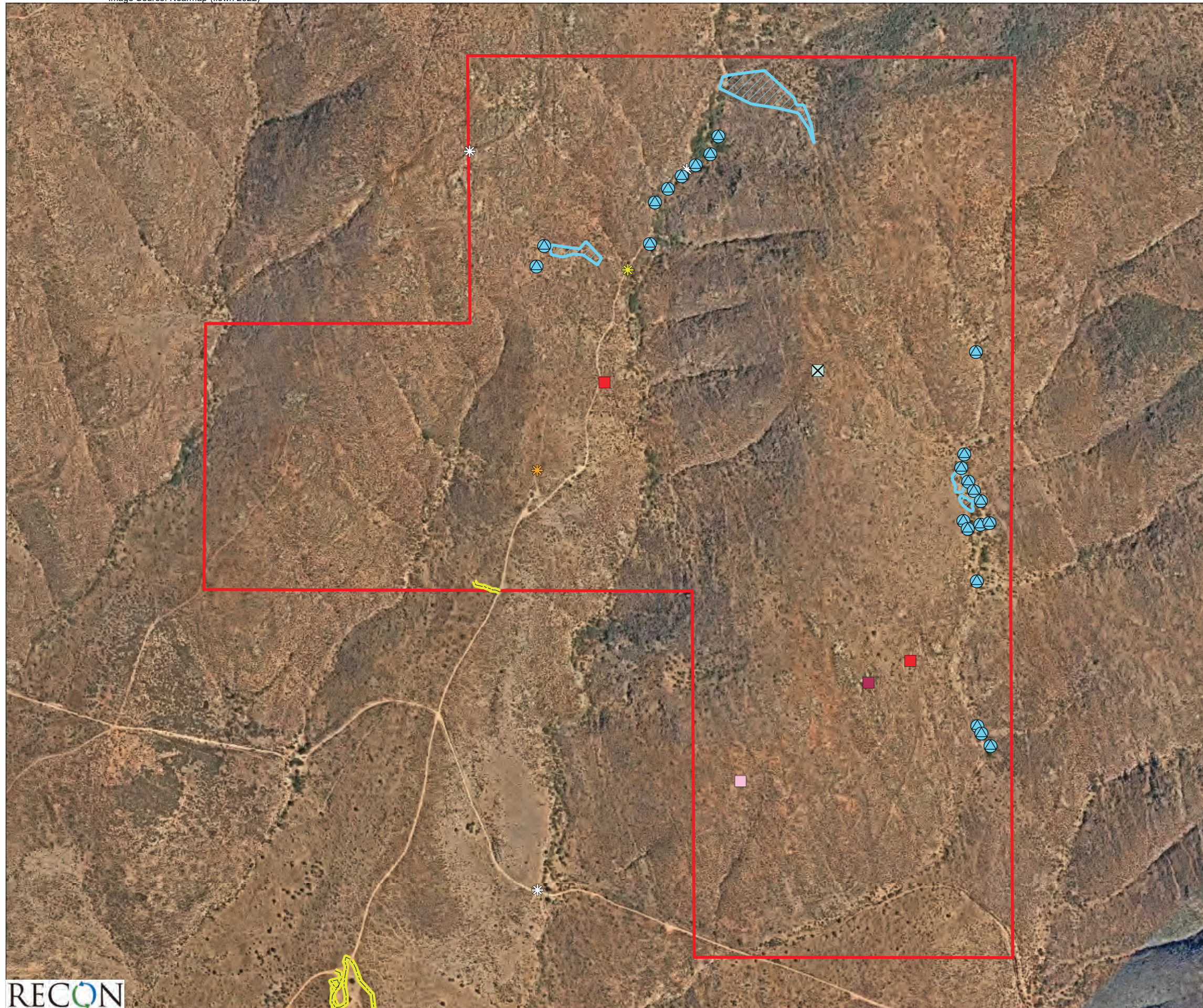


- Conveyed Land Under POM Management
- Host Plants**
- Spiny Redberry (*Rhamnus crocea*)
- Invasive Plants**
- Fennel (*Foeniculum vulgare*)
- Artichoke Thistle (*Cynara cardunculus ssp. flavescens*)
- Wildlife**
- Priority Group 1**
- Least Bell's Vireo (*Vireo bellii pusillus*)
- Coastal California Gnatcatcher (*Polioptila californica californica*)
- Priority Group 2**
- Blainville's [=Coast] Horned Lizard (*Phrynosoma blainvillii*)
- Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)
- Repaired Fence**
- T-post (barbless wire)
- T-post (barbless wire)
- Signs**
- Installed
- Unauthorized Routes**
- Foot
- Mountain Bike
- Flagged Route for Possible Unauthorized Creation
- * Mountain Bike
- * Truck
- * Flagged Route for Possible Unauthorized Creation



FIGURE 31

Noteworthy Plants, Wildlife, and Access Issues, Jamul Mountains Parcels



Conveyed Land Under POM Management

Host Plants

Spiny Redberry
(*Rhamnus crocea*)

Wildlife

Priority Group 1

Coastal California Gnatcatcher
(*Poliophtila californica californica*)

Priority Group 2

Southern California Rufous-crowned Sparrow
(*Aimophila ruficeps canescens*)

Southern Mule Deer
(*Odocoileus hemionus fuliginata*)

Common Wildlife

Rosy Boa
(*Lichanura orcuttii*)

Unauthorized Routes

- ATV
- Foot
- ATV
- Truck

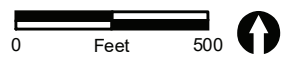
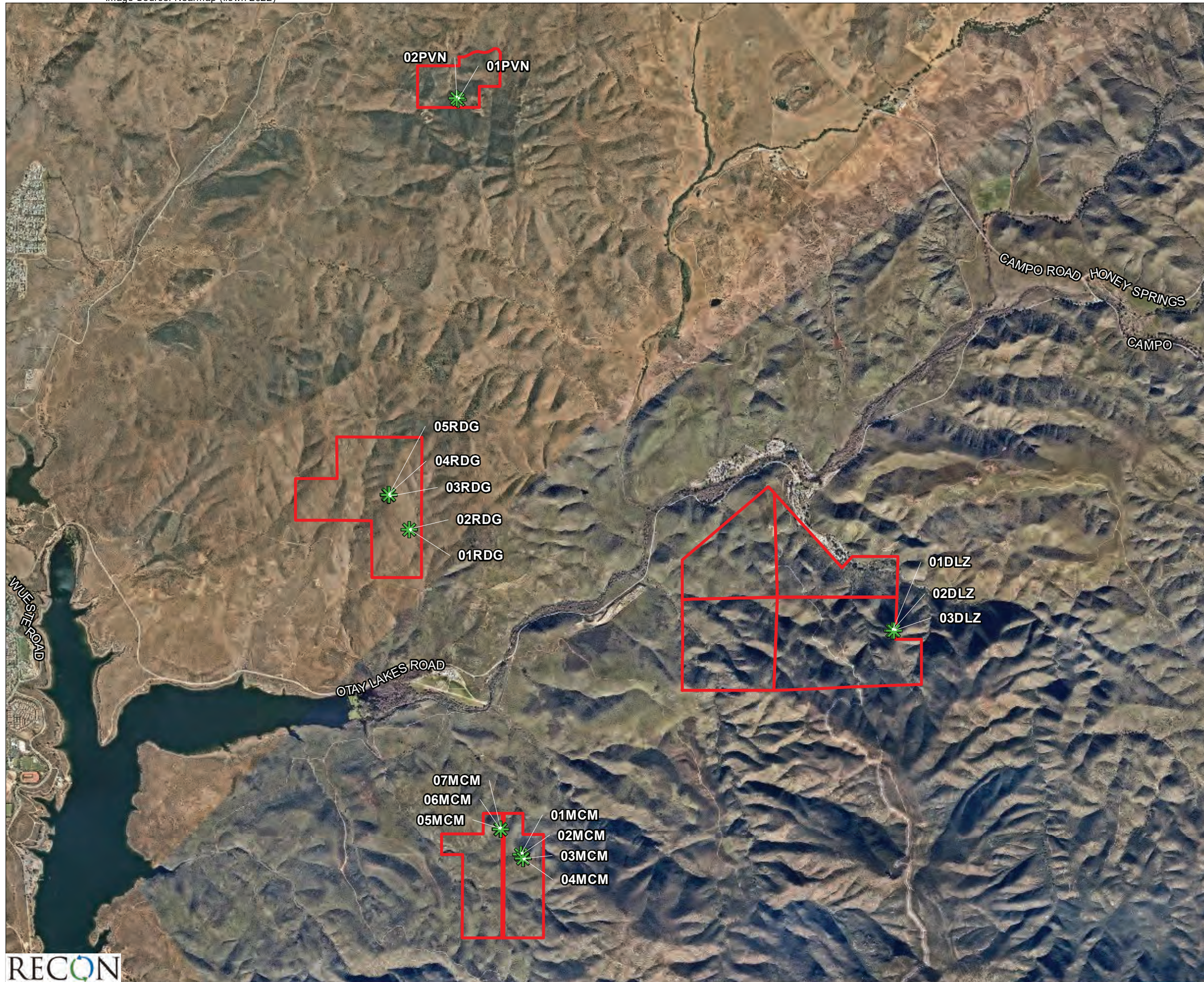


FIGURE 32

Noteworthy Plants, Wildlife,
and Access Issues,
Ridge Parcels



- Conveyed Land Under POM Management
- Golden Eagle Camera Locations

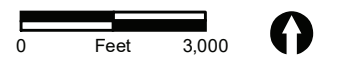


FIGURE 33

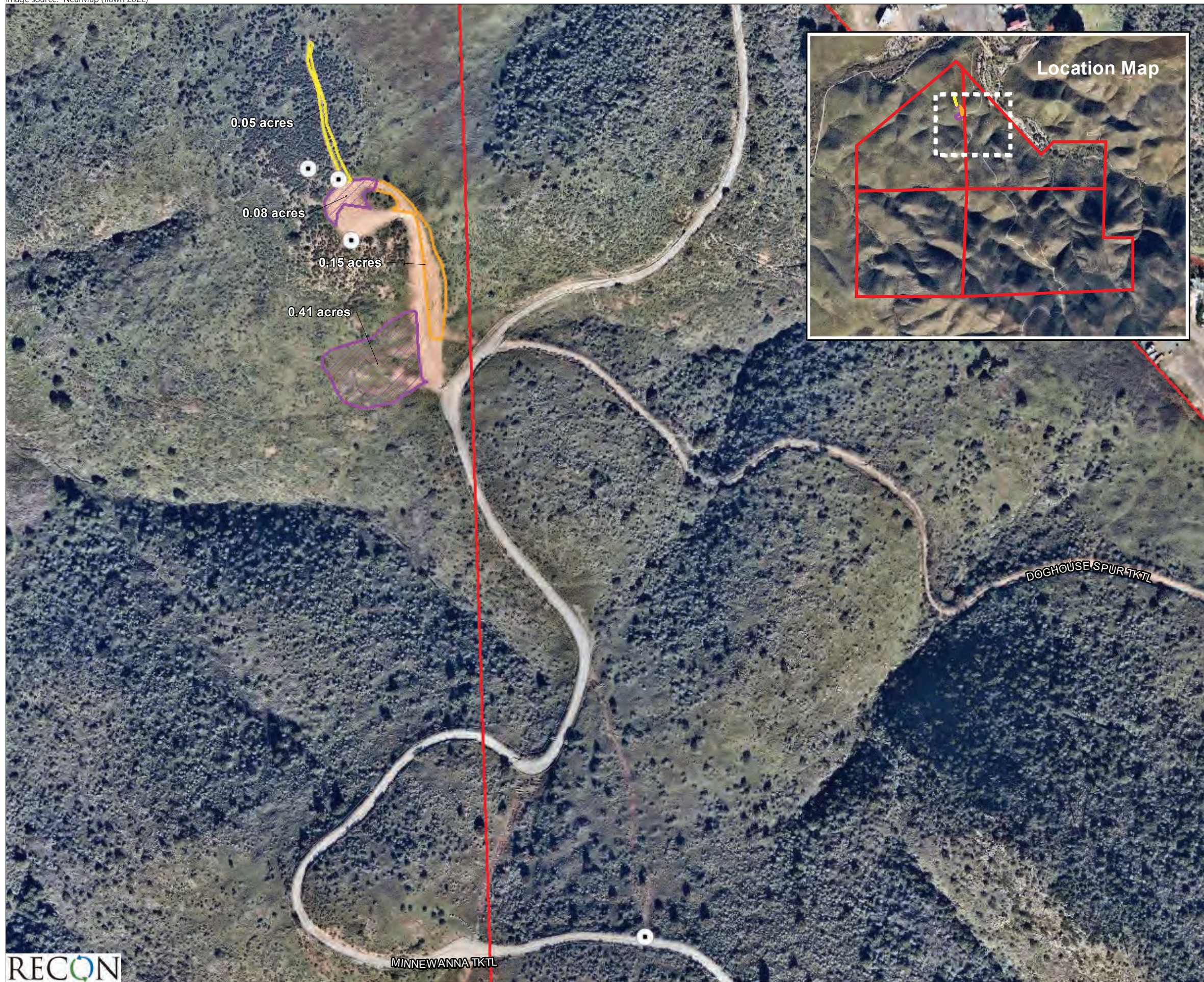
Golden Eagle Camera Survey Locations:
Proctor Valley (North), Ridge,
McMillin, and Dulzura Parcels



-  Conveyed Land Under POM Management
-  Potential Vernal Pool – Mapped May 2021
-  Basin – Mapped May 2021 and November 2021
-  Basin – Mapped March 31, 2022



FIGURE 34
Vernal Pool Survey Area,
Piper Ranch








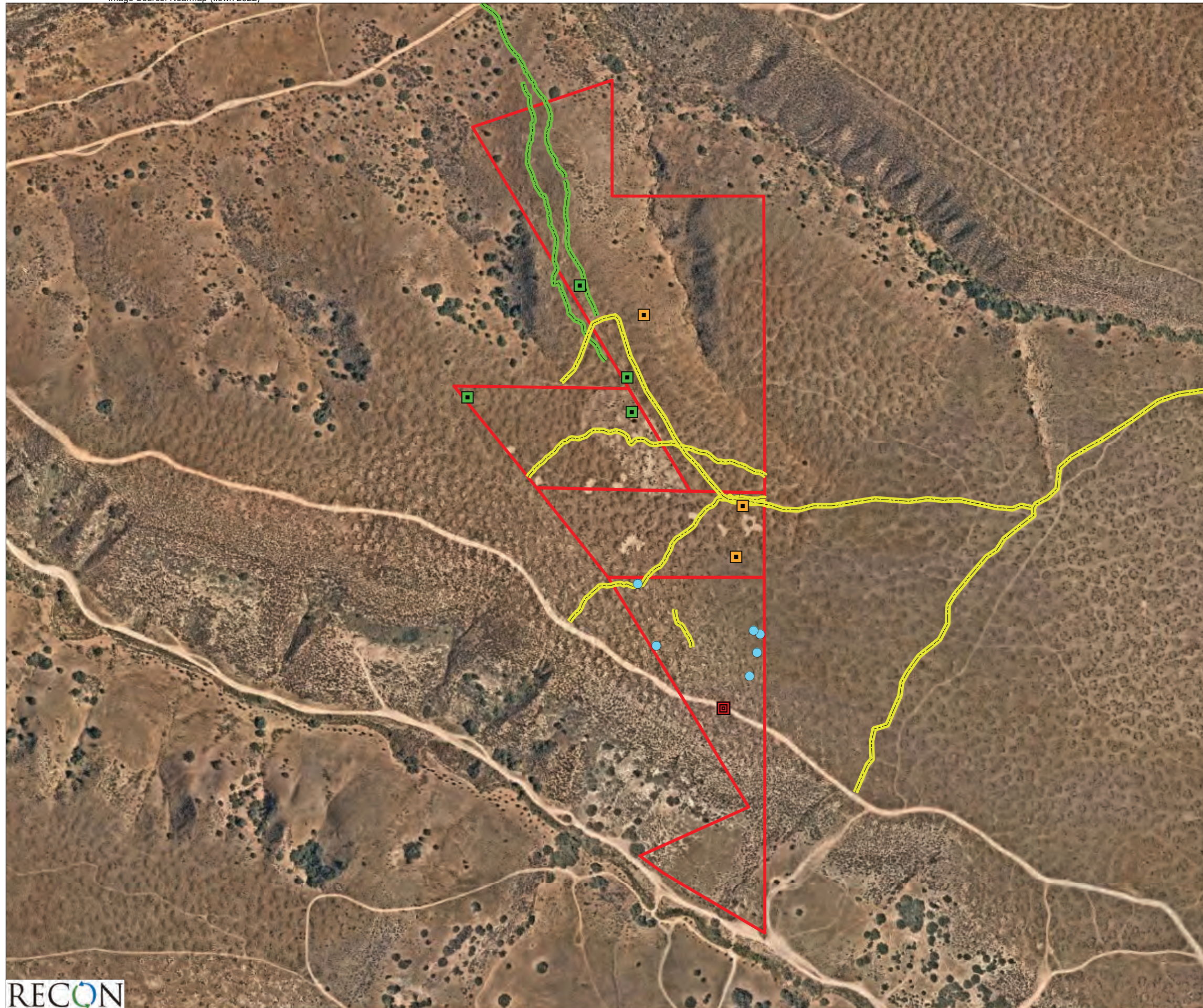
-  Conveyed Land Under POM Management
-  Proposed Seed by Hand
-  Proposed Container Plants
-  Proposed Hydroseed
-  Photo Monitoring Locations



FIGURE 35
Quantitative Monitoring Areas,
Dulzura Parcels



- Conveyed Land Under POM Management
- Potential Ponding Depressions
- Wildlife**
- Priority Group 3**
- San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)
- Grasshopper Sparrow (*Ammodramus savannarum*)
- Priority Group 4**
- California Horned Lark (*Eremophila alpestris actia*)
- Unauthorized Routes**
- ATV
- Motor Bike

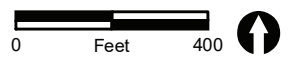


FIGURE 36

Noteworthy Wildlife and Access Issues,
Johnson Canyon (East), Johnson Canyon Otay
Tarplant Preserve, and Piper Ranch



- Conveyed Land Under POM Management
- Photo Monitoring Points - Established in 2010 for EMP Grant 5001133. Repeated in 2022.*
- Photo Monitoring Points – Established between 2000 and 2007 for Otay Ranch Village 1 Restoration Projects. Repeated in 2022.**

**Source: Salt Creek Coastal Cactus Wren Habitat Restoration Project 1st Annual Monitoring Report (Merkel 2011)

**Sources: Otay Ranch Village 1 Maritime Succulent Scrub Restoration Program Year 5 Annual Report for Wolf Canyon (RECON 2007). Otay Ranch Village 1 Phase VIWS Maritime Succulent Scrub Restoration Program Years 1-5 (RECON 2008)

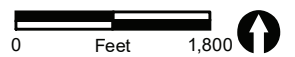
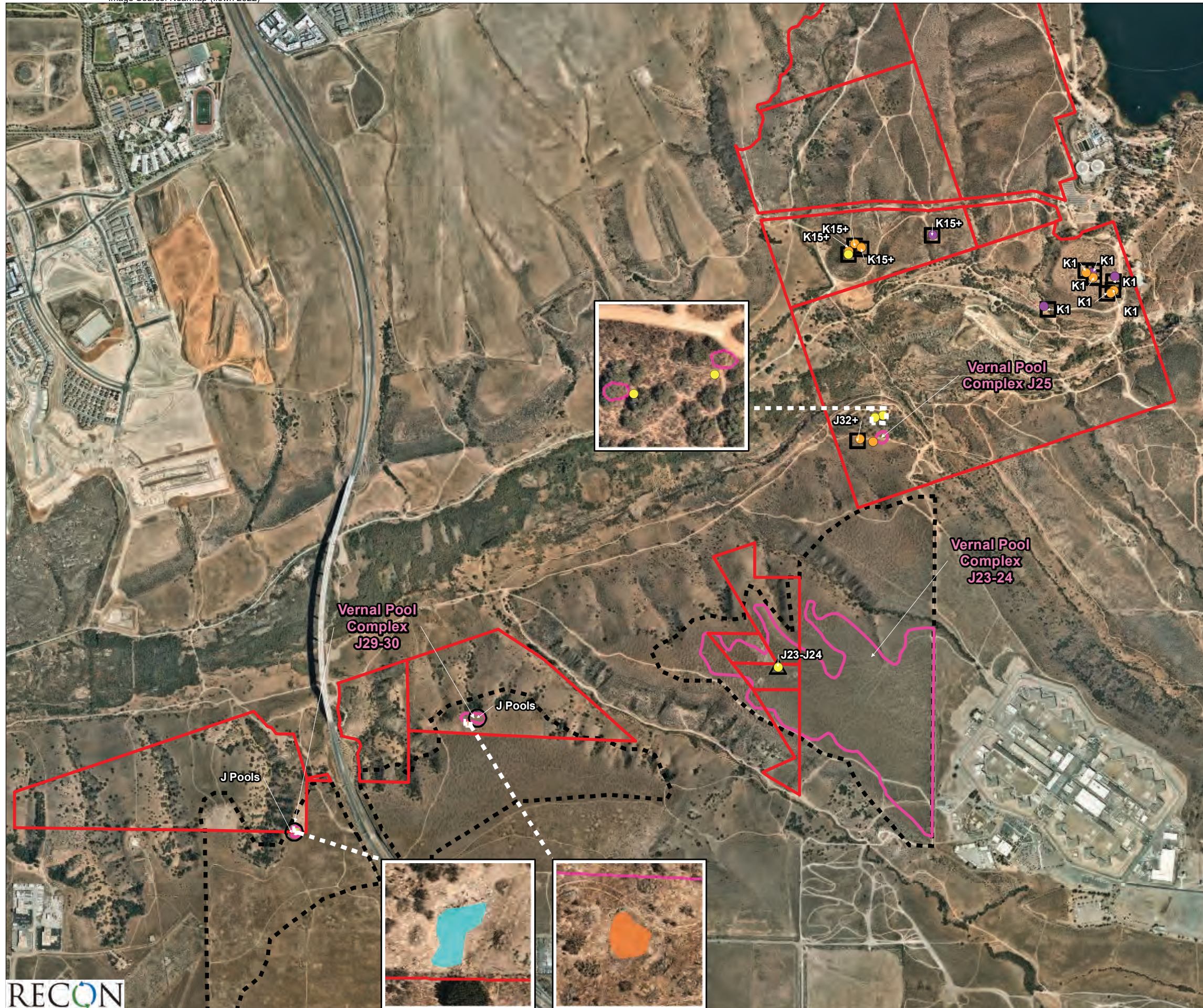


FIGURE 37
Photo Monitoring Locations,
Salt Creek and Western Wolf Canyon Parcels



- Conveyed Land Under POM Management
- Vernal Pool Preservation Area (2018)*
- Vernal Pool Complexes (1995)**
- Individual Vernal Pool with San Diego Button-celery (1995)**
- Individual Vernal Pool with Otay Mesa Mint (1995)**
- Individual Vernal Pool with Indicator Species (1995)**
- Known Ponding Feature (2022)
- Restoration Potential, Depression Observed But No Evidence of Ponding (2022)
- Unlikely to Pond Due to Current Unsuitable Conditions (2022)
- Known Ponding Feature (2018)
- Depression with San Diego Button-celery (2019)

*Source: Otay Ranch Phase 2 Resource Management Plan Update (RECON 2018)

**Source: Vernal Pool Management Plan for Otay Ranch (Dudek & Associates 1995)

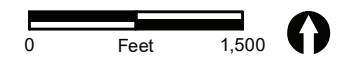
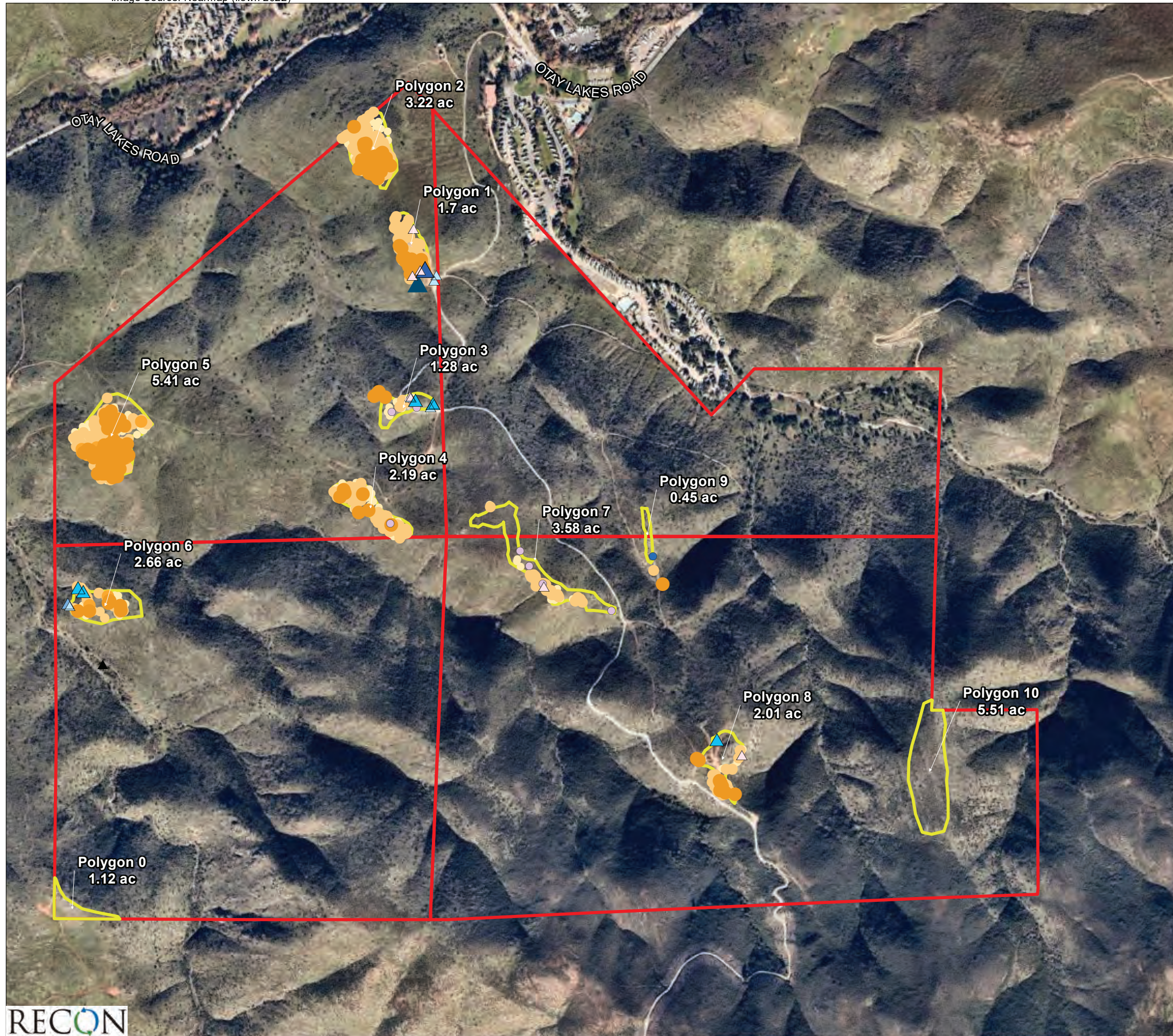


FIGURE 38
Vernal Pool Preservation Area Monitoring,
Salt Creek, Piper Ranch, and Millenia



Conveyed Land Under POM Management

QCB Survey Area

Host Plants

Dot-seed Plantain (*Plantago erecta*)

- 1-49
- 50-99
- 100-499
- 500-999
- 1,000-5,000

Purple Owl's-clover (*Castilleja exserta* ssp. *exserta*)

- 1-49

Thread-leaved Bird's-beak (*Cordylanthus rigidus* ssp. *setigerus*)

- 1-49

Nectar Plants

- <all other values>

Common Goldfields (*Lasthenia gracilis*)

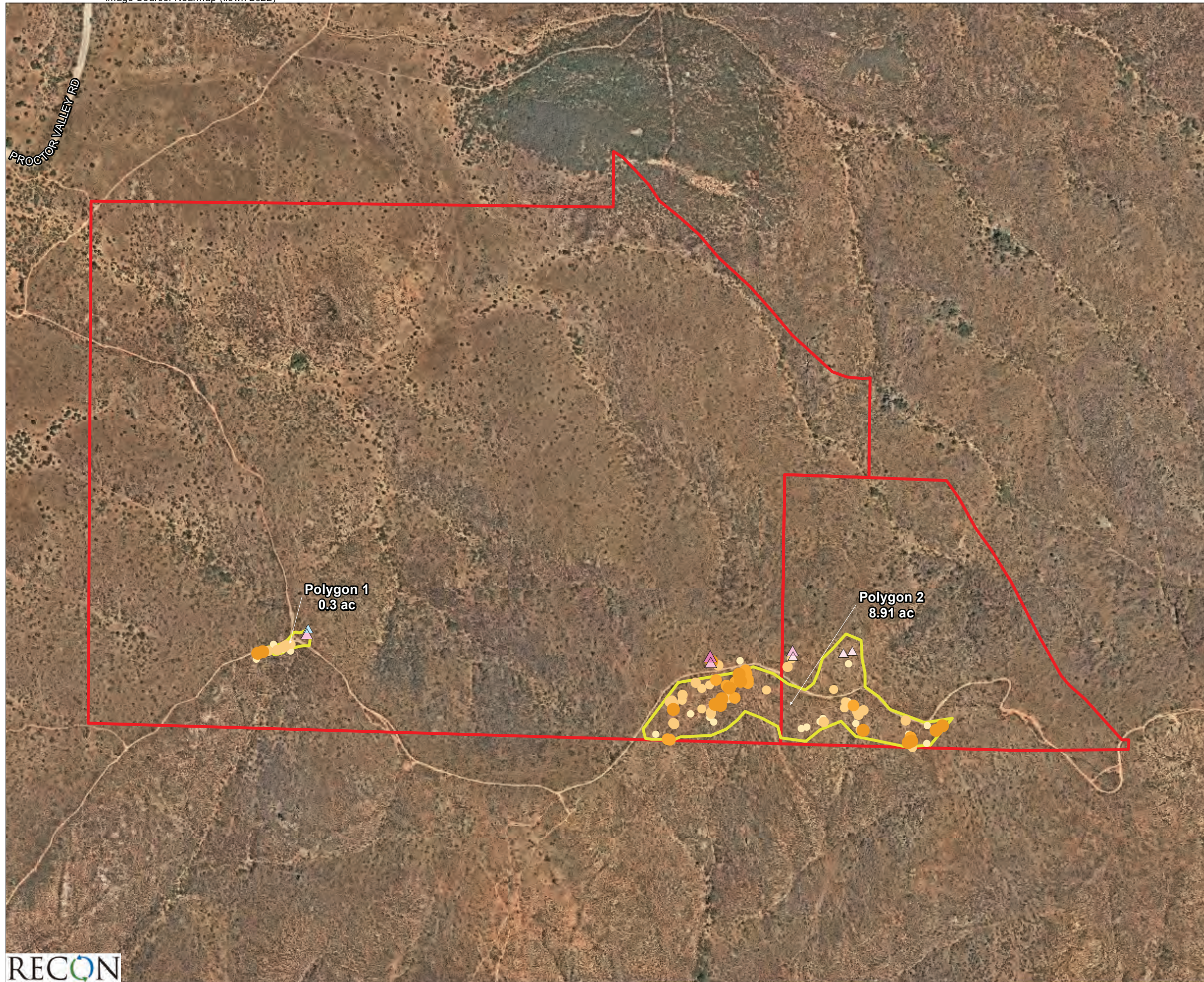
- 1-49
- 50-99
- 100-499
- 1,000-5,000
- 10,000

Farinose Ground Pink (*Linanthus dianthiflorus*)

- 1-49



FIGURE 39
2022 QCB Host and Nectar Plants,
Dulzura



Conveyed Land Under POM Management

QCB Survey Area

Host Plants

Dot-seed Plantain (*Plantago erecta*)

- 1-49
- 50-99
- 100-499
- 500-999
- 1,000-5,000

Nectar Plants

Common Goldfields (*Lasthenia gracilis*)

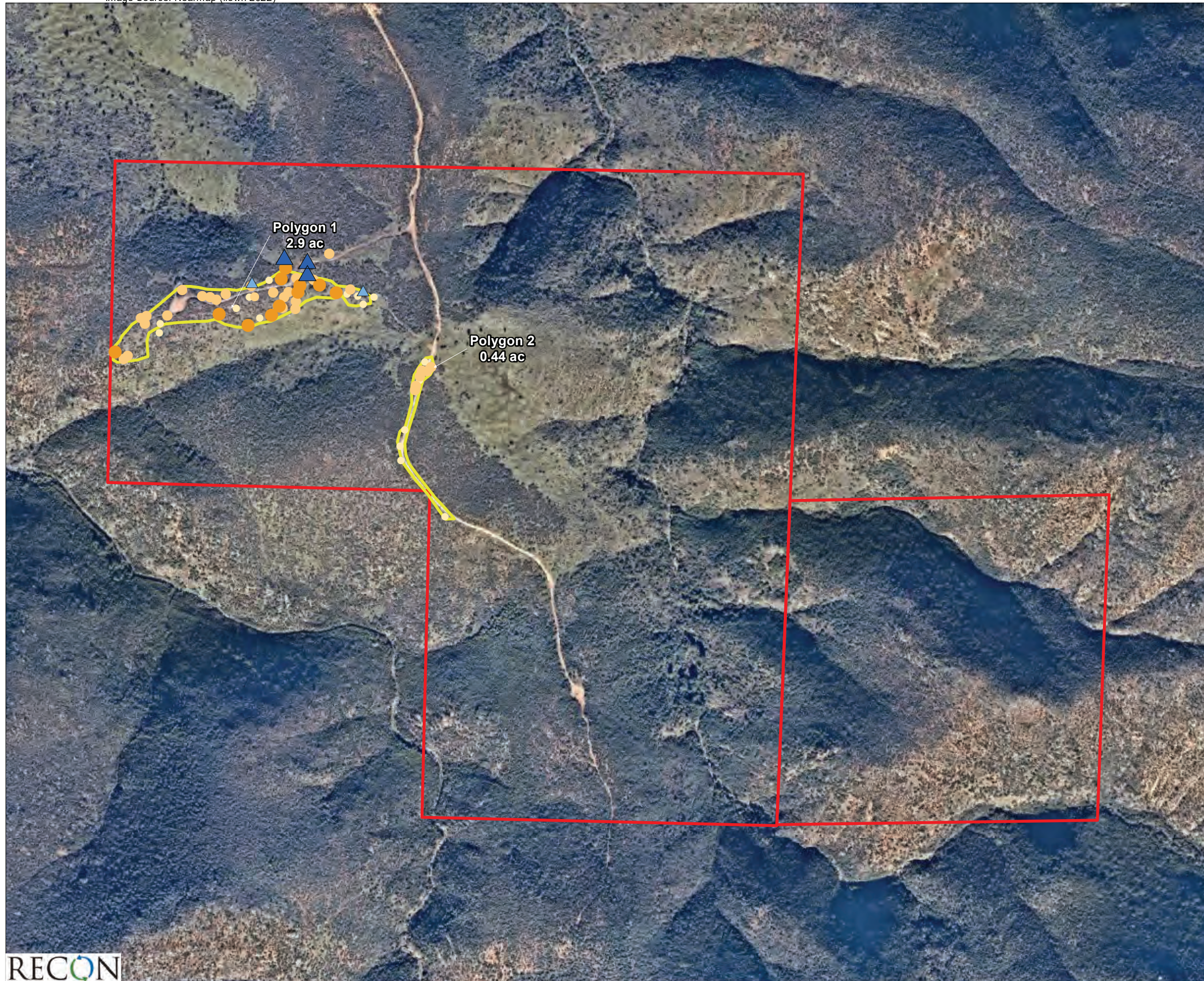
- ▲ 1-49

Farinose Ground Pink (*Linanthus dianthiflorus*)

- ▲ 1-49
- ▲ 50-99
- ▲ 100-499



FIGURE 40
2022 QCB Host and Nectar Plants,
Jamul Mountains



Conveyed Land Under POM Management

QCB Survey Area

Host Plants

Dot-seed Plantain (*Plantago erecta*)

- 1-49
- 50-99
- 100-499
- 1,000-5,000

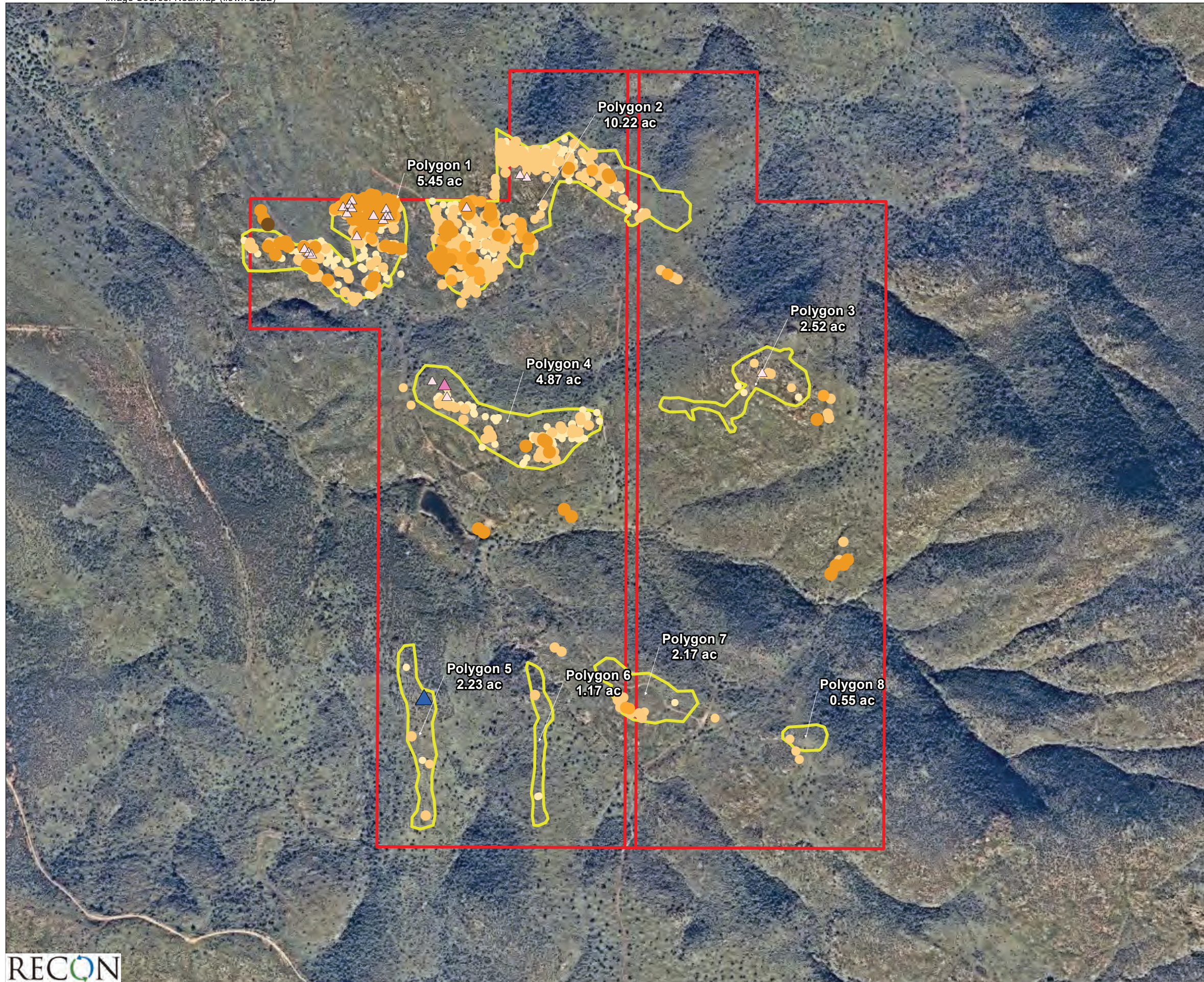
Nectar Plants

Common Goldfields (*Lasthenia gracilis*)

- 50-99
- 1,000-5,000



FIGURE 41
2022 QCB Host and Nectar Plants,
Little Cedar Canyon



Conveyed Land Under POM Management

QCB Survey Area

Host Plants

Dot-seed Plantain (*Plantago erecta*)

- 1-49
- 50-99
- 100-499
- 500-999
- 1,000-5,000
- 10,000

Nectar Plants

Common Goldfields (*Lasthenia gracilis*)

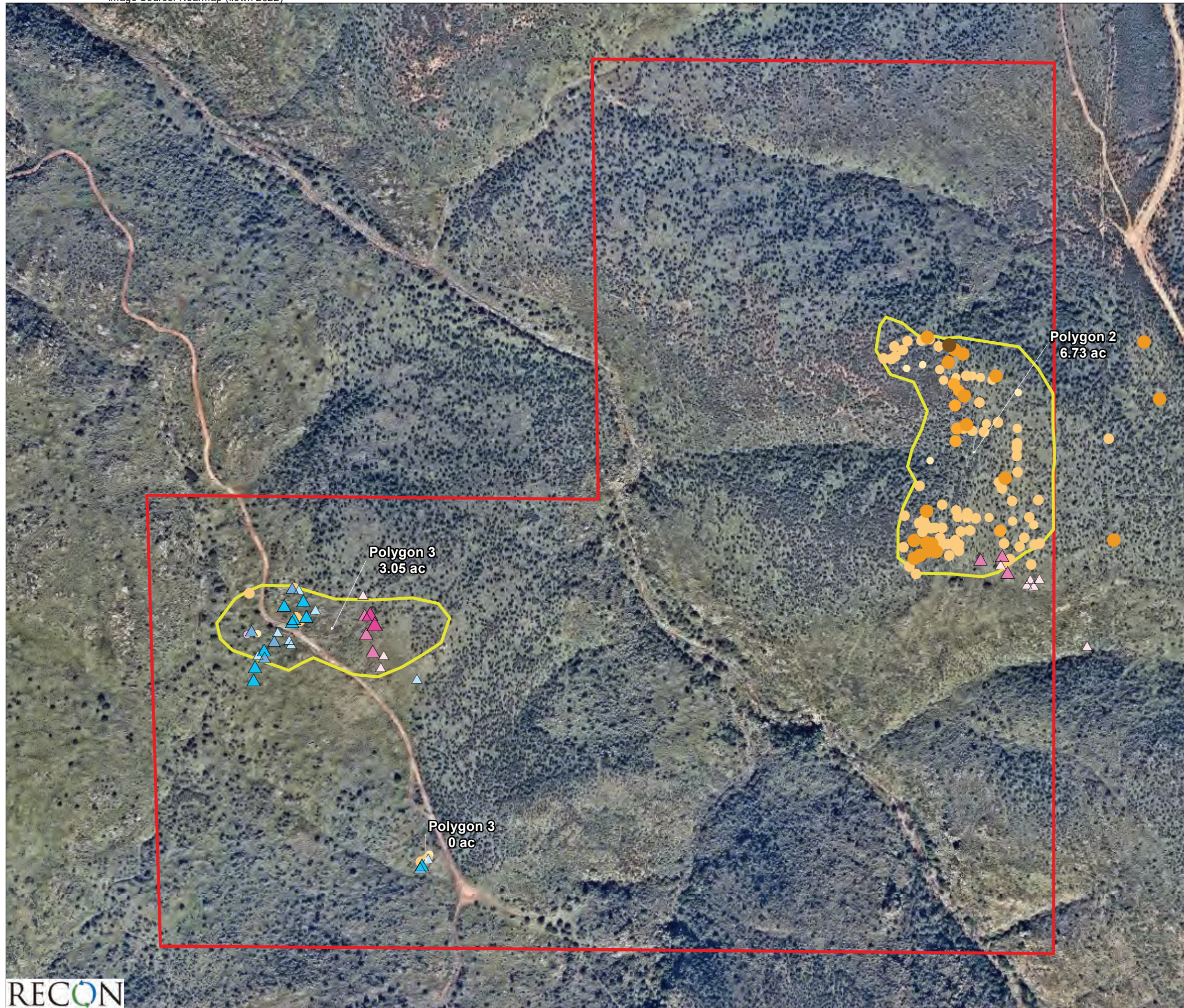
- 1,000-5,000

Farinose Ground Pink (*Linanthus dianthiflorus*)

- 1-49
- 100-499



FIGURE 42
2022 QCB Host and Nectar Plants,
McMillin



Conveyed Land Under POM Management

QCB Survey Area

Host Plants

Dot-seed Plantain (*Plantago erecta*)

- 1-49
- 50-99
- 100-499
- 500-999
- 1,000-5,000
- 10,000

Purple Owl's-clover (*Castilleja exserta* ssp. *exserta*)

- 1-49

Nectar Plants

Common Goldfields (*Lasthenia gracilis*)

- ▲ 1-49
- ▲ 50-99
- ▲ 100-499

Farinose Ground Pink (*Linanthus dianthiflorus*)

- ▲ 1-49
- ▲ 100-499
- ▲ 500-999



FIGURE 43
2022 QCB Host and Nectar Plants,
Northern San Ysidro



- Conveyed Land Under POM Management
- QCB Survey Area
- Additional QCB Habitat Assessment Survey Area

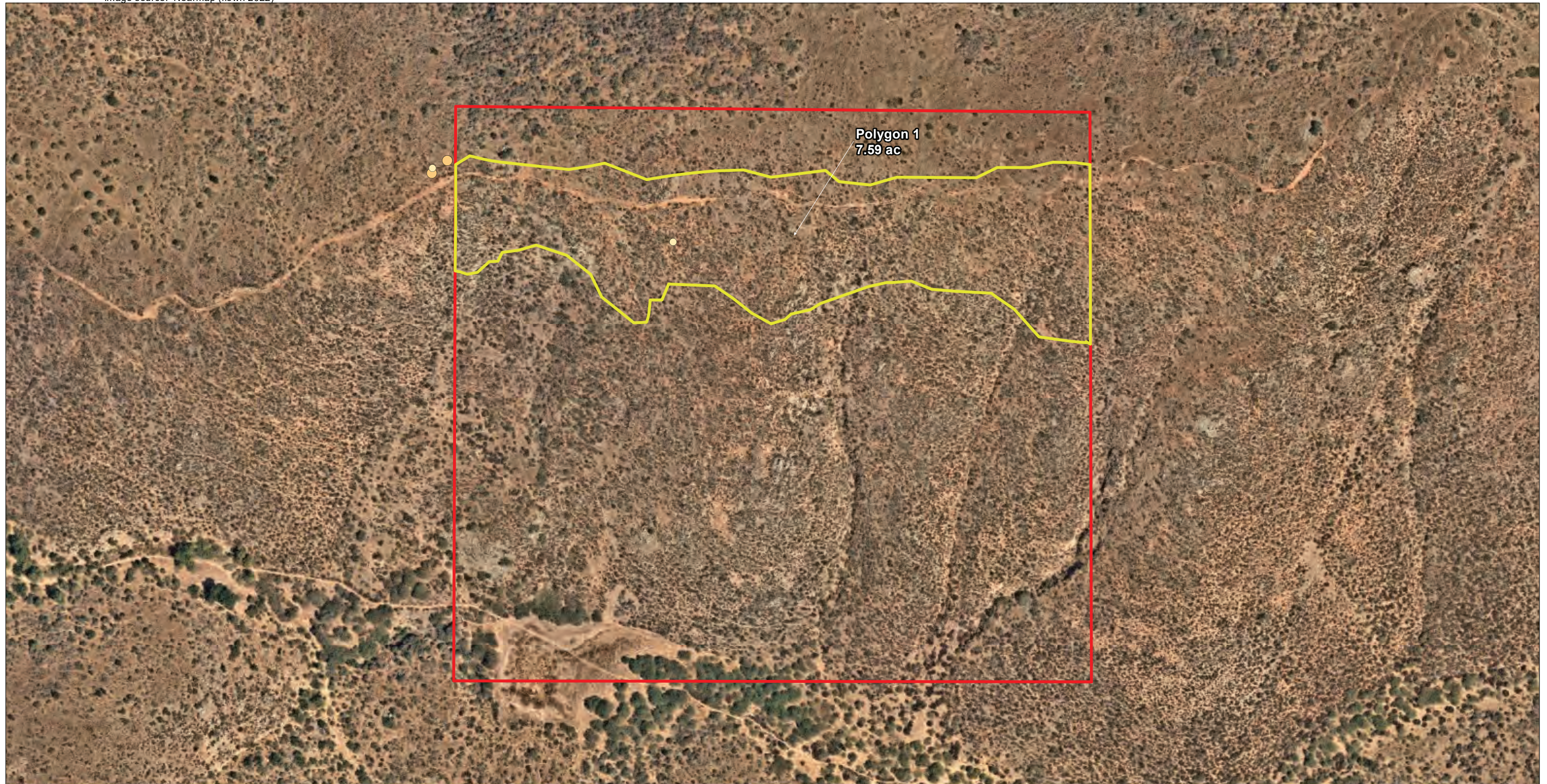
Host Plants

Dot-seed Plantain (*Plantago erecta*)

- 50-99
- 100-499



FIGURE 44
2022 QCB Host and Nectar Plants,
Millenia




 Conveyed Land Under POM Management

 QCB Survey Area

Host Plants

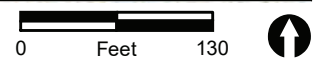
Dot-seed Plantain (*Plantago erecta*)

 1-49

 100-499



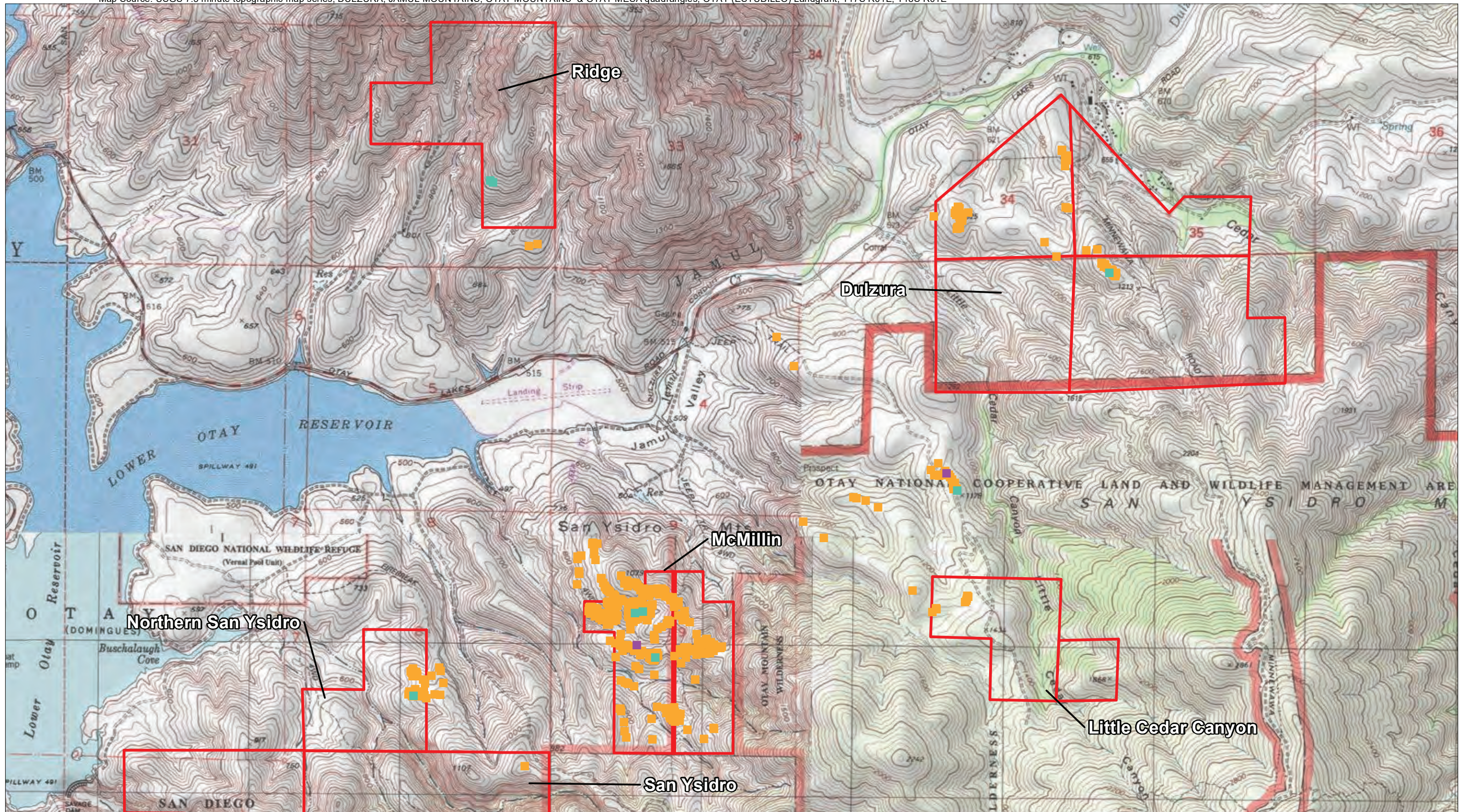
FIGURE 45
2022 QCB Host and Nectar Plants,
Proctor Valley (South)



- Conveyed Land Under POM Management
- QCB Survey Area
- Host Plants**
- Dot-seed Plantain (*Plantago erecta*)**
 - 1-49
 - 50-99
 - 100-499
 - 500-999
- Purple Owl's-clover (*Castilleja exserta* ssp. *exserta*)**
 - 1-49

- Nectar Plants**
- Common Goldfields (*Lasthenia gracilis*)**
 - ▲ 1-49
 - ▲ 50-99
 - ▲ 100-499
 - ▲ 500-999
 - ▲ 1,000-5,000
- Farinose Ground Pink (*Linanthus dianthiflorus*)**
 - ▲ 1-49
 - ▲ 50-99
 - ▲ 100-499
 - ▲ 500-999

FIGURE 46
2022 QCB Host and Nectar Plants,
Salt Creek



Conveyed Land Under POM Management Quino Checkerspot (*Euphydryas editha quino*)

- Larva
- Adult
- Dead

0 Feet 2,000

FIGURE 47
2022 QCB Locations on USGS 7.5' Topographic Map:
Otay Ranch Preserve



- Conveyed Land Under POM Management
- Least Bell's Vireo (*Vireo bellii pusillus*) Pair
- Least Bell's Vireo (*Vireo bellii pusillus*) Single
- Least Bell's Vireo (*Vireo bellii pusillus*) Transient
- Least Bell's Vireo (*Vireo bellii pusillus*) Undetermined
- Brown-headed Cowbird Mist-Netting Stations

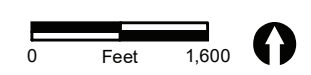


FIGURE 48

2022 BHCO Trapping and
LBVI and YBCU Survey Results,
Wolf Canyon, Northern Salt Creek, and Salt Creek



- Conveyed Land Under POM Management
- ◆ Stinkwort (*Dittrichia graveolens*) Treatment Location
- Stinkwort (*Dittrichia graveolens*) Treatment Survey Location - 0.73 acres
- Stinknet (*Oncosiphon piluliferum*) Survey Location
- Cactus Wren Habitat – Shrubs Thinned in January/February 2021 (Community Facility District 97-2 funded CACW habitat restoration) - 1.77 acres
- Cactus Wren Habitat Restoration Area (County of San Diego Parks and Recreation Department EMP Grant 5001133; ended summer 2014)
- Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5001970; ended summer 2015)
- QCB Habitat – Non-native Plant Treatment Area
- Cactus Wren Habitat Restoration / Erosion Control / Illegal Road Closure Area (CFD 97-2 funded: planted in 2015) - 0.93 acres
- Coastal Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*; CACW) Habitat – Non-native Plant Treatment
- Otay River Valley and Salt Creek Cactus Wren 3 Project (City of Chula Vista EMP Grant 5004731; ended fall 2018)
- Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5004943; ended August 2018)
- Cactus Wren Habitat – Cholla Cactus Cuttings Planted in December 2021 (Community Facility District 97-2 funded CACW habitat restoration) – 0.76 acre
- Vernal Pools Established through Grading in 2015 (Previous RECON Project No. 7754) – 0.25 acre

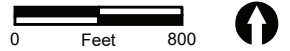


FIGURE 49

2022 Vegetation Removal and Treatment Areas, Salt Creek and Northern Salt Creek Parcels



- Conveyed Land Under POM Management
- ◆ Stinkwort (*Dittrichia graveolens*) Treatment Location
- Stinknet (*Oncosiphon piluliferum*) Survey Location
- Non-native Plant Treatment Area
Otay River Valley and Salt Creek Cactus Wren 3 Project (City of Chula Vista EMP Grant 5004731; ended fall 2018)
- Otay Tarplant Habitat – Non-native Plant Treatment Area
- Depression
- Vernal Pool

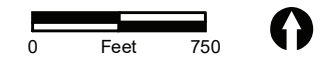


FIGURE 50
2022 Vegetation Removal
and Treatment Areas,
Millenia Parcels



- Conveyed Land Under POM Management
- Non-native Plant Treatment Area

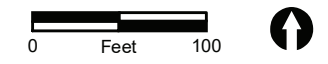
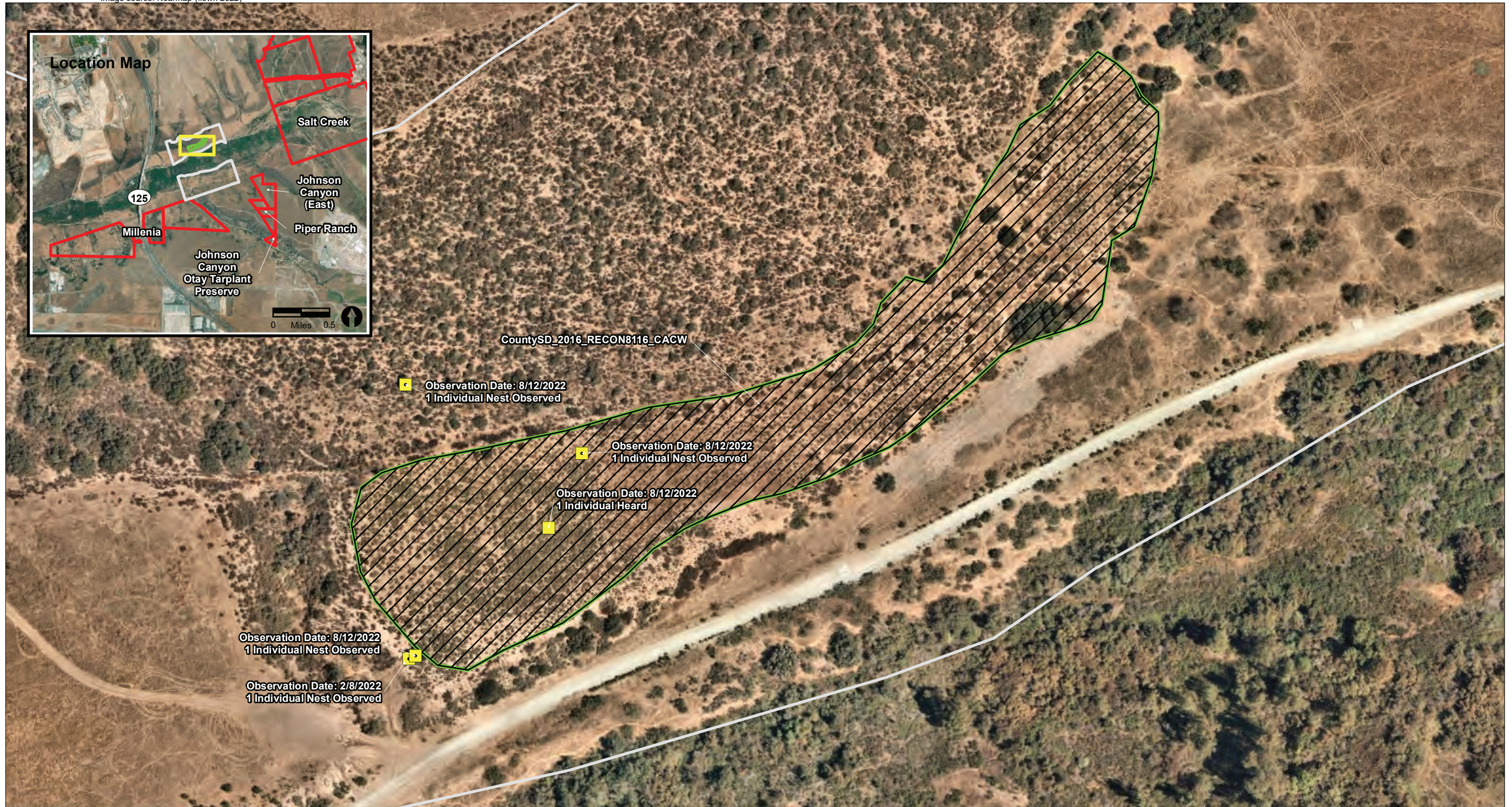


FIGURE 51
2022 Vegetation Removal
and Treatment Areas,
Piper Ranch Parcels



- APN 646-010-06
- Cactus Wren Habitat Restoration Area (County of San Diego Parks and Recreation Department EMP Grant 5004730; ended fall 2018) - 3 acres
- Stinkwort (*Dittrichia graveolens*) Treatment Area
- Coastal Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*)
- Coastal Cactus Wren Nest

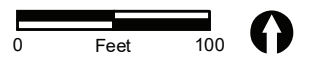


FIGURE 52
2022 Vegetation Treatment Areas and
Incidental Wildlife Observations,
County of San Diego Parcel



- Conveyed Land Under POM Management
- ◆ Stinkwort (*Dittrichia graveolens*) Treatment Location
- Non-native Plant Treatment Area
- Cactus Wren Habitat – Shrubs Thinned in December 2020/January 2021 (Community Facility District 97-2 funded CACW habitat restoration)
- Otay Tarplant Habitat – Non-native Plant Treatment Area

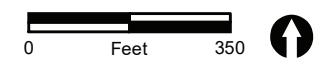
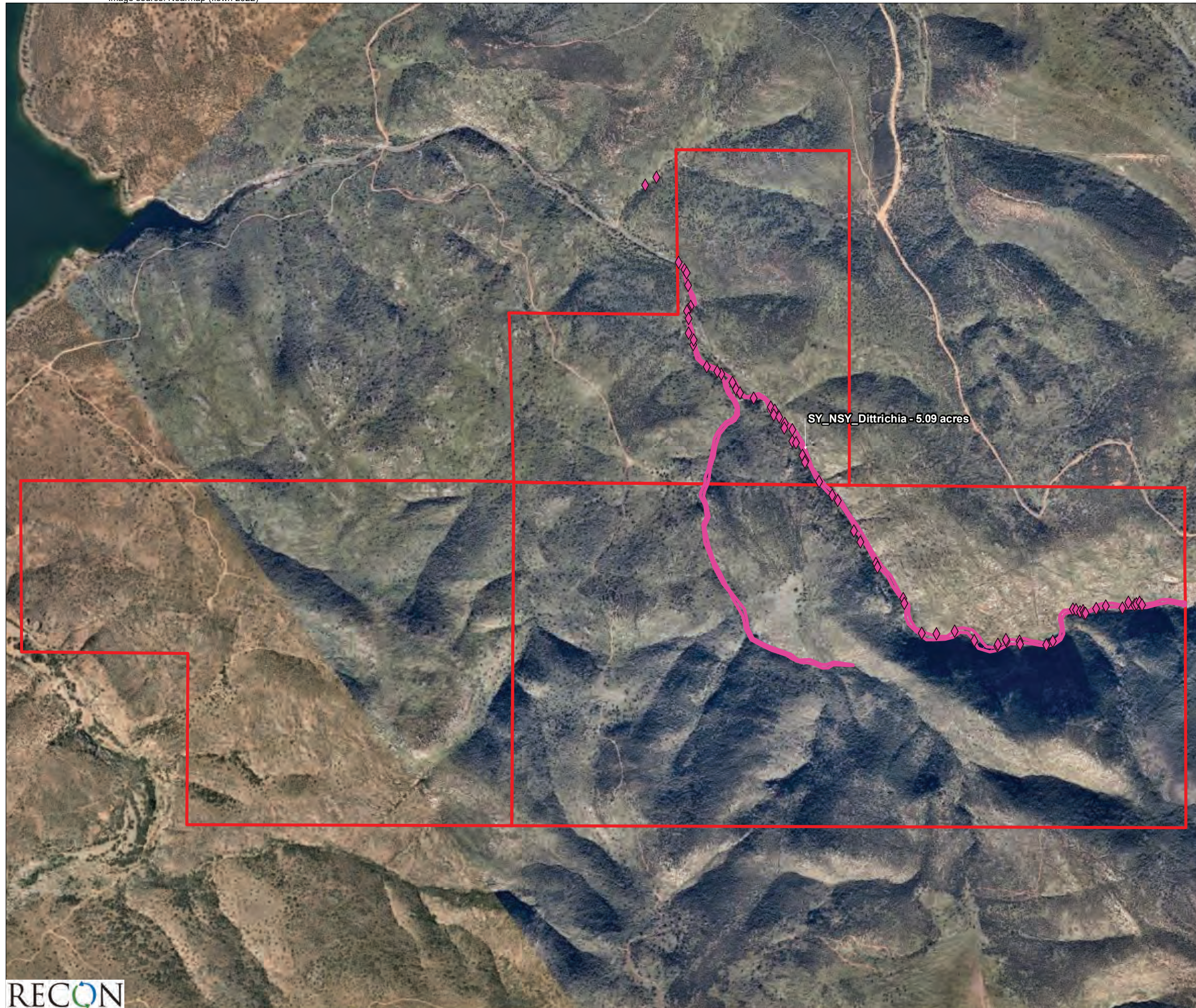




FIGURE 53
2022 Vegetation Removal and Treatment Areas,
Western Wolf Canyon and Wolf Canyon Parcels



-  Conveyed Land Under POM Management
-  Stinkwort (*Dittrichia graveolens*) Treatment Location

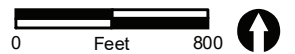


FIGURE 54
2022 Vegetation Removal and Treatment Areas,
San Ysidro and Northern San Ysidro Parcels

ATTACHMENT 2

Photographs 1–45



PHOTOGRAPH 1
Otay Tarplant, Northern Salt Creek Parcels, May 18, 2022



PHOTOGRAPH 2
Otay Tarplant, Millenia Parcels,
May 19, 2022



PHOTOGRAPH 3
Variegated Dudleya, Jamul Mountains Parcels,
March 22, 2022



PHOTOGRAPH 4
San Diego Goldenstar, San Ysidro Parcels, January 5, 2022



PHOTOGRAPH 5
Quino Checkerspot Butterfly Larva, Northern San Ysidro Parcels,
February 9, 2022



PHOTOGRAPH 6
Quino Checkerspot Butterfly Pair Mating,
McMillin Parcels, March 1, 2022



PHOTOGRAPH 7
Quino Checkerspot Butterfly on Host Plant,
Dot-seed Plantain, McMillin Parcels, March 3, 2022.



PHOTOGRAPH 8
Quino Checkerspot Butterfly Nectar Plant, Common Goldfields,
McMillin Parcels, March 25, 2022



PHOTOGRAPH 9
Photo Monitoring Location 4b, Northern Salt Creek Parcels,
Established May 1, 2012



PHOTOGRAPH 10
Photo Monitoring Location 4b, Northern Salt Creek Parcels,
Updated May 18, 2022



PHOTOGRAPH 11
Photo Monitoring Location 8c, Northern Salt Creek Parcels,
Established April 25, 2019



PHOTOGRAPH 12
Photo Monitoring Location 8c, Northern Salt Creek Parcels,
Updated May 18, 2022



PHOTOGRAPH 13
Shot Hole Borer Tree Health Surveys, Riparian Photo Monitoring
Location Number 1a, Salt Creek Parcels, June 3, 2022



PHOTOGRAPH 14
Hermes Copper Butterfly Host Plant, Spiny redberry,
Dulzura Parcels, June 1, 2022



PHOTOGRAPH 15

Golden Eagle Captured on Camera, Dulzura Parcels, February 4, 2022



PHOTOGRAPH 16

Basin with Saturated Soils, Piper Ranch Parcels, March 31, 2022



PHOTOGRAPH 17
Blainville's Horned Lizard, Jamul Mountains Parcels, March 22, 2022



PHOTOGRAPH 18
Trash Observed Within Drainage, Northern San Ysidro
Parcels, October 21, 2022



PHOTOGRAPH 19
Overview of the Salt Creek and Northern Salt Creek Parcels, Looking
Northwest, October 25, 2022



PHOTOGRAPH 20
All-terrain Vehicle Tire Tracks in Coastal Sage Scrub Habitat, Looking South,
Salt Creek Parcels, October 25, 2022



PHOTOGRAPH 21

All-terrain Vehicle Tire Tracks in Coastal Sage Scrub Habitat, Looking Northeast, Salt Creek Parcels, October 25, 2022



PHOTOGRAPH 22

Pre-fire Photo Monitoring Location 11d, San Ysidro Parcels, June 20, 2018



PHOTOGRAPH 23
Post-fire Photo Monitoring Location 11d, San Ysidro Parcels, July 28, 2022



PHOTOGRAPH 24
Pre-fire Photo Monitoring Location 12d, San Ysidro Parcels, June 20, 2018



PHOTOGRAPH 25

Post-fire Photo Monitoring Location 12d, San Ysidro Parcels, July 28, 2022



PHOTOGRAPH 26

Pre-fire Photo Monitoring Location 13b, San Ysidro Parcels, June 20, 2018



PHOTOGRAPH 27

Post-fire Photo Monitoring Location 13b, San Ysidro Parcels, July 28, 2022



PHOTOGRAPH 28

Overview of the Wolf Canyon and Western Wolf Canyon Parcels, Looking Northeast, October 25, 2022



PHOTOGRAPH 29
RECON Crew Repairing Fence, Jamul Mountains Parcels, December 5, 2022



PHOTOGRAPH 30
RECON Crew Repairing Fence, Salt Creek Parcels,
February 22, 2022



PHOTOGRAPH 31

RECON Crew Hand Weeding Vernal Pool, Salt Creek Parcels, April 19, 2022



PHOTOGRAPH 32

RECON Crew Applying Herbicide to Non-natives within Cactus Wren Habitat,
Western Wolf Canyon Parcels, January 27, 2022



PHOTOGRAPH 33
RECON Crew Applying Herbicide to Mustard within Cactus Wren Habitat,
Salt Creek Parcels, March 23, 2022



PHOTOGRAPH 34
NSC_1, Facing West, Northern Salt Creek Parcels,
October 25, 2022



PHOTOGRAPH 35

NSC_SC_1, SC_1, and NSC_1, Facing West, Salt Creek and Northern Salt Creek Parcels,
October 25, 2022

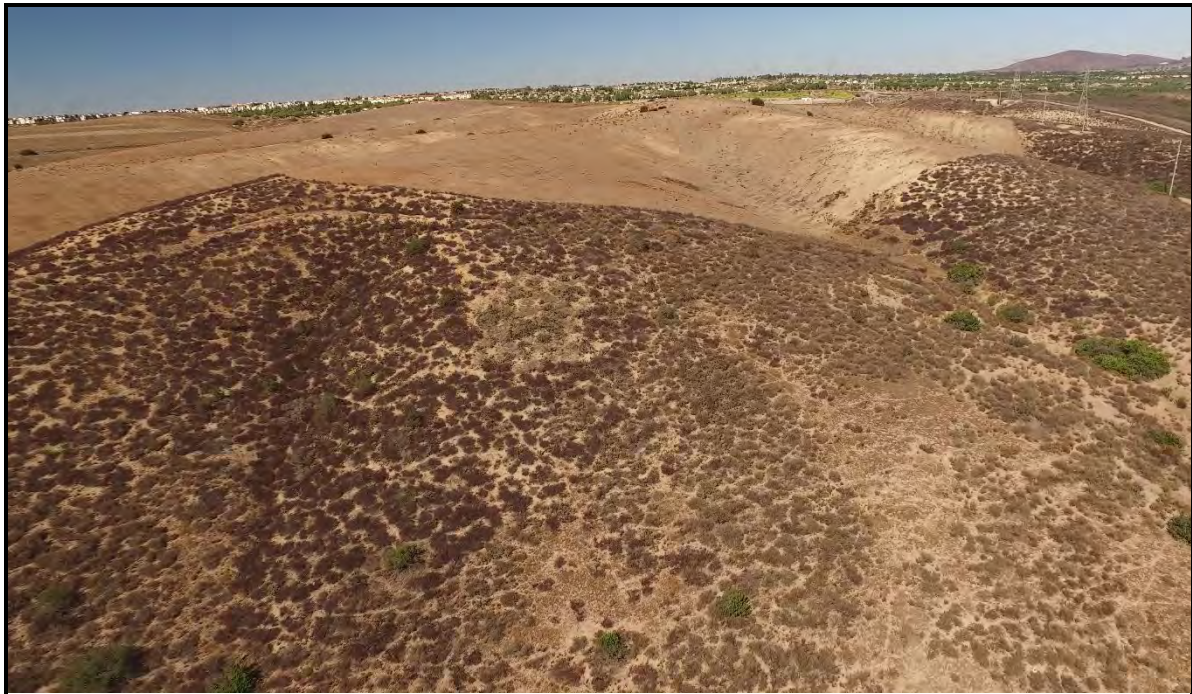


PHOTOGRAPH 36

NSC_SC_1 and SC_1, Facing North-Northeast, Salt Creek and
Northern Salt Creek Parcels, October 25, 2022



PHOTOGRAPH 37
SC_2 and SC_3, Facing North, Salt Creek Parcels, October 25, 2022



PHOTOGRAPH 38
SC_31, Facing Northwest, Salt Creek Parcels, October 25, 2022



PHOTOGRAPH 39
SC_23, Facing Southwest, Salt Creek Parcels, October 25, 2022



PHOTOGRAPH 40
WWC_1, Facing West-Southwest, Western Wolf Canyon Parcels, October 25, 2022



PHOTOGRAPH 41
WWC_3, Facing Northwest, Western Wolf Canyon Parcels, October 25, 2022



PHOTOGRAPH 42
WWC_6, Facing Northwest, Western Wolf Canyon Parcels, October 25, 2022



PHOTOGRAPH 43
RECON Crew Applying Herbicide to Non-natives within Otay Tarplant Area,
Wolf Canyon Parcels, May 11, 2022



PHOTOGRAPH 44
WWC_4 and WWC_5, Facing Northwest, Western Wolf Canyon Parcels,
October 25, 2022





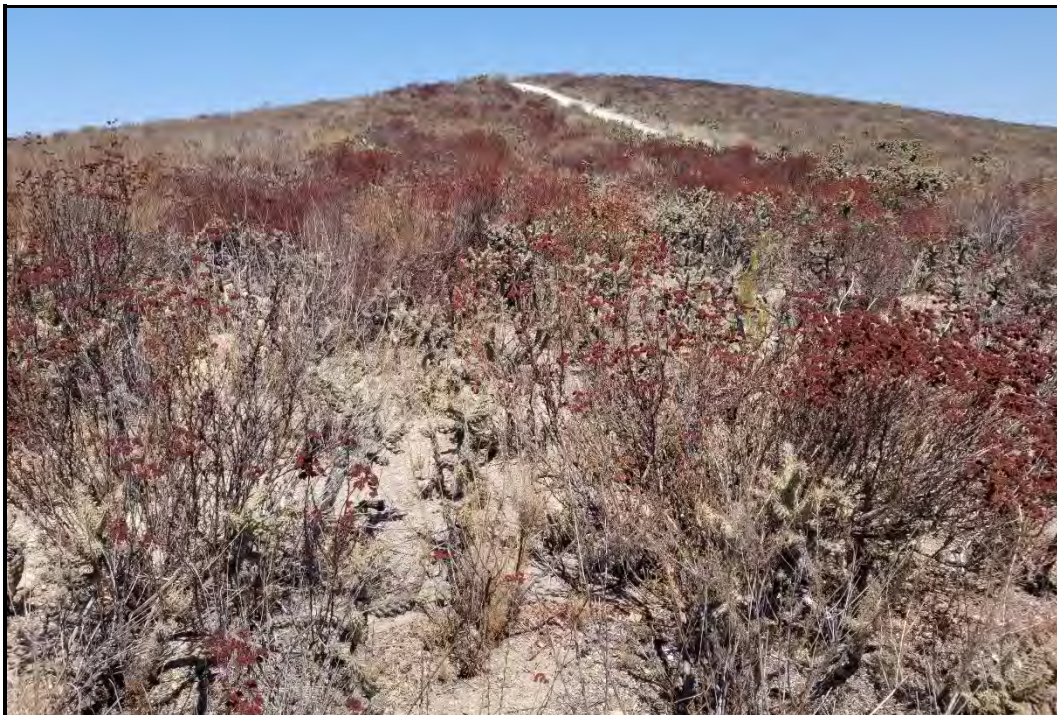
PHOTOGRAPH 45
WWC_2, Facing Northwest, Western Wolf Canyon Parcels, October 25, 2022

ATTACHMENT 3

Photo Monitoring Locations Established in 2010 for EMP Grant
5001133, Repeated in 2022



PHOTOGRAPH 1
Viewing North from the Southern End of the 1.0-acre Restoration Site
Prior to Planting, 2010



PHOTOGRAPH 2
Same View, August 26, 2022





PHOTOGRAPH 3
Viewing South at the Southern Half of the 1.0-acre Restoration Site
Prior to Planting, 2010



PHOTOGRAPH 4
Same View, August 26, 2022





PHOTOGRAPH 5
Viewing South at the Southern Portion of the 1.0-acre Restoration Site
Following Planting, 2010



PHOTOGRAPH 6
Same View, August 26, 2022



PHOTOGRAPH 7
Viewing South at the Northern Half of the 1.0-acre Restoration Site
Following Planting, 2010



PHOTOGRAPH 8
Same View, August 26, 2022



PHOTOGRAPH 9
Habitat Restoration Crews Planting Cactus at the 1.0-acre Restoration Site,
2010



PHOTOGRAPH 10
Same View, August 26, 2022





PHOTOGRAPH 11
Viewing Southwest at the Northern Portion of the 1.0-acre Restoration Site,
2010



PHOTOGRAPH 12
Same View, August 26, 2022





PHOTOGRAPH 13
Viewing South from the Northern End of the 1.0-acre Restoration Site.
Photo Taken on May 24, 2010



PHOTOGRAPH 14
Same View, August 26, 2022





PHOTOGRAPH 15
Viewing Northeast at the Eastern Portion of the 0.4-acre Restoration Site
Following Initial Planting, 2010



PHOTOGRAPH 16
Same View, August 26, 2022





PHOTOGRAPH 17
Viewing West at Transect 1 (0.4-acre Restoration Site).
Photo Taken September 9, 2010



PHOTOGRAPH 18
Same View, August 26, 2022





PHOTOGRAPH 19
Viewing South at Transect 2 (1.0-acre Restoration Site).
Photo Taken September 9, 2010



PHOTOGRAPH 20
Same View, August 26, 2022



PHOTOGRAPH 21
Viewing Southwest at Transect 3 (Cactus Wren Occupied Habitat).
Photo Taken September 10, 2010



PHOTOGRAPH 22
Same View, September 15, 2022



PHOTOGRAPH 23
Viewing Southwest at Transect 4 (Cactus Wren Occupied Habitat).
Photo Taken September 10, 2010



PHOTOGRAPH 24
Same View, September 15, 2022



PHOTOGRAPH 25

Viewing Northwest at Transect 5 (Presumed Suitable but Unoccupied Cactus Wren Habitat). Photo Taken September 10, 2010



PHOTOGRAPH 26

Same View, September 15, 2022



PHOTOGRAPH 27

Viewing Southwest at Transect 6 (Presumed Suitable but Unoccupied Cactus Wren Habitat). Photo Taken September 10, 2010



PHOTOGRAPH 28

Same View, September 15, 2022



ATTACHMENT 4

Photo Monitoring Locations Established between 2000 and 2007 for
Otay Ranch Village 1 Restoration Projects, Repeated in 2022



PHOTOGRAPH 1
Nursery Area in 2002



PHOTOGRAPH 2
Same Location, August 23, 2022



PHOTOGRAPH 3
Maritime Succulent Scrub Restoration 5-years After Implementation, 2007



PHOTOGRAPH 4
Same Location, August 23, 2022



PHOTOGRAPH 5
Maritime Succulent Scrub Restoration Area Prior to Dethatching in 2000



PHOTOGRAPH 6
Same View, August 23, 2022



PHOTOGRAPH 7
Newly Planted Maritime Succulent Scrub in 2002



PHOTOGRAPH 8
Same View, August 23, 2022



PHOTOGRAPH 9
Wolf Canyon Sunbow Exchange Maritime Succulent Scrub Restoration Area
Year 2, 2003



PHOTOGRAPH 10
Same View, August 23, 2022



PHOTOGRAPH 11
Sunbow Exchange Maritime Succulent Scrub Restoration Area Brush Piles,
with Newly Planted Container Stock 2002



PHOTOGRAPH 12
Same View, August 23, 2022



PHOTOGRAPH 13
Wolf Canyon Sunbow Exchange Maritime Succulent Scrub Restoration Area
Year 2, 2003



PHOTOGRAPH 14
Same View, August 23, 2022

This page intentionally left blank

APPENDIX O

MSCP Covered Species on County Preserves and Current Status

The following table indicates the status of the MSCP covered species that are found within County parks and preserves. A status update for each species is provided with information for the species that is specific to the County park, preserve or preserves within which each species is found (County Preserve). A status update is also provided for the species from a regional MSCP preserve perspective, indicating overall status across the region (Regional Preserve).

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
Plants		
1. Del Mar manzanita	Lusardi Creek Preserve	<p>COUNTY PRESERVE: Species populations have been conserved and are found within preserved southern maritime chaparral habitat.</p> <p>REGIONAL PRESERVE: 90% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 91% of the known locations.</p>
2. Dunn’s mariposa lily	Otay Ranch Preserve	<p>COUNTY PRESERVE: Species populations have been conserved and are found within preserved chaparral and closed-cone coniferous forest habitats.</p> <p>REGIONAL PRESERVE: 84% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 100% of the known locations.</p>
3. Encinitas baccharis	Del Dios Highlands Preserve	<p>COUNTY PRESERVE: Species populations have been conserved and are found within preserved southern maritime chaparral habitat.</p> <p>Monitoring and species protection efforts maintain the stable population at Del Dios Highlands Preserve.</p> <p>Regional monitoring efforts are on-going.</p> <p>REGIONAL PRESERVE: 79% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 100% of the known locations.</p>
4. Felt-leaved monardella	Boulder Oaks Preserve El Capitan Preserve Otay Ranch Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral habitat.</p> <p>REGIONAL PRESERVE: Approximately 100% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 88% of the known locations.</p>

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
5. Gander's pitcher sage	Otay Ranch Preserve	<p>COUNTY PRESERVE: Species populations have been conserved and are found within preserved chaparral, coastal scrub, and closed-cone coniferous forest habitats.</p> <p>REGIONAL PRESERVE: 80% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 100% of the known locations.</p>
6. Heart-leaved pitcher sage	Iron Mountain Preserve	<p>COUNTY PRESERVE: Species populations have been conserved and are found within preserved granitic southern mixed chaparral habitat.</p> <p>REGIONAL PRESERVE: 100% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 85% of the known locations.</p>
7. Lakeside ceanothus	Boulder Oaks Preserve El Capitan Preserve Louis A. Stelzer Park Oakoasis Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral habitat.</p> <p>Monitoring and species protection efforts maintain stable populations at Boulder Oaks Preserve, El Capitan Preserve, Louis A. Stelzer Park, and Oakoasis Preserve.</p> <p>REGIONAL PRESERVE: Approximately 100% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 75% of the known locations.</p>
8. Orcutt's bird's beak	Otay Valley Regional Park Tijuana River Valley Regional Park	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved maritime succulent scrub habitat.</p> <p>REGIONAL PRESERVE: Approximately 100% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 75% of the known locations.</p>
9. Orcutt's brodiaea	Boulder Oaks Preserve Los Peñasquitos Canyon Preserve Otay Ranch Preserve Santa Fe Valley Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved of chaparral habitat.</p> <p>REGIONAL PRESERVE: Approximately 69% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 100% of the known locations.</p>

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
10. Otay manzanita	Otay Ranch Preserve	<p>COUNTY PRESERVE: Species populations have been conserved and are found within preserved chaparral habitat.</p> <p>REGIONAL PRESERVE: Approximately 48% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 95% of the known locations.</p>
11. Otay mesa mint	Otay Lakes County Park Otay Ranch Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved vernal pools habitat.</p> <p>REGIONAL PRESERVE: Approximately 91% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 91% of the known locations.</p>
12. Otay tarplant	Furby-North Property Otay Ranch Preserve Otay Valley Regional Park	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved maritime succulent scrub habitat.</p> <p>REGIONAL PRESERVE: Approximately 14% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 66% of the known locations.</p>
13. Palmer's goldenbush	Lawrence and Barbara Daley Preserve Otay Ranch Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral and coastal sage scrub habitats.</p> <p>REGIONAL PRESERVE: Approximately 48% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 66% of the known locations.</p>
14. San Diego barrel cactus	Dictionary Hill Preserve Furby-North Property Lusardi Creek Preserve Otay Ranch Preserve Tijuana River Valley Regional Park	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved coastal sage scrub habitat.</p> <p>REGIONAL PRESERVE: Approximately 69% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 81% of the known locations.</p>
15. San Diego button celery	Louis A. Stelzer Park Otay Ranch Preserve Otay Valley Regional Park	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved vernal pool and marsh habitats.</p> <p>REGIONAL PRESERVE: Approximately 67% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 82% of the known locations.</p>

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
16. San Diego goldenstar	Dictionary Hill Preserve Los Peñasquitos Canyon Preserve Louis A. Stelzer Park Otay Ranch Preserve Sycamore Canyon and Goodan Ranch Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral, coastal scrub, and grassland habitats.</p> <p>REGIONAL PRESERVE: Approximately 52% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 73% of the known locations.</p>
17. San Diego thornmint	Sycamore Canyon and Goodan Ranch Preserve	<p>COUNTY PRESERVE: Species populations have been conserved and are found within preserved coastal sage scrub and chaparral habitats.</p> <p>Monitoring and species protection efforts maintain a stable population at Sycamore Canyon and Goodan Ranch Preserve.</p> <p>REGIONAL PRESERVE: Approximately 62% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 85% of the known locations.</p>
18. San Miguel savory	Boulder Oaks Preserve Otay Ranch Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved coastal sage scrub and chaparral habitats.</p> <p>Monitoring and species protection efforts maintain stable populations at Boulder Oaks Preserve and Otay Ranch Preserve.</p> <p>REGIONAL PRESERVE: Between 25% and 75% of known species locations within the MSCP Plan boundaries have been conserved.^b The substantial range is given because regional monitoring data is not available for this species. MSCP goal is to conserve 80 to 100% of the identified species locations.</p>
19. Snake cholla	Furby-North Property Otay Ranch Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved maritime succulent scrub habitat.</p> <p>REGIONAL PRESERVE: Approximately 100% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 75% of the known locations.</p>
20. Spreading (prostrate) navarretia	Otay Ranch Preserve	<p>COUNTY PRESERVE: Species populations have been conserved and are found within preserved vernal pool habitat.</p> <p>Species protection efforts maintain a stable population at Otay Ranch Preserve.</p> <p>REGIONAL PRESERVE: Approximately 80% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 63% of the known locations.</p>

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
21. Tecate cypress	Otay Ranch Preserve	<p>COUNTY PRESERVE: Species populations have been conserved and are found within preserved southern interior cypress forest habitat.</p> <p>REGIONAL PRESERVE: Approximately 100% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 98% of the known locations.</p>
22. Torrey pine	Tijuana River Valley Regional Park	<p>COUNTY PRESERVE: Species distribution was enhanced via the County's Tree Planting Program and is found within preserved coastal sage scrub habitat.</p> <p>REGIONAL PRESERVE: Approximately 100% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 100% of the known locations.</p>
23. Variegated dudleya	Dictionary Hill Preserve Lusardi Creek Preserve Otay Lakes Regional Park Otay Ranch Preserve Otay Valley Regional Park Sycamore Canyon and Goodan Ranch Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral and vernal pool habitats.</p> <p>Monitoring and species protection efforts maintain stable populations at Lusardi Creek and Sycamore Canyon/Goodan Ranch Preserves.</p> <p>Species protection efforts maintain stable populations at Dictionary Hill Preserve, Otay Lakes Regional Park, Otay Ranch Preserve, Otay Valley Regional Park.</p> <p>REGIONAL PRESERVE: Approximately 67% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 75% of the known locations.</p>
24. Wart-stemmed ceanothus	Del Dios Highlands Preserve Tijuana River Valley Regional Park	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved coastal chaparral habitat.</p> <p>REGIONAL PRESERVE: Greater than 75% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 64% of the known locations.</p>

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
25. Willowy monardella	Otay Ranch Preserve Sycamore Canyon and Goodan Ranch Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral, coastal sage scrub, riparian scrub, riparian forest, and woodland habitats.</p> <p>Monitoring and species protection efforts maintain stable populations Sycamore Canyon and Goodan Ranch Preserve and Otay Ranch Preserve.</p> <p>REGIONAL PRESERVE: Between 25% and 75% of known species locations within the MSCP Plan boundaries have been conserved.^b The substantial range is given because regional monitoring data is not conclusive about the population size of this species. MSCP goal is to conserve 100% of the known locations.</p>
Birds		
26. American peregrine falcon	Del Dios Highlands Otay Ranch Preserve Peutz Valley Preserve Tijuana River Valley Regional Park	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved foraging coastal wetland, riparian, and lake habitats.</p> <p>REGIONAL PRESERVE: Approximately 55% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 61% of the known locations.</p>
27. Burrowing owl	Otay Ranch Preserve Sycamore Canyon and Goodan Ranch Preserve Ramona Grasslands Preserve ^a	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved grassland habitat.</p> <p>Regional monitoring and species protection efforts are on-going.</p> <p>REGIONAL PRESERVE: Approximately 8% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 100% of the known locations.</p>
28. Coastal (San Diego) cactus wren	El Capitan Preserve Furby-North Property Lakeside Linkage Preserve Otay Ranch Preserve Otay Valley Regional Park Sweetwater Regional Park Tijuana River Valley Regional Park	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved maritime succulent scrub.</p> <p>Monitoring, species protection efforts, and habitat restoration and enhancement maintain a stable population at Lakeside Linkage Preserve.</p> <p>Regional monitoring and species protection efforts are on-going.</p> <p>REGIONAL PRESERVE: Greater than 75% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 80% of the known locations.</p>

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
<p>29. Coastal California gnatcatcher</p>	<p>Boulder Oaks Preserve Del Dios Highlands Preserve Dictionary Hill Preserve Furby-North Property Lakeside Linkage Preserve Louis A. Stelzer Park Lusardi Creek Preserve Otay Lakes Regional Park Otay Ranch Preserve Otay Valley Regional Park Ramona Grasslands Preserve Santa Fe Valley Preserve Stoneridge Preserve Sweetwater Regional Park Sycamore Canyon and Goodan Ranch Preserve Tijuana River Valley Regional Park</p>	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved coastal sage scrub habitat.</p> <p>Species protection efforts on County properties have been successful and are on-going.</p> <p>Regional monitoring and species protection efforts are on-going</p> <p>REGIONAL PRESERVE: Approximately 48% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 65% of the known locations.</p>
<p>30. Cooper's hawk</p>	<p>Barnett Ranch Preserve Boulder Oaks Preserve Del Dios Highlands Preserve Dictionary Hill Preserve El Capitan Preserve Iron Mountain Preserve Lakeside Linkage Preserve Lawrence and Barbara Daley Preserve Lusardi Creek Preserve Oakoasis Preserve Otay Ranch Preserve Skyline Preserve Stoneridge Preserve Sycamore Canyon and Goodan Ranch Preserve Tijuana River Valley Regional Park</p>	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved riparian and wooded habitats.</p> <p>REGIONAL PRESERVE: Approximately 38% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 57% of the known locations.</p>
<p>31. Ferruginous hawk</p>	<p>Del Dios Highlands Preserve</p>	<p>COUNTY PRESERVE: Species populations have been conserved and are found within preserved foraging grassland habitat.</p> <p>REGIONAL PRESERVE: Approximately 71% of habitat within the MSCP Plan boundaries has been conserved.^b MSCP goal is to conserve 100% of known habitat.</p>

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
32. Golden eagle	Barnett Ranch Preserve Del Dios Highlands Preserve El Capitan Preserve Otay Ranch Preserve Ramona Grasslands Preserve Skyline Preserve Sycamore Canyon and Goodan Ranch Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved foraging grassland, chaparral, and coastal sage scrub habitat and nesting cliff habitat.</p> <p>Monitoring and species protection efforts ensure successful fledging at Ramona Grasslands Preserve and El Capitan Preserve.</p> <p>Regional monitoring and species protection efforts are on-going.</p> <p>REGIONAL PRESERVE: Approximately 64% of habitat within the MSCP Plan boundaries has been conserved.^b MSCP goal is to conserve 100% of known habitat.</p>
33. least Bell's vireo	Furby-North Property Los Peñasquitos Canyon Preserve Lusardi Creek Preserve Otay Lakes Regional Park Otay Ranch Preserve Otay Valley Regional Park Sweetwater Regional Park Tijuana River Valley Regional Park	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved riparian habitat.</p> <p>Regional monitoring and species protection efforts have been successful and are on-going.</p> <p>REGIONAL PRESERVE: Approximately 40% of populations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 82 to 100% of major populations.</p>
34. Light-footed Ridgway's rail (Clapper rail)	Tijuana River Valley Regional Park	<p>COUNTY PRESERVE: Species populations have been conserved and are found within preserved freshwater marsh and riparian habitats.</p> <p>Monitoring and species protection efforts enhance a population at Tijuana River Valley Regional Park.</p> <p>Regional species protection efforts are on-going.</p> <p>REGIONAL PRESERVE: Approximately 54% of habitat within the MSCP Plan boundaries has been conserved.^b MSCP goal is to conserve 100% of known habitat.</p>
35. Northern harrier	Del Dios Highlands Preserve Furby-North Property Lawrence and Barbara Daley Preserve Louis A. Stelzer Preserve Lusardi Creek Preserve Otay Ranch Preserve Skyline Preserve Sycamore Canyon and Goodan Ranch Preserve Tijuana River Valley Regional Park	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved foraging and nesting wetland, marsh, marshy meadow, grassland, and riparian woodland habitats.</p> <p>REGIONAL PRESERVE: Approximately 54% of habitat within the MSCP Plan boundaries has been conserved.^b MSCP goal is to conserve 100% of known habitat.</p>

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
36. Southern California rufous-crowned sparrow	Barnett Ranch Preserve Boulder Oaks Preserve Del Dios Highlands Preserve Dictionary Hill Preserve El Capitan Preserve El Monte Park Furby-North Preserve Iron Mountain Preserve Lakeside Linkage Preserve Lawrence and Barbara Daley Preserve Louis A. Stelzer Park Lusardi Creek Preserve Oakoasis Preserve Otay Ranch Preserve Peutz Valley Preserve Ramona Grasslands Preserve Skyline Preserve Stoneridge Preserve Sycamore Canyon and Goodan Ranch Preserve Tijuana River Valley Regional Park	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved coastal sage scrub habitat.</p> <p>REGIONAL PRESERVE: Approximately 45% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 71% of the known locations.</p>
37. Southwestern willow flycatcher	Tijuana River Valley Regional Park	<p>COUNTY PRESERVE: Species populations have been conserved and are found within preserved riparian habitat.</p> <p>Regional monitoring and species protection efforts are on-going.</p> <p>REGIONAL PRESERVE: Approximately 33% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 88% of the known locations.</p>
38. Swainson's hawk	Barnett Ranch Preserve Skyline Preserve	<p>COUNTY PRESERVE: Species populations have been conserved and are found within preserved foraging grassland habitat.</p> <p>REGIONAL PRESERVE: Approximately 71% of habitat within the MSCP Plan boundaries has been conserved.^b MSCP goal is to conserve 100% of known habitat.</p>
39. Tricolored blackbird	Barnett Ranch Preserve Ramona Grasslands Preserve ^a Tijuana River Valley Regional Park	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved foraging grassland habitat.</p> <p>Monitoring and species protection efforts ensure that the population adjacent to Ramona Grasslands Preserve is stable.</p> <p>Species protection efforts maintain populations at Barnett Ranch Preserve and Tijuana River Valley Regional Park.</p> <p>REGIONAL PRESERVE: Approximately 33% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 59% of the known locations.</p>

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
40. Western bluebird	Barnett Ranch Preserve Boulder Oaks Preserve Del Dios Highlands Preserve El Capitan Preserve El Monte Park Lakeside Linkage Preserve Lawrence and Barbara Daley Preserve Oakoasis Preserve Peutz Valley Preserve Stoneridge Preserve Sycamore Canyon and Goodan Ranch Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved grassland, coastal sage scrub, and riparian woodland habitats.</p> <p>REGIONAL PRESERVE: Approximately 51% of habitat within the MSCP Plan boundaries has been conserved.^b MSCP goal is to conserve 100% of known habitat.</p>
41. White-faced ibis	Del Dios Highlands Preserve	<p>COUNTY PRESERVE: Species populations have been conserved and are found within preserved freshwater wetland habitat.</p> <p>REGIONAL PRESERVE: Approximately 31% of habitat within the MSCP Plan boundaries has been conserved.^b MSCP goal is to conserve 100% of known habitat.</p>
Reptiles		
42. Belding's orange-throated whiptail	Barnett Ranch Preserve Boulder Oaks Preserve Del Dios Highlands Preserve Dictionary Hill Preserve El Capitan Preserve Furby-North Property Iron Mountain Preserve Lakeside Linkage Preserve Lawrence and Barbara Daley Preserve Louis A Stelzer Park Lusardi Creek Preserve Otay Ranch Preserve Peutz Valley Preserve Ramona Grasslands Preserve Skyline Preserve Stoneridge Preserve Sycamore Canyon and Goodan Ranch Preserve Tijuana River Valley Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral and scrub habitats.</p> <p>REGIONAL PRESERVE: Approximately 47% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 62% of the known locations.</p>

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
43. Blainville's horned lizard	Barnett Ranch Preserve Boulder Oaks Preserve Del Dios Highlands Preserve Dictionary Hill Preserve El Capitan Preserve Furby-North Property Iron Mountain Preserve Lakeside Linkage Preserve Lawrence and Barbara Daley Preserve Louis A. Stelzer Park Lusardi Creek Preserve Oakoasis Preserve Otay Ranch Preserve Peutz Valley Preserve Ramona Grasslands Preserve Skyline Preserve Stoneridge Preserve Sycamore Canyon and Goodan Ranch Preserve Tijuana River Valley Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral and scrub habitats.</p> <p>REGIONAL PRESERVE: Approximately 42% of known species locations within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 63% of the known locations.</p>
Mammals		
44. Mountain Lion	Barnett Ranch Preserve Boulder Oaks Preserve Del Dios Highlands Preserve El Capitan Preserve Iron Mountain Preserve Otay Ranch Preserve Peutz Valley Preserve Sycamore Canyon and Goodan Ranch Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within diverse preserved habitats.</p> <p>Regional monitoring, species protection, and increasing habitat connectivity efforts are on-going.</p> <p>REGIONAL PRESERVE: Approximately 60% of core areas within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 81% of the core areas.</p>
45. Southern mule deer	Barnett Ranch Preserve Boulder Oaks Preserve Del Dios Highlands Preserve El Capitan Preserve El Monte Park Iron Mountain Preserve Lakeside Linkage Preserve Lawrence and Barbara Daley Preserve Louis A. Stelzer Preserve Lusardi Creek Preserve Oakoasis Preserve Otay Ranch Preserve Peutz Valley Preserve Ramona Grasslands Preserve Stoneridge Preserve Sycamore Canyon and Goodan Ranch Preserve	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved grassland, scrub, and chaparral habitats.</p> <p>Regional monitoring, species protection, and increasing habitat connectivity efforts are on-going.</p> <p>REGIONAL PRESERVE: Approximately 60% of core areas within the MSCP Plan boundaries have been conserved.^b MSCP goal is to conserve 81% of the core areas</p>

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
Invertebrates		
46. San Diego fairy shrimp	Otay Ranch Preserve Ramona Grasslands Preserve ^a	<p>COUNTY PRESERVES: Species populations have been conserved and are found within preserved vernal pool habitat.</p> <p>Monitoring and species protection efforts maintain stable populations at Ramona Grasslands Preserve and Otay Ranch Preserve.</p> <p>REGIONAL PRESERVE: Approximately 54% of habitat within the MSCP Plan boundaries has been conserved.^b MSCP goal is to conserve 88% of known habitat.</p>
47. Thorne's hairstreak butterfly	Otay Ranch Preserve	<p>COUNTY PRESERVE: Species populations have been conserved and are found within preserved foraging chaparral habitat and larval host Tecate cypress habitat.</p> <p>REGIONAL PRESERVE: Approximately 100% of habitat within the MSCP Plan boundaries has been conserved.^b MSCP goal is to conserve 100% of known habitat.</p>

^a Species was observed on draft North County MSCP portion of the County Preserve and is presumed to utilize the South County MSCP area of the County Preserve.

^b Conservation status of the MSCP covered species within the MSCP Plan Area's boundaries is from the 2012 San Diego Multiple Species Conservation Program Status Report: 1997-2011, which summarized monitoring results for all three South County MSCP Subarea Plan Areas.

Reference:

U.S. Fish and Wildlife Service Carlsbad Field Office, California Department of Fish and Game South Coast Region Office, and San Diego Management and Monitoring Program. 2012. San Diego Multiple Species Conservation Program Status Report: 1997-2011.

This page intentionally left blank

APPENDIX P

Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report

Final

TARGETED MONITORING PLAN RESOURCE-SPECIFIC MONITORING

2022 Annual Report

Prepared for
Department of Parks and Recreation
County of San Diego
5500 Overland Avenue, Suite 410
San Diego, CA 92123
Contact: Ms. Jennifer Price

January 2023



Final

**TARGETED MONITORING PLAN
RESOURCE-SPECIFIC MONITORING**
2022 Annual Report

Prepared for
Department of Parks and Recreation
County of San Diego
5500 Overland Avenue, Suite 410
San Diego, CA 92123
Contact: Ms. Jennifer Price

January 2023

550 West C Street
Suite 750
San Diego, CA 92101
619.719.4200
esassoc.com



OUR COMMITMENT TO SUSTAINABILITY | ESA helps a variety of public and private sector clients plan and prepare for climate change and emerging regulations that limit GHG emissions. ESA is a registered assessor with the California Climate Action Registry, a Climate Leader, and founding reporter for the Climate Registry. ESA is also a corporate member of the U.S. Green Building Council and the Business Council on Climate Change (BC3). Internally, ESA has adopted a Sustainability Vision and Policy Statement and a plan to reduce waste and energy within our operations. This document was produced using recycled paper.

TABLE OF CONTENTS

2022 Annual Report

	<u>Page</u>
Acronyms and Abbreviations	vii
Executive Summary	ES-1
Chapter 1, Introduction.....	1-1
1.1 Purpose of the Project	1-1
1.2 Multiple Species Conservation Program Context.....	1-3
Chapter 2, Study Area Description	2-1
2.1 Overview.....	2-1
2.2 Project Location	2-1
Chapter 3, Methods.....	3-1
3.1 Overview.....	3-1
3.2 Wet-Season San Diego Fairy Shrimp	3-1
3.3 Vernal Pool and Alkali Playa Invasive Non-Native Plant Management.....	3-2
3.4 Rare Plant Monitoring	3-3
3.5 San Diego Thornmint Focused Management	3-5
3.6 Otay Tarplant Focused Management	3-5
3.7 San Miguel Savory Focused Management	3-6
3.8 Variegated Dudleya Focused Management.....	3-6
3.9 Harbison's Dun Skipper Adult Flight Surveys	3-7
3.10 Burrowing Owl	3-8
3.11 San Diego Cactus Wren	3-10
3.12 Northern Harrier.....	3-11
3.13 Least Bell's Vireo	3-12
3.13.1 Least Bell's Vireo Surveys.....	3-12
3.13.2 Brown-Headed Cowbird Trapping	3-13
3.14 Stephens' Kangaroo Rat.....	3-14
3.14.1 Habitat Assessments.....	3-14
3.14.2 Live-Trapping	3-15
3.15 Stephens' Kangaroo Rat Focused Management	3-16
3.16 Pallid Bat	3-17
3.16.1 Roosting & Foraging Habitat Threat Assessment.....	3-17
3.17 Townsend's Big-Eared Bat	3-18
3.17.1 Roosting and Foraging Habitat Threat Assessment	3-18
3.18 Peak Forage Production and Residual Dry Matter Monitoring	3-19
3.18.1 Peak Forage Production Monitoring	3-19
3.18.2 Residual Dry Matter Monitoring	3-19
3.19 Regional Monitoring Efforts	3-20

	<u>Page</u>
Chapter 4, Results and Discussion	4-1
4.1 Vernal Pools/Alkali Playas	4-1
4.1.1 Wet-Season San Diego Fairy Shrimp.....	4-1
4.1.2 Parish’s Brittle-scale	4-1
4.1.3 Focused Management.....	4-5
4.1.4 Adaptive Management Recommendations.....	4-5
4.2 Rare Plant Monitoring	4-6
4.2.1 San Diego Thornmint.....	4-7
4.2.2 Orcutt’s Bird’s-Beak.....	4-19
4.2.3 Otay Tarplant.....	4-21
4.2.4 Willowy Monardella.....	4-23
4.2.5 San Miguel Savory	4-26
4.2.6 Variegated Dudleya	4-28
4.3 Harbison’s Dun Skipper	4-32
4.3.1 Adult Flight Surveys.....	4-32
4.3.2 Adaptive Management Recommendations.....	4-36
4.4 Arroyo Toad.....	4-37
4.5 Tricolored Blackbird.....	4-37
4.6 Burrowing Owl	4-37
4.6.1 Habitat and Threats Assessment	4-41
4.6.2 Adaptive Management Recommendations.....	4-41
4.7 San Diego Cactus Wren	4-42
4.7.1 Habitat and Threats Assessment	4-49
4.7.2 Adaptive Management Recommendations.....	4-51
4.8 Northern Harrier.....	4-51
4.8.1 Habitat and Threats Assessment	4-54
4.8.2 Adaptive Management Recommendations.....	4-54
4.9 Least Bell’s Vireo	4-55
4.9.1 Least Bell’s Vireo Survey.....	4-55
4.9.2 Habitat and Threats Assessment	4-57
4.9.3 Brown-Headed Cowbird Trapping	4-57
4.9.4 Adaptive Management Recommendations.....	4-58
4.10 Stephens’ Kangaroo Rat.....	4-59
4.10.1 Ramona Grasslands County Preserve	4-59
4.10.2 Hellhole Canyon County Preserve	4-63
4.11 Pallid Bat	4-66
4.11.1 Roosting and Foraging Habitat Assessment	4-67
4.11.2 Threats Assessment.....	4-73
4.11.3 Adaptive Management Recommendations.....	4-73
4.12 Townsend’s Big-Eared Bat	4-74
4.12.1 Roosting and Foraging Habitat Assessment	4-75
4.12.2 Threats Assessment.....	4-75
4.12.3 Adaptive Management Recommendations.....	4-76
4.13 Peak Forage Production and Residual Dry Matter Monitoring.....	4-77
4.13.1 Peak Forage Production Monitoring	4-77
4.13.2 Residual Dry Matter Monitoring	4-81
4.13.3 Adaptive Management Recommendations.....	4-81
Chapter 5, References	5-1

Page**List of Figures**

Figure 1	Project Location	2-2
Figure 2	Vernal Pool/Alkali Playa Monitoring and Management Results: Ramona Grasslands County Preserve	4-3
Figure 3	San Diego Thornmint Monitoring and Management Results: Simon County Preserve	4-11
Figure 4	San Diego Thornmint Monitoring and Management Results: Sycamore Canyon/Goodan Ranch County Preserve	4-13
Figure 5	Orcutt's Bird's-Beak Monitoring Results: Tijuana River Valley Regional Park.....	4-20
Figure 6	Otay Tarplant Monitoring and Management Results: Furby-North County Preserve	4-22
Figure 7	Willow Monardella Monitoring Results: Sycamore Canyon/Goodan Ranch County Preserve	4-25
Figure 8	San Miguel Savory Focused Management: Boulder Oaks County Preserve	4-27
Figure 9	Variiegated Dudleya Focused Management: Lusardi Creek County Preserve	4-29
Figure 10	Variiegated Dudleya Focused Management: Sycamore Canyon/Goodan Ranch County Preserve	4-31
Figure 11	Harbison's Dun Skipper Monitoring Results: Hellhole Canyon County Preserve	4-33
Figure 12	Tricolored Blackbird Monitoring Results: Ramona Grasslands County Preserve	4-39
Figure 13	Burrowing Owl Monitoring Results: Ramona Grasslands County Preserve	4-40
Figure 14	Proposed Revisions to Burrowing Owl Monitoring Areas: Ramona Grasslands County Preserve	4-43
Figure 15	San Diego Cactus Wren Monitoring Results: Lakeside Linkage County Preserve	4-48
Figure 16	San Diego Cactus Wren Photo Points and Restoration Areas: Lakeside Linkage County Preserve	4-50
Figure 17	Northern Harrier Monitoring Results: Tijuana River Valley Regional Park	4-53
Figure 18	Least Bell's Vireo Monitoring and Management Results: Santa Margarita County Preserve	4-56
Figure 19	Stephens' Kangaroo Rat Monitoring Results: Ramona Grasslands County Preserve	4-61
Figure 20	Stephens' Kangaroo Rat Monitoring and Management Results: Hellhole Canyon County Preserve	4-64
Figure 21	Bat Monitoring Results: Hellhole Canyon County Preserve	4-69
Figure 22	Bat Monitoring Results: Mount Olympus County Preserve	4-70
Figure 23	Bat Monitoring Results: Wilderness Gardens County Preserve	4-71
Figure 24	Peak Forage Production Monitoring Results: Ramona Grasslands County Preserve	4-79
Figure 25	Residual Dry Matter Monitoring Results: Ramona Grasslands County Preserve	4-85

List of Tables

Table ES-1	2022 TMP Monitoring Results	ES-2
Table ES-2	2022 TMP Management Results	ES-5
Table 1	San Diego Fairy Shrimp Survey Summary	3-2
Table 2	MSP Rare Plant Monitoring Survey Summary	3-3
Table 3	Harbison's Dun Skipper Survey Summary	3-8
Table 4	Burrowing Owl Survey Summary	3-9
Table 5	San Diego Cactus Wren Survey Summary	3-10
Table 6	Northern Harrier Survey Summary	3-11
Table 7	Least Bell's Vireo Survey Summary	3-12
Table 8	SKR Habitat Assessment Survey Summary	3-15
Table 9	SKR Live-Trapping Survey Summary	3-16
Table 10	Bat Survey Summary	3-18
Table 11	Additional Monitoring Survey Summary	3-21
Table 12	MSP 2022 Rare Plant Monitoring Summary	4-8
Table 13	San Diego Thornmint Invasive Non-Native Plant Control Management Priorities: Sycamore Canyon/Goodan Ranch County Preserve	4-18
Table 14	Willow Monardella Additional Monitoring Data: Sycamore Canyon/ Goodan Ranch County Preserve	4-24
Table 15	Harbison's Dun Skipper Adult Flight Survey Results: Hellhole Canyon County Preserve	4-35
Table 16	USGS Arroyo Toad Survey Results	4-38
Table 17	San Diego Cactus Wren Avian Point Count Survey Results: Lakeside Linkage County Preserve	4-44
Table 18	Northern Harrier Nesting Survey Results	4-52
Table 19	Least Bell's Vireo Territory Survey Results: Santa Margarita County Preserve	4-55
Table 20	Brown-Headed Cowbird Detections: Santa Margarita County Preserve	4-55
Table 21	Brown-Headed Cowbird Trapping Results: Santa Margarita County Preserve	4-58
Table 22	SKR Monitoring Results: Ramona Grasslands County Preserve	4-59
Table 23	SKR Habitat Assessment Summary: Ramona Grasslands County Preserve	4-60
Table 24	SKR Monitoring Results: Hellhole Canyon County Preserve	4-63
Table 25	SKR Habitat Assessment Summary: Hellhole Canyon County Preserve	4-63
Table 26	Transect Acoustic Bat Survey Results	4-66
Table 27	Peak Forage Production Monitoring Summary: Ramona Grasslands County Preserve	4-77
Table 28	Summary of 2022 RDM Results	4-83

Appendices

- A. San Diego Fairy Shrimp 90-Day Report
- B. Vernal Pool/Alkali Playa Management Representative Photographs
- C. MSP Rare Plant Photo Monitoring – Permanent Photographic Monitoring & Representative Photographs
- D. MSP Rare Plant Occurrence Monitoring Forms
- E. Harbison's Dun Skipper Representative Photographs, Field Forms, Lyons & Marschalek Report
- F. Burrowing Owl Field Forms
- G. San Diego Cactus Wren Photo Monitoring and Field Forms
- H. Northern Harrier Representative Photographs and Field Forms
- I. Least Bell's Vireo 45-Day Report
- J. Brown-Headed Cowbird Trapping Annual Report
- K. Stephens' Kangaroo Rat Habitat Monitoring and Maintenance Memorandums and Representative Photographs
- L. Bat Habitat Assessment Field Forms
- M. Peak Forage Production and Residual Dry Matter Monitoring Reports

This page is intentionally left blank.

ACRONYMS AND ABBREVIATIONS

Blackhawk	Blackhawk Environmental, Inc.
Cal-IPC	California Invasive Plant Council
CBI	Conservation Biology Institute
CDFW	California Department of Fish and Wildlife (2013 and on)
CNDDDB	California Natural Diversity Database
Collector	ArcGIS Collector mobile application
County	County of San Diego
DKR	Dulzura kangaroo rat
DPR	Department of Parks and Recreation
ESA	Environmental Science Associates
FESA	federal Endangered Species Act
GPS	Global Positioning System
HCP	Habitat Conservation Plan
HDS	Harbison's dun skipper
ICF	ICF International, Inc.
MCAS	Marine Corps Air Station
MSCP	Multiple Species Conservation Program
MSP	Management and Monitoring Strategic Plan
NCCP	Natural Community Conservation Plan
SDMMP	San Diego Management and Monitoring Program
SKR	Stephens' kangaroo rat
SR	State Route
TMP	Targeted Monitoring Plan
UCANR	University of California Agriculture and Natural Resources
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
Wildlife Agencies	CDFW and USFWS

This page is intentionally left blank.

EXECUTIVE SUMMARY

The County of San Diego (County) monitors and adaptively manages habitats and species covered by the Multiple Species Conservation Program (MSCP) to ensure MSCP biological conservation goals and conditions for species coverage are being met, as a requirement of the MSCP and the adopted South County MSCP Subarea Plan. The monitoring and adaptive management program is guided by the Targeted Monitoring Plan (TMP) (ESA and ICF 2015) and its subsequent draft updates (ESA and ICF 2019a, ESA and ICF 2019b, ESA and ICF 2021a, ESA and ICF 2021b, and ESA and ICF 2022).

The TMP was prepared by the County Department of Parks and Recreation (DPR), with review and input by the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife (collectively known as the Wildlife Agencies), along with review and input from the San Diego Management and Monitoring Program resources experts. The TMP includes focused goals and objectives for target resources and detailed monitoring protocols, and it is intended to achieve the management directives for species per the adopted South County MSCP Framework Management Plan (County of San Diego 2001). The TMP addresses monitoring and adaptive management within 20 DPR open space parks and preserves for 22 plant and wildlife species and two vegetation communities, located in the South County Subarea Plan and Draft North County MSCP Plan Areas.

TMP implementation in 2022 included habitat and resource-specific monitoring and adaptive management. Resource-specific monitoring was conducted in 11 DPR open space parks and preserves: Tijuana River Valley Regional Park, and El Capitan, Furby-North, Hellhole Canyon, Lakeside Linkage, Mount Olympus, Ramona Grasslands, Santa Margarita, Simon, Sycamore Canyon/Goodan Ranch, and Wilderness Gardens County Preserves. Resource-specific adaptive management was conducted in eight DPR open space preserves: Boulder Oaks, Furby-North, Hellhole Canyon, Lusardi Creek, Ramona Grasslands, Santa Margarita, Simon, and Sycamore Canyon/Goodan Ranch County Preserves.

Monitoring was conducted by Environmental Science Associates (ESA) for the following 13 MSCP or draft North County MSCP-covered species in 2022:

- San Diego fairy shrimp
- San Diego thornmint
- Orcutt's bird's-beak
- Otay tarplant
- Willowy monardella
- Harbison's dun skipper

- Burrowing owl
- San Diego cactus wren
- Northern harrier
- Least Bell’s vireo
- Stephens’ kangaroo rat
- Pallid bat
- Townsend’s big-eared bat

Golden eagle (*Aquila chrysaetos*) and bald eagle (*Haliaeetus leucocephalus*) monitoring also occurred in 2022 consistent with the TMP. Results are included under separate coverage in the *Raptor Foraging Surveys & Nest Monitoring 2021–2022 Summary Report Ramona Grasslands Preserve & El Capitan Preserve* (ESA 2022a).

Adaptive management was conducted for the following seven MSCP-covered species and habitats in 2022:

- Vernal pool/alkali playa habitat
- San Diego thornmint
- Otay tarplant
- San Miguel savory
- Variegated dudleya
- Least Bell’s vireo
- Stephens’ kangaroo rat

Table ES-1 provides a summary of 2022 TMP monitoring results, and **Table ES-2** provides a summary of 2022 TMP management results.

**TABLE ES-1
2022 TMP MONITORING RESULTS**

Species	County Preserve	Monitoring
Vernal pools/Alkali playas: San Diego fairy shrimp	Ramona Grasslands	San Diego fairy shrimp: 4 of 20 sampled pools occupied
Vernal pools/Alkali playas ¹ : Parish’s brittle scale	Ramona Grasslands	IMG plot: 174 individuals Total On-site Population: 282 individuals
San Diego thornmint	Simon	IMG plot: 13,500 individuals Total On-site Population: 13,955 individuals
	Sycamore Canyon/Goodan Ranch	IMG plots: 10,124 individuals Total On-site Population: 41,921 individuals
Otay tarplant	Furby-North	IMG plot: 141 individuals Total On-site Population: 610 individuals

Species	County Preserve	Monitoring
Orcutt's bird's-beak ²	Tijuana River Valley Regional Park 1	IMG plot: 71 individuals Total On-site Population: 305 individuals
	Tijuana River Valley Regional Park 2	IMG plot: 10 individuals Total On-site Population: 10 individuals
Willow monardella ³	Sycamore Canyon/ Goodan Ranch 1	IMG plot: 55 individuals Total On-site Population: 294 individuals
	Sycamore Canyon/ Goodan Ranch 2	IMG plot: 3 individuals Total On-site Population: 3 individuals
	Sycamore Canyon/ Goodan Ranch 3	IMG plot: 11 individuals Total On-site Population: 35 individuals
Harbison's dun skipper ⁴	Hellhole Canyon	5 adults; mating observed (2 adults)
Arroyo toad ⁵	Ramona Grasslands	Individuals: 0
Tricolored blackbird ⁶	Ramona Grasslands	Individuals: 0
Burrowing owl ⁷	Ramona Grasslands	Individuals: 0 (Sign detected)
San Diego cactus wren	Lakeside Linkage	Pairs: 1 Single males: 1 No active nesting detected
Northern harrier	Tijuana River Valley	Territories: 3–5 Pairs: 3–4 Total Individuals: 12–15
Least Bell's vireo	Santa Margarita	Territories: 9 Pairs: 4 Single males: 5
Stephens' kangaroo rat	Ramona Grasslands	Habitat assessment: 15 of 28 sample plots with high potential 15 sample plots considered occupied based on sign Live trapping ⁸ : 0 individuals (No SKR sign detected) ⁹
	Hellhole Canyon	Habitat assessment: 3 of 3 sample plots with high potential ¹⁰ 3 considered occupied based on sign ¹⁰
Pallid bat	Hellhole Canyon	Roosting habitat assessment: suitable roosting habitat present (i.e., rocky outcrops, boulders, under bark or in tree cavities). (0 detections) ¹¹
	Mount Olympus	Roosting habitat assessment: suitable roosting habitat present (i.e., rocky outcrops, boulders, under bark or in tree cavities, abandoned human-made structures). (2 detections) ¹¹
	Wilderness Gardens	Roosting habitat assessment: suitable roosting habitat present (i.e., historic and unused buildings, rocky outcrops, under bark or in tree cavities). (0 detections) ¹¹

Species	County Preserve	Monitoring
Townsend's big-eared bat	Hellhole Canyon	Roosting habitat assessment: suitable roosting habitat present (i.e., boulder, rocky outcrops, tree hollows and cavities). (0 detections) ¹²
	Wilderness Gardens	Roosting habitat assessment: suitable roosting habitat present (i.e., historic and unused buildings, rocky outcrops, under bark or in tree cavities). (0 detections) ¹²
Peak forage production ¹³	Ramona Grasslands	MU 1A: 5,522 lb/acre MU 2A: 3,119 lb/acre MU 2B: 2,171 lb/acre MU 3A: 3,453 lb/acre MU 3B: 3,767 lb/acre MU 3C: 3,389 lb/acre MU 3D: 2,722 lb/acre MU 3E: 4,458 lb/acre MU 4A: 1,389 lb/acre MU 4B: 1,144 lb/acre MU 4C: N/A MU 5: N/A
		MU 1A: Above target (2,478 lb/acre) MU 2A: Above target (2,186 lb/acre) MU 2B: Above target (1,400 lb/acre) MU 3A: Above target (1,627 lb/acre) MU 3B: Above target (1,933 lb/acre) MU 3C: Above target (2,456 lb/acre) MU 3D: Above target (2,522 lb/acre) MU 3E: Above target (5,608 lb/acre) MU 4A: Meets target (911 lb/acre) MU 4B: Meets target (1,272 lb/acre) MU 4C: N/A MU 5: N/A
Residual dry matter ¹⁴	Ramona Grasslands	MU 1A: Above target (2,478 lb/acre) MU 2A: Above target (2,186 lb/acre) MU 2B: Above target (1,400 lb/acre) MU 3A: Above target (1,627 lb/acre) MU 3B: Above target (1,933 lb/acre) MU 3C: Above target (2,456 lb/acre) MU 3D: Above target (2,522 lb/acre) MU 3E: Above target (5,608 lb/acre) MU 4A: Meets target (911 lb/acre) MU 4B: Meets target (1,272 lb/acre) MU 4C: N/A MU 5: N/A

NOTES: SKR = Stephens' kangaroo rat. MU = Management Unit. N/A = not applicable.

- ¹ Parish's brittlescale Management and Monitoring Strategic Plan (MSP) rare plant monitoring results are provided by the Conservation Biology Institute (CBI).
- ² Tijuana River Valley Regional Park 1 = MSP Occurrence ID COOR7_1TIRI009. Tijuana River Valley Regional Park 2 = MSP Occurrence ID COOR7_SMGU006.
- ³ Sycamore Canyon/Goodan Ranch 1 = MSP Occurrence ID MOLIV_4SYCA006. Sycamore Canyon/Goodan Ranch 2 = MSP Occurrence ID MOLIV_4SYCA002. Sycamore Canyon/Goodan Ranch 3 = MSP Occurrence ID MOLIV_4SPCA006.
- ⁴ Harbison's dun skipper monitoring results from Abigail Lyons & Dr. Daniel Marschalek are provided in parentheses.
- ⁵ Arroyo toad monitoring results are provided by USGS.
- ⁶ Tricolored blackbird monitoring results are provided by AECOM.
- ⁷ Burrowing owl monitoring results from the San Diego Zoo Institute for Conservation Research are provided in parentheses.
- ⁸ SKR live-trapping at Ramona Grasslands County Preserve in 2022 occurred only in SKR Management Area 3.
- ⁹ SKR monitoring results from the Riverside County Habitat Conservancy Agency are provided in parentheses.
- ¹⁰ SKR occupancy at Hellhole Canyon County Preserve in fall 2022 was determined as "potentially occupied" based on the positive detection of one SKR in plot 2 in fall 2020 live-trapping surveys, positive kangaroo rat sign during fall 2022 monitoring, the proximity of all three plots (within 150 feet of one another), and no factors that could reasonably be expected to entirely preclude SKR movement between the three plots.
- ¹¹ Transect acoustic monitoring was conducted to provide supplemental information and to document if pallid bat was potentially roosting on-site. Results are provided in parentheses.
- ¹² Transect acoustic monitoring was conducted to provide supplemental information and to document if Townsend's big-eared bat was potentially roosting on-site. Results are provided in parentheses.
- ¹³ Peak forage production values are average peak forage production amounts in pounds per acre for each management unit in spring 2022.
- ¹⁴ Residual dry matter values are average residual dry matter amounts in pounds per acre for each management unit in fall 2022.

**TABLE ES-2
2022 TMP MANAGEMENT RESULTS**

Species	County Preserve	Management
Vernal pools/ Alkali playas	Ramona Grasslands	Management area: 15 pools and 4 alkali playas
San Diego thornmint	Simon	Management area: 0.10 acres within and surrounding plot ACIL_4SIPR026
	Sycamore Canyon/Goodan Ranch	Management area: 0.93 acres within and surrounding plots SYGOACIL01, SYGOACIL02, SYGOACIL04, SYGOACIL05, SYGOACIL07, SYGOACIL08, SYGOACIL 09, SYGOACIL11
San Miguel savory	Boulder Oaks	Management area: 0.27 acres within and surrounding plots BOCLCH01 and BOCLCH02
Otay tarplant	Furby-North	Management area: 0.11 acres within and surrounding plot DECO13_3OMEA026_1
Variegated dudleya	Lusardi Creek	Management area: 0.75 acres within and surrounding plot LCDUVA01
	Sycamore Canyon/Goodan Ranch	Management area: 0.10 acres within and surrounding plots SYGODUVA01 and SYGODUVA02
Least Bell's vireo ¹	Santa Margarita	BHCO trapped: 20 individuals
Stephens' kangaroo rat	Hellhole Canyon	Management area: 4.68 acres within and surrounding the 3 SKR monitoring plots

NOTES: BHCO = brown-headed cowbird. SKR = Stephens' kangaroo rat.

¹ Two BHCO traps were installed at Santa Margarita County Preserve in 2022.

This page is intentionally left blank.

CHAPTER 1

Introduction

1.1 Purpose of the Project

As a participant in the Multiple Species Conservation Program (MSCP) and the adopted South County MSCP Subarea Plan, the County of San Diego (County) is obligated to conduct biological monitoring of habitats and species covered by the MSCP to ensure that the MSCP biological conservation goals and conditions for species coverage are being met. The County Department of Parks and Recreation (DPR) prepared a Targeted Monitoring Plan (TMP) (ESA and ICF 2015) to provide detailed specifications for implementation of monitoring and adaptive management within 10 County-owned and managed conserved lands (open space parks and preserves) (Preserve Group 1) overseen by DPR. The TMP was revised in July 2019 (ESA and ICF 2019a) and subsequently in December 2019, September 2021, December 2021, and December 2022 (ESA and ICF 2019b, ESA and ICF 2021a, ESA and ICF 2021b, and ESA and ICF 2022) to incorporate 10 additional open space parks and preserves (Preserve Group 2). These 10 additional open space parks and preserves include 5 in the South County MSCP Subarea Plan Area and 5 in the draft North County MSCP area. The draft North County MSCP Plan Area preserves are included at this time due to the number of sensitive on-site resources that require their conservation and management. In total, the TMP currently addresses monitoring and adaptive management within 20 open space parks and preserves.

The TMP is an adaptive implementation plan that includes focused goals and objectives for target resources and detailed monitoring protocols and is intended to achieve the management directives for species per the adopted South County MSCP Framework Management Plan (County of San Diego 2001). The regional framework that guides monitoring at the preserve level has been refined over time and is still evolving through a collaborative effort among U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW) (collectively known as the Wildlife Agencies), MSCP jurisdictions, and outside scientific experts. It is understood by all stakeholders (e.g., state and federal resource agencies, municipal and county agencies, land managers) that adaptive management is an iterative process in which lessons are learned and used to further refine priorities, goals, objectives, and monitoring methods.

The TMP addresses monitoring and management within the following 20 open space parks and preserves: Louis A. Stelzer County Park, El Monte and Tijuana River Valley Regional Parks, and Barnett Ranch, Boulder Oaks, Del Dios Highlands, El Capitan, Furby-North, Hellhole Canyon, Lakeside Linkage, Lawrence and Barbara Daley, Lusardi Creek, Mount Olympus, Oakoasis, Ramona Grasslands, Santa Margarita, Simon, Stoneridge, Sycamore Canyon/Goodan Ranch, and Wilderness Gardens County Preserves.

In 2022 resource-specific monitoring and management was conducted in 13 parks and preserves identified in the TMP: Tijuana River Valley Regional Park, and Boulder Oaks, El Capitan, Furby-North, Hellhole Canyon, Lakeside Linkage, Lusardi Creek, Mount Olympus, Ramona Grasslands, Santa Margarita, Simon, Sycamore Canyon/Goodan Ranch, and Wilderness Gardens County Preserves.

Monitoring was conducted for the following 13 MSCP or draft North County MSCP-covered species and habitats in 2022:

- San Diego fairy shrimp (*Branchinecta sandiegonensis*)
 - MSCP-covered and draft North County MSCP proposed covered
- San Diego thornmint (*Acanthomintha ilicifolia*)
 - MSCP-covered and draft North County MSCP proposed covered
- Orcutt's bird's-beak (*Dicranostegia orcuttiana*)
 - MSCP-covered
- Otay tarplant (*Deinandra conjugens*)
 - MSCP-covered
- Willow monardella (*Monardella viminea*)
 - MSCP-covered
- Harbison's dun skipper (*Euphyes vestris harbisoni*)
 - Draft North County MSCP proposed covered
- Burrowing owl (*Athene cunicularia*)
 - MSCP-covered and draft North County MSCP proposed covered
- San Diego cactus wren (*Campylorhynchus brunneicapillus sandiegensis*)
 - MSCP-covered and draft North County MSCP proposed covered
- Northern harrier (*Circus hudsonius*)
 - MSCP-covered
- Least Bell's vireo (*Vireo bellii pusillus*)
 - MSCP-covered and draft North County MSCP proposed covered
- Stephens' kangaroo rat (*Dipodomys stephensi*)
 - Draft North County MSCP proposed covered
- Pallid bat (*Antrozous pallidus*)
 - Draft North County MSCP proposed covered
- Townsend's big-eared bat (*Corynorhinus townsendii*)
 - Draft North County MSCP proposed covered

Adaptive management was conducted for the following seven MSCP or draft North County MSCP-covered species and habitats in 2022:

- Vernal pool/alkali playa habitat
 - MSCP-covered habitat
- San Diego thornmint
 - MSCP-covered and draft North County MSCP proposed covered
- Otay tarplant
 - MSCP-covered
- San Miguel savory (*Clinopodium chandleri*)
 - MSCP-covered
- Variegated dudleya (*Dudleya variegata*)
 - MSCP-covered
- Least Bell's vireo
 - MSCP-covered and draft North County MSCP proposed covered
- Stephens' kangaroo rat
 - Draft North County MSCP proposed covered

The goal of resource-specific monitoring is to collect high-quality data to inform trends in occurrences and populations, evaluate the current habitat conditions, assess threats, and provide adaptive management recommendations to ensure that the conservation goals of the MSCP and draft North County MSCP are being met. The goal of focused adaptive management is to enhance suitable habitat and support the persistence of MSCP or draft North County MSCP-covered species and habitats.

1.2 Multiple Species Conservation Program Context

The MSCP is a comprehensive habitat conservation planning document and one of several subregional habitat conservation programs in San Diego County that contribute to the preservation of regional biodiversity. Agencies participating in the MSCP include the County, other local jurisdictions within San Diego County (e.g., City of San Diego, City of Chula Vista, etc.), and the Wildlife Agencies. The County and other local jurisdictions implement the MSCP through subarea plans, which describe specific implementing mechanisms for the MSCP. The MSCP Plan and subarea plans serve as a multiple species Habitat Conservation Plan (HCP) pursuant to Section 10(a)(1)(B) of the federal Endangered Species Act (FESA) and a Natural Community Conservation Plan (NCCP) pursuant to the California NCCP Act of 1991 (amended in 2001) and the state Endangered Species Act.

The South County MSCP Subarea Plan was adopted in October 1997 and covers 23 vegetation communities and 85 species (County of San Diego 1997). The County is preparing the North

County MSCP for the northwestern unincorporated areas of the county and the East County MSCP for the eastern unincorporated areas of the county.

Species-specific management and monitoring requirements for the MSCP are summarized in Table 3-5 of the MSCP Plan. In addition, the assurances and obligations to implement the South County MSCP Subarea Plan have been established in the Implementing Agreement (County of San Diego 1998), which was signed by the County and the Wildlife Agencies.

CHAPTER 2

Study Area Description

2.1 Overview

During the 2022 reporting period, Environmental Science Associates (ESA) performed resource-specific monitoring and management in the following 13 parks and preserves identified in the TMP: Tijuana River Valley Regional Park and Boulder Oaks, El Capitan, Furby-North, Hellhole Canyon, Lakeside Linkage, Lusardi Creek, Mount Olympus, Ramona Grasslands, Santa Margarita, Simon, Sycamore Canyon/Goodan Ranch, and Wilderness Gardens County Preserves (**Figure 1**).

Boulder Oaks, Furby-North, Lakeside Linkage, Lusardi Creek, and Sycamore Canyon/Goodan Ranch County Preserves and Tijuana River Valley Regional Park are located entirely within the South County MSCP and are monitored and managed in accordance with the Implementing Agreement (County of San Diego 1998). Ramona Grasslands County Preserve is located within the MSCP and draft North County MSCP. Hellhole Canyon, Simon, Mount Olympus, and Wilderness Gardens County Preserves are located completely within the draft North County MSCP. These preserve areas will be monitored and managed in accordance with the draft North County MSCP upon adoption, and are included in the TMP at this time due to the number of sensitive on-site resources that require their conservation and management.

2.2 Project Location

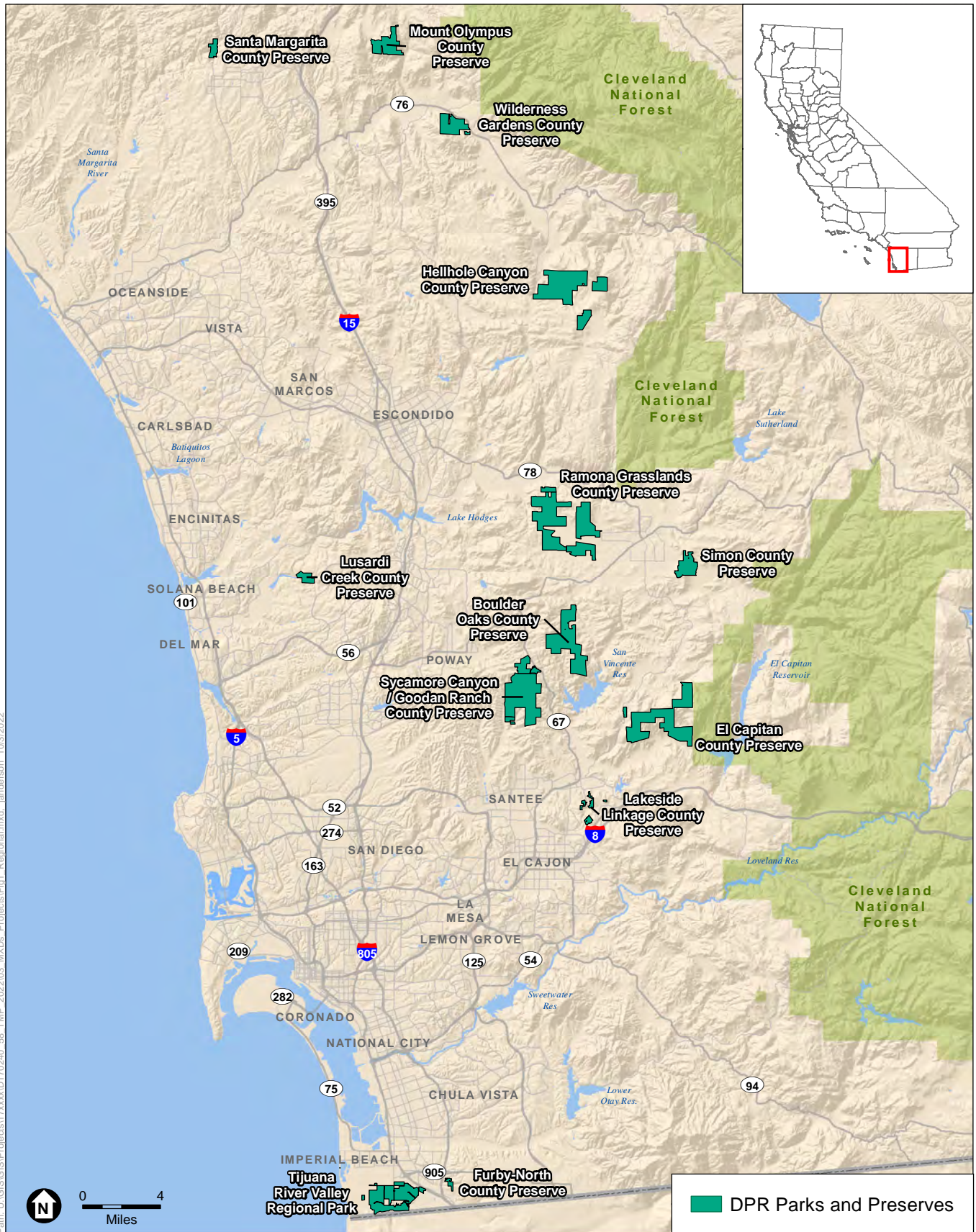
Descriptions of the 13 park and preserve locations monitored and managed in 2022 are provided below.

Boulder Oaks County Preserve

Boulder Oaks County Preserve is an approximately 2,016-acre open space preserve. It is located south of the unincorporated township of Ramona, between State Route (SR) 67 and Mussey Grade Road, in central San Diego County. It is located just north of the San Vicente Reservoir, extending east from Iron Mountain and north of Fosters Canyon, and is bisected by Foster Truck Trail.

El Capitan County Preserve

El Capitan County Preserve is an approximately 2,611-acre open space preserve located within the western hills of El Cajon Mountain, northeast of Lakeside, an unincorporated community of San Diego County. It is located at 13775 Blue Sky Ranch Road, Lakeside, north of the San Diego River, west of El Capitan Reservoir, and east of San Vicente Reservoir, within the upper San Diego River Watershed.



SOURCE: ESRI; SanGIS, 2021.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 1
Project Location

Furby-North County Preserve

Furby-North County Preserve is an approximately 79-acre open space preserve located in the southern portion of the City of San Diego MSCP Subarea Plan, just south of the Otay River Valley and directly west of Pacific Gateway Park, west of the Brown Field Municipal Airport. It is located near the U.S.–Mexico border in Otay Mesa, directly south of SR 905 and east of Interstate 805.

Hellhole Canyon County Preserve

Hellhole Canyon County Preserve is an approximately 2,578-acre open space preserve located northeast of Escondido within Valley Center, an unincorporated community of San Diego County. This acreage consists of the 2,025-acre contiguous Preserve, as well as five non-contiguous additions, totaling 553 acres, referred to as Addition 1, Addition 2, Addition 3, Chabad, and Sierra Verde. It is located in northeastern San Diego County in the Peninsular Geomorphic Range and consists of two main mountains, Rodriguez Mountain and an unnamed mountain, as well as Hell Creek.

Lakeside Linkage County Preserve

Lakeside Linkage County Preserve is an approximately 209-acre open space preserve composed of four non-contiguous properties: (1) western property, 46 acres located west of Los Coches Road between Calle Lucia Terrace on the south and a private drive south of Rock Crest Lane on the north; (2) central property, 77 acres located east of Los Coches Road between Ha Hana Road on the south and extending slightly north of Casa Vista Road on the north; (3) eastern property, 11 acres located approximately one block northwest of the junction of Lakeview and East Lakeview Roads; and (4) southwest property, 75 acres located directly south of the western property. The Preserve is located along both sides of Los Coches Road between SR 67 and Interstate 8 within Lakeside, Lakeview, and Winter Gardens, which are unincorporated communities of San Diego County.

Lusardi Creek County Preserve

Lusardi Creek County Preserve is an approximately 194.5-acre open space preserve located along the northern boundary of the city of San Diego, slightly southeast of Rancho Santa Fe, an unincorporated community of San Diego County. It is located in western San Diego County in the Lusardi Creek Valley, just north of San Dieguito Road, west of Del Sur and South of Artesian Road, within the San Dieguito River Watershed.

Mount Olympus County Preserve

Mount Olympus County Preserve is an approximately 801-acre open space preserve comprising two non-contiguous parcels. It is located south of Temecula, just east of Rainbow, an unincorporated community of San Diego County. It is located north of SR 76, south of SR 79, east of Interstate 15, and west of the Cleveland National Forest.

Ramona Grasslands County Preserve

Ramona Grasslands County Preserve is an approximately 3,637-acre open space preserve comprising 56 near contiguous parcels. The Preserve is located west of Ramona, an

unincorporated community of San Diego County. It is located in west-central San Diego County in the western portion of Santa Maria Valley within the San Dieguito Watershed.

Santa Margarita County Preserve

Santa Margarita County Preserve is an approximately 211-acre open space preserve located in northern San Diego County, west of Interstate 15 and north of SR 76. The Preserve is located just east of the northeastern portion of Camp Pendleton Marine Corps Base, and is directly west of Sandia Creek Drive and the southern portion of the Preserve is bisected by De Luz Road.

Simon County Preserve

Simon County Preserve is an approximately 617-acre open space preserve located southeast of the city of San Diego and northeast of the city of Poway, within Ramona, an unincorporated community of San Diego County. It is located within the San Dieguito Watershed and the San Diego River Watershed.

Sycamore Canyon/Goodan Ranch County Preserve

Sycamore Canyon/Goodan Ranch County Preserve is an approximately 2,693-acre open space preserve located just east of Marine Corps Air Station (MCAS) Miramar and approximately 2 miles north of Santee within an unincorporated area of San Diego County. It is located in the coastal foothills of the Peninsular Ranges in south-central San Diego County within the Peñasquitos and San Diego Watersheds.

Tijuana River Valley Regional Park

Tijuana River Valley Regional Park is an approximately 1,800-acre open space preserve located in the southern portion of the City of San Diego MSCP Subarea Plan, within the southwestern portion of San Diego County. It is bounded by Sunset Avenue to the north, the U.S.–Mexico Border to the south, Border Field State Park and the Tijuana River National Estuarine Research Preserve to the west, and Dairy Mart Road and the San Ysidro community to the east.

Wilderness Gardens County Preserve

Wilderness Gardens County Preserve is an approximately 750-acre open space preserve comprising six contiguous parcels and one separate parcel. It is located at 14209 Highway 76, Pala, an unincorporated community of San Diego County. It is immediately south of SR 76/Pala Road, between Pauma Ridge Road and Pala Mission Road, within northwestern San Diego County in the San Luis Rey River Valley adjacent to Pala Mountain.

CHAPTER 3

Methods

3.1 Overview

Specific monitoring and management methods are described below. Areas monitored and/or managed are depicted in figures provided in Chapter 4, *Results and Discussion*. All data was collected using the ArcGIS Collector mobile application (Collector); data sheets for all surveys can be found in referenced resource-specific appendices in Chapter 4. The final report and collected data will be submitted to the San Diego Management and Monitoring Program (SDMMP), consistent with the reporting requirements in the TMP (ESA and ICF 2022).

3.2 Wet-Season San Diego Fairy Shrimp

Blackhawk Environmental, Inc. (Blackhawk) USFWS-permitted fairy shrimp biologist Kris Alberts (TE039640-5) sent a survey notification via email to USFWS on February 23, 2022, stating the intent to survey at the predetermined subsample of 19 vernal pools and 1 alkali playa (20 study locations) within the Ramona Airport mitigation, Cagney, Oak Country, and Cumming Ranch vernal pools. Following this notification, inundation surveys were conducted within 24 hours of significant rain events to document which study locations contained 3 centimeters or more of water following the rain events. The inundation surveys were conducted prior to conducting wet-season surveys. ESA and Blackhawk biologists conducted three modified wet-season protocol fairy shrimp surveys within inundated study locations of the Ramona Grasslands County Preserve in accordance with the USFWS Pacific Southwest Region Survey Guidelines for the Listed Large Branchiopods (USFWS 2017) (**Table 1**). Any study locations with 3 centimeters or more of water during the inundation surveys were sampled approximately 1 week later and/or until the study locations dried up; any study locations found dry during the inundation surveys were not sampled during the wet-season surveys.

TABLE 1
SAN DIEGO FAIRY SHRIMP SURVEY SUMMARY

2022 Monitoring Date	Survey Number	Survey Times	Weather Conditions	Names of Biologists
February 24	Inundation Survey	NA	NA	Hayley Milner*
March 5	1	0720–1715	49°F–62°F calm winds, mostly sunny	Kris Alberts,* Brenda McMillan
March 6	Inundation Survey	NA	NA	Katie Quint*
March 14	2	0715–1400	48°F–78°F calm winds, clear	Kris Alberts,* Brenda McMillan
March 30	Inundation Survey	NA	NA	Hayley Milner*
April 5	3	0900–1020	65°F–73°F calm winds, clear	Kris Alberts,* Mary Cozy

NOTE:
* Blackhawk Environmental, Inc. staff.

3.3 Vernal Pool and Alkali Playa Invasive Non-Native Plant Management

The control of invasive non-native plant species is a primary concern for vernal pool and alkali playa habitat. The TMP recommends invasive non-native plant cover be maintained to less than 20 percent (ESA and ICF 2022). In response to 2021 TMP monitoring results and adaptive management recommendations (ESA 2022b), focused management was conducted for 19 vernal pool/alkali playa features within Ramona Grasslands County Preserve in 2022.

Habitat West conducted focused invasive non-native plant management for vernal pools and alkali playas within Ramona Grasslands County Preserve on July 11–14, 2022. Management was conducted at 16 of the 20 regularly monitored vernal pool/alkali playa features (p13, p14, p7, e56, e58, e61, e82, e62, e53, e77, e52, e48, e45, ev3, e59, and raap17) prioritized for management (ESA 2022b), and three additional alkali playas that are not currently being monitored or managed (raap4, raap6, and raap14) but supported Parish’s brittle scale (*Atriplex parishii*) in 2021, for a total of 19 vernal pool/alkali playa features.

Invasive non-native plant management was conducted after the ground was completely dry and native plants had generally senesced. ESA biologist Brenda McMillan met Habitat West staff on July 11, 2022, to orient the staff and flag sensitive native plant species to avoid. Management consisted of line trimming standing invasive non-native plant biomass down to the ground and using handheld blowers to gently blow the biomass out of the vernal pool/alkali playa feature. In areas where native plant biomass was present (e.g., woolly marbles [*Psilocarphus brevissimus*]), line trimming was performed up to 2 inches above ground. The biomass was then manually collected, bagged, and properly disposed of at an approved off-site facility. Herbicide was not used within vernal pool basins or within 10 feet of basin margins.

3.4 Rare Plant Monitoring

ESA biologists and volunteers conducted resource-specific monitoring in 2022 for four of the eight TMP rare plant species. Rare plant monitoring followed the most current Management and Monitoring Strategic Plan (MSP) Rare Plant Monitoring Protocol prepared by SDMMP. Additional data was collected for willow monardella at Sycamore Canyon/Goodan Ranch County Preserve, as required by the TMP. Reconnaissance surveys for San Diego thornmint were conducted at El Capitan County Preserve and Ramona Grasslands County Preserve, as described by the TMP (ESA and ICF 2022). Incidental observations of MSCP or other special-status species were recorded. Monitoring details, including species, dates, number of monitoring plots, preserve name, and field personnel, are listed in **Table 2**.

TABLE 2
MSP RARE PLANT MONITORING SURVEY SUMMARY

Species	Plot Establishment Date	2022 Monitoring Date	# of Permanent Monitoring Plots	County Preserve	Names of Biologists (and volunteers) ^a
San Diego thornmint	April 26, 2016	April 12	1	Simon	Douglas Gordon-Blackwood, Sonya Vargas
San Diego thornmint	April 22, May 4–5, 2016; and May 4, 2017	April 1, 6–7, 11, and 15	11	Sycamore Canyon/Goodan Ranch	Adrienne Lee, Sonya Vargas, Rachel Le, Amanda French, Pablo Corcoran
San Diego thornmint	N/A	April 1 and April 4–5 ^b	N/A	El Capitan	Brenda McMillan, Amanda French
San Diego thornmint	N/A	May 4 ^b	N/A	Ramona Grasslands	Adrienne Lee
Orcutt's bird's-beak	June 29, 2016; and June 5, 2017	June 1 and June 6	2	Tijuana River Valley Regional Park	Brenda McMillan, Jack Quinzon, Pablo Corcoran
Otay tarplant	June 29, 2016	May 13 and May 23	1	Furby-North	Brenda McMillan, Karla Alcaraz, Sonya Vargas
Willow monardella	July 7, 2015; June 22, 2016; June 9, 2021	June 7	3	Sycamore Canyon/Goodan Ranch	Adrienne Lee, Karla Alcaraz, (Robert Laudy, Maureen Abare-Laudy)

NOTES: N/A = not applicable

^a Names in parentheses are of volunteers from the Friends of Goodan Ranch and Sycamore Canyon Open Space who participated and were trained during the survey.

^b This monitoring date was to conduct reconnaissance surveys within the Preserve to determine if San Diego thornmint is present and extant. No monitoring plots have been established.

Established permanent monitoring plots were monitored for each species. The history of monitoring plot establishment is as follows:

- **San Diego thornmint.** One permanent monitoring plot was established for San Diego thornmint within Simon County Preserve by the Conservation Biology Institute (CBI) in 2016. Ten permanent monitoring plots were established for San Diego thornmint within Sycamore Canyon/Goodan Ranch County Preserve by ICF International, Inc. (ICF) in 2016, and an eleventh permanent monitoring plot was added by ICF in 2017.

- **Orcutt’s bird’s-beak.** One permanent monitoring plot was established for Orcutt’s bird’s-beak within Tijuana River Valley Regional Park by CBI in 2016, and a second permanent monitoring plot was added by CBI in 2017.
- **Otay tarplant.** One permanent monitoring plot was established for Otay tarplant within Furby-North County Preserve by CBI in 2016.
- **Willow monardella.** One permanent monitoring plot was established for willow monardella within Sycamore Canyon/Goodan Ranch County Preserve by ICF in 2015, a second permanent monitoring plot was established by CBI in 2016, and a third permanent monitoring plot was established by ESA in 2021.

Monitoring of special-status plant occurrence status within the permanent monitoring plots followed the MSP 2022 Rare Plant Monitoring Protocol (SDMMP 2022), which included the following steps:

- The perimeter of the current extent of the occurrence was mapped with sub-meter-accuracy Global Positioning System (GPS) and Collector, and the number of plants was estimated or counted and recorded within the current mapped extent. If the previously mapped current extent was still an accurate representation of the 2022 extent of the occurrence, no remapping occurred.
- Photo monitoring was conducted by taking a picture from the previously established permanent photo point facing toward the center point of the plot. The photo followed the angle and direction of the previous year’s photograph, when applicable.
- A habitat assessment was conducted within the permanent monitoring plot using the MSP – 2022 Rare Plant Occurrence Monitoring Form to identify and record number of target plants per plot; phenological stages of plants; evidence of herbivory, disease, and stunted growth; and associated species.
- A threats assessment was conducted within the current maximum extent of the occurrence and adjacent 10-meter buffer, and management recommendations were provided for the site using the MSP – 2022 Rare Plant Occurrence Monitoring Form.

Additional data specified in the TMP was collected for one rare plant species: willow monardella.

- **Willow monardella.** The height, width, and length in meters of each willow monardella cluster within the monitoring plot was recorded. A cluster is defined as plants within 0.5 meters of each other (Rebman and Dossey 2006). The plants were then classified as a seedling, juvenile, mature, or adult based on the following categories:
 - Seedling: lacks multiple stems and is less than 4 inches tall
 - Juvenile: lacks multiple stems and is more than 4 inches tall
 - Mature: more than 4 inches tall and has less than 20 stems
 - Adult: more than 4 inches tall and has more than 20 stems

Reconnaissance surveys were conducted for San Diego thornmint at El Capitan County Preserve to determine presence/absence of the species and conduct a threats assessment. Historical population data, including California Natural Diversity Database (CNDDDB) occurrence data and

SanBIOS species data, soils data, and input from species experts such as SDMMMP, Jessie Vinje, and on-site rangers were reviewed prior to conducting reconnaissance surveys. Reconnaissance surveys were conducted during the blooming season of San Diego thornmint and a habitat and threats assessment was completed concurrently. A reconnaissance survey was also conducted for San Diego thornmint at Ramona Grasslands County Preserve to determine presence/absence of the species at the request of DPR.

3.5 San Diego Thornmint Focused Management

The control of invasive non-native plant species is a primary concern for San Diego thornmint. The TMP recommends invasive non-native purple false brome (*Brachypodium distachyon*) cover be maintained to less than 10 percent and all other non-native plant cover be kept to less than 20 percent (ESA and ICF 2022). Focused management was conducted in response to 2021 TMP monitoring results and adaptive management recommendations for Simon County Preserve and Sycamore Canyon/Goodan Ranch County Preserve (ESA 2022b).

Habitat West conducted focused management for San Diego thornmint at Simon County Preserve on May 23 and 31, 2022, within the one established monitoring plot recommended for management (ESA 2022b). ESA biologist Adrienne Lee met Habitat West staff on May 23, 2022, to orient the staff, identify and discuss San Diego thornmint avoidance strategies, and provide management recommendations. Management consisted of carefully hand-pulling target invasive non-native species, predominantly brome grasses (*Bromus* spp.) and tocalote (*Centaurea melitensis*), within the population's maximum extent and adjacent habitat, for a total of an approximately 0.10-acre management area.

Habitat West conducted focused management for San Diego thornmint at Sycamore Canyon/Goodan Ranch County Preserve on June 14–16, June 28–July 1, and July 5–6, 2022 within 8 of the 11 established monitoring plots prioritized for management (ESA 2022b). ESA biologist Sonya Vargas met Habitat West staff on June 14, 2022, to orient staff, identify and discuss San Diego thornmint avoidance strategies, and provide management recommendations. ESA biologists Sonya Vargas, Adrienne Lee, and Mark Doderer conducted follow-up visits on June 28 and July 6, 2022, to provide further direction and document maintenance work progress. Management consisted of carefully hand-pulling target invasive non-native species, predominantly purple false brome, within the population maximum extents with a focus on areas where San Diego thornmint populations were previously detected, for a total of an approximately 0.93-acre management area. Once hand-pulling was completed, Habitat West staff used line trimmers to dethatch remaining non-native species surrounding San Diego thornmint occurrences within approximately 12-meter radius circles around the established monitoring plot center points. All biomass was manually collected, bagged, and properly disposed of at an approved off-site facility.

3.6 Otay Tarplant Focused Management

The control of invasive non-native plant species is a primary concern for Otay tarplant management. The TMP recommends overall invasive non-native plant cover be kept to

less than 20 percent and thatch to be removed (ESA and ICF 2022). Focused management was conducted in response to 2021 TMP monitoring results and adaptive management recommendations for Furby-North County Preserve (ESA 2022b).

Habitat West conducted focused management for Otay tarplant at the Furby-North County Preserve within an approximately 0.11-acre management area on July 15, 2022. ESA biologists Brenda McMillan and Pablo Corcoran met Habitat West staff on-site to orient staff, identify and discuss Otay tarplant avoidance strategies, and provide management recommendations. Management consisted of carefully hand-pulling invasive non-native grasses directly adjacent to Otay tarplant individuals. Once hand-pulling was completed, Habitat West staff removed thatch and invasive non-native grasses with line trimmers to 2 inches from the ground. The biomass was manually collected, bagged, and properly disposed of at an approved off-site facility.

3.7 San Miguel Savory Focused Management

The control of invasive non-native plant species is a primary concern for San Miguel savory management. The TMP recommends overall invasive non-native plant cover be kept to less than 20 percent cover (ESA and ICF 2022). Focused management was conducted in response to 2021 TMP monitoring results and adaptive management recommendations for Boulder Oaks County Preserve (ESA 2022b).

Habitat West conducted focused management for San Miguel savory at the Boulder Oaks County Preserve within an approximately 0.27-acre management area on May 26, 2022. ESA biologist Sonya Vargas met the Habitat West staff on-site to orient staff, identify and discuss San Miguel savory avoidance strategies, and provide management recommendations. Target invasive non-native plants included perennial veldtgrass (*Ehrharta calycina*) and annual fescue (*Festuca myuros*). Non-native plants within 12 inches of the San Miguel savory plants and the management area were carefully removed by hand. The biomass was manually collected, bagged, and properly disposed of at an approved off-site facility.

3.8 Variegated Dudleya Focused Management

The control of invasive non-native plant species is a primary concern for variegated dudleya management. The TMP recommends maintaining less than 20 percent ground cover of invasive non-native plant species in the vicinity of the variegated dudleya population (ESA and ICF 2022). Focused management was conducted in response to 2021 TMP monitoring results and adaptive management recommendations for Lusardi Creek County Preserve and Sycamore Canyon/Goodan Ranch County Preserve (ESA 2022b).

Habitat West conducted focused management for variegated dudleya at Lusardi Creek County Preserve within an approximately 0.75-acre management area on May 23, 2022, and June 7, 2022. ESA biologist Sonya Vargas met the Habitat West staff on May 23, 2022, to orient staff, identify and discuss variegated dudleya avoidance strategies, and provide management recommendations. MSP rare plant monitoring was not conducted this year; however, variegated dudleya was not detected prior to management actions; therefore, no plants were flagged prior to

maintenance. Invasive non-native plant species within the previously installed herbivory fencing (three enclosed areas covering an approximately 0.19-acre area) were carefully removed by hand to reduce the amount of standing biomass from invasive non-native plants and encourage native plant recruitment. Per the TMP, invasive non-native plants within 18 inches of the variegated dudleya should be carefully pulled by hand; however, no variegated dudleya plants were detected in 2022. Invasive non-native plants within the management area, but outside of the herbivory fencing, were trimmed with a mechanical weed trimmer to 1–2 inches from the ground. Target invasive non-native plants included purple false brome and other non-native grasses. All biomass was manually collected, bagged, and properly disposed of at an approved off-site facility. No herbicide was applied during maintenance. Previously installed herbivory fencing and previously installed fence posts (intended to block the unauthorized ATV trail detected on-site) were observed to be in good functioning condition.

Habitat West conducted focused management for variegated dudleya at Sycamore Canyon/Goodan Ranch County Preserve within an approximately 0.10-acre management area on May 24, 2022, and July 7, 2022. ESA biologist Sonya Vargas met the Habitat West staff on May 24, 2022, to orient staff, identify and discuss variegated dudleya avoidance strategies, and provide management recommendations. ESA biologists Mark Doderio and Karla Alcaraz met the Habitat West staff on July 7, 2022, to provide further direction and document maintenance work progress. MSP rare plant monitoring was not conducted this year; however, variegated dudleya was detected within both monitoring plots (SYGODUVA01 and SYGODUVA02). Variegated dudleya plants were flagged in key locations to assist with identification and avoidance prior to management actions. Management consisted of carefully hand-pulling target invasive non-native species, predominantly purple false brome and tocalote, within the population maximum extents with a focus on areas where variegated dudleya populations were previously detected. Once hand-pulling was completed, Habitat West staff used line trimmers to cut and remove remaining invasive non-native species surrounding variegated dudleya occurrences within approximately 12-meter radius circles around both established plot center points. Additionally, invasive non-native grass patches directly upslope of monitoring plot SYGODUVA02 were cut and removed to reduce a potential invasive non-native grass seed source. All cut biomass was manually collected, bagged, and properly disposed of at an approved off-site facility.

3.9 Harbison's Dun Skipper Adult Flight Surveys

ESA and Blackhawk biologists conducted two adult surveys for Harbison's dun skipper (HDS) during the 2022 flight season (between May 15 through June 30) (**Table 3**). Surveys were conducted at the two locations previously surveyed in 2021. Surveys focused on immediate areas surrounding San Diego sedge plant patches and worked outwards to nearby potential nectar source. Surveys were conducted in appropriate weather (sunny or partly sunny, 20–35°C, and modest wind speeds of less than 15 mph) (Marschalek and Deutschman 2015). Potential nectar sources and all butterfly species observed during surveys were recorded. A habitat and threats assessment was conducted concurrently with the first adult flight survey, following the *Rare Butterfly Management and Conservation Planning* report (Marschalek and Deutschman 2016) to assess tree species, composition of tree canopy, percent of canopy that is thinning, percent of dead trees, and percent of trees with fire damage; general health conditions of San Diego sedge

were also documented (if leaves were green, green with brown tips, or mostly brown); presence of flowing and standing water; and threats to habitat such as drought, climate change, human intrusion, pesticide use, altered hydrology, altered fire regime, invasive non-native plant species and competition from native cattail (*Typha* spp.), and tree pests such as gold-spotted oak borer (*Agrilus auroguttatus*) and shothole borer (*Euwallacea* sp.).

TABLE 3
HARBISON'S DUN SKIPPER SURVEY SUMMARY

Survey Type	2022 Survey Date	Survey Times	Start Weather Conditions	End Weather Conditions	Names of Biologists
Adult Flight Surveys	May 27	0930–1240	Temp: 62°F 20% Cloud Cover Wind Speed: 2 mph	Temp: 73°F 10% Cloud Cover Wind Speed: 2 mph	Kris Alberts,* Pablo Corcoran
	June 17	0950–1240	Temp: 73°F 0% Cloud Cover Wind Speed: 2 mph	Temp: 81°F 0% Cloud Cover Wind Speed: 2 mph	Kris Alberts,* Amanda French

NOTE:

* Blackhawk Environmental, Inc. staff.

3.10 Burrowing Owl

ESA biologists conducted presence/absence monitoring within the nine previously determined monitoring polygons within Ramona Grasslands County Preserve for breeding burrowing owls. A habitat and threats assessment was conducted concurrently with the first survey, with a focus on the presence of California ground squirrels (*Otospermophilus beecheyi*), California ground squirrel burrows, or rock outcrops that provide natural coverage for small mammals and/or burrowing owls, and threats assessment for the species. Since neither SDMMP nor other regional entities have developed a species-specific threats assessment for the burrowing owl, the threats assessment form from Section VI of the 2020 Rare Plant Occurrence Monitoring Form and the 2020 Management Needs and Notes Form was completed (SDMMP 2020). The threats assessment survey included an evaluation of the vegetation as it pertains to the needs of the burrowing owl (e.g., native or non-native vegetation, vegetation height). Survey dates, weather conditions, and field personnel names are provided in **Table 4**. Four presence/absence surveys of all nine polygons were conducted approximately 3 weeks or more apart during the burrowing owl breeding season (February 1–August 31) and during the recommended timeframe outlined in the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). The first survey was conducted between February 15 and April 15, when owls may first appear at their breeding burrows. The following two surveys were conducted between April 15 and July 15, the peak breeding period for burrowing owl in California. The final survey was conducted after June 15, as recommended, to confirm nesting success; this is also when owls will most likely remain above ground and are more detectable (Table 4).

TABLE 4
BURROWING OWL SURVEY SUMMARY

2022 Survey Date	Survey Number	Survey Times	Start Weather Conditions	End Weather Conditions	Names of Biologists
March 23	1a	0627–1246	Temp: 48°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Temp: 80°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 10 mph; Wind Direction: NE	Brennan Mulrooney, Rachel Le, Jack Quinzon
March 24	1b	0639–1239	Temp: 44°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Temp: 82°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 6 mph; Wind Direction: NE	Brennan Mulrooney, Rachel Le, Mary Cozy
April 21	2a	0625–1209	Temp: 38°F, 30% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Temp: 69°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 3 mph; Wind Direction: W	Brennan Mulrooney, Rachel Le, Pablo Corcoran
April 21	2b	0608–1147	Temp: 49°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Temp: 85°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 4 mph; Wind Direction: NE	Brennan Mulrooney, Pablo Corcoran
May 26	3a	0515–1046	Temp: 51°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Temp: 71°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 7 mph; Wind Direction: W	Brennan Mulrooney, Karla Alcaraz, Pablo Corcoran
May 27	3b	0522–1202	Temp: 54°F, 100% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Temp: 67°F, 10% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 6 mph; Wind Direction: SW	Brennan Mulrooney, Karla Alcaraz, Jack Quinzon
June 16	4a	0533–1011	Temp: 58°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Temp: 75°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 4 mph; Wind Direction: W	Brennan Mulrooney, Karla Alcaraz, Pablo Corcoran
June 17	4b	0529–1051	Temp: 55°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 4 mph; Wind Direction: N/A	Temp: 77°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 6 mph; Wind Direction: W	Brennan Mulrooney, Karla Alcaraz, Pablo Corcoran

Surveys were conducted during the morning hours and under weather conditions conducive for burrowing owl surveys (e.g., no heavy fog, high winds, or precipitation). ESA biologists scanned the monitoring polygons with binoculars before walking transects (no more than 100 feet apart) through the polygon to provide 100 percent coverage. Potential burrows or rock crevices were inspected for burrowing owl sign (e.g., tracks, white wash, pellets). Locations of MSCP or other special-status species were recorded on Collector.

3.11 San Diego Cactus Wren

ESA biologists conducted avian point count surveys at the six previously established avian point count stations and nesting bird surveys with a focus on San Diego cactus wren on Lakeside Linkage County Preserve to monitor the status of San Diego cactus wren within the Preserve. In 2008, five avian point count stations were established during baseline biological resources inventory surveys on the Lakeside Linkage County Preserve (ICF 2008). Two San Diego cactus wren habitat restoration sites were installed in the central portion of the Preserve in 2011. An additional two avian point count stations, R1 and R2, were established within or near the restoration sites to determine the effectiveness of the restoration for San Diego cactus wren. In 2018, avian point count station 3 was removed to reduce redundancy in avian species/numbers due to its proximity to avian point count stations R1 and 4. The remaining six avian point count stations established within the Preserve are used to monitor the status of San Diego cactus wren and their use of the habitat restoration sites.

A total of four avian point count surveys were conducted during 2022 at the six point count stations. Survey dates, times, weather conditions, and field personnel names are provided in **Table 5**. Avian point count surveys followed the methodology detailed in Ralph et al. 1995. Each point count survey was 10 minutes in duration at each point count station. Surveyors recorded each species observed or detected (auditory), as well as the total number of individuals of that species. Data such as flyover, breeding behavior, and distance from point count station location were also recorded. Locations of MSCP or other special-status species were recorded on Collector and the Fulcrum mobile application. Avian point count data was recorded on paper and summarized in a final table.

TABLE 5
SAN DIEGO CACTUS WREN SURVEY SUMMARY

2022 Survey Date	Survey Number	Survey Times	Start Weather Conditions	End Weather Conditions	Names of Biologists
March 16	1	0635–1119	Temp: 47 °F, 100% Cloud Cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0.5 mph; Wind Direction: SE	Temp: 61 °F, 0% Cloud Cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 4 mph; Wind Direction: W	Jaclyn Catino-Davenport, Rachel Le
April 21	2	0618–1036	Temp: 66.5 °F, 40% Cloud Cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 1.6 mph; Wind Direction: N/A	Temp: 72 °F, 100% Cloud Cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 2.2 mph; Wind Direction: W	Jaclyn Catino-Davenport, Jack Quinzon
May 20	3	0620–1038	Temp: 63.9 °F, 100% Cloud Cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 1.3 mph; Wind Direction: S	Temp: 64.8 °F, 100% Cloud Cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 2.2 mph; Wind Direction: SW	Jaclyn Catino-Davenport, Karla Alcaraz
July 1	4	0604–1110	Temp: 70.8 °F, 100% Cloud Cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Temp: 87.5 °F, 0% Cloud Cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 2.1 mph; Wind Direction: N/A	Jaclyn Catino-Davenport, Pablo Corcoran

Immediately following each avian point count survey, cactus restoration areas and other large cactus patches on the Lakeside Linkage County Preserve were inspected for the presence of San Diego cactus wren nests.

ESA biologist Jaclyn Catino-Davenport conducted a San Diego cactus wren habitat and threats assessment monitoring during the last point count survey day. Photo monitoring was also conducted at established photo points within the two restoration areas. Photographs were taken from the same vantage points and during the same time of year as previous photos to document and monitor the progress of the two restoration sites over time.

Since neither SDMMMP nor other regional entities have developed a species-specific threats assessment for the San Diego cactus wren, the threats assessment form from Section VI of the 2020 Rare Plant Occurrence Monitoring Form and the 2020 Management Needs and Notes Form was completed (SDMMMP 2020). The threats assessment survey included an evaluation of the vegetation as it pertains to the needs of the San Diego cactus wren (e.g., native or non-native vegetation, overtopping cactus, low cactus density).

3.12 Northern Harrier

ESA biologists conducted four nesting surveys, once a month for 4 months, within the Tijuana River Valley Regional Park to document northern harrier individuals and breeding behavior. If nest sites were detected, the habitat was characterized and the presence and abundance of prey (i.e., small mammals) were noted. Incidental observations of MSCP or other special-status species were recorded on Collector and the Fulcrum mobile application. Survey dates, weather conditions, and field personnel names are provided in **Table 6**.

TABLE 6
NORTHERN HARRIER SURVEY SUMMARY

2022 Survey Date	Survey Number	Survey Times	Start Weather Conditions	End Weather Conditions	Names of Biologists
March 3	1	0643–1125	Temp: 50.2°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Temp: 68.2°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 5.6 mph; Wind Direction: W	Jaclyn Catino-Davenport, Rachel Le
April 18	2	0618–1056	Temp: 61.9°F, 80% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Temp: 68.1°F, 20% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 4.8 mph; Wind Direction: SW	Jaclyn Catino-Davenport, Rachel Le
May 17	3	0617–1045	Temp: 58°F, 100% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Temp: 63°F, 100% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 10 mph; Wind Direction: SW	Jaclyn Catino-Davenport, Pablo Corcoran
June 29	4	0621–1124	Temp: 66°F, 100% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Temp: 79°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 3 mph; Wind Direction: SW	Brennan Mulrooney, Rachel Le

Surveys were conducted during the morning hours and under weather conditions conducive for raptor surveys (e.g., no heavy fog, high winds, or precipitation). ESA biologists focused on survey areas with low scrub and/or vegetation and previously documented northern harrier usage areas within the Park. ESA biologists scanned these areas with binoculars before walking along trails or dirt access roads to cover as much of the Park as feasible. ESA biologists reviewed the 2021 TMP Annual Report and AECOM’s 2021 northern harrier survey results within the Park to ensure all known northern harrier locations were recorded and documented in 2022 (ESA 2022b, AECOM 2021).

ESA biologists conducted the threats assessment monitoring during the last survey. Since neither SDMMMP nor other regional entities have developed a species-specific threats assessment for the northern harrier, the threats assessment form from Section VI of the 2020 Rare Plant Occurrence Monitoring Form and the 2020 Management Needs and Notes Form was completed (SDMMMP 2020). The threats assessment survey included an evaluation of potential threats to northern harrier nest success and/or prey sources.

3.13 Least Bell’s Vireo

3.13.1 Least Bell’s Vireo Surveys

ESA biologists conducted presence/absence monitoring surveys in April through July to locate vireo territories and determine breeding status of males in the Santa Margarita County Preserve (**Table 7**). Comprehensive surveys were conducted specifically for least Bell’s vireo following modified USFWS Least Bell’s Vireo Survey Guidelines (USFWS 2001). Surveys were conducted by qualified biologists familiar with the vocalization and plumage of adult and juvenile individuals to maximize detection. (Recovery permits pursuant to Section 10(a)(1)(A) of the Endangered Species Act are not required for presence/absence surveys as long as protocol is followed, and vocalization tapes are not used).

TABLE 7
LEAST BELL'S VIREO SURVEY SUMMARY

2022 Survey Date	Time (start/end)	Wind (mph) (start/end)	Temperature (F) (start-end)	Cloud Cover Percentage (start/end)	Names of Biologists
April 14	0612–1005	0/0	38°–67°	0–0	Brennan Mulrooney, Florence Chan
April 28	0605–1005	0/0	58°–60°	100–100	Brennan Mulrooney, Pablo Corcoran
May 13	0605–0957	0/0	47°–69°	0–0	Brennan Mulrooney, Pablo Corcoran
May 24	0606–1004	0–2/0–3	58°–66°	50–0	Florence Chan, Pablo Corcoran
June 7	0612–1044	0–2/0–3	61°–76°	100–0	Florence Chan, Pablo Corcoran
June 21	0600–1030	0/1–3	58°–72°	0–0	Brennan Mulrooney, Pablo Corcoran
July 7	0558–1019	0–2/0–3	61°–75°	100–0	Florence Chan, Jack Quinzon
July 20	0601–1033	0/2–6	64°–80°	50–20	Brennan Mulrooney, Pablo Corcoran

Riparian areas and potential vireo habitat were surveyed eight times (eight survey passes) at Santa Margarita County Preserve between April 10 and July 31, at least 10 days apart to maximize detection. Santa Margarita County Preserve was surveyed in its entirety over 1 day for each survey pass.

In accordance with the USFWS Least Bell's Vireo Survey Guidelines (USFWS 2001), observations of brown-headed cowbirds (*Molothrus ater*) were recorded and GPS locations taken for any individuals detected within vireo territory during each survey, and incidental observations of southwestern willow flycatcher (*Empidonax trillii extimus*) and yellow-billed cuckoo (*Coccyzus americanus*) were recorded.

All vireo detections were recorded and plotted to estimate the location and extent of habitats utilized, and mapped on the appropriate U.S. Geological Survey (USGS) quadrangle map. Data pertaining to vireo status, GPS location, distribution, age, and sex of the bird, leg bands were noted and recorded. Passive nest monitoring was conducted through the presence/absence surveys. Biologists did not approach nests directly. Nest success was inferred by nesting behavior during presence/absence surveys. The results of the survey passes were reviewed and territories assigned for each pair or solitary male. A central point was used to indicate the territory. Any threats detected during surveys were documented.

3.13.2 Brown-Headed Cowbird Trapping

In response to detections of least Bell's vireo nest parasitism incidentally observed within the Santa Margarita County Preserve during 2021 TMP monitoring (ESA 2022b), a brown-headed cowbird (*Molothrus ater*) trapping program was implemented in 2022. TW Biological Services personnel conducted a reconnaissance site visit on March 17, 2022, to determine potential locations for two traps. Traps were installed and assembled on March 27, 2022, along the Santa Margarita River within riparian habitat that provides suitable nesting habitat for least Bell's vireo within the Preserve. Trap 1 was located approximately 0.2 km northwest of the intersection of De Luz Road and Sandia Creek Drive. This trap was placed adjacent to a trail at the north end of the Preserve's staging area. Trap 2 was placed approximately 0.8 km north of the De Luz Road/Sandia Creek Drive intersection a short distance west of the road. Both traps were placed behind brush to obscure view by the public, but in easily accessible locations by vehicle.

TW Biological Services personnel activated traps on April 1, 2022. On activation, the traps were furnished with fresh water, seed, perches, shade, and live decoy cowbirds. The right primary wing feathers of both male and female decoy cowbirds were clipped for identification and prevention of accidental escape or release back into the wild. This practice also greatly diminishes their likelihood of survival in the wild should they escape. A sign was placed on each trap providing trap information and contact phone numbers. GPS coordinates for trap locations were recorded.

Traps were checked daily, during daylight hours, from April 1–June 30, 2022. This was done to record trap capture events, release non-target species incidentally captured, add or remove cowbirds to maintain the 2:3 (male:female) decoy ratio, provide fresh seed and water, and repair trap damage if needed. Information recorded for all newly captured cowbirds included capture location, date, sex, and age. Newly captured cowbirds not utilized as decoys, were removed daily

and humanely euthanized off-site. All other non-target birds captured were released unharmed at the trap sites. On June 30, 2022, both traps were de-activated and on July 14, 2022, traps were dismantled and removed from the Preserve.

3.14 Stephens' Kangaroo Rat

3.14.1 Habitat Assessments

Stephens' kangaroo rat (SKR) habitat monitoring at Ramona Grasslands County Preserve and Hellhole Canyon County Preserve was conducted in October 2022. Specific monitoring protocols followed those outlined in the TMP for SKR monitoring at Ramona Grasslands County Preserve and Hellhole Canyon Preserve (ESA and ICF 2022). This methodology follows that used by USGS for SKR monitoring at Camp Pendleton (Brehme et al. 2016). Incidental observations of MSCP or other special-status species were recorded.

- Ramona Grasslands County Preserve.** SKR monitoring areas were originally determined based on potentially suitable SKR habitat. Within the Preserve, specific management areas are referred to as Grazing Management Units (i.e., 1A, 1B, 1C, 2A, 2B, 3A, 3B, 3C, 3D, 3E, 4A, 4B, 4C, and 5) and SKR Management Areas (i.e., 1, 2, and 3). Grazing Management Units that provide potentially suitable SKR habitat (i.e., that which consists of flat terrain and/or gentle slopes that support open, low-growing grasslands) were included within the SKR monitoring area; however, only portions of the associated Grazing Management Units are within SKR Management Areas. The current TMP-selected SKR monitoring areas include Grazing Management Units 1A, 1C, 2A (portions of SKR Management Unit 1), 2B (portions of SKR Management Areas 1 and 2), 3A, 3B (SKR Management Area 3), 3C, 3D, 3E, and 4A, as these areas provide suitable SKR habitat. Additional SKR discovery areas are located within Grazing Management Units 3B and 4C. It is important to note that Grazing Management Unit 3A is not located within an SKR Management Area but is included in the monitoring effort based on previously determined SKR suitability.

Monitoring plots were initially established within SKR core habitat areas on the Preserve in 2016, following an adapted methodology used by USGS for SKR monitoring at Camp Pendleton (Brehme et al. 2016). A 50- x 50-meter grid pattern was overlain onto a georeferenced aerial map over each of the core SKR Monitoring Areas, and 28 plots were established. Of these 28 plots, 16 were determined to be permanent sampling plots that have been monitored since 2016: A1-1 to A1-6, A2-1, A2-6, A2-7, 3A-1, 3A-6, 3A-7, 3A-8, A3-1, A3-2, and A3-3. The 2022 SKR monitoring effort sampled these 16 permanent sampling plots for consistency with previous monitoring efforts, and 12 randomly selected plots—6 within the SKR monitoring area and 6 within the SKR discovery area—for a total of 28 sampling plots (ESA and ICF 2022).

- Hellhole Canyon County Preserve.** Baseline SKR trapping surveys were conducted in 2020 within the northeastern portion of the Sierra Verde Addition of Hellhole Canyon County Preserve and confirmed SKR presence in one of the three trapping plots (ESA 2021). Per the updated TMP (ESA and ICF 2022), the 2022 SKR monitoring effort sampled the same three sampling plots established during 2020 baseline trapping surveys due to the limited size of suitable SKR habitat within Hellhole Canyon County Preserve. In accordance with the TMP, monitoring protocols followed an adapted methodology used by USGS for SKR monitoring at Camp Pendleton (Brehme et al. 2016).

Upon arrival at each sample plot, pin flags were installed at the corners of each plot and representative photographs were taken from the southeast corner of each plot, facing northwest. The biologists then walked systematic transects through each plot, searching for kangaroo rat sign (e.g., burrows, scat, tracks, runways, and dust-bathing sites) until 100 percent coverage of the plot was achieved. All kangaroo rat sign were recorded on electronic survey forms using the Survey123 application. Presence or absence of SKR within a given plot was determined solely on whether or not kangaroo rat sign were observed within the plot.

Habitat assessment forms were completed on the Survey123 application for each plot, specifically noting habitat characteristics critical to SKR habitat suitability, including percent bare ground, living herb density, shrub/tree density, percentage of dead plant litter, gopher or ground squirrel density, obstruction factor, types of disturbance, and land use. These assessment variables were modeled after field forms used by Brehme et al. (2016) (adapted from a field form in Montgomery et al. 2008). Based on the quality of potentially suitable SKR habitat and the density of apparent kangaroo rat sign, each plot was assigned an SKR-potential rating (e.g., High Potential, Moderate Potential, Low Potential, or No Potential). Survey dates, times, weather conditions, and field personnel names for these surveys are included in **Table 8**.

TABLE 8
SKR HABITAT ASSESSMENT SURVEY SUMMARY

County Preserve	2022 Survey Date	Survey Times	Start Weather Conditions	End Weather Conditions	Names of Biologists
Ramona Grasslands	October 10	0815–1630	Temp: 57°F 80% Cloud Cover Wind Speed: 0–1 mph	Temp: 82°F 20% Cloud Cover Wind Speed: 2–6 mph	Kris Alberts*, Jack Quinzon
	October 11	0820–1450	Temp: 59°F 100% Cloud Cover Wind Speed: 0 mph	Temp: 79°F 10% Cloud Cover Wind Speed: 1–5 mph	Kris Alberts*, Jack Quinzon
Hellhole Canyon	October 13	0910–1135	Temp: 64°F 0% Cloud Cover Wind Speed: 0–2 mph	Temp: 66°F 0% Cloud Cover Wind Speed: 1–3 mph	Kris Alberts*, Mary Cozy

NOTE:

* Blackhawk Environmental, Inc. staff.

3.14.2 Live-Trapping

Aardvark Biological Services LLC permitted biologist Steven Chen (10[a][1][A] recovery permit TE-95006A) conducted trapping surveys for the federal- and state-threatened SKR at SKR Management Area 3 within Ramona Grasslands County Preserve. Trapping activities were assisted by Corey Chan, Jonathan Gunther, Will Molland-Simms, and Thomas Nhu.

Trapping methods were conducted in accordance with USFWS' *Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats* (USFWS 2013) and the TMP methodology (ESA and ICF 2022). All three monitoring plots, A3-3, A3-2, and A3-1, in SKR Management Area 3 were trapped, as well as additional areas within SKR Management Area 3 to maximize capture success

for SKR. A total of 100 Sherman XL Live Traps were set from May 6–8, 2022, spaced approximately 8 meters apart. Traps were baited with proso millet (*Panicum miliaceum*), set approximately 1 hour before sunset, checked prior to midnight, and closed no later than 1 hour after sunrise each morning. Survey dates, times, weather conditions, and moon phase for these surveys are included in **Table 9**.

TABLE 9
SKR LIVE-TRAPPING SURVEY SUMMARY

2022 Survey Date	Set Time	Check Time	End Time	Weather Conditions	Moon Phase
May 6	1900	–	–	Temp: 72°F Clear Wind Speed: 1–3 mph	Waxing crescent
May 6	–	2330	–	Temp: 54°F Clear Wind Speed: <1 mph	Waxing crescent
May 7	–	0530	0655	Temp: 53°F Clear Wind Speed: 1–3 mph	Waxing crescent
May 7	1900	–	–	Temp: 64°F Clear Wind Speed: 1–3 mph	Waxing crescent
May 7	–	2330	–	Temp: 57°F Clear Wind Speed: 4–6 mph	Waxing crescent
May 8	–	0600	0630	Temp: 54°F Partly cloudy Wind Speed: 4–6 mph	Waxing crescent

In accordance with Conservation Measure #4 of the Biological Opinion FWS-SDG-08B0770-11F0268 for the Oak Country II Trails Project (dated February 4, 2011), the 3-acre SKR Management Area 3 was established June 2, 2011, because of the creation of a staging area in occupied SKR habitat at Ramona Grasslands County Preserve. Live-trapping of SKR through the TMP is on a 10-year cycle and the next monitoring event is planned to occur in 2026. The County decided to trap early in SKR Management Area 3 in May 2022 to determine presence of SKR.

3.15 Stephens' Kangaroo Rat Focused Management

The control of invasive non-native plant species and maintaining the sparse cover of annual forbs and grasses suitable for SKR habitat are primary concerns for SKR management. The TMP recommends maintaining less than 20 percent ground cover of invasive non-native plant species in areas identified as suitable habitat for SKR and maintaining SKR habitat through targeted mowing and/or invasive non-native plant treatment (ESA and ICF 2022). Focused management was conducted in response to 2021 TMP monitoring results and adaptive management recommendations for Hellhole Canyon County Preserve (ESA 2022b).

Habitat West conducted focused management for SKR at Hellhole Canyon County Preserve within an approximately 4.68-acre management area within suitable habitat for SKR on November 1, 2022. This habitat-focused management occurred in an area of high archaeological sensitivity (ESA 2019a). ESA cultural resources specialists Michael Vader, B.A., and Joel Aspeytia, B.A., delineated exclusionary areas on October 16, 2022, prior to the start of maintenance activities. ESA cultural resources specialist Franklin Quiros and ESA biologist Jaclyn Catino-Davenport were present during habitat maintenance to orient the staff, identify and discuss SKR avoidance strategies, provide management recommendations, and ensure the maintenance crews did not encroach into the exclusionary areas.

Management of suitable habitat for SKR consisted of line trimming taller-growing ruderal invasive non-native vegetation (e.g., non-native grasses, tocalote, and shortpod mustard [*Hirschfeldia incana*]) to reduce the overall height of standing biomass to a desired level and assist with disarticulation of herbaceous weeds. Invasive non-native vegetation was cut to the ground in most areas; however, vegetation was left to 2 inches from the ground in areas where burrows were present. The biomass was manually collected, bagged, and properly disposed of at an approved off-site facility.

3.16 Pallid Bat

3.16.1 Roosting & Foraging Habitat Threat Assessment

ESA biologists determined potential roosting and foraging areas (e.g., tree cavities, rocky cliffs, outcrops, and natural caves) for pallid bats within Hellhole Canyon, Mount Olympus, and Wilderness Gardens County Preserves, based on review of aerial maps and daytime visual threat assessments, while conducting transect acoustic monitoring. The daytime visual threat assessment of potential roosting and foraging habitat was conducted prior to and coinciding with the setup of transect acoustic equipment. Transect acoustic monitoring was conducted using two Wildlife Acoustics Inc. SM4 bat echolocation detectors with SMM-U2 microphones mounted approximately 8 to 10 feet above the ground and secured onto a backpack. Only one detector was analyzed—the second detector was a backup in case of equipment malfunction. The detectors were programmed to turn on 30 minutes after solar sunset and default settings were modified to trigger recording at 5 kilohertz. Transect routes were selected during the day up to 30 minutes after solar sunset and were recorded using a GPX Track. Transect routes and data collection occurred for up to 1 hour. Bat calls were automatically recorded by the units during the transect monitoring period. The recorded bat calls were processed using Sonobat Version 4.4.5 and the region and subregion classifiers for southwest California. Manual vetting of automatically identified calls consisted of reviewing subsets of calls for each species, as well as reviewing individual calls and comparing them to a reference library of bat calls. Where initial manual review indicated automated misclassifications of call groups (e.g., groupings by minimum frequency, species, season, or time of night), these groups were manually reviewed and identified to most likely species. Many bat species have overlapping call repertoires; therefore, not all bat calls can be conclusively identified to a species. Identifications for inconclusive calls were deferred to the most likely species based on a combination of automatic species identification, survey-specific trends noted during manual call review, and species expected to occur based on

known seasonal and geographic distribution. Visual roosting and foraging habitat threat assessment surveys were conducted in June and July 2022 (**Table 10**).

TABLE 10
BAT SURVEY SUMMARY

Survey Type	2022 Survey Date	Start Weather Conditions	End Weather Conditions	Names of Biologists
Roosting and Foraging Habitat Threat Assessment / Transect Acoustic Survey	June 9	Temp: 89.6°F, 2% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 3.3 mph; Wind Direction: S	Temp: 71.3°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0.8 mph; Wind Direction: W	Jaclyn Catino-Davenport, Karla Alcaraz
Roosting and Foraging Habitat Threat Assessment / Transect Acoustic Survey	June 10	Temp: 89.3°F, 5% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 4.4 mph; Wind Direction: W	Temp: 69.3°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 1.6 mph; Wind Direction: W	Jaclyn Catino-Davenport, Pablo Corcoran
Roosting and Foraging Habitat Threat Assessment / Transect Acoustic Survey	July 7	Temp: 85.5°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 1.8 mph; Wind Direction: W	Temp: 73°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Jaclyn Catino-Davenport, Pablo Corcoran

3.17 Townsend's Big-Eared Bat

3.17.1 Roosting and Foraging Habitat Threat Assessment

ESA biologists determined potential roosting and foraging areas (e.g., tree cavities, rocky cliffs, outcrops, and natural caves) for Townsend's big-eared bats within Hellhole Canyon and Wilderness Gardens County Preserves, based on review of aerial maps and daytime visual threat assessments while conducting transect acoustic monitoring. The daytime visual threat assessment of potential roosting and foraging habitat was conducted prior to and coinciding with the setup of transect acoustic equipment. Transect acoustic monitoring was conducted using two Wildlife Acoustics Inc. SM4 bat echolocation detectors with SMM-U2 microphones mounted approximately 8 to 10 feet above the ground and secured onto a backpack. Only one detector was analyzed – the second detector was a back-up in case of equipment malfunction. The detectors were programmed to turn on 30 minutes after solar sunset and default settings were modified to trigger recording at 5 kilohertz. Transect routes were selected during the day up to 30 minutes after solar sunset and were recorded using a GPX Track. Transect routes and data collection occurred for up to 1 hour. Bat calls were automatically recorded by the units during the transect monitoring period. The recorded bat calls were processed using Sonobat Version 4.4.5 and the region and subregion classifiers for southwest California. Manual vetting of automatically identified calls consisted of reviewing subsets of calls for each species, as well as reviewing individual calls and comparing them to a reference library of bat calls. Where initial manual review indicated automated misclassifications of call groups (e.g., groupings by minimum frequency, species, season, or time of night), these groups were manually reviewed and identified to most likely species. Many bat species have overlapping call repertoires; therefore, not all bat calls can be conclusively identified to a species. Identifications for inconclusive calls were

deferred to the most likely species based on a combination of automatic species identification, survey-specific trends noted during manual call review, and species expected to occur based on known seasonal and geographic distribution. Visual roosting and foraging habitat threat assessment surveys were conducted in June and July 2022 (Table 10).

3.18 Peak Forage Production and Residual Dry Matter Monitoring

3.18.1 Peak Forage Production Monitoring

Measuring peak forage production assesses the amount of forage available for grazing and informs stocking rates. At Ramona Grasslands County Preserve samples were collected, and peak production was measured following the University of California Agriculture and Natural Resources' (UCANR's) *Rangeland Management Series Annual Range Forage Production* (UCANR 2016) recommendations and *Guidelines for Residual Dry Matter Management on Coastal and Foothill Rangelands in California* (Bartolome et al. 2002). Peak forage production at Ramona Grasslands County Preserve was monitored at 58 monitoring plots within management units 1A, 2A, 2B, 3A, 3B, 3C, 3D, 3E, 4A, and 4B.

Sampling was conducted on April 5 and 8, 2022, by ESA biologists Adrienne Lee, Sonya Vargas, Brenda McMillan, Rachel Le, and Carly Keen. A sampling hoop with a 13.25-inch interior diameter (hoop area is 0.96 square feet) was tossed randomly and sampled three times within each monitoring plot. All aboveground biomass, including vegetation and thatch, were collected (samples) within the hoop using gardening shears or by gathering manually. These samples were stored in paper bags. Samples did not include tree leaves (e.g., oaks [*Quercus* spp.]), as referenced in the residual dry matter (RDM) methodology (Bartolome et al. 2002). Woody shrubs (e.g., scrub oak [*Quercus berberidifolia*, *xacutidens*]), perennial species, and summer annuals were also excluded from collection. Dominant plant species observed within and in the vicinity of the monitoring plots were recorded, as were special-status species or invasive non-native species incidentally observed while traveling to and from monitoring plots.

ESA biologists processed the samples in the ESA office located at 550 West C Street, Suite 750, San Diego, California 92101. All samples were air-dried and weighed in grams using a digital scale. ESA biologists excluded the weight of the paper bags. The weights of the three samples from each monitoring plot were averaged and then converted to pounds per acre (lb/acre) by a multiplication of 100 (Bartolome et al. 2002). The average lb/acre for each management unit was calculated by averaging all monitoring plots within a management unit. The averaged value is the peak forage production for the management unit for the year.

3.18.2 Residual Dry Matter Monitoring

Cattle grazing at Ramona Grasslands County Preserve is managed under the *Ramona Grasslands, Santa Ysabel, and Boulder Oaks Preserves Grazing Management Plan* (Grazing Management Plan) (ESA 2019b). The Grazing Management Plan designates Grazing Management Units and associated target RDM values within the Preserve to monitor the effects of cattle grazing on the land to support the conservation management goals and objectives. RDM acts as soil protection

from the compacting and erosive effects of rains and can help conserve initial rainfall soil moisture to facilitate germination of the next season's annual plants. Annual RDM monitoring is a method used to quantify the impact of cattle grazing on grasslands from year to year, to determine if natural community or species-specific RDM targets are achieved, and to provide land managers with information that allows them to make grazing management adjustments to maintain a sustainable rangeland. Samples were collected and RDM was measured following the UCANR's *Rangeland Management Series Annual Range Forage Production* (UCANR 2016) recommendations and *Guidelines for Residual Dry Matter Management on Coastal and Foothill Rangelands in California* (Bartolome et al. 2002). RDM was monitored at 58 monitoring plots within management units 1A, 2A, 2B, 3A, 3B, 3C, 3D, 3E, 4A, and 4B.

Sampling was conducted on September 13, 2022, by ESA biologists Adrienne Lee, Amanda French, Brittany Poloni, Jaelyn Catino-Davenport, Jack Quinzon, and Sonya Vargas. A sampling hoop with a 13.25-inch interior diameter (hoop area is 0.96 square feet) was tossed randomly and sampled three times within each monitoring plot. All aboveground biomass, including vegetation and thatch, were collected (samples) within the hoop using gardening shears or by gathering manually. These samples were stored in paper bags. Samples did not include tree leaves (e.g., oaks [*Quercus* spp.]), as referenced in the RDM methodology (Bartolome et al. 2002). Woody shrubs (e.g., scrub oak [*Quercus berberidifolia*, *xacutidens*]), perennial species, and summer annuals were also excluded from collection. Dominant plant species observed within and in the vicinity of the monitoring plots were recorded, as were special-status species or invasive non-native species incidentally observed while traveling to and from monitoring plots.

ESA biologists processed the samples in the ESA office located at 550 West C Street, Suite 750, San Diego, California 92101. All samples were air-dried and weighed in grams using a digital scale. ESA biologists excluded the weight of the paper bags. The weights of the three samples from each monitoring plot were averaged and then converted to pounds per acre (lb/acre) by a multiplication of 100 (Bartolome et al. 2002). The average lb/acre for each management unit was calculated by averaging all monitoring plots within a management unit. The average lb/acre for a given management unit was compared to the target RDM values established for each management unit.

3.19 Regional Monitoring Efforts

DPR coordinated with regional monitoring partners regarding monitoring and management activities to reduce duplication of efforts and to minimize impacts on the species. Through DPR-issued Right-of-Entry Permits, conservation partners, including CBI, Abigail Lyons and Dr. Daniel Marschalek (with the University of Central Missouri), USGS, AECOM, San Diego Zoo Institute for Conservation Research, and Riverside County Habitat Conservancy Agency, conducted additional TMP monitoring activities on DPR preserves in 2022. Monitoring details, including species, preserve name, dates, methodology, and monitoring entity, are listed in **Table 11**.

TABLE 11
ADDITIONAL MONITORING SURVEY SUMMARY

Species	County Preserve	2022 Survey Date	Methodology	Monitoring Entity
Parish's brittle scale	Ramona Grasslands	July 21	MSP Rare Plant Monitoring Protocol	CBI
Harbison's dun skipper	Hellhole Canyon	June 18	Adult flight surveys and habitat assessment	Abigail Lyons & Dr. Daniel Marschalek (University of Central Missouri)
Arroyo toad	Ramona Grasslands	May 19	USGS Aquatic Species and Habitat Assessment Protocol ^a	USGS
Tricolored blackbird	Ramona Grasslands	June 8	SDMMP San Diego County Tricolored Blackbird Breeding Surveys and Habitat and Threat Assessments Protocol	AECOM
Burrowing owl	Ramona Grasslands	July 7	CDFW Staff Report on Burrowing Owl Mitigation 2012 ^b	San Diego Zoo Institute for Conservation Research
Stephens' kangaroo rat	Ramona Grasslands	September 26 – October 1	SKR sign search	Riverside County Habitat Conservancy Agency

NOTES: SKR = Stephens' kangaroo rat. N/A = not available.

^a One daytime survey was conducted by two USGS biologists, permitted under TE-045994-19.1, following the draft USGS Aquatic Species and Habitat Assessment Protocol. Five 250-meter stream segments, divided into 125-meter paired segments were surveyed for arroyo toad tadpoles.

^b One daytime survey was conducted by San Diego Zoo Institute for Conservation biologists, roughly following the CDFW 2012 Staff Report on Burrowing Owl Mitigation guidelines. Biologists walked transects with approximately 20-meter spacing and stopped every 100–150 meters to scan with binoculars, looking for burrowing owls, whitewash, pellets, and other signs.

This page is intentionally left blank.

CHAPTER 4

Results and Discussion

4.1 Vernal Pools/Alkali Playas

4.1.1 Wet-Season San Diego Fairy Shrimp

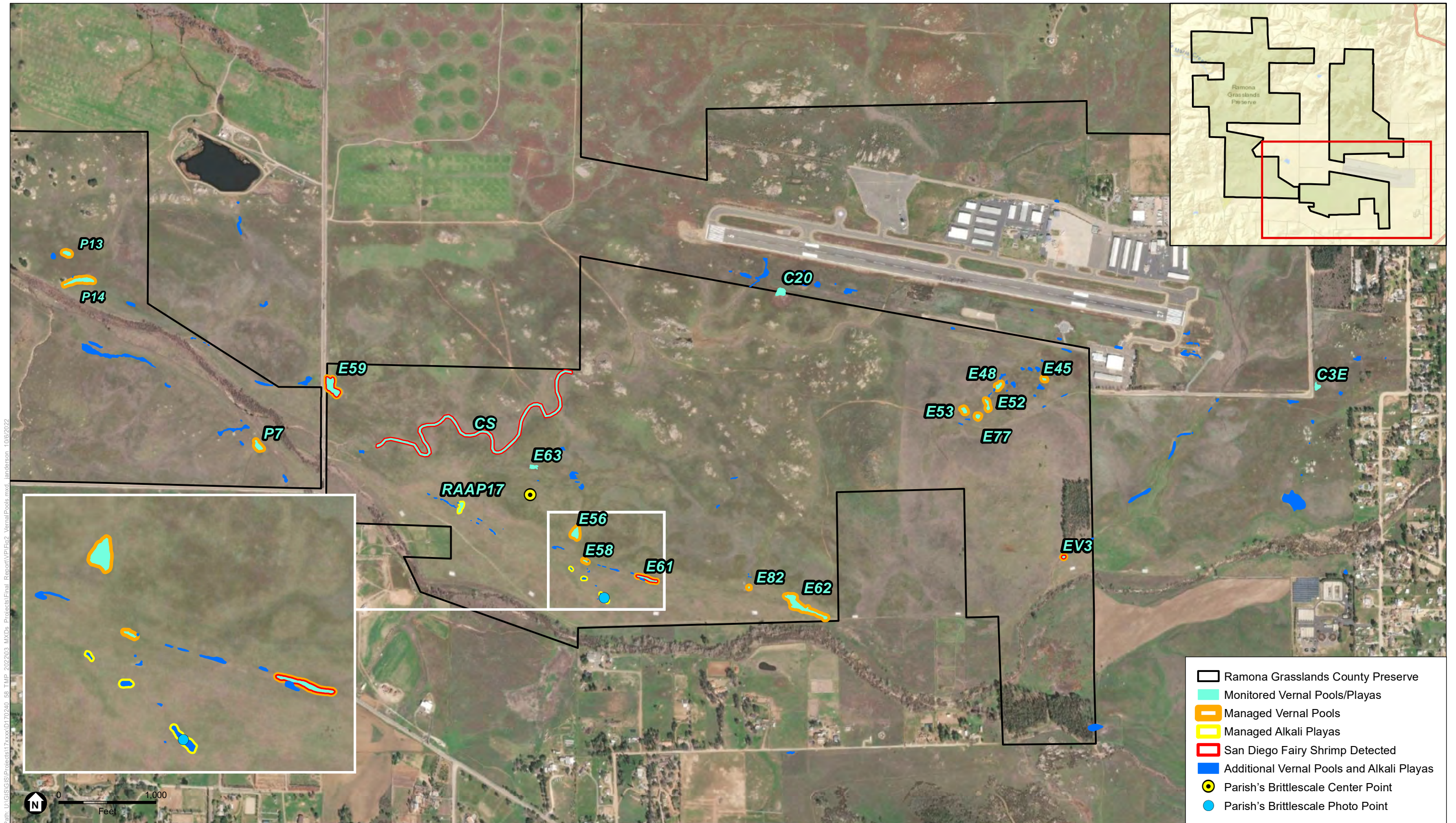
The 20 study locations were visited during inundations surveys. However, the 2021/2022 wet season continued the years-long drought conditions of Southern California—only a subset of the 20 study locations were inundated and subsequently sampled during wet-season surveys. Wet-season surveys were conducted at study locations with 3 centimeters or more of standing water following 24 hours of significant rain events (generally considered to be 0.25 inches or more of rain in a 24-hour period). At no point during the wet-season surveys were all 20 study locations inundated with water. Each wet-season survey included a subset of the 20 study locations. In some cases, during the intervening days between the inundation surveys and the follow-up wet-season surveys, some study locations dried up, resulting in an even smaller subset of study locations that could be sampled for aquatic invertebrates and fairy shrimp. Once a listed fairy shrimp species was detected in a study location, both inundation and wet-season surveys were discontinued for the remainder of the season for any such study location.

One listed fairy shrimp species was detected in the Ramona Grasslands County Preserve: San Diego fairy shrimp. No other fairy shrimp species were documented. San Diego fairy shrimp were documented by the thousands in study locations EV3, E59 and CS, and by the hundreds in E61 (**Figure 2**). The remaining 16 study locations did not yield any fairy shrimp during these surveys. Adult voucher specimens were collected from study locations EV3, E59, CS, and E61, prepared by Blackhawk biologist Kris Alberts, and transported for storage at the Natural History Museum of Los Angeles County, a USFWS-designated repository. A CNDDDB form that detailed the San Diego fairy shrimp detections was sent to the CDFW for their records. The submitted 90-day report is provided in **Appendix A**, *San Diego Fairy Shrimp 90-Day Report*.

4.1.2 Parish's Brittle-scale

Through a ROE permit issued by DPR, CBI conducted MSP rare plant monitoring for Parish's brittle-scale at one permanent monitoring plot within Ramona Grasslands County Preserve in 2022. A total of 174 Parish's brittle-scale plants were estimated within the monitoring plot. The entire population of Parish's brittle-scale within Ramona Grasslands County Preserve in 2022 is estimated at 282 plants. Monitoring plot, center point, and photo point are shown in Figure 2.

This page is intentionally left blank.



SOURCE: ESRI, 2021; ESA 2022

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report

Figure 2
Vernal Pool/Alkali Playa Monitoring and Management Results
Ramona Grasslands County Preserve

This page is intentionally left blank.

4.1.3 Focused Management

Based on 2021 monitoring results, invasive non-native plant species treatment/removal was performed in 15 vernal pools and 4 alkali playa features within Ramona Grasslands County Preserve in 2022 (Figure 2). Representative photographs from management activities are provided in **Appendix B**, *Vernal Pool/Alkali Playa Management Representative Photographs*.

4.1.4 Adaptive Management Recommendations

The TMP recommends overall invasive non-native plant cover within vernal pool basins to be kept to less than 20 percent (ESA and ICF 2022). Formal qualitative and quantitative monitoring was not conducted this year; however, based on previous monitoring efforts and observations made during the 2021/2022 wet-season surveys, vernal pool and alkali playa habitat suitability has declined. This is likely due to a lack of year-to-year natural recruitment of native species and an increase in invasive non-native grass cover, resulting in less complex vegetation composition and structure within the pools and playas.

The results of the 2021/2022 wet-season surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Conduct annual quantitative and qualitative monitoring.** Quantitative and qualitative monitoring should continue for the 20 study locations (p13, p14, p7, e56, e58, e61, e82, e62, e53, e77, e52, e48, e45, ev3, e59, e53, c20, c3e, p7, CS, and raap17). The TMP requires quantitative monitoring every 5 years and qualitative monitoring twice annually (ESA and ICF 2022). To better evaluate functional trends in vernal pool and alkali playa habitat, it is recommended to increase quantitative monitoring to twice annually and conduct it concurrently with qualitative monitoring (e.g., during the wet phase in early spring to capture aquatic plant and wildlife species, and during the dry phase to capture flowering plants at their peak). Vernal pool and alkali playa quantitative monitoring should include a species inventory with abundance, distribution, and cover data taken for each plant species encountered within suitable habitat. Species-specific data will help determine year-to-year trends in vernal pool indicator species and alkali playa endemic species, inform the effectiveness of adaptive management strategies, and help determine additional adaptive management recommendations to further increase native vernal pool and alkali playa species richness.
- **Conduct a hydrological study of the Cagney swale.** Potential altered hydrology (e.g., erosion and undercutting of the banks) within the Cagney swale was observed during the 2021/2022 wet-season surveys (see representative photographs in Appendix B). This change in hydrology may be contributing to the drying of adjacent vernal pool and alkali playa habitats. A hydrological study of the Cagney swale is recommended to determine if altered hydrology is occurring and inform adaptive management strategies (i.e., implement erosion control, stormwater/road runoff control, minor grading to help dissipate water and reduce flow velocity, and/or restrict access to portions of the swale to allow for a natural recovery of the banks and bed).
- **Continue focused invasive non-native plant management.** Focused invasive non-native plant management should continue at the 16 managed vernal pools and playa (p13, p14, p7, e56, e58, e61, e82, e62, e53, e77, e52, e48, e45, ev3, e59, and raap17), as well as the 3 alkali playas that contain Parish's brittlescale (raap4, raap6, and raap14). Previous management activities were timed to occur in late summer, after native vernal pool plants completed their life cycles; however, future management timing is recommended to occur just after pool and

playa basins have dried and the soil surface becomes firm, and before invasive non-native plants have set seed. Invasive non-native grasses should be manually cut at the base and removed by hand to minimize soil disturbance. Sensitive plants or vernal pool/alkali playa indicator plant species should be flagged prior to the start of maintenance. A follow-up maintenance visit should be performed during the dry phase, after native species have set seed to fully remove any invasive non-native plant biomass remaining. At the County's discretion, an aquatic-safe herbicide may be used after the first maintenance visit in accordance with the TMP (ESA and ICF 2022).

- **Implement fencing pilot study.** Many vernal pools and alkali playas were observed to have numerous hoof prints and noticeable changes in size, depth, and shape during the 2021/2022 wet-season surveys. A fencing pilot study is recommended to determine the effects of cattle grazing on existing vernal pool and alkali playa habitats. The pilot study would consist of installing exclusionary fencing around one vernal pool (e59) and one alkali playa (raap17) within the Ramona Grasslands County Preserve. Vernal pool e59 is proposed because it has been documented to support high abundance, cover, and composition of vernal pool plant indicator species year over year. It is also located adjacent to existing fencing surrounding the boundary of the Ramona Grasslands County Preserve, which would reduce fencing cost and effort. Alkali playa raap17 is proposed because it has been documented to support three special-status plant species (Parish's brittlegrass, Coulter's saltbush [*Atriplex coulteri*], and southern tarplant [*Centromadia parryi* ssp. *australis*]). Exclusionary fencing may help decrease impacts to hydrology, reduce erosion and sedimentation, and increase native species recruitment. Ground disturbance caused by the installation of fencing posts for this pilot study should be anticipated, and proper avoidance and minimization measures should be taken to avoid potential impacts to biological and cultural resources.
- **Strategize cattle rotations.** Close coordination with the current rancher is recommended to strategize cattle rotation patterns that best protect existing vernal pool and alkali playa habitat during conditions when they are most vulnerable to soil and sensitive plant and wildlife disturbance. As stated in the Grazing Management Plan, grazing shall occur after the vernal pool inundation period is complete (anticipated as April to June) (ESA 2019b). Working with the rancher to minimize cattle grazing within management units containing vernal pool and alkali playa resources (particularly management unit 2A) during the wet season could benefit native vernal pool species richness, improve the overall hydrology of the vernal pool and alkali playa complexes, and assist in meeting conservation and RDM goals and metrics.
- **Seed vernal pool/alkali playa indicator plant species.** Hand-seeding of vernal pool or alkali playa indicator plant species is recommended to increase and enhance native species richness, diversity, and natural recruitment year-to-year. Seeding should be conducted with the goal of capturing a natural rainfall pattern and should be implemented in late fall and early winter prior to a rain event. Weed control efforts in the summer would prepare the vernal pool basins and alkali playas to receive native seed through thatch removal and non-native species control while leaving the soil surface undisturbed.

4.2 Rare Plant Monitoring

Rare plant monitoring was conducted on 18 permanent monitoring plots at four preserves in 2022. Rare plant monitoring consisted of one San Diego thornmint monitoring plot at Simon County Preserve; eleven San Diego thornmint monitoring plots at Sycamore Canyon/Goodan Ranch County Preserve, two Orcutt's bird's-beak monitoring plots at Tijuana River Valley Regional Park; one Otay tarplant monitoring plot at Furby-North County Preserve; and three willow monardella monitoring

plots at Sycamore Canyon/Goodan Ranch County Preserve. All rare plant monitoring was conducted on previously established permanent monitoring plots.

A summary of the monitoring plots, monitoring results, and management recommendations are provided in **Table 12**. Photographic monitoring and representative photographs of the monitored and managed plots are provided in **Appendix C**, *MSP Rare Plant Monitoring – Permanent Photographic Monitoring & Representative Photographs*. MSP Rare Plant Occurrence Monitoring Forms, which include Rare Plant Habitat and Threats Assessments, are provided in **Appendix D**, *MSP Rare Plant Occurrence Monitoring Forms*.

Additionally, reconnaissance surveys for San Diego thornmint were conducted at El Capitan County Preserve and Ramona Grasslands County Preserve, and the results are provided below.

4.2.1 San Diego Thornmint

4.2.1.1 Simon County Preserve

The one monitoring plot within the San Diego thornmint population in Simon County Preserve was monitored by ESA in 2022. A total of 13,500 San Diego thornmint plants were estimated within the monitoring plot. The entire population of San Diego thornmint within Simon County Preserve in 2022 is an estimated 13,955 plants. Monitoring plot, center point, photo point, maximum extent, and invasive non-native plant management area are shown in **Figure 3**. Photo monitoring and representative photographs are provided in Appendix C. Additional special-status species, small-flowered bindweed (*Convolvulus simulans*), Palmer’s grappling hook (*Harpagonella palmeri*), and Douglas’ silverpuffs (*Microseris douglasii* ssp. *platycarpha*) were observed within the monitoring plot. Special-status species, turkey vulture (*Cathartes aura*), was incidentally observed outside of the monitoring plot during monitoring. The San Diego thornmint habitat contained invasive non-native grasses and herbs, particularly red brome (*Bromus rubens*) and tocalote.

Monitoring Plot Number ACIL_4SIPR026_1

Monitoring plot ACIL_4SIPR026_1 is in the central portion of the San Diego thornmint population. Approximately 13,500 San Diego thornmint plants were estimated within the monitoring plot; over 75 percent were vegetative, the remaining were flowering or dead. Total vegetative cover within the plot was 47.3 percent, with 43.3 percent native cover and 4 percent non-native plant cover.¹ The dominant native plant species within the monitoring plot was Mission manzanita (*Xylococcus bicolor*). Invasive non-native plant species included slender wild oat (*Avena barbata*), soft brome (*Bromus hordeaceus*), red brome, tocalote, longbeak stork’s bill (*Erodium botrys*), foothill filaree (*Erodium brachycarpum*), annual fescue (*Festuca myuros*), shortpod mustard, smooth cat’s ear (*Hypochaeris glabra*), narrowleaf cottonrose (*Logfia gallica*), common groundsel (*Senecio vulgaris*), common groundsel (*Senecio vulgaris*), and spiny sowthistle (*Sonchus asper*). Additional special-status species detected within the plot were small-flowered bindweed, Palmer’s grappling hook, and Douglas’ silverpuffs. A special-status species, the turkey vulture, was incidentally observed outside of the monitoring plot during monitoring.

¹ Non-native plant cover includes invasive non-native plant species.

**TABLE 12
MSP 2022 RARE PLANT MONITORING SUMMARY**

Species	County Preserve	Plot #; MSP Occurrence ID ^a	Center Point Coordinates	Population		Native Plant Cover		Non-Native Plant Cover ^b		Management Recommendations
				# individuals	% cover	# species	% cover	# species	% cover	
San Diego thornmint <i>Acanthomintha ilicifolia</i>	Simon	– ACIL_4SIPR026_1	E 516451 N 3654129	13,500	12.0	17	43.3	12	4.0	Continue MSP rare plant monitoring of population. Continue management of invasive non-native grasses and forbs.
San Diego thornmint <i>Acanthomintha ilicifolia</i>	Sycamore Canyon/Goodan Ranch	SYGOACIL01 ACIL_4SYCA027_1	E 501592	3,290	0.2	19	12.4 ^c	13	14.6 ^d	Continue MSP rare plant monitoring of population. Continue management of invasive non-native grasses and forbs, particularly purple false brome and tocalote. Continue thatch removal.
			N 3644272							
		SYGOACIL02 ACIL_4SYCA027_2	E 501522	47	0.2	17	5.2 ^e	10	21.8	
			N 3644277							
		SYGOACIL03 ACIL_4SYCA027_3	E 501546	1,265	0.2	22	32.6 ^f	9	5.2	
			N 3644380							
		SYGOACIL04 ACIL_4SYCA027_4	E 502555	0	0	9	6.0 ^g	5	41.6	
			N 3643683							
		SYGOACIL05 ACIL_4SYCA027_5	E 502915	330	0.2	21	26.0 ^h	7	21.2 ^d	
			N 3643523							
		SYGOACIL06 ACIL_4SYCA027_6	E 502252	1,400	0.2	14	27.2 ^e	11	5.0 ⁱ	
			N 3644084							
SYGOACIL07 ACIL_4SYCA027_7	E 502375	1,322	0.2	16	11.6 ^j	8	31.4			
	N 3644068									
SYGOACIL08 ACIL_4SYCA027_8	E 502267	730	1.0	14	11.8	5	20.8			
	N 3644249									
SYGOACIL09 ACIL_4SYCA027_9	E 501735	825	0.2	16	17.8	8	21.4			
	N 3644404									
SYGOACIL10 ACIL_4SYCA027_10	E 501927	630	1.0	15	27.2	4	0.8			
	N 3644370									
SYGOACIL11 ACIL_4SYCA027_11	E 502683	285	0.2	18	17.8 ^g	5	31.6			
	N 3643722									

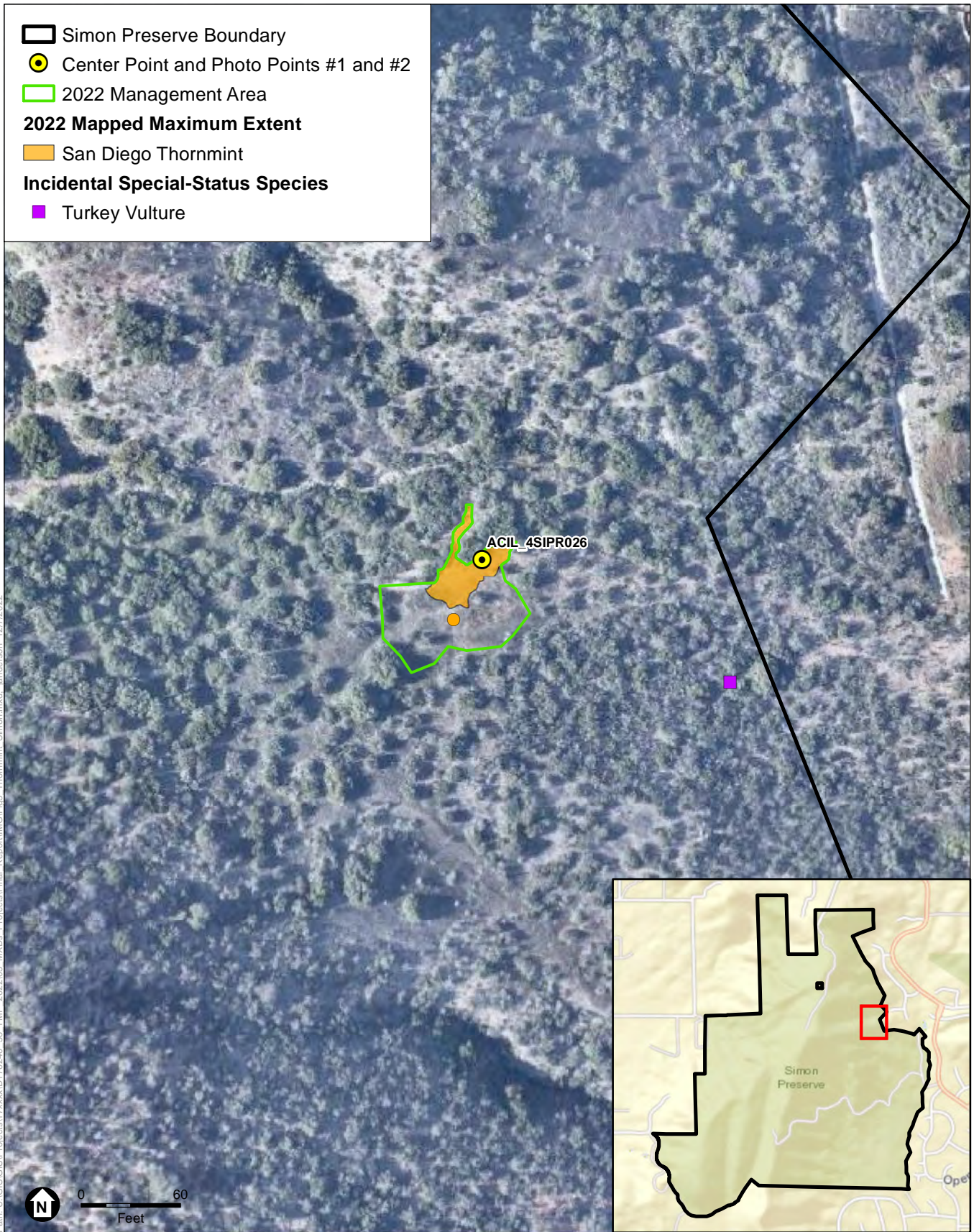
Species	County Preserve	Plot #; MSP Occurrence ID ^a	Center Point Coordinates	Population		Native Plant Cover		Non-Native Plant Cover ^b		Management Recommendations
				# individuals	% cover	# species	% cover	# species	% cover	
Orcutt's bird's-beak <i>Dicranostegia orcuttiana</i>	Tijuana River Valley Regional Park	– COOR7_1SMGU006_1	E 491709	10	0.2	20	61.5	5	13.6 ^k	Continue MSP rare plant monitoring of population. Conduct management of invasive non-native grasses and forbs, particularly red brome (<i>Bromus rubens</i>) and Saharan mustard (<i>Brassica tournefortii</i>). Coordinate with Border Patrol to limit unauthorized access around Orcutt's bird's-beak locations.
			N 3600493							
		– COOR7_1TIRI009_1	E 490646	71	2.0	25	59.6 ^e	9	5.9	
			N 3600256							
Otay tarplant <i>Deinandra conjugens</i>	Furby-North	– DECO13_3OMEA026_1	E 496809 N 3602882	141	0.2	13	16.8 ^l	11	19.0	Continue MSP rare plant monitoring of population. Continue management of thatch and invasive non-native grasses and forbs, particularly brome grasses and crown daisy.
Willow monardella <i>Monardella viminea</i>	Sycamore Canyon/Goodan Ranch	SYC201501 MOLIV_4SYCA006_1	E 502412	55	3.0	15	27.6 ^m	7	6.2 ⁿ	Continue MSP rare plant monitoring of population. Conduct invasive non-native plant treatment for grasses and herbs, particularly slender wild oat (<i>Avena barbata</i>), purple false brome, and brome (<i>Bromus</i> spp.) immediately surrounding willow monardella per the TMP. Trimming of California buckwheat within SYC201602 can be considered to reduce potential native competition to willow monardella plants.
			N 3642218							
		SYC201602 MOLIV_4SYCA002_1	E 501045	3	0.2	9	13.0	10	8.2 ⁿ	
			N 3642551							
SYC202103 MOLIV_4SPCA006_2	E 501657 N 3640638	11	1.0	13	20.6 ^o	9	8.2 ⁿ			

NOTES:

- ^a Plot # code was assigned during plot establishment by the establishing plot biologist and is used throughout this report when available. However, some monitoring plots do not have a plot # code associated with them as the establishing plot biologist used only the MSP occurrence ID (assigned by SDMMMP) to establish and document the plot. In these instances, the MSP occurrence ID is used throughout this report.
- ^b Non-native plant cover calculation includes invasive non-native plant species.
- ^c *Calochortus* spp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.
- ^d *Lepidium* spp. was detected at 0.2 percent and was categorized as non-native during vegetation cover calculations.
- ^e *Cryptantha* spp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.
- ^f *Cryptantha* spp. and *Stipa* spp. were detected at 0.2 percent each and were categorized as native during vegetation cover calculations.

4. Results and Discussion

Species	County Preserve	Plot #; MSP Occurrence ID ^a	Center Point Coordinates	Population		Native Plant Cover		Non-Native Plant Cover ^b		Management Recommendations
				# individuals	% cover	# species	% cover	# species	% cover	
^g <i>Allium</i> sp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.										
^h <i>Allium</i> sp. and <i>Stipa</i> spp. were detected at 0.2 percent each and were categorized as native during vegetation cover calculations.										
ⁱ <i>Phalaris</i> spp. was detected at 0.2 percent and was categorized as non-native during vegetation cover calculations.										
^j <i>Stipa</i> spp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.										
^k <i>Avena</i> spp. was detected at 0.2 percent and was categorized as non-native during vegetation cover calculations.										
^l <i>Allium</i> sp., <i>Solanum</i> spp., and <i>Stipa</i> spp. were detected at 0.2 percent each and were categorized as native during vegetation cover calculations.										
^m <i>Cirsium</i> sp. and <i>Galium</i> spp. were detected at 0.2 percent each and were categorized as native during vegetation cover calculations.										
ⁿ <i>Erodium</i> spp. was detected at 0.2 percent and was categorized as non-native during vegetation cover calculations.										
^o <i>Cuscuta</i> spp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.										



SOURCE: Nearmap, 4/18/2021; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report

Figure 3

San Diego Thornmint Monitoring and Management Results
Simon County Preserve



Focused Management

Focused management occurred in 2022 in response to the high thatch and invasive non-native plant cover observed in 2021. As previously described, management activities consisted of carefully hand-pulling non-native species within an approximately 0.10-acre management area, shown in Figure 3. No herbicide was applied. Non-native species consisted predominantly of brome grasses (*Bromus* spp.) and tocalote. Representative photographs of focused management are provided in Appendix C.

Adaptive Management Recommendations

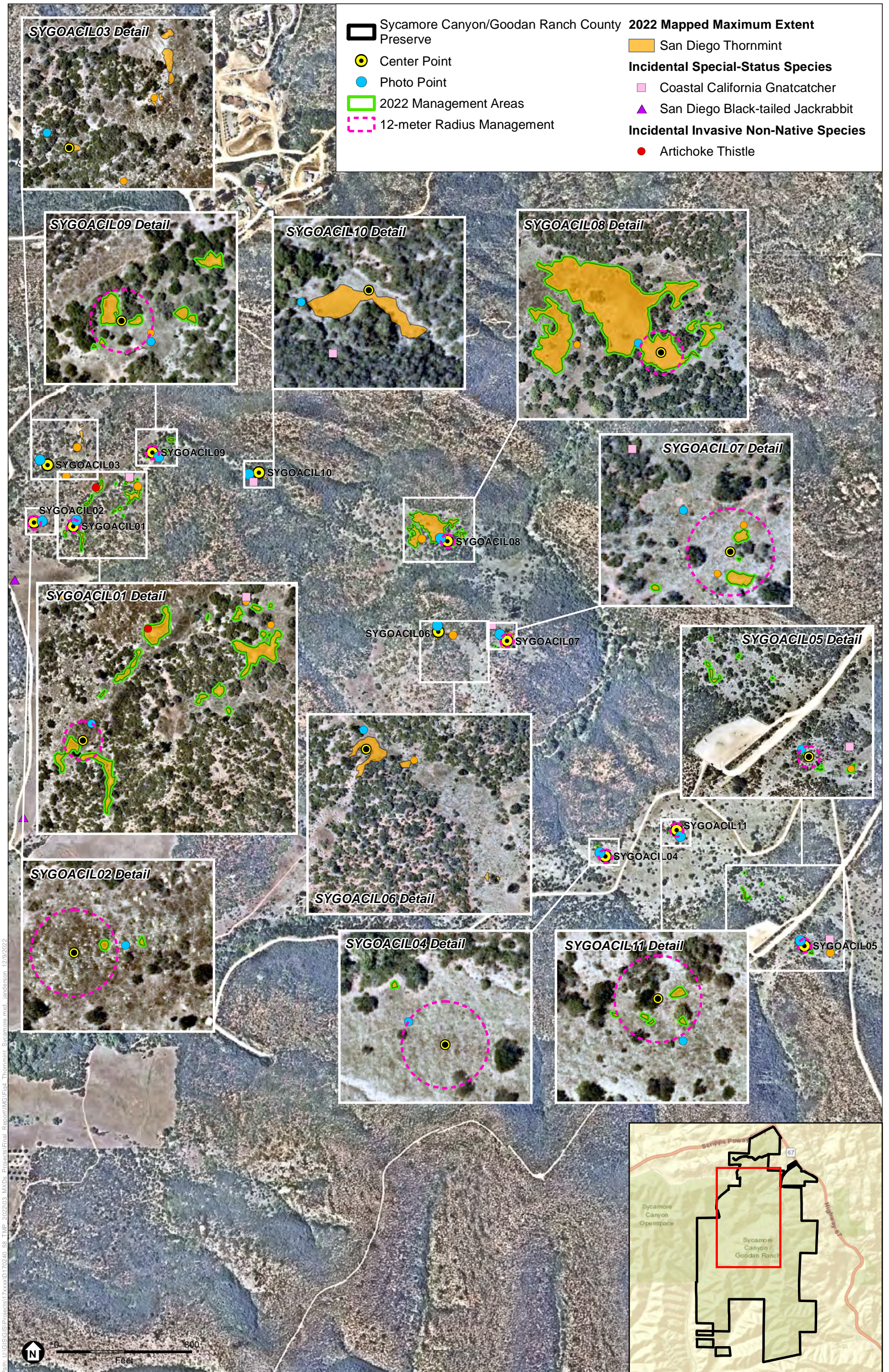
Based on the results of the 2022 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP, no management is recommended for 2023. Invasive non-native plant cover was low within the monitoring plant and focused invasive non-native plant species management occurred in 2022. Monitoring in 2023 should document management effects to the San Diego thornmint population at Simon County Preserve and determine if additional focused invasive non-native plant species management is required.

4.2.1.2 Sycamore Canyon/Goodan Ranch County Preserve

The 11 monitoring plots within the San Diego thornmint population in Sycamore Canyon/Goodan Ranch County Preserve were monitored by ESA in 2022. A total of 10,124 San Diego thornmint plants were estimated within the monitoring plots. The entire population of San Diego thornmint within Sycamore Canyon County Preserve in 2022 is an estimated 41,921 plants. Monitoring plots, center points, photo points, maximum extent, and invasive non-native plant management area are shown in **Figure 4**. Photo monitoring and representative photographs are provided in Appendix C. Incidentally observed special-status plant species include small-flowered bindweed at 6 of the 11 monitoring plots, Palmer's grappling hook at 9 of the 11 monitoring plots, and ashy spike-moss (*Selaginella cinerascens*) at 2 of the 11 monitoring plots. Additional special-status species observed outside of the monitoring plots include San Diego black-tailed jackrabbit (*Lepus californicus bennettii*) and coastal California gnatcatcher (*Polioptila californica californica*) (Figure 4). Across all 11 monitoring plots, San Diego thornmint habitat contained invasive non-native grasses and herbs, particularly purple false brome and tocalote.

Monitoring Plot Number SYGOACIL01

Monitoring plot SYGOACIL01 is in the northwestern portion of the San Diego thornmint population. A total of 3,290 San Diego thornmint plants were estimated within the monitoring plot; over 75 percent were in flower, the remaining were vegetative. Potential sign of stunted growth was detected in over 75 percent of all plants. Total vegetative cover within the plot was 27.0 percent, with 12.4 percent native cover and 14.6 percent non-native plant cover. The dominant native plant species within the monitoring plot was clustered tarweed (*Deinandra fasciculata*). Invasive non-native plant species included purple false brome, soft brome, compact brome (*Bromus madritensis*), tocalote, longbeak stork's bill, redstem stork's bill (*Erodium cicutarium*), annual fescue, smooth cat's ear, pepperweed (*Lepidium* sp.), narrowleaf cottonrose, scarlet pimpernel (*Lysimachia arvensis*), spiny sowthistle (*Sonchus asper*), and common sowthistle (*Sonchus oleraceus*). Additional special-status plant species detected within the plot were Palmer's grappling hook and ashy spike-moss.



SOURCE: Nearmap, 4/18/2021; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report

Figure 4
 San Diego Thornmint Monitoring and Management Results
 Sycamore Canyon/Goodan Ranch County Preserve

This page is intentionally left blank.

Monitoring Plot Number SYGOACIL02

Monitoring plot SYGOACIL02 is in the northwestern portion of the San Diego thornmint population. A total of 47 San Diego thornmint plants were estimated within the monitoring plot; over 75 percent were in flower, the remaining were vegetative. Potential sign of stunted growth was detected in 10 to 25 percent of all plants. Total vegetative cover within the plot was 27 percent, with 5.2 percent native cover and 21.8 percent non-native plant cover. The dominant native plant species within the monitoring plot was clustered tarweed. Invasive non-native plant species included slender wild oat, purple false brome, soft brome, compact brome, tocalote, longbeak stork's bill, redstem stork's bill, annual fescue, smooth cat's ear, and spiny sowthistle. Additional special-status plant species detected within the plot included small-flowered bindweed, Palmer's grappling hook, and ashy spike-moss.

Monitoring Plot Number SYGOACIL03

Monitoring plot SYGOACIL03 is in the northwestern portion of the San Diego thornmint population. A total of 1,265 San Diego thornmint plants were estimated within the monitoring plot; 50 to 75 percent were in flower, the remaining were vegetative. Potential sign of stunted growth was detected in 10 to 25 percent of all plants. Total vegetative cover within the plot was 37.8 percent, with 32.6 percent native cover and 5.2 percent non-native plant cover. The dominant native plant species within the monitoring plot were black sage (*Salvia mellifera*), California sagebrush (*Artemisia californica*), and laurel sumac (*Malosma laurina*). Invasive non-native plant species included slender wild oat, purple false brome, soft brome, compact brome, tocalote, annual fescue, narrowleaf cottonrose, scarlet pimpernel, and spiny sowthistle. Palmer's grappling hook was the only additional special-status plant species detected within the plot.

Monitoring Plot Number SYGOACIL04

Monitoring plot SYGOACIL04 is in the southeastern portion of the San Diego thornmint population. San Diego thornmint was not detected within the monitoring plot in 2022. Total vegetative cover within the plot was 47.6 percent, with 6.0 percent native cover and 41.6 percent non-native plant cover. The dominant native plant species within the monitoring plot was laurel sumac. Invasive non-native plants included slender wild oat, purple false brome, tocalote, smooth cat's ear, and spiny sowthistle. Small-flowered bindweed was the only additional special-status plant species detected within the plot.

Monitoring Plot Number SYGOACIL05

Monitoring plot SYGOACIL05 is in the southeastern portion of the San Diego thornmint population. A total of 330 San Diego thornmint plants were estimated within the monitoring plot; over 75 percent were in flower, the remaining were vegetative. Potential sign of stunted growth was detected in 0 to 10 percent of all plants. Total vegetative cover within the plot was 47.2 percent, with 26.0 percent native cover and 21.2 percent non-native plant cover. The dominant native plant species within the monitoring plot was Mission manzanita. Invasive non-native plant species included purple false brome, soft brome, tocalote, redstem stork's bill, smooth cat's ear, pepperweed, and narrowleaf cottonrose. Palmer's grappling hook was the only additional special-status plant species detected within the plot.

Monitoring Plot Number SYGOACIL06

Monitoring plot SYGOACIL06 is in the central-northern portion of the San Diego thornmint population. A total of 1,400 San Diego thornmint plants were estimated within the monitoring plot; over 75 percent were flowering, 0 to 10 percent were vegetative, and 0 to 10 percent were fruiting. Potential sign of stunted growth was detected in 0 to 10 percent of all plants. Total vegetative cover within the plot was 32.2 percent, with 27.2 percent native cover and 5.0 percent non-native cover. The dominant native plant species within the monitoring plot were mock parsley (*Apiastrum angustifolium*) and clustered tarweed. Invasive non-native plants included purple false brome, riggut brome (*Bromus diandrus*), soft brome, compact brome, tocalote, redstem stork's bill, annual fescue, shortpod mustard, scarlet pimpernel, canarygrass (*Phalaris* sp.), and spiny sowthistle. Palmer's grappling hook was the only additional special-status plant species detected within the plot.

Monitoring Plot Number SYGOACIL07

Monitoring plot SYGOACIL07 is in the central-northern portion of the San Diego thornmint population. A total of 1,322 San Diego thornmint plants were estimated within the monitoring plot; 50 to 75 percent were flowering, the remaining were vegetative. Potential sign of stunted growth was detected in 25 to 50 percent of all plants. Total vegetative cover within the plot was 43 percent, with 11.6 percent native cover and 31.4 percent non-native cover. The dominant native plant species within the monitoring plot was clustered tarweed. Invasive non-native plant species included purple false brome, soft brome, tocalote, redstem stork's bill, smooth cat's ear, narrowleaf cottonrose, scarlet pimpernel, and common sowthistle. Palmer's grappling hook was the only additional special-status plant species detected within the plot.

Monitoring Plot Number SYGOACIL08

Monitoring plot SYGOACIL08 is in the central-northern portion of the San Diego thornmint population. A total of 730 San Diego thornmint plants were estimated within the monitoring plot; 50 to 75 percent were in flower, the remaining were vegetative. Potential sign of stunted growth was detected in 25 to 50 percent of all plants. Total vegetative cover within the plot was 32.6 percent, with 11.8 percent native cover and 20.8 percent non-native cover. The dominant native plant species within the monitoring plot was mock parsley. Invasive non-native plant species included slender wild oat, purple false brome, soft brome, tocalote, and scarlet pimpernel. Additional special-status plant species detected within the plot were small-flower bindweed and Palmer's grappling hook.

Monitoring Plot Number SYGOACIL09

Monitoring plot SYGOACIL09 is in the northwestern portion of the San Diego thornmint population. A total of 825 San Diego thornmint plants were estimated within the monitoring plot; 50 to 75 percent were in flower, the remaining were vegetative. Potential sign of stunted growth was detected in 10 to 25 percent of all plants. Total vegetative cover within the plot was 39.2 percent, with 17.8 percent native cover and 21.4 percent non-native cover. The dominant native plant species within the monitoring plot was Torrey's hybrid oak. Invasive non-native plant species included slender wild oat, purple false brome, compact brome, tocalote, redstem stork's bill, smooth cat's ear, scarlet pimpernel, and spiny sowthistle. Additional special-status plant species detected within the plot were small-flower bindweed and Palmer's grappling hook.

Monitoring Plot Number SYGOACIL10

Monitoring plot SYGOACIL10 is in the northwestern portion of the San Diego thornmint population. A total of 630 San Diego thornmint plants were estimated within the monitoring plot; 50 to 75 percent were in flower, the remaining were vegetative. Potential sign of stunted growth was detected in 10 to 25 percent of all plants. Total vegetative cover within the plot was 28.0 percent, with 27.2 percent native cover and 0.8 percent non-native cover. The dominant native plant species within the monitoring plot was black sage. Invasive non-native plant species included tocalote, redstem stork's bill, scarlet pimpernel, and spiny sowthistle. Additional special-status plant species detected within the plot were small-flower bindweed and Palmer's grappling hook.

Monitoring Plot Number SYGOACIL11

Monitoring plot SYGOACIL11 is in the southeastern portion of the San Diego thornmint population. A total of 285 San Diego thornmint plants were estimated within the monitoring plot; 50 to 75 percent were in flower, the remaining were vegetative. Potential sign of stunted growth was detected in 10 to 25 percent of all plants. Total vegetative cover within the plot was 49.4 percent, with 17.8 percent native cover and 31.6 percent non-native cover. The dominant native plant species within the monitoring plot were toyon (*Heteromeles arbutifolia*) and sugar bush (*Rhus ovata*). Invasive non-native plant species included purple false brome, tocalote, smooth cat's ear, spiny sowthistle, and common sowthistle. Small-flower bindweed was the only additional special-status plant species detected within the plot.

Focused Management

Focused management occurred in 2022 in response to the high thatch and invasive non-native plant cover observed in 2021. As previously described, management consisted of carefully hand-pulling target invasive non-native species within an approximately 0.93-acre management area where San Diego thornmint populations were previously detected. Line trimmers were then used to dethatch remaining non-native species surrounding San Diego thornmint occurrences within approximately 12-meter radius circles around the established monitoring plot center points, as shown in Figure 4. Non-native species consisted predominantly of purple false brome. No herbicide was used. Representative photographs of focused management are provided in Appendix C.

Adaptive Management Recommendations

The results of the 2022 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendation:

- **Continue focused invasive non-native plant species removal.** The TMP recommends overall invasive non-native plant cover be kept to less than 20 percent and cover of purple false brome be kept to less than 10 percent cover (ESA and ICF 2022). To ensure the persistence of San Diego thornmint at Sycamore Canyon/Goodan Ranch County Preserve, it is recommended that invasive non-native plant control be continued by a qualified restoration specialist within at least eight of the monitoring plots: plots 1, 2, 4, 5, 7, 8, 9, and 11, and the surrounding areas, as needed, to reduce encroachment and competition from invasive non-native species and allow expansion opportunities for the San Diego thornmint population. Total non-native plant cover and purple false brome percent cover for all monitoring plots in

2022 are provided in **Table 13** with recommended management priority levels. The invasive non-native plant species removal protocol within the TMP, which includes hand-clipping, hand-pulling, and herbicide use, should be followed. Care should be taken when management or monitoring is performed to not trample San Diego thornmint plants.

TABLE 13
SAN DIEGO THORNMIN T INVASIVE NON-NATIVE PLANT CONTROL MANAGEMENT PRIORITIES: SYCAMORE CANYON/GOODAN RANCH COUNTY PRESERVE

Monitoring Plot	Total Non-Native Plant Cover (%)	Purple False Brome Cover (%) ^a	Priority for Invasive Non-Native Plant Management ^b
1	14.6	9.0	Moderate
2	21.8	10.0	High
3	5.2	2.0	Low
4	41.6	40.0	High
5	21.2	20.0	High
6	5.0	3.0	Low
7	31.4	30.0	High
8	20.8	20.0	High
9	21.4	20.0	High
10	0.8	0.0	Low
11	31.6	30.0	High

NOTES:

^a Invasive non-native purple false brome percent cover is included in the total non-native plant cover percentage.

^b Management priority was determined based on total non-native plant cover and purple false brome cover.

High – If total non-native plant cover was greater than 20 percent, and/or purple false brome cover was 10 percent or greater.

Moderate – If total non-native plant cover was 10 to 20 percent, and/or purple false brome cover was 5 to 10 percent.

Low – If total non-native plant cover was under 10 percent, and/or purple false brome cover was under 5 percent.

4.2.1.3 El Capitan County Preserve

San Diego thornmint and suitable habitat for this species was not detected during the two reconnaissance surveys conducted at El Capitan County Preserve. Clay soils are present on-site; however, these soils are rocky, gravelly, and compact as opposed to the friable soils necessary to support San Diego thornmint. Co-occurring species that are normally found within suitable clay lens habitat and San Diego thornmint were not detected. Based on the results of the reconnaissance surveys and coordination with species experts Jessie Vinje and SDMMP, San Diego thornmint is presumed to not occur within the El Capitan County Preserve. Representative photographs are provided in Appendix C.

4.2.1.4 Ramona Grasslands County Preserve

San Diego thornmint was not detected during the reconnaissance survey conducted at Ramona Grasslands County Preserve. Clay soils are present on-site and co-occurring species that are normally found within suitable clay lens habitat and San Diego thornmint, such as dot-seed plantain (*Plantago erecta*) and clustered tarweed (*Deinandra fasciculata*), were observed. Clay soils around the previously reported San Diego thornmint population have been compacted by

cattle-grazing activities, reducing the suitability to support San Diego thornmint. Representative photographs are provided in Appendix C.

4.2.2 Orcutt's Bird's-Beak

4.2.2.1 Tijuana River Valley Regional Park

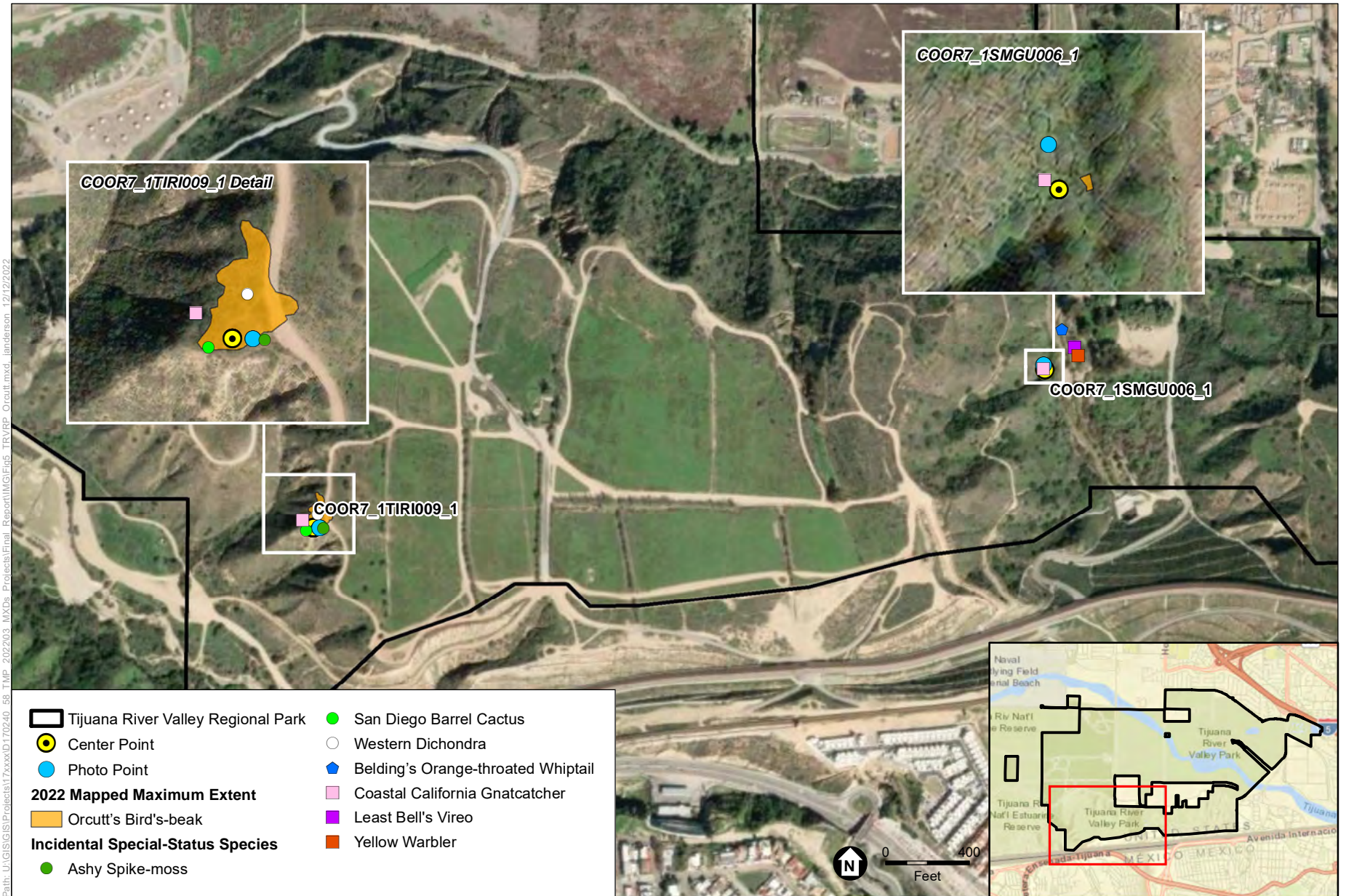
The two monitoring plots within the Orcutt's bird's-beak population in Tijuana River Valley Regional Park were monitored by ESA in 2022. A total of 81 Orcutt's bird's-beak plants were estimated within the monitoring plots. The entire population of Orcutt's bird's-beak plants within Tijuana River Valley Regional Park in 2022 is an estimated 315 plants. Monitoring plot, center point, photo point, and maximum extent are shown in **Figure 5**. Photo monitoring and representative photographs are provided in Appendix C. Additional special-status species, such as western dichondra (*Dichondra occidentalis*), San Diego barrel cactus (*Ferocactus viridescens*), and ashy spike-moss (Figure 5). Special-status species, Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), coastal California gnatcatcher, yellow warbler (*Setophaga petechia*), and least Bell's vireo, were incidentally observed outside of the monitoring plot during monitoring (Figure 5). The Orcutt's bird's-beak habitat contained invasive non-native grasses and herbs, particularly red brome and Saharan mustard (*Brassica tournefortii*).

Monitoring Plot Number COOR7_1TIRI009_1

Monitoring plot COOR7_1TIRI009_1 is in the southern portion of the Orcutt's bird's-beak population. A total of 71 Orcutt's bird's-beak plants were estimated within the monitoring plot; 50] to 75 percent were flowering, the remaining were vegetative. Zero to 10 percent of all plants showed potential sign of herbivory. Total vegetative cover within the plot was 65.5 percent, with 59.6 percent native cover and 5.9 percent non-native plant cover. The dominant native plant species within the monitoring plot was California sagebrush. Invasive non-native plant species included Australian saltbush (*Atriplex semibaccata*), Saharan mustard, red brome, tocalote, annual fescue, crown daisy (*Glebionis coronaria*), smooth cat's ear, narrowleaf cottonrose, and common catchfly (*Silene gallica*). Additional special-status plant species detected within the plot included western dichondra, San Diego barrel cactus, and ashy spike-moss. Special-status species, coastal California gnatcatcher, was incidentally observed outside of the monitoring plot during monitoring.

Monitoring Plot Number COOR7_1SMGU006_1

Monitoring plot COOR7_1SMGU006_1 is in the northwest portion of the Orcutt's bird's-beak population. A total of 10 Orcutt's bird's-beak plants were estimated within the monitoring plot; 25] to 50 percent were flowering, the remaining were vegetative. Total vegetative cover within the plot was 75.1 percent, with 61.5 percent native cover and 13.6 percent non-native plant cover. The dominant native plant species within the monitoring plot were bladderpod spiderflower (*Peritoma arborea*) and California brittlebush (*Encelia californica*). Invasive non-native plant species included oat (*Avena* spp.), Saharan mustard, red brome, tocalote, and shortpod mustard. Additional special-status species incidentally detected outside of the monitoring plot during monitoring included Belding's orange-throated whiptail, coastal California gnatcatcher, yellow warbler, and least Bell's vireo.



SOURCE: ESRI, 2022; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 5
Orcutt's Bird's-beak Monitoring Results
Tijuana River Valley Regional Park

Adaptive Management Recommendations

The results of the 2022 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Conduct focused invasive non-native plant species removal.** The TMP recommends invasive non-native grasses and forbs control within suitable habitat (ESA and ICF 2022) and SDMMP recommends controlling invasive non-native plant species to less than 20 percent cover. Although non-native cover was 5.9 percent and 13.6 percent, respectively, within the monitoring plots, on-site observations demonstrated the non-native cover adjacent to the COOR7_1SMGU006_1 monitoring plot to be higher, with increased percentages of invasive non-native mustards. To ensure the persistence of Orcutt's bird's-beak at the Tijuana River Valley Regional Park, invasive non-native plant control by a qualified restoration specialist is recommended at the COOR7_1SMGU006_1 monitoring plot to reduce invasive non-native grass and mustard species.
- **Limit unauthorized human access.** The TMP recommends controlling unauthorized human access within and adjacent to suitable habitat for Orcutt's bird's-beak, including closing and restoring unauthorized trails and roads resulting from U.S. Border Patrol activities (ESA and ICF 2022). To ensure the persistence of Orcutt's bird's-beak and suitable habitat for the species at the Tijuana River Valley Regional Park, coordination with Border Patrol to limit unauthorized access within and adjacent to suitable habitat for Orcutt's bird's-beak is recommended.

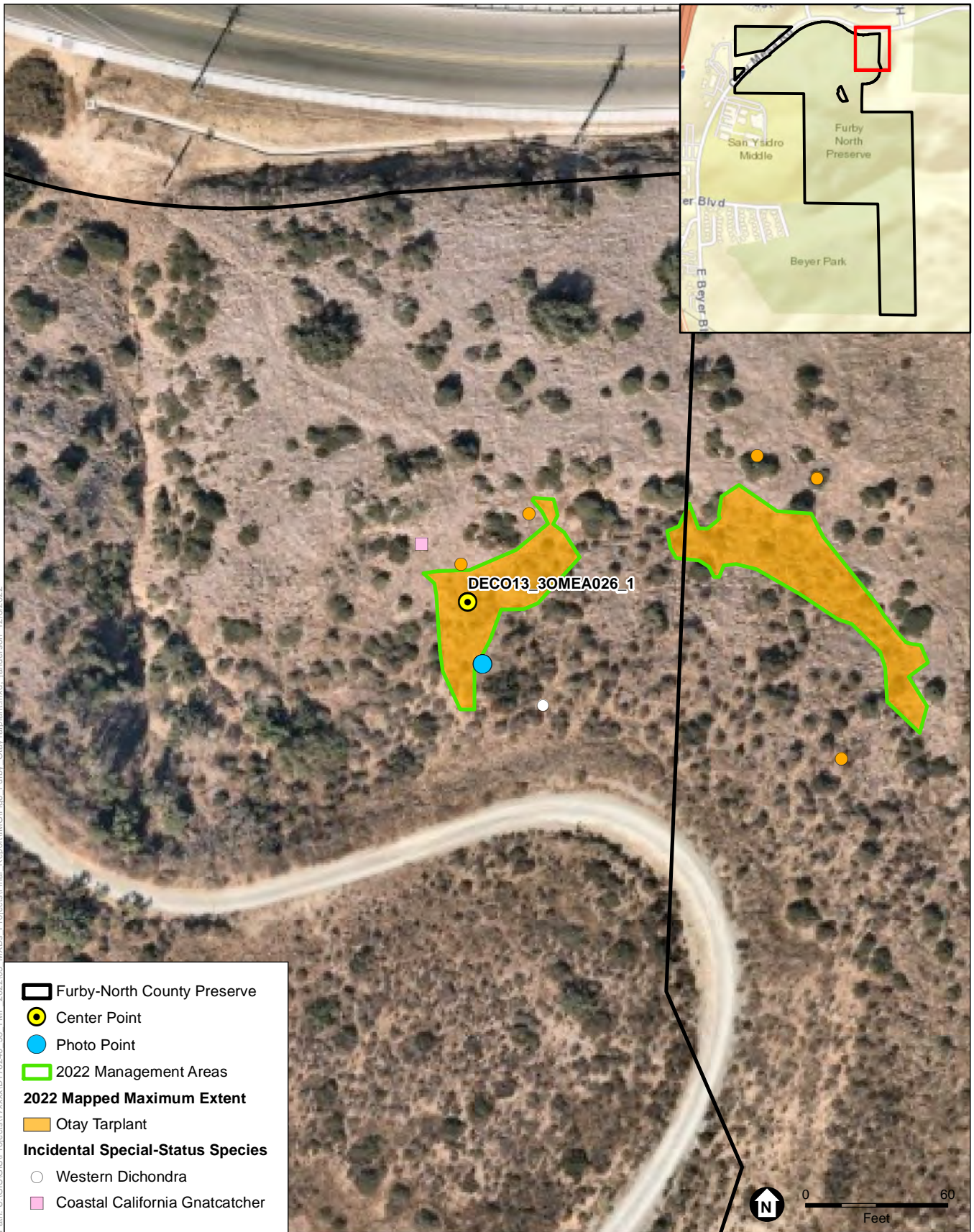
4.2.3 Otay Tarplant

4.2.3.1 Furby-North County Preserve

The one monitoring plot within the Otay tarplant population in Furby-North County Preserve was monitored by ESA in 2022. A total of 141 Otay tarplant plants were estimated within the monitoring plot. The entire population of Otay tarplant within Furby-North County Preserve in 2022 is an estimated 610 plants. Monitoring plot, center point, photo point, maximum extent, and invasive non-native plant management area are shown in **Figure 6**. Photo monitoring and representative photographs, including pre- and post-management conditions, are provided in Appendix C. Coastal California gnatcatcher was the only additional special-status species detected within the plot. Additional special-status species observed outside of the monitoring plot include western dichondra (Figure 6). The Otay tarplant habitat contained invasive non-native grasses and herbs, particularly soft brome, compact brome, and crown daisy.

Monitoring Plot Number DECO13_3OMEA026_1

Monitoring plot DECO13_3OMEA026_1 is in the western portion of the Otay tarplant population. A total of 141 Otay tarplant plants was estimated within the monitoring plot; over 75 percent were flowering, the remaining were vegetative. Total vegetative cover within the plot was 35.8 percent, with 16.8 percent native cover and 19.0 percent non-native plant cover. The dominant native plant species within the monitoring plot was jojoba (*Simmondsia chinensis*) and California sagebrush. Invasive non-native plant species included slender wild oat, black mustard, rigput brome, soft brome, compact brome, tocalote, annual fescue, Italian rye grass (*Festuca perennis*), crown daisy, shortpod mustard, and scarlet pimpernel. Coastal California gnatcatcher was the only additional special-status species detected within the plot. Additional special-status species observed outside of the monitoring plot include western dichondra (Figure 6).



Path: U:\GIS\GIS\Projects\17xxxx\170240_58_TMP_2022\03_MXD\Projects\Final_Report\IM\G\Fig6_Furby_OtayTarplant.mxd - Anderson 12/02/2022

SOURCE: Nearmap, 9/21/2020; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 6
Otay Tarplant Monitoring and Management Results
Furby-North County Preserve

Focused Management

Focused management occurred in 2022 in response to the low number of Otay tarplant individuals and high thatch and invasive non-native plant cover observed in 2021. As previously described, management consisted of carefully hand-pulling invasive non-native grasses directly adjacent to Otay tarplant individuals, followed by line trimming thatch and invasive non-native grasses surrounding the hand-pulled areas within an approximately 0.11-acre management area, as shown in Figure 6. No herbicide was used. Representative photographs of focused management are provided in Appendix C.

Adaptive Management Recommendations

The results of the 2022 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendation:

- **Conduct focused invasive non-native plant species and thatch removal.** The TMP recommends overall invasive non-native plant cover be kept to less than 20 percent and thatch to be removed (ESA and ICF 2022). Total non-native plant cover within the monitoring plot in 2022 was 19.0 percent and thatch cover was estimated to be 5.0 percent. To ensure the persistence of Otay tarplant at Furby-North County Preserve, it is recommended that thatch removal and invasive non-native plant control be continued by a qualified restoration specialist. Thatch removal should be implemented with weed eaters and rakes; debris should be hauled out and disposed of off-site at a county landfill.

4.2.4 Willowy Monardella

4.2.4.1 Sycamore Canyon/Goodan Ranch County Preserve

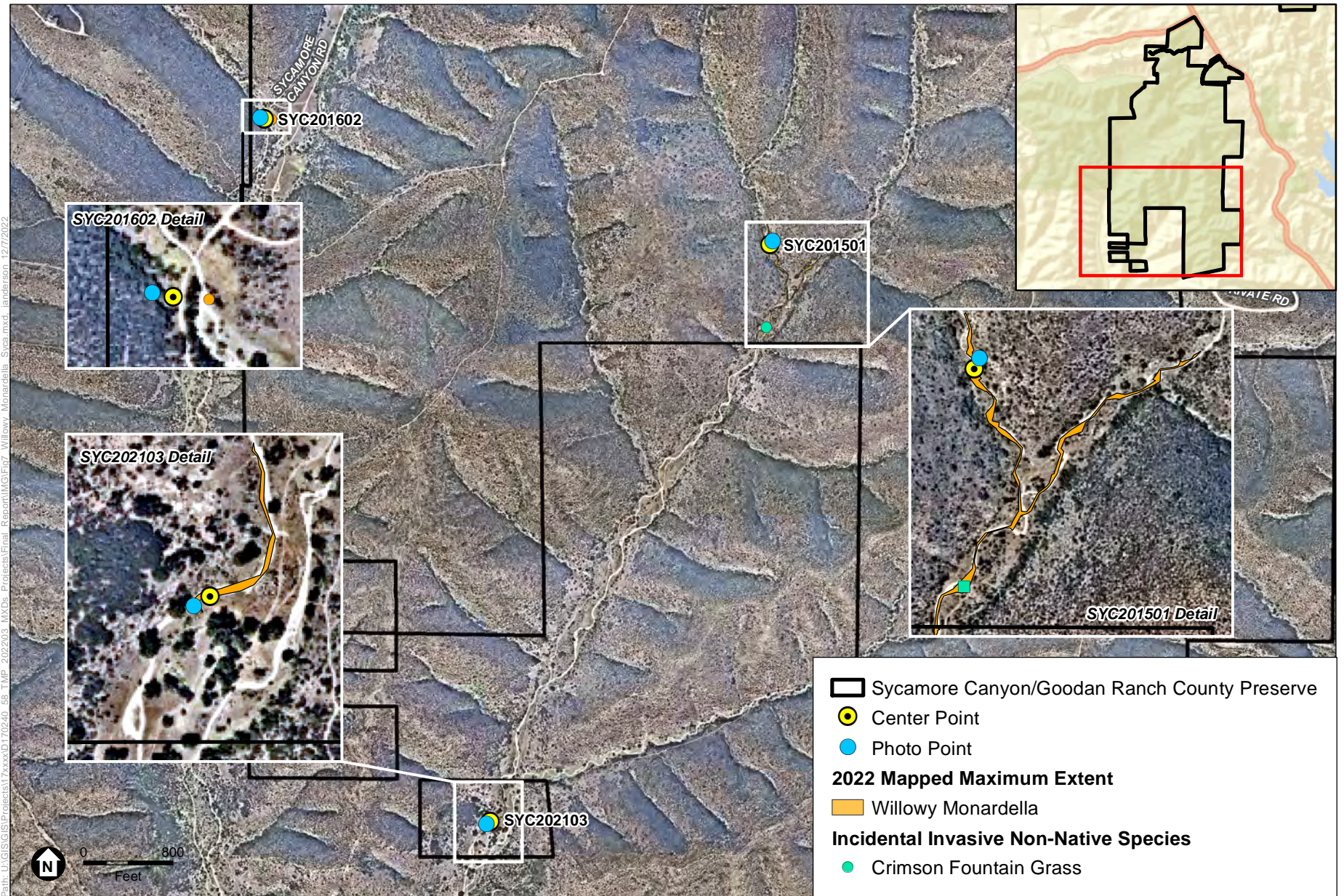
The three monitoring plots within the willowy monardella population in Sycamore Canyon/Goodan Ranch County Preserve were monitored by ESA in 2022. A total of 69 willowy monardella plants were estimated within the monitoring plots. The entire population of willowy monardella within Sycamore Canyon/Goodan Ranch County Preserve is an estimated 332 individual plants. Monitoring plots, center points, photo points, and maximum extent are shown in **Figure 7**. Photo monitoring and representative photographs are provided in Appendix C. No special-status plant species were observed within the three monitoring plots. Across all monitoring plots, willowy monardella habitat contained invasive non-native grasses and herbs, particularly slender wild oat, purple false brome, and brome grasses. Invasive non-native crimson fountain grass (*Pennisetum setaceum*) was detected within the willowy monardella population associated with monitoring plot number SYC201501. Additional monitoring data, including number of patches, area covered by patches, volume of patches, and growth stages of the plants in each patch, were collected (**Table 14**).

Monitoring Plot Number SYC201501

Monitoring plot SYC201501 is in the central portion of the willowy monardella population. A total of 55 willowy monardella plants were estimated within the monitoring plot; over 75 percent were in flower, the remaining were vegetative or fruiting. Total vegetative cover within the plot was 33.8 percent, with 27.6 percent native cover and 6.2 percent non-native cover. The dominant native plant species within the monitoring plot was California buckwheat (*Eriogonum fasciculatum*). Invasive non-native plant species included slender wild oat, purple false brome, rigput brome, soft brome, compact brome, tocalote, and filaree. No additional special-status plant species were detected within the plot.

TABLE 14
**WILLOWY MONARDELLA ADDITIONAL MONITORING DATA: SYCAMORE CANYON/
 GOODAN RANCH COUNTY PRESERVE**

Monitoring Plot	Patch Number	Width (m)	Length (m)	Height (m)	Area (width x length)	Volume (width x length x height)	# of Individuals within Patch	Growth Stage
SYC201501	1	1.00	1.00	0.70	1.00	0.70	2	2 Adult
	2	0.80	0.70	0.50	0.56	0.28	1	1 Adult
	3	1.50	1.10	0.50	1.65	0.825	3	3 Adult
	4	0.30	0.30	0.40	0.09	0.04	1	1 Adult
	5	0.35	0.35	0.50	0.12	0.06	1	1 Adult
	6	1.50	1.00	0.55	1.50	0.825	3	3 Adult
	7	2.30	2.40	0.65	5.52	3.59	5	5 Adult
	8	0.50	0.50	0.43	0.25	0.11	1	1 Adult
	9	0.55	0.56	0.43	0.31	0.13	1	1 Adult
	10	0.78	0.50	0.48	0.39	0.19	1	1 Adult
	11	1.30	1.10	0.50	1.43	0.72	1	1 Adult
	12	0.70	0.60	0.42	0.42	0.18	2	2 Adult
	13	1.50	1.10	0.58	1.65	0.96	4	4 Adult
	14	0.90	1.10	0.53	0.99	0.52	2	2 Adult
	15	1.73	1.70	0.42	2.94	1.24	2	2 Adult
	16	1.90	0.70	0.42	1.33	0.56	3	3 Adult
	17	2.20	1.60	0.57	3.52	2.01	5	5 Adult
	18	0.70	0.93	0.50	0.65	0.33	2	2 Adult
	19	5.30	2.30	0.55	12.19	6.70	8	8 Adult
	20	1.80	0.84	0.60	1.51	1.27	2	2 Adult
	21	1.00	1.60	0.62	1.60	0.99	3	3 Adult
	22	0.65	1.40	0.53	0.91	0.48	1	1 Adult
SYC201602	1	0.70	1.10	0.57	0.77	0.44	3	1 Mature 2 Adult
SYC202103	1	1.10	1.10	0.60	1.21	0.73	1	1 Adult
	2	1.30	0.80	0.58	1.04	0.60	4	1 Mature 3 Adult
	3	1.15	0.55	0.50	0.63	0.32	2	2 Adult
	4	0.47	0.33	0.42	0.16	0.07	3	1 Juvenile 1 Mature 1 Adult
	5	1.50	1.50	0.70	2.25	1.58	1	1 Adult



SOURCE: Nearmap, 4/18/2021; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report

Monitoring Plot Number SYC201602

Monitoring plot SYC201602 is in the western portion of the willowy monardella population. A total of three willowy monardella plants were estimated to be within the monitoring plot, 50 to 75 percent were vegetative, the remaining were flowering. Total vegetative cover within the plot was 21.2 percent, with 13.0 percent native cover and 8.2 percent non-native cover. The dominant native plant species within the monitoring plot was California buckwheat and smooth mountain-mahogany (*Cercocarpus minutiflorus*). Invasive non-native plant species included slender wild oat, purple false brome, ripgut brome, soft brome, compact brome, tocalote, filaree, annual fescue, shortpod mustard, and common catchfly. No additional special-status plant species were detected within the plot.

Monitoring Plot Number SYC202103

Monitoring plot SYC202103 is in the southern portion of the willowy monardella population. A total of 11 willowy monardella plants were estimated within the monitoring plot; 50 to 75 percent were flowering and the remaining were vegetative. Total vegetative cover within the plot was 28.8 percent, with 20.6 percent native cover and 8.2 percent non-native cover. The dominant native plant species within the monitoring plot was California buckwheat. Invasive non-native plant species included slender wild oat, purple false brome, ripgut brome, soft brome, compact brome, tocalote, filaree, annual fescue, and shortpod mustard. No additional special-status plant species were detected within the plot.

Adaptive Management Recommendations

The results of the 2022 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendation:

- **Thin native vegetation to reduce competition.** For monitoring plot number SYC201602 specifically, thinning of California buckwheat should be considered to reduce potential native competition to the willowy monardella plants.

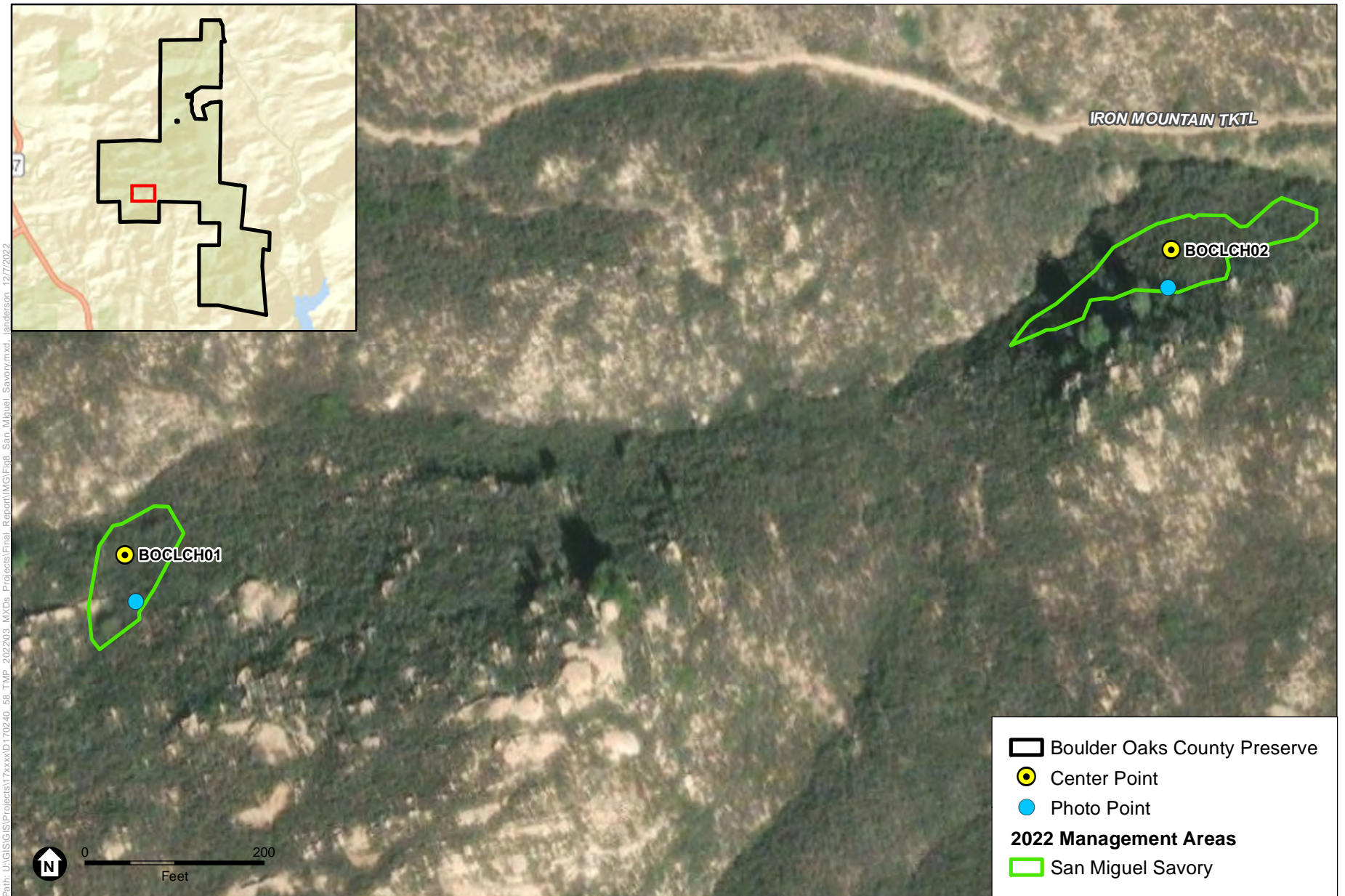
4.2.5 San Miguel Savory

4.2.5.1 Boulder Oaks County Preserve

As outlined in the TMP, monitoring for San Miguel savory is recommended at Boulder Oaks County Preserve every 3 years and is next scheduled for 2023; therefore, MSP rare plant monitoring for this species was not conducted this year. However, focused management was conducted in 2022 based on 2021 TMP monitoring results and adaptive management recommendations (ESA 2022b).

Focused Management

Focused management occurred in 2022 in response to the presence of invasive non-native plant species detected in 2021. As previously described, management consisted of carefully removing non-native plants by hand within 12 inches of the San Miguel savory plants in the approximately 0.27-acre management areas shown in **Figure 8**. Non-native species consisted primarily of young non-native grasses. High-priority invasive non-native perennial veldtgrass (*Ehrharta calycina*) was still detected within and adjacent to monitoring plot BOCLCH02. No herbicide was used. Representative photographs of focused management are provided in Appendix C.



SOURCE: ESRI, 2021; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report

Figure 8
San Miguel Savory Focused Management
Boulder Oaks County Preserve

Adaptive Management Recommendations

The incidental observations of high-priority invasive non-native perennial veldtgrass during 2022, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendation:

- **Conduct focused invasive non-native plant species removal within and around BOCLCH02.** The TMP recommends overall invasive non-native plant cover be kept to less than 20 percent (ESA and ICF 2022). During 2022 management activities, total non-native plant cover was estimated to be low within both monitoring plots; however, high-priority invasive non-native perennial veldtgrass was still detected within and around monitoring plot BOCLCH02. To limit the expansion of perennial veldtgrass and ensure the persistence of San Miguel savory at Boulder Oaks Preserve, it is recommended that invasive non-native plant control be continued within monitoring plot BOCLCH02 by a qualified restoration specialist, with a focus on treatment of perennial veldtgrass populations. In addition, treatment should expand to also include areas around monitoring plot BOCLCH02 to prevent encroachment of perennial veldtgrass. Herbicide applications should be conducted when invasive non-native grasses have reached 2 to 3 inches in height during the peak of the growing season.

4.2.6 Variegated Dudleya

4.2.6.1 Lusardi Creek County Preserve

As outlined in the TMP, monitoring for variegated dudleya is recommended at Lusardi Creek County Preserve every 3 years and is next scheduled for 2023; therefore, MSP rare plant monitoring for this species was not conducted this year. However, focused management was conducted based on 2021 TMP monitoring results and adaptive management recommendations (ESA 2022b).

Focused Management

Focused management occurred in 2022 in response to the moderate thatch cover consisting of invasive non-native plant species detected in 2021. As previously described, though no variegated dudleya were detected in 2022, management consisted of carefully removing by hand invasive non-native plants within the herbivory fencing. Line trimmers were then used outside of the herbivory fencing in surrounding open areas to cut standing invasive non-native grasses and herbs to 1 to 2 inches from the ground. Focused management for variegated dudleya was conducted within an approximately 0.75-acre management area, shown in **Figure 9**. Non-native cover consisted primarily of purple false brome and other non-native grasses. No herbicide was used. Representative photographs of focused management are provided in Appendix C.



Path: U:\GIS\Projects\7xxxx\170240_58_TMP_2022\03_MXD\Projects\Final_Report\IM\G\Fig9_Lusardi_DUYA.mxd_janderson_10/4/2022

SOURCE: ESRI, 2021; ESA, 2022. COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 9
 Variegated Dudleya Focused Management
 Lusardi Creek County Preserve

Adaptive Management Recommendations

The incidental observations of thatch and non-native plant species in 2022, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendation:

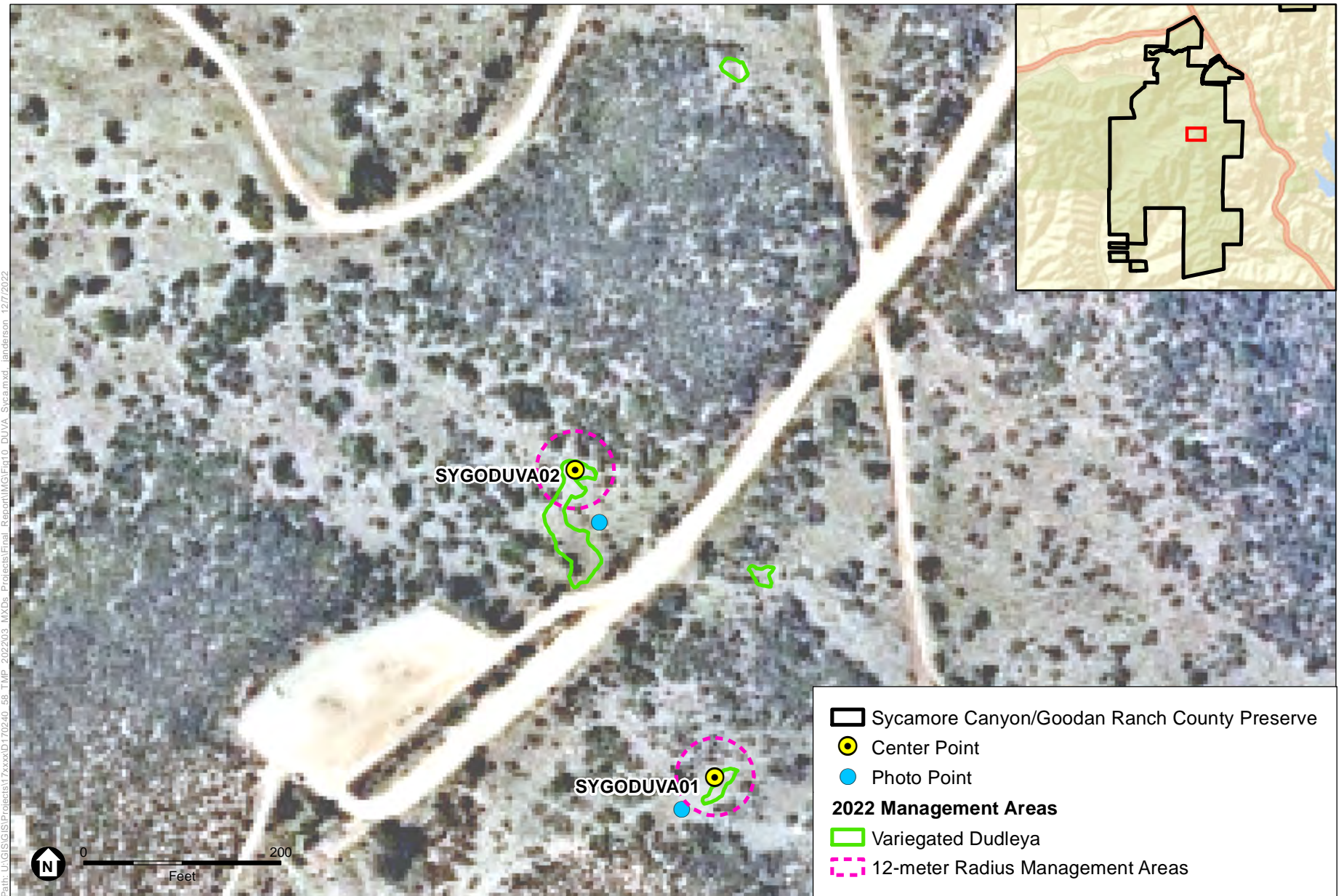
- **Conduct focused invasive non-native plant species removal.** The TMP recommends overall invasive non-native plant cover be kept to less than 20 percent (ESA and ICF 2022). Total non-native plant cover was estimated to be less than 20 percent within the monitoring plot during 2022 management; however, no variegated dudleya were observed incidentally. Thatch removal and invasive non-native plant treatment is recommended to be continued by a qualified restoration specialist to ensure the habitat within Lusardi Creek County Preserve remains suitable for variegated dudleya. Invasive non-native plant species within the previously installed herbivory fencing and any invasive non-native plants within 18 inches of variegated dudleya plants should be carefully pulled by hand. Invasive non-native plants within the management area, but outside of the herbivory fencing, can be trimmed with a mechanical weed trimmer to 1–2 inches from the ground. All biomass should be manually collected, bagged, and properly disposed of at an approved off-site facility. Conditions of the previously installed herbivory fencing and fence posts should be checked during management.

4.2.6.2 Sycamore Canyon/Goodan Ranch County Preserve

As outlined in the TMP, monitoring for variegated dudleya is recommended at Sycamore Canyon/Goodan Ranch County Preserve every 3 years and is next scheduled for 2023; therefore, MSP rare plant monitoring for this species was not conducted this year. However, focused management was conducted based on 2021 TMP monitoring results and adaptive management recommendations (ESA 2022b).

Focused Management

Focused management occurred in 2022 in response to the greater than 20 percent invasive non-native plant cover detected in 2021. As previously described, management consisted of carefully removing invasive non-native plants by hand within 18 inches of variegated dudleya individuals throughout the previously mapped population maximum extents. Focused management occurred in an approximately 0.10-acre management area (**Figure 10**), with a focus on areas where variegated dudleya were actively growing. Once hand-pulling was completed, line trimmers were used to cut and remove remaining invasive non-native grasses surrounding the variegated dudleya populations within approximately 12-meter radius circles around both established center points as well as within an open area directly upslope of monitoring plot SYGODUVA02 (adjacent to the existing access road). Non-native cover consisted primarily of tocalote, purple false brome, and other non-native grasses. No herbicide was used. Representative photographs of focused management are provided in Appendix C.



SOURCE: Nearmap, 4/18/2021; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report

Figure 10
Variegated Dudleya Focused Management
Sycamore Canyon/Goodan Ranch County Preserve

Adaptive Management Recommendations

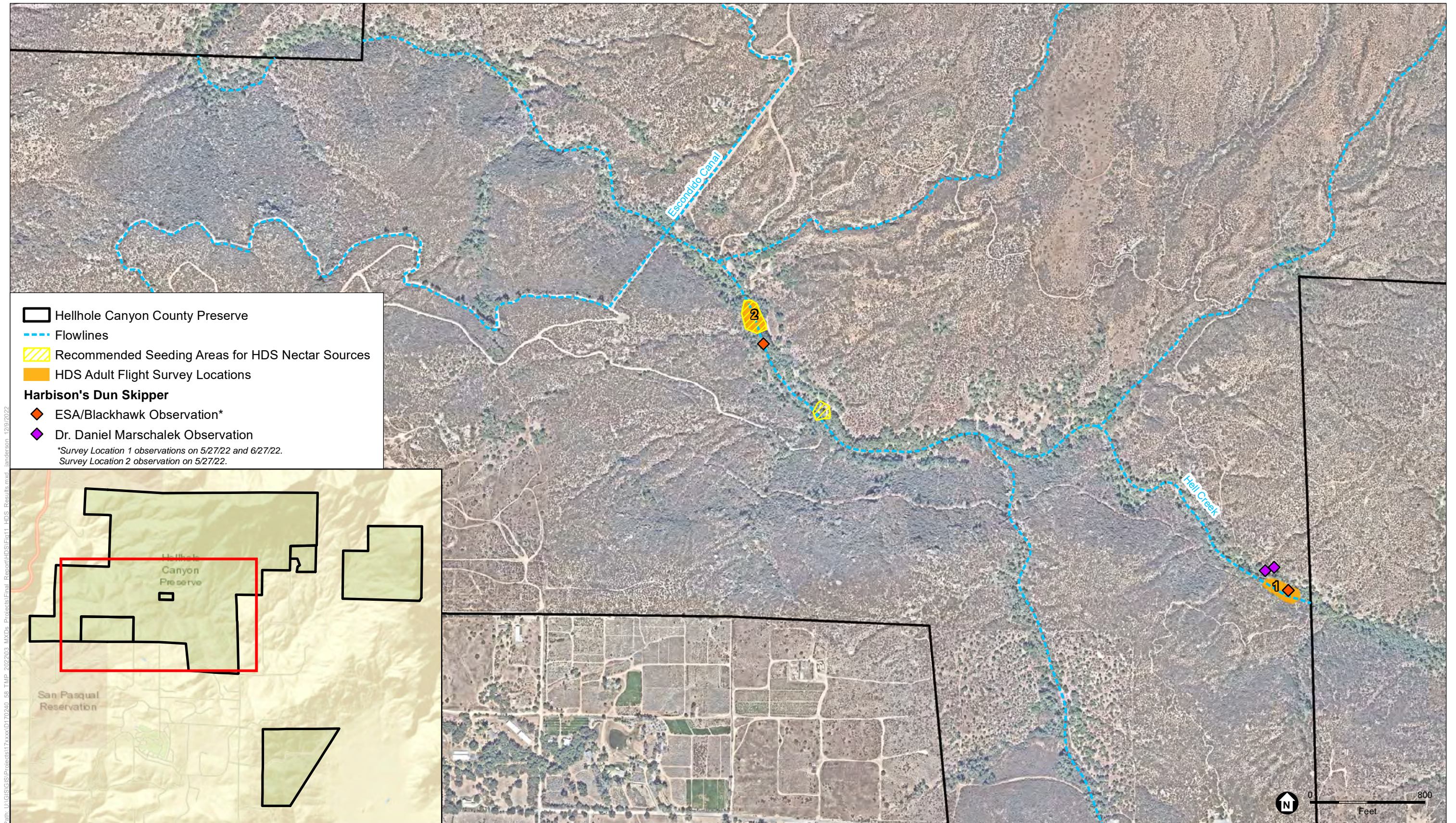
MSP rare plant monitoring was not conducted this year; however, non-native plant species and thatch cover were estimated to be over 20 percent and variegated dudleya was detected within both monitoring plots (SYGODUVA01 and SYGODUVA02). The incidental observations of thatch and non-native plant species in 2022, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendation:

- **Conduct focused invasive non-native plant species removal.** The TMP recommends overall invasive non-native plant cover be kept to less than 20 percent (ESA and ICF 2022). Total non-native plant cover was estimated to be over 20 percent within the monitoring plots during 2022 management. Thatch removal and invasive non-native plant treatment is recommended to be continued by a qualified restoration specialist to ensure persistence of variegated dudleya at Sycamore Canyon/Goodan Ranch County Preserve. Invasive non-native plants within 18 inches of variegated dudleya plants should be carefully pulled by hand. Mechanical weed trimmers can be used to dethatch remaining invasive non-native species to 1–2 inches from the ground surrounding variegated dudleya occurrences within approximately 12-meter radius circles around each of the established plot center points, as well as invasive non-native grass patches directly upslope of the variegated dudleya population to reduce a potential invasive non-native grass seed source. All biomass should be manually collected, bagged, and properly disposed of at an approved off-site facility.

4.3 Harbison’s Dun Skipper

4.3.1 Adult Flight Surveys

HDS adult flight surveys were conducted at two locations around large patches of San Diego sedge within suitable habitat along Hell Creek and its southern tributary in Hellhole Canyon County Preserve. During the first adult flight survey on May 27, 2022, one HDS pair was observed at survey location 1, where the male was observed basking on California mugwort (*Artemisia douglasiana*) and southern California grape (*Vitis girdiana*). Another HDS pair was observed courting at survey location 2, where the male HDS nectared on black sage and basked on southern California grape and ragweed (*Ambrosia psilostachya*) and the female HDS was observed flying low around San Diego sedge. During the second adult flight survey on June 17, 2022, one HDS individual was observed at survey location 1, where it was observed resting on southern California grape. Monitoring locations, HDS detections, and incidental special-status species detections are depicted in **Figure 11**. All butterfly species and potential nectar sources observed during the two adult flight surveys are presented in **Table 15**. Representative photographs from adult surveys, including HDS observations, are provided in **Appendix E, Harbison’s Dun Skipper Representative Photographs, Field Forms, and Lyons & Marschalek Report**.



SOURCE: Nearmap, 2020; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
 Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 11
 Harbison's Dun Skipper Monitoring Results
 Hellhole Canyon County Preserve

This page is intentionally left blank.

TABLE 15
HARBISON'S DUN SKIPPER ADULT FLIGHT SURVEY RESULTS: HELLHOLE CANYON COUNTY PRESERVE

Butterflies Observed		Potential Nectar Sources Observed	
Common Name	Scientific Name	Common Name	Scientific Name
Orange sulphur	<i>Colias eurytheme</i>	Ragweed	<i>Ambrosia psilostachya</i>
Funereal duskywing	<i>Erynnis funeralis</i>	California false indigo	<i>Amorpha californica</i>
San Bernardino blue	<i>Euphilotes bernardino</i>	Italian thistle*	<i>Carduus pycnocephalus*</i>
Harbison's dun skipper	<i>Euphyes vestris harbisoni</i>	Common sandaster	<i>Corethrogyne filaginifolia</i>
Common buckeye	<i>Junonia coenia grisea</i>	Golden yarrow	<i>Eriophyllum confertiflorum</i>
Marine blue	<i>Leptotes marina</i>	Seep monkey flower	<i>Erythranthe guttata</i>
Lorquin's admiral	<i>Limenitis lorquini</i>	Shortpod mustard ^{a*}	<i>Hirschfeldia incana^{a*}</i>
Dainty sulphur	<i>Nathalis iole</i>	Golden yarrow	<i>Eriophyllum confertiflorum</i>
Western tiger swallowtail	<i>Papilio rutulus</i>	Chaparral bush mallow	<i>Malacothamnus fasciculatus</i>
Cabbage white	<i>Pieris rapae</i>	Shortpod mustard*	<i>Hirschfeldia incana*</i>
Umber skipper	<i>Poanes melane</i>	Branching phacelia	<i>Phacelia ramosissima</i>
Checkered white	<i>Pontia protodice</i>	Ladies' tobacco	<i>Pseudognaphalium californicum</i>
Purplish hedgerow hairstreak	<i>Satyrium saepium chlorophora</i>	Black sage	<i>Salvia mellifera</i>
Gray hairstreak	<i>Strymon melinus pudica</i>	Hedge nettle	<i>Stachys rigida</i>
California dogface	<i>Zerene eurydice</i>		

NOTES:

^a Harbison's dun skipper was observed nectaring on this species during 2022 adult flight surveys.

* Non-native plant species.

Habitat assessments were conducted at both adult flight survey locations concurrently with the first adult flight survey. The woodland habitat at survey location 1 consisted of 10 percent oaks, 10 percent sycamores, and 40 percent willows. The woodland habitat at survey location 2 consisted of 50 percent oaks, 15 percent sycamores, and 25 percent willows. The condition of San Diego sedge at both survey locations ranged from all green (healthy) to mostly brown (dead), but were predominantly all green, suggesting minor drought or water stress. Drought was the main threat detected at the survey locations during the threats assessment as other plant species within the habitat, such as willows and oaks, showed signs of drought stress. Additional threats detected at the survey locations include tree pests such as gold-spotted oak borer and Kuroshio shot hole borer (*Euwallacea kuroshio*). These tree pests have led to oak mortality at the survey locations. While San Diego sedge is not restricted to oak woodlands, this species is commonly found inhabiting partially shaded riparian oak woodlands (Brown 1991). The full habitat assessment data matrix can be found in Appendix E.

Regional monitoring efforts for Harbison's dun skipper included monitoring surveys performed by Abigail Lyons and Dr. Daniel Marschalek with the University of Central Missouri. Dr. Marschalek and his team conducted adult flight survey monitoring and a habitat assessment within Hellhole Canyon County Preserve in 2022 as well. They detected two HDS individuals within Hellhole Canyon County Preserve on June 18, 2022. These HDS detections are also depicted in Figure 11. The final survey report by Abigail Lyons and Dr. Daniel Marschalek submitted to DPR is provided in Appendix E.

4.3.2 Adaptive Management Recommendations

The results of the 2022 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Seed with potential native nectar sources.** The San Diego sedge host plant population within Hell Creek and its southern tributary remained abundant in 2022, but drought conditions can impact the health of the larval host plant as it requires relatively higher soil moisture. Based on adult flight surveys, HDS adults have very limited nectar sources immediately adjacent to San Diego sedge plants. Seeding of potential native nectar sources should be implemented around the two adult flight survey monitoring locations and a grassy area adjacent to Hell Creek and large patches of San Diego sedge (Figure 11). Seeding considerations include:
 - Potential native nectar sources can include hedge nettle (*Stachys rigida*), cobweb thistle (*Cirsium occidentale*), California loosestrife (*Lythrum californicum*), and chaparral bushmallow (*Malacothamnus fasciculatus*) (Marschalek and Deutschman 2015, Marschalek and Deutschman 2016).
 - Document the seed source (collection location) and confirm it is ecologically appropriate for Hellhole Canyon County Preserve. Seed may be rejected based on its source.
 - Document seed purity and germination percentages to determine pure live seed quantity.
 - Apply seed in the fall, prior to first rains (e.g., November). Seed applied at other times of the year are more likely to be lost to predation and/or not receive sufficient rainfall to support germination and survival of seedlings.
 - Prepare seeding areas in willow riparian and oak riparian woodland areas by thinning thatch and reducing weed presence/competition, as needed. The optimal seeding condition is to provide seed direct contact with the soil and space to grow while retaining some organic debris (e.g., organic mulch) and existing native plant growth in place.
 - Apply seed by hand. Select method (e.g., selective hand application or use of “belly spreader”) based on the quantity of seed and size of seeding areas. Lightly rake seed into the top ¼ inch of soil and provide “light” natural organic mulch cover (approximately less than 80% cover to provide light and space for germinates).
 - Apply species in ecologically appropriate areas (i.e., closer or further from the creek) within willow riparian and oak riparian woodland areas. Depending on the species and habitat conditions, species may be seeded together or in separate locations.
 - Document species and quantities of seed applied (including dates and personnel), and locations via GPS coordinates.
 - Conduct follow-up maintenance and monitoring to assess seeding success, site conditions, and implement as needed follow-up management activities.
- **Coordinate with other entities prior to conducting management or monitoring.** Future monitoring for HDS should be coordinated with Dr. Daniel Marschalek with the University of Central Missouri to implement consistent monitoring protocols, limit duplication of efforts, provide cumulative adaptive management recommendations, and provide transparency on any implemented management activities.

4.4 Arroyo Toad

Regional monitoring efforts for arroyo toad included monitoring surveys performed by USGS permitted biologists (recovery permit TE-045991-19.1). USGS permitted biologists conducted arroyo toad monitoring at five 250-meter stream segments, divided into 125-meter paired segments of the Santa Maria Creek within Ramona Grasslands County Preserve on May 19, 2022.

Precipitation within the county was below average in 2022, and survey sites were dry or nearly dry. Those with water had no surface flow and water present was stagnant.

No arroyo toad tadpoles were observed at any survey sites. Invasive non-native American bullfrog (*Lithobates catesbeianus*) and red swamp crayfish (*Procambarus clarkii*) were each recorded at two sites (Table 16).

4.5 Tricolored Blackbird

Regional monitoring efforts for tricolored blackbird (*Agelaius tricolor*) included monitoring surveys performed by AECOM biologists. AECOM biologists conducted tricolored blackbird monitoring within Ramona Grasslands County Preserve on June 8, 2022, following the SDMMMP San Diego County Tricolored Blackbird Breeding Surveys and Habitat and Threat Assessments Protocol.

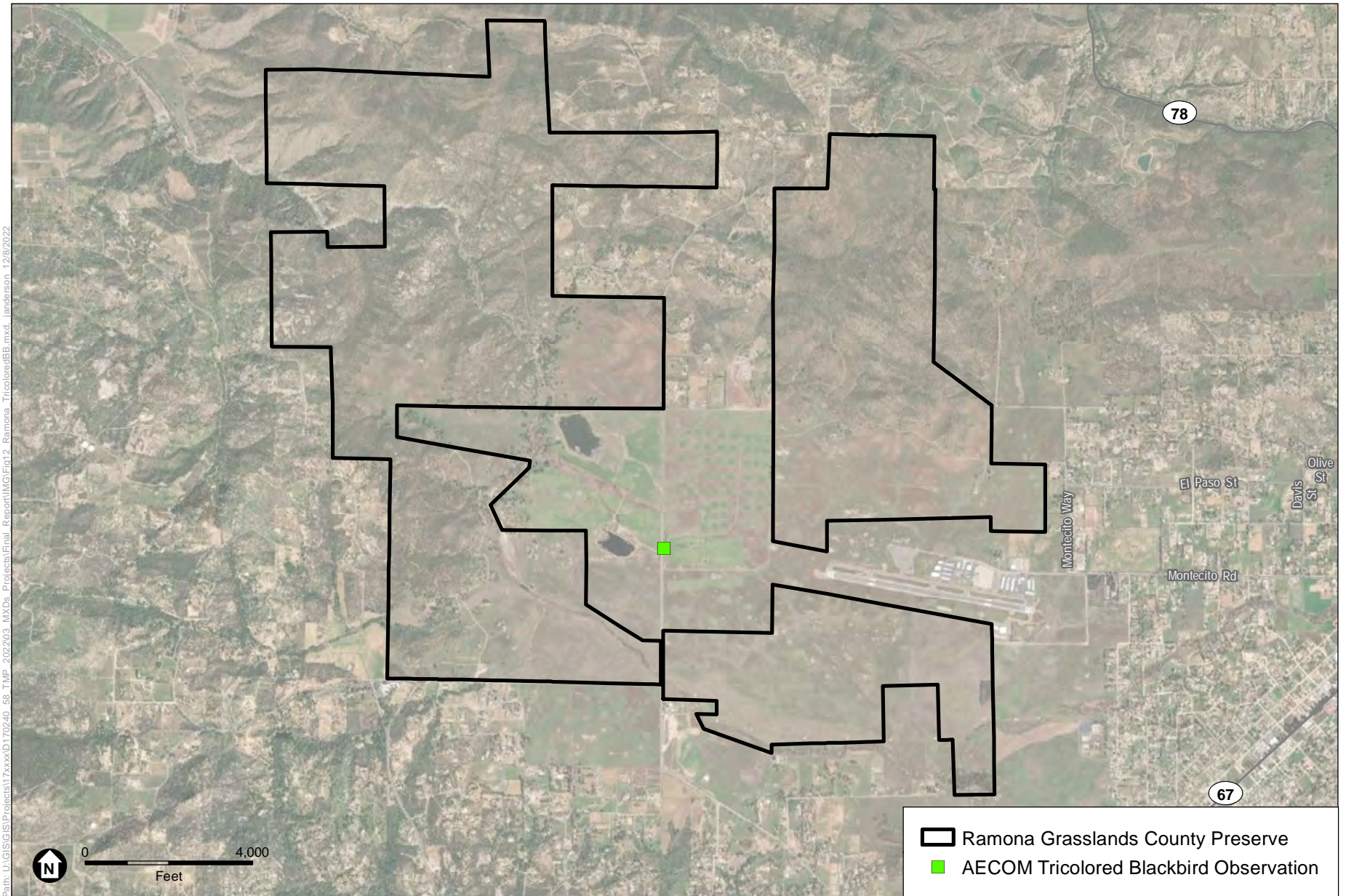
No tricolored blackbirds were observed within the Ramona Grasslands County Preserve. Two adult tricolored blackbirds were observed flying off-site on the adjacent Ramona Municipal Water District property (Figure 12).

4.6 Burrowing Owl

Monitoring polygons were revised in 2019 based on the monitoring results that year; 2022 presence/absence and habitat suitability monitoring for burrowing owl occurred across the nine revised monitoring polygons (Figure 13). During the 2022 breeding burrowing owl surveys within Ramona Grasslands County Preserve, no burrowing owls, sign of burrowing owls, and/or active burrows were observed by ESA. Incidentally observed special-status species included American peregrine falcon (*Falco peregrinus anatum*), bald eagle, Bell's sage sparrow (*Artemisiospiza belli belli*), California horned lark (*Eremophila alpestris actia*), Cooper's hawk (*Accipiter cooperii*), gadwall (*Mareca strepera*), golden eagle, grasshopper sparrow (*Ammodramus savannarum*), Lewis' woodpecker (*Melanerpes lewis*), red-shouldered hawk (*Buteo lineatus*), tricolored blackbird, turkey vulture, vermilion flycatcher (*Pyrocephalus rubinus*), Oregon vesper sparrow (*Pooecetes gramineus affinis*), western bluebird (*Sialia mexicana*), southern mule deer (*Odocoileus hemionus fuliginata*), and San Diego black-tailed jackrabbit. The habitat and threats assessment survey included an evaluation of the vegetation as it pertains to the needs of the burrowing owl. Field forms, including the habitat and threats assessment form, are included in Appendix F, *Burrowing Field Forms*. During the first survey in March, the grass height was relatively short (between 4 and 12 inches) providing conditions suitable for high detectability for owls, their burrow, and/or their sign. Due to growth of summer annual plants, the vegetation was taller during the surveys from April through June (between 16 and 36 inches) providing low detectability for owls, their burrows, and/or their sign.

TABLE 16
USGS ARROYO TOAD SURVEY RESULTS

Survey Site	Start GPS	End GPS	Species Observed								
			Mosquitofish <i>Gambusia affinis</i>	American bullfrog <i>Lithobates catesbeianus</i>	Red swamp crawfish <i>Procambarus clarkia</i>	Baja California tree frog <i>Pseudacris hypochondriaca</i>	Two-striped garter snake <i>Thamnophis hammondi</i>	Odonate larvae	Unknown Fish	Unknown Frog Larvae	
A-Reach 025-Santa Maria Creek-125	33.06072, -116.95152	33.059875, -116.95086	X						X		
B-Reach 0245-Santa Maria Creek-125	33.059875, -116.95086	33.05864, -116.95054				X					
A-Reach 029-Santa Maria Creek-125	33.05444, -116.94578	33.053133, -116.94597	X	X	X			X			
B-Reach 029-Santa Maria Creek-125	33.053133, -116.94597	33.05219, -116.94556	X		X	X		X			
A-Reach 034-Santa Maria Creek-125	33.04498, -116.94966	33.043648, -116.949188	X	X						X	X
B-Reach 034-Santa Maria Creek-125	33.043648, -116.949188	33.0428, -116.94897	X								
A-Reach 039-Santa Maria Creek-125	33.03703, -116.94184	33.03668, -116.940297									
B-Reach 039-Santa Maria Creek-125	33.03668, -116.940297	33.03575, -116.93965									
A-Reach 044-Santa Maria Creek-125	33.02999, -116.93184	33.029923, -116.930212									
B-Reach 044-Santa Maria Creek-125	33.029923, -116.930212	33.02952, -116.92922									

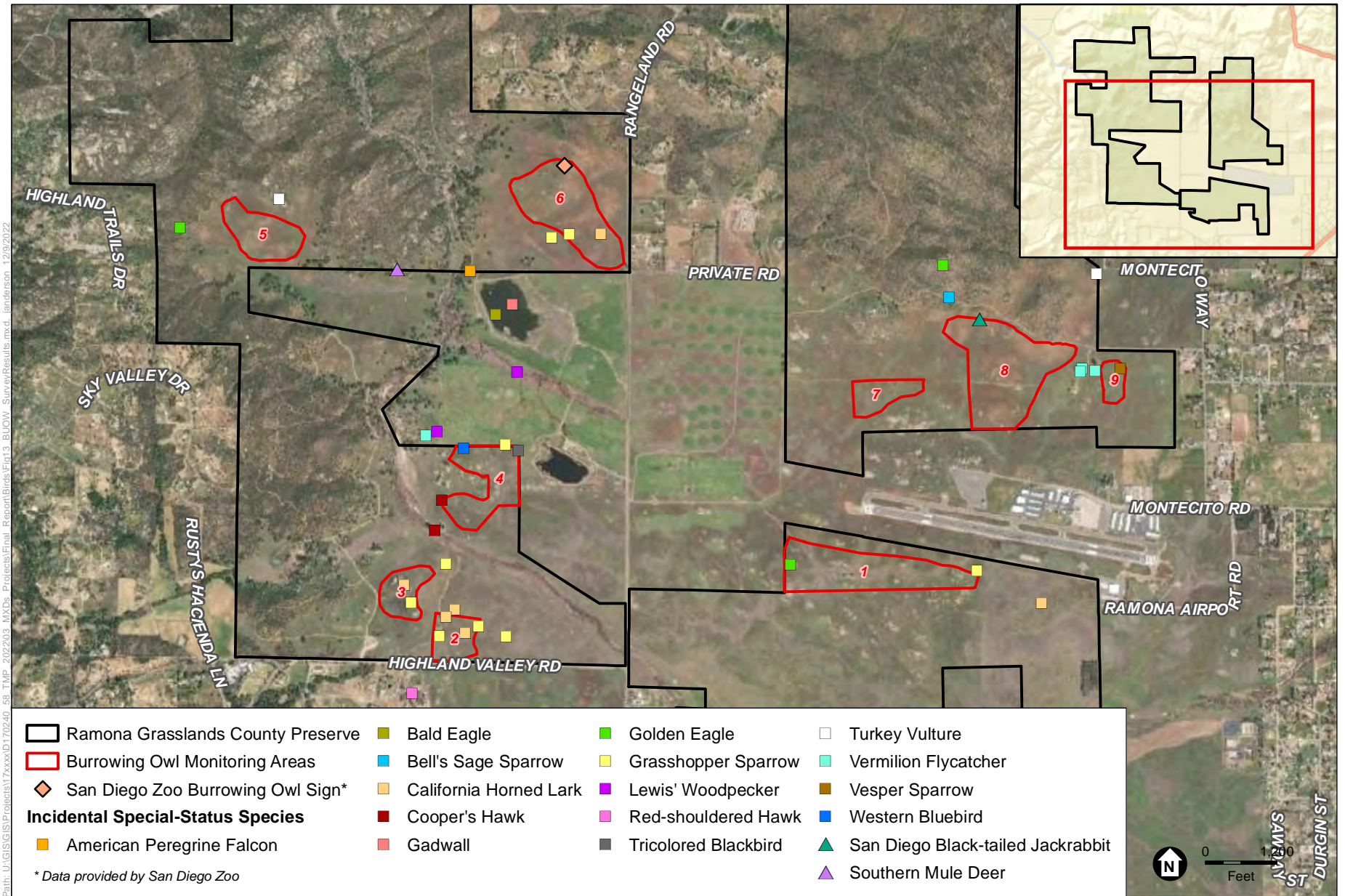


SOURCE: ESRI, 2021; AECOM, 2022; ESA, 2022

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
 Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report

Figure 12
 Tricolored Blackbird Monitoring Results
 Ramona Grasslands County Preserve





SOURCE: ESRI; ESA, 2022

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 13
Burrowing Owl Monitoring Results
Ramona Grasslands County Preserve

The San Diego Zoo Institute for Conservation Research conducted a burrowing owl survey roughly following the CDFW 2012 Staff Report on Burrowing Owl Mitigation guidelines within Ramona Grasslands County Preserve on July 7, 2022. They detected burrowing owl sign in the form of a pellet and whitewash near monitoring polygon 6 (Figure 13).

4.6.1 Habitat and Threats Assessment

Habitat and threats were assessed during surveys to determine: (1) if identified threats are having a direct negative effect on the species or habitat, and (2) if adaptive management actions need to be implemented.

Suitable habitat characteristics include open, relatively flat expanses of grassland with short, sparse vegetation for foraging and presence of small mammal burrows for nesting, breeding, and roosting. Overall, Ramona Grasslands County Preserve provides high-quality suitable habitat. Habitat assessments for each monitoring polygon is as follows. Monitoring polygon 1 had very few ground squirrel observations or burrow complexes; other small mammal burrows (gophers and cottontail) were present but sparse. This polygon had several large rock outcrops, but fewer burrows around them than in other parcels. Monitoring polygons 2 and 3 had a high concentration of ground squirrel colonies, most of which were directly adjacent to rocky outcrops, and suitable grassland habitat. Monitoring polygon 4 consisted of grassland with several rocky outcrops. The ground squirrel colonies were concentrated around the rocky outcrops. The highest concentration was in the northern portion of the monitoring polygon just before the Preserve boundary. Monitoring polygons 5 and 6 had multiple ground squirrel colonies within their rolling grasslands landscape. These monitoring polygons have ideal suitable habitat for burrowing owl. Monitoring polygons 7, 8, and 9 were characterized by relatively flat grasslands and multiple ground squirrel colonies. Monitoring polygon 8 had the highest concentration of burrows, and the majority of them had active ground squirrel activity, particularly in the northern portion of the polygon. Figure 13 shows the location of all monitoring areas. The following threats were observed:

- **Predator presence.** Mammalian predators observed included coyotes (*Canis latrans*) (seen on most parcels and on most surveys), striped skunk, and long-tailed weasel. Potential avian predators that were observed include red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk, bald eagle, golden eagle, American peregrine falcon, American crow (*Corvus brachyrhynchos*), and common raven (*Corvus corax*).
- **Thick or tall vegetation.** Monitoring polygons 1 and 3 had vegetation high enough to discourage burrowing owl use. This was mostly invasive non-native grasses and other invasive non-native forbs like mustards. Monitoring polygons 2, 4, 5, 6, 7, 8, and 9 did not have significant coverage of tall or dense vegetation.

4.6.2 Adaptive Management Recommendations

The Ramona Grasslands County Preserve has the potential to provide extensive suitable breeding and foraging habitat for burrowing owl; however, ESA surveys conducted in 2022 did not find any evidence of breeding or foraging within the surveyed polygons. The results of the 2022

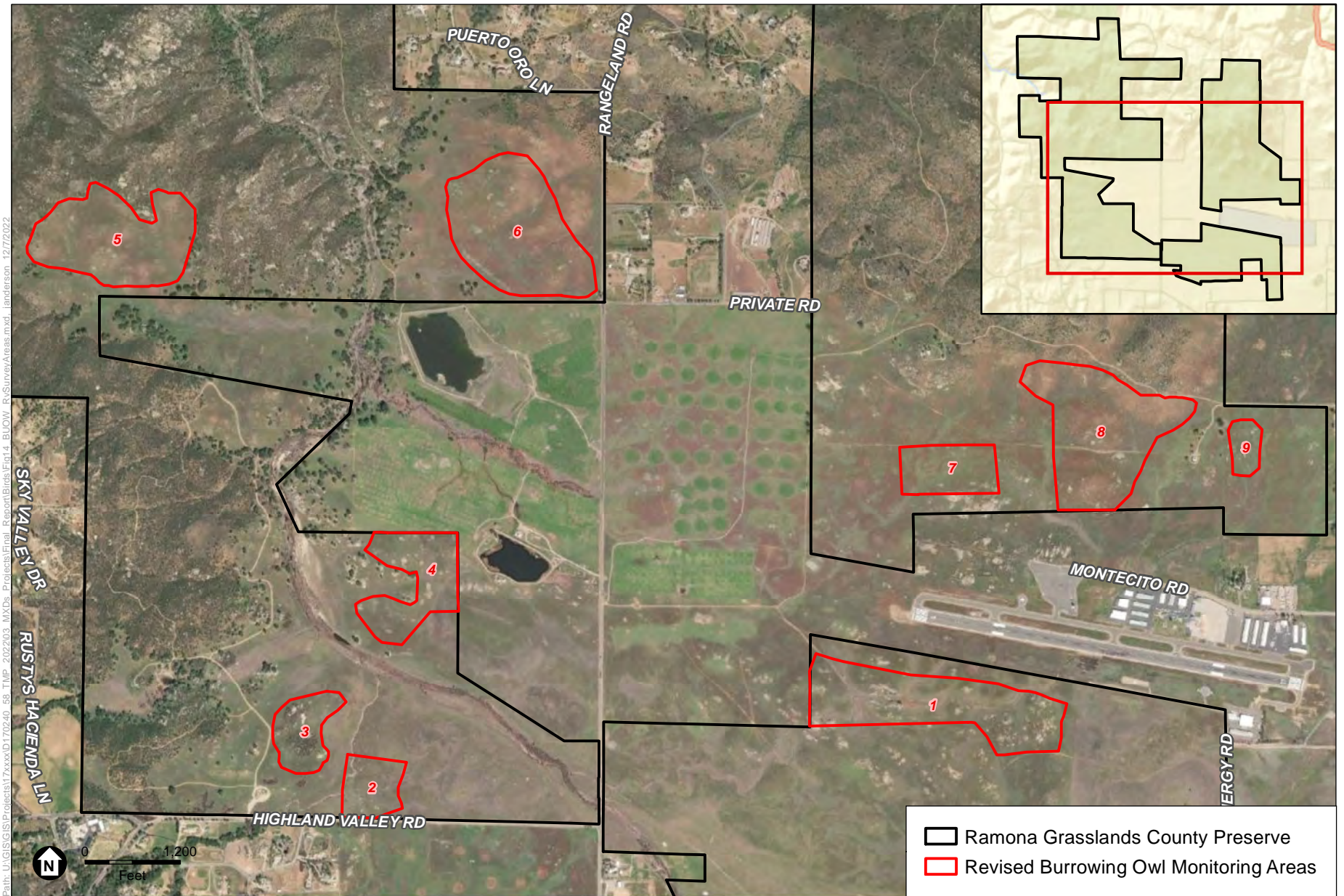
surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Revise monitoring polygons.** Based on the 2022 breeding burrowing owl surveys, six of the nine monitoring polygons are recommended to be modified to maximize the potential to detect and locate burrowing owls, their burrows, and/or their sign on the Preserve during future surveys (**Figure 14**). Proposed revisions to monitoring area polygons considered presence of rocky outcrops, more open grassland areas, increased squirrel activity, and higher density of burrows.
- **Reduce vegetation height.** Suitable burrows are abundant in polygon 2; however, they were covered by tall vegetation by the end of the survey period. This polygon is the closest to the introduced burrowing owl population; therefore, removing obscuring vegetation and reducing vegetation height around suitable burrows is recommended to increase habitat suitability for dispersing owls from the introduced population.
- **Coordinate with other entities prior to conducting management or monitoring.** Future monitoring for burrowing owl should be coordinated with the San Diego Zoo Institute for Conservation Research to implement consistent monitoring protocols, limit duplication of efforts, provide cumulative adaptive management recommendations, and provide transparency on any implemented management activities.

4.7 San Diego Cactus Wren

Four avian point count surveys were conducted at the six previously established point count locations and nesting bird surveys with a focus on San Diego cactus wren. These surveys were conducted subsequently to monitor the status of San Diego cactus wren within Lakeside Linkage County Preserve. Fifty-three avian species were observed or detected during the avian point count surveys on the central property of Lakeside Linkage County Preserve in 2022 (**Table 17**). During the April avian point count survey, one San Diego cactus wren was detected (**Table 17** and **Figure 15**). In addition to the one San Diego cactus wren individual detected during the April avian point count survey, a pair of San Diego cactus wrens were observed in between avian point count stations 1 and 2 but were not documented during the point count surveys. During the May and June survey periods, three individual San Diego cactus wrens were observed foraging together but again were not documented during the point count surveys. Additional special-status species detected during avian point count surveys included coastal California gnatcatchers with fledglings, red-shouldered hawk, Cooper's hawk, American peregrine falcon, southern California rufous-crowned sparrow, turkey vulture, yellow warbler, western bluebird, and Belding's orange-throated whiptail (**Figure 15**). Avian point count data sheets are provided in **Appendix G, San Diego Cactus Wren Photo Monitoring and Field Forms**.

San Diego cactus wren nesting behavior was not documented on- or off-site Lakeside Linkage County Preserve in 2022. One recently used nest was observed in R2 but was likely only used for roosting during the non-breeding season as the nest became dilapidated as surveys continued throughout the year (**Figure 15**). No breeding nests were detected. During the last survey period in July, a newly built nest was observed within R1. There seemed to be no preference as to what species of cactus, coast prickly pear (*Opuntia littoralis*) or coast cholla (*Cylindropuntia proliferata*), the individual or pair used in 2022.



SOURCE: ESRI, 2021; ESA, 2022

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report

Figure 14
Proposed Revisions to Burrowing Owl Monitoring Areas
Ramona Grasslands County Preserve

TABLE 17
SAN DIEGO CACTUS WREN AVIAN POINT COUNT SURVEY RESULTS: LAKESIDE LINKAGE COUNTY PRESERVE

Common Name by Family	Scientific Name	3/16/2022	4/21/2022	5/20/2022	7/1/2022	Special-Status Species Designation ¹		
						Federal	State	Local
Anatidae								
Mallard	<i>Anas platyrhynchos</i>	X	-	-	-	-	-	-
Odontophoridae								
California Quail	<i>Callipepla californica</i>	X	X	X	X	-	-	-
Phasianidae								
Indian Peafowl*	<i>Pavo cristatus</i>	-	-	X	X	-	-	-
Columbidae								
Eurasian Collared-Dove*	<i>Streptopelia decaocto</i>	-	-	X	-	-	-	-
Mourning Dove	<i>Zenaida macroura</i>	X	X	X	X	-	-	-
Rock Pigeon*	<i>Columba livia</i>	X	X	X	X	-	-	-
Apodidae								
White-throated Swift	<i>Aeronautes saxatalis</i>	-	X	-	X	-	-	-
Trochilidae								
Anna's Hummingbird	<i>Calypte anna</i>	X	X	X	X	-	-	-
Allen's Hummingbird	<i>Selasphorus sasin</i>	X	-	X	-	-	-	-
Ardeidae								
Great Egret	<i>Ardea alba</i>	-	-	X	-	-	-	-
Cathartidae								
Turkey Vulture	<i>Cathartes aura</i>	-	-	X	X	-	-	County Group 1
Accipitridae								
Cooper's Hawk	<i>Accipiter cooperii</i>	X	X	X	X	-	WL	MSCP County Group 1
Red-shouldered Hawk	<i>Buteo lineatus</i>	X	-	-	X	-	-	County Group 1
Red-tailed Hawk	<i>Buteo jamaicensis</i>	-	X	X	-	-	-	-
Picidae								
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	X	X	-	X	-	-	-
Nuttall's Woodpecker	<i>Dryobates nuttallii</i>	X	-	X	X	-	-	-

Common Name by Family	Scientific Name	3/16/2022	4/21/2022	5/20/2022	7/1/2022	Special-Status Species Designation ¹		
						Federal	State	Local
Falconidae								
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	-	-	X	-	-	FP	MSCP, NE County Group 1
Psittacidae								
Parrot sp.*	<i>Amazona sp.</i>	-	-	-	X	-	-	-
Red-crowned Parrot*	<i>Amazona viridigenalis</i>	X	X	-	-	-	-	-
Tyrannidae								
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	-	X	X	X	-	-	-
Black Phoebe	<i>Sayornis nigricans</i>	X	X	-	X	-	-	-
Cassin's Kingbird	<i>Tyrannus vociferans</i>	X	X	X	X	-	-	-
Pacific-slope Flycatcher	<i>Empidonax difficilis</i>	X	-	X	X	-	-	-
Say's Phoebe	<i>Sayornis saya</i>	X	-	X	-	-	-	-
Western Kingbird	<i>Tyrannus verticalis</i>	-	-	-	X	-	-	-
Corvidae								
American Crow	<i>Corvus brachyrhynchos</i>	X	X	X	X	-	-	-
California Scrub-Jay	<i>Aphelocoma californica</i>	-	X	-	X	-	-	-
Common Raven	<i>Corvus corax</i>	X	X	X	X	-	-	-
Hirundinidae								
Barn Swallow	<i>Hirundo rustica</i>	-	X	-	-	-	-	-
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	-	X	X	X	-	-	-
Aegithalidae								
Bushtit	<i>Psaltriparus minimus</i>	X	X	X	X	-	-	-
Paradoxornithidae								
Wrentit	<i>Chamaea fasciata</i>	X	X	X	X	-	-	-
Poliotilidae								
Coastal California Gnatcatcher	<i>Poliottila californica californica</i>	X	X	X	X	FT	SSC	MSCP County Group 1
Troglodytidae								
Bewick's Wren	<i>Thryomanes bewickii</i>	X	X	X	X	-	-	-
San Diego Cactus Wren	<i>Campylorhynchus brunneicapillus sandiegensis</i>	-	X	-	-	-	SSC	MSCP, NE County Group 1

Common Name by Family	Scientific Name	3/16/2022	4/21/2022	5/20/2022	7/1/2022	Special-Status Species Designation ¹		
						Federal	State	Local
Mimidae								
California Thrasher	<i>Toxostoma redivivum</i>	-	X	X	-	-	-	-
Northern Mockingbird	<i>Mimus polyglottos</i>	X	X	X	X	-	-	-
Turdidae								
Western Bluebird	<i>Sialia mexicana</i>	-	-	X	-	-	-	MSCP County Group 2
Passeridae								
House Sparrow	<i>Passer domesticus</i>	-	-	X	X	-	-	-
Fringillidae								
House Finch	<i>Haemorhous mexicanus</i>	X	X	X	X	-	-	-
Lawrence's Goldfinch	<i>Spinus lawrencei</i>	-	X	-	-	-	-	-
Lesser Goldfinch	<i>Spinus psaltria</i>	X	-	X	X	-	-	-
Passerellidae								
California Towhee	<i>Melospiza crissalis</i>	X	X	X	X	-	-	-
Southern California Rufous-crowned Sparrow	<i>Aimophila ruficeps canescens</i>	X	X	X	X	-	WL	MSCP County Group 1
Song Sparrow	<i>Melospiza melodia</i>	-	X	-	-	-	-	-
Spotted Towhee	<i>Pipilo maculatus</i>	X	X	X	X	-	-	-
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	X	-	-	-	-	-	-
Icteridae								
Bullock's Oriole	<i>Icterus bullockii</i>	-	X	-	-	-	-	-
Hooded Oriole	<i>Icterus cucullatus</i>	-	X	-	X	-	-	-
Parulidae								
Common Yellowthroat	<i>Geothlypis trichas</i>	-	X	-	-	-	-	-
Yellow-rumped Warbler	<i>Setophaga coronata</i>	X	-	-	-	-	-	-
Yellow Warbler	<i>Setophaga petechia</i>	-	X	X	-	-	SSC	County Group 2
Cardinalidae								
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	-	-	X	-	-	-	-
Total Number of Species Observed	53	30	34	35	32			

Common Name by Family	Scientific Name	3/16/2022	4/21/2022	5/20/2022	7/1/2022	Special-Status Species Designation ¹		
						Federal	State	Local

NOTES:

* Non-native Species

¹ Special-Status Species Designation

FT Federally Threatened

SSC CDFW Species of Special Concern

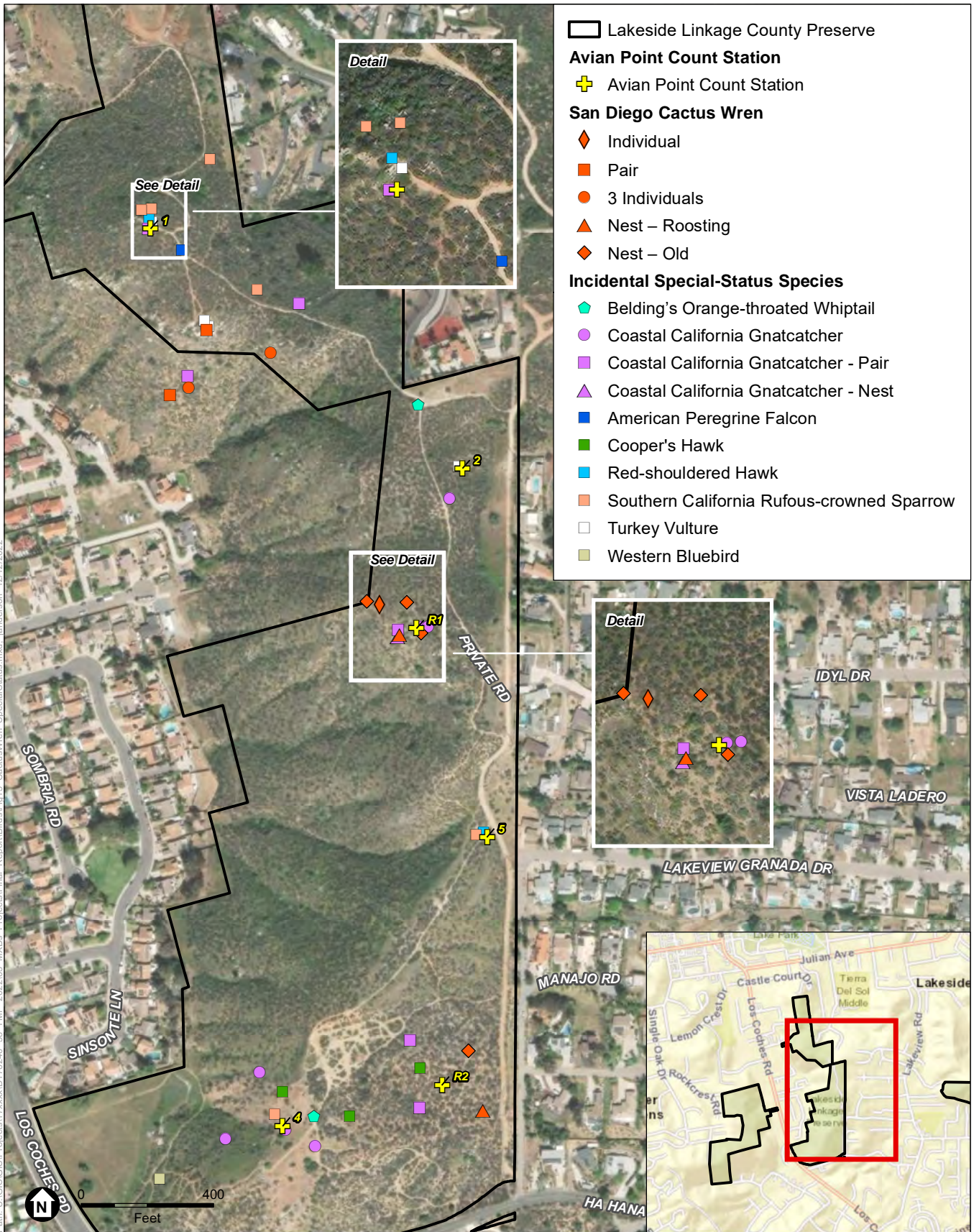
WL CDFW Watch List Species

MSCP MSCP-Covered Species

NE MSCP Narrow Endemic Species: Rare, narrow endemic animal species known from San Diego County within the MSCP Subarea Plan

County Group 1 Animals of high sensitivity (listed or specific natural history requirements).

County Group 2 Animals declining but not in immediate threat of extinction or extirpation.



SOURCE: ESRI; ESA, 2022

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 15
San Diego Cactus Wren Monitoring Results
Lakeside Linkage County Preserve

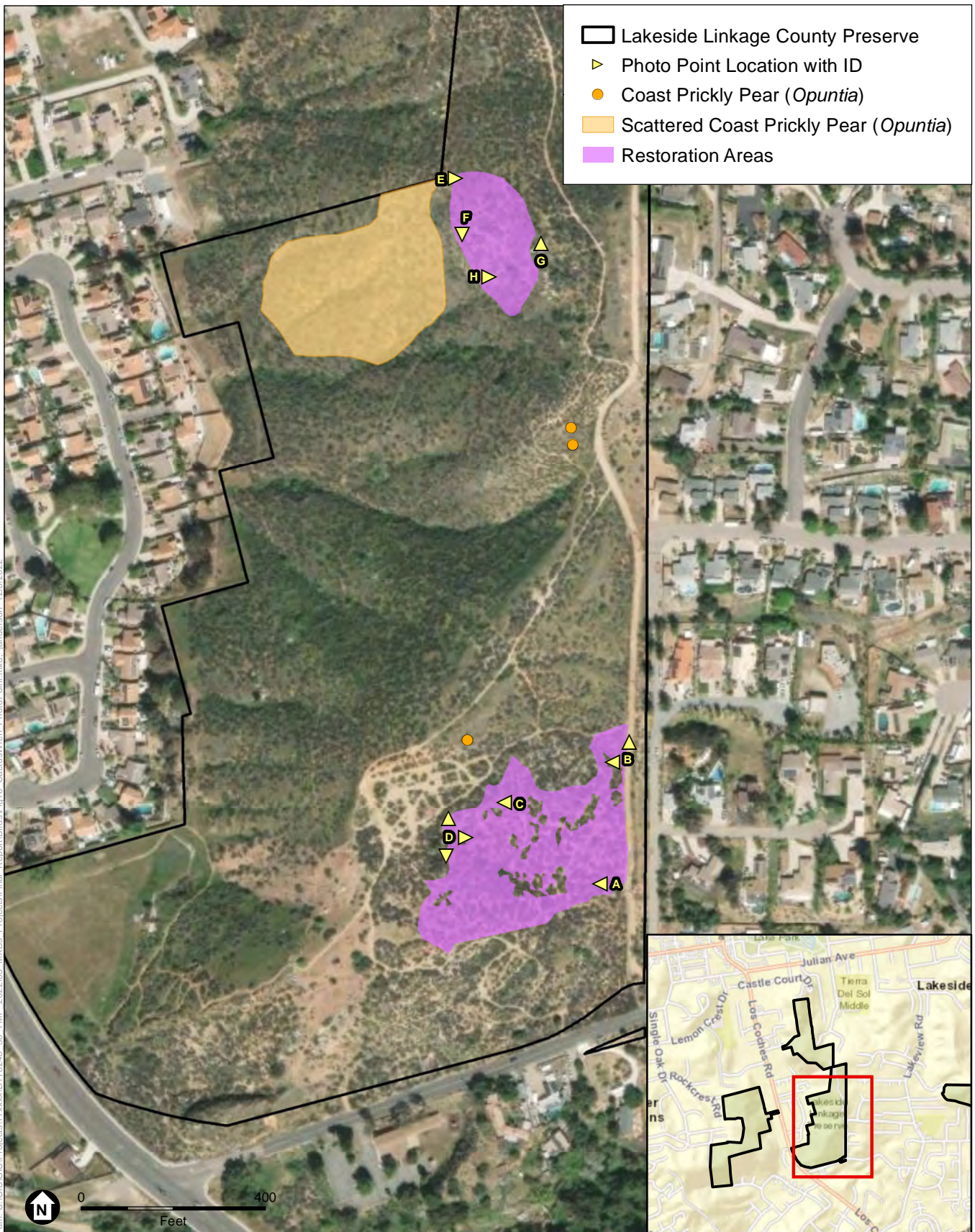
4.7.1 Habitat and Threats Assessment

Beginning in 2011, photo points were created and photo monitoring was conducted for the northern and southern restoration areas on the central property of Lakeside Linkage County Preserve. Photo monitoring has been conducted from 2011–2016, 2018, 2019, and continued in 2022. Images from 2011–2016, 2018, 2019, and 2022 are shown in Appendix G. Locations of restoration areas and related photo points are shown in **Figure 16**. Habitat and threats were assessed during surveys to determine: (1) if identified threats are having a direct negative effect on the species or habitat, and (2) if adaptive management actions need to be implemented.

The northern restoration area (R1) was in fair condition. Compared to 2019, non-native thatch was inconsequential and is not a current management concern. The southern restoration area (R2) was in good condition. While not within the restoration areas, trash/litter (e.g., water bottles, beer cans, e-cigarette cartridges) and e-bike usage were documented within the Preserve. The following threats were observed:

- ***Opuntia* die-off within the northern restoration area (R1).** During the first survey period in March, the *Opuntia* patches were in poor condition with significant die-off—potentially due to frost damage. By the July survey period, portions of the *Opuntia* patches were growing back, but patches were significantly reduced in size. Most *Opuntia* patches within this restoration area are no longer suitable for San Diego cactus wren. The cholla patches did not display die-off within this restoration area.
- **Native thatch within R1 and R2 allowing predator access.** The cholla patches within R1 and the cacti patches within R2 are at the minimum height and density suitable for San Diego cactus wrens to build nests (both roost and breeding nests); however, the majority of the cacti patches have native thatch (e.g., California sagebrush and California buckwheat) growing out of them, which allows predator access to nest sites, if present.
- **Off-leash dogs.** Off-leash dogs were not observed within R1 and R2 specifically, but were observed within the Preserve during each monitoring survey.
- **Unauthorized access/trails.** Unauthorized access was not observed within R1 and R2; however, unauthorized trails were observed within the Preserve.

Due to the poor condition of the *Opuntia* patches and heavy native thatch in the cholla patches, only two old nests were observed. Construction of a new nest was only observed during the last survey period within a cholla patch, and given the time of year, it is likely a roosting nest site. See Appendix G for the habitat and threats assessment field forms.



SOURCE: ESRI; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 16
San Diego Cactus Wren Photo Points and Restoration Areas
Lakeside Linkage County Preserve

4.7.2 Adaptive Management Recommendations

The TMP management goal for San Diego cactus wren is to restore, enhance, and maintain suitable nesting habitat for San Diego cactus wren on the Lakeside Linkage County Preserve (ESA and ICF 2022). The results of the 2022 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendation:

- Remove native vegetation within established cacti patches at both restoration sites.**

Removing ladder plants would reduce predation at San Diego cactus wren nest sites. Priority should be to remove ladder plants at the northern restoration site because San Diego cactus wren and their nests have been documented previously in this location. Vegetation removal should focus on established cacti patches and not the *Opuntia* patches that are currently too small and recovering from frost damage for San Diego cactus wren nests. The native vegetation is well established and will take time to remove from in between the cacti. Care should be taken to ensure no damage to established cacti and San Diego cactus wren nests occurs during vegetation removal activities. Vegetation removal activities should occur outside of the nesting season (February 15–August 15) (County of San Diego 2010).

4.8 Northern Harrier

The 2022 northern harrier nesting surveys focused on areas with low scrub and/or vegetation cover and areas with previous documented northern harrier use in Tijuana River Valley Regional Park. These areas include the coastal sage scrub vegetation community in the western portion of the Park, north of Monument Road and west of Hollister Street, the southern willow scrub vegetation community in the northwestern portion of the Park near the intersection of Saturn Boulevard and Sunset Avenue, the Diegan coastal sage scrub vegetation community northeast of the Hollister Street and Monument Road intersection, the mule fat/southern willow scrub habitat east of the Tijuana River Valley Sports Complex, the abandoned agricultural habitat north of the Tijuana River Valley Sports Complex, and the riparian vegetation community along the eastern Park boundary. The area along the eastern Park boundary was not surveyed in 2022. Representative photographs of the survey areas and completed field forms are provided in **Appendix H**, *Northern Harrier Representative Photographs and Field Forms*.

Northern harriers were observed during all surveys with the highest observations during the month of March. Fledglings were observed during the June survey. Territorial behavior documented by northern harriers during the survey include prey exchange from a male to female, female gathering nest material to a probable nest site location, multiple adults displaying territorial swooping on each other, and fledglings seen/heard begging and following the adult female. All nesting behavior was predominantly detected within Territory 1; the gathering of nest materials was also observed and documented in Territory 5. This may indicate that Territory 1 is highly sought after and highly suitable for nesting northern harriers. Up to five northern harrier territories could be present within the Tijuana River Valley Regional Park, but only one northern harrier territory was successful in 2022 (**Table 18** and **Figure 17**). Additional incidentally observed special-status species include gadwall, yellow-breasted chat (*Icteria virens*), turkey vulture, least Bell's vireo, red-shouldered hawk, white-tailed kite (*Elanus leucurus*), Cooper's

hawk, coastal California gnatcatcher, yellow warbler, osprey (*Pandion haliaetus*), long-billed curlew (*Numenius americanus*), double-crested cormorant (*Nannopterum auritum*), western bluebird, great blue heron (*Ardea herodias*), and Belding's orange-throated whiptail (Figure 17).

TABLE 18
NORTHERN HARRIER NESTING SURVEY RESULTS

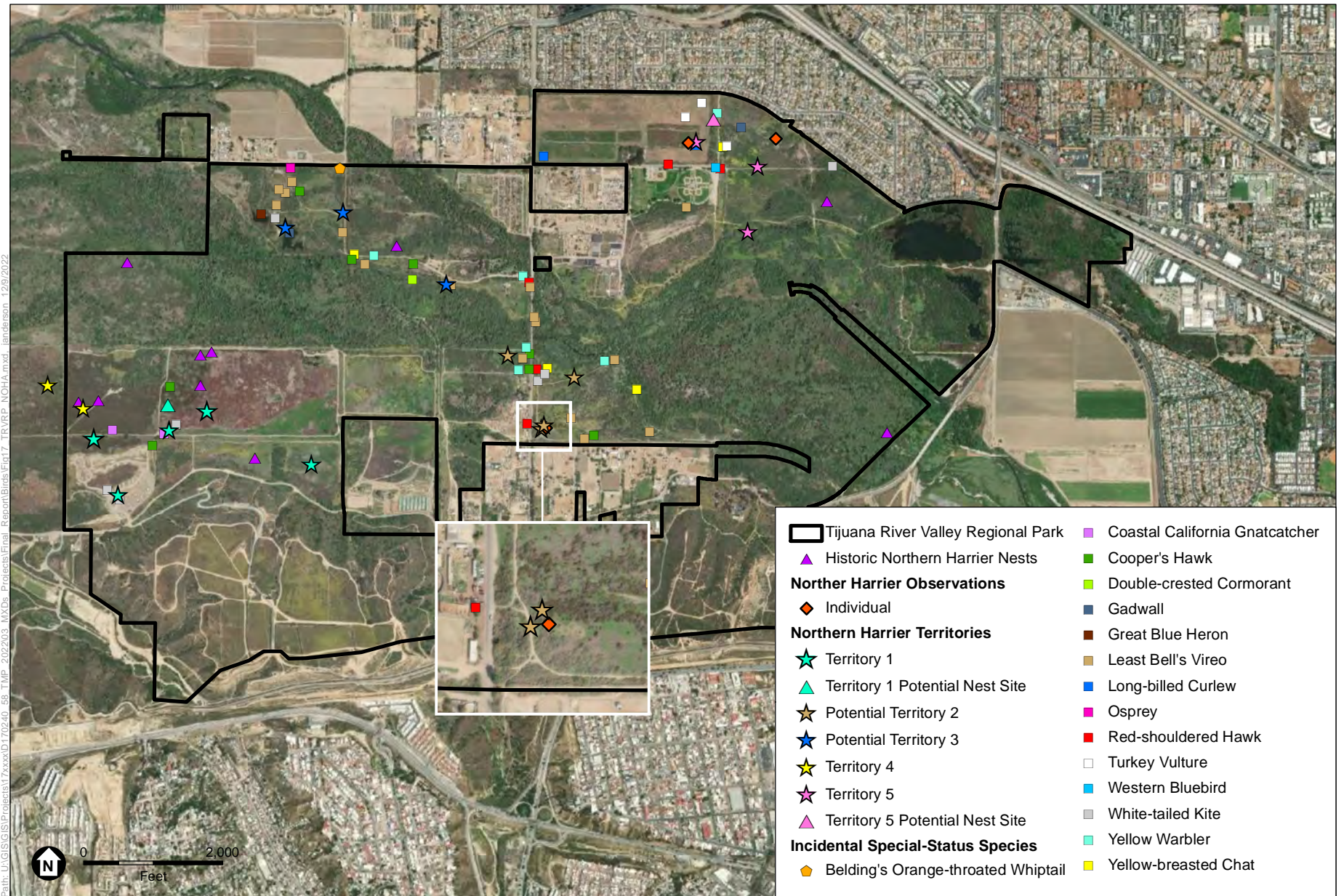
Territory	Type	Nest Success	Location	Observation Summary
1	Pair	Fledged	North of the newly constructed TRVRP campground. Likely same location of historic nesting.	Pair was seen in March/April/May. Four fledglings and one female seen in June.
2*	Pair	Unknown	Northeast of the Hollister St/Monument Rd Intersect	Pair seen in March. Male seen in May. Pair seen in June, but because of how late in the season they were observed, this may have been dispersing individuals from an adjacent territory.
3*	Individual	Unknown	West of the TRVRP Bird & Butterfly Garden	Male seen in March/April. Pair seen in June, but because of how late in the season they were observed, this may have been dispersing individuals from an adjacent territory.
4	Pair	Unknown	North of the newly constructed TRVRP campground.	Female seen in March. Pair seen in May at the same time as Territory 1 male was observed. Pair potentially nested on County property but was not confirmed.
5	Pair	Failed	East of Tijuana River Valley Sports Complex	Pair seen in March/April. Female seen carrying nest material to potential nest site in April. Male seen in May.

NOTE:

* Potential territories due to evidence of territorial disputes and/or distances from other territories.

Three territories (Territories 1, 4, and 5) were confirmed within the Tijuana River Valley Regional Park (Table 18 and Figure 17). Territory 1 fledged and the nest site was located in close proximity to a public trail and a known historic nest location. Territory 5 did not fledge and the nest site location was adjacent to an abandoned road between Sunset Avenue and Wardlow Avenue. This abandoned road is used by the public and it is unknown if incubation ever occurred at this nest site. Territory 4's nest site was not located and assumed to have failed given the presence of individual/pair sightings and lack of fledglings observed. Up to two other territories (Territories 2 and 3) have potential to occur in the Park but were not confirmed. Territory 2 is a potential territory due to the presence of a pair early in the breeding season. Territory 3 may also be a potential territory, but due to the lack of pair observations early in the breeding season, this territory may not have been occupied in 2022.

A subadult northern harrier was seen foraging within the abandoned agricultural field north of the Tijuana River Valley Sports Complex in the Park, indicating that the Park also supports foraging habitat for non-breeding individuals. Overall, there were fewer northern harrier observations (individuals and pairs) throughout the Park in 2022 compared to 2021, especially within the area near Territory 3 and the scrub habitat south of Sunset Avenue and west of Saturn Boulevard.



SOURCE: ESRI, 2022; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 17
Northern Harrier Monitoring Results
Tijuana River Valley Regional Park

4.8.1 Habitat and Threats Assessment

Habitat and threats were assessed during surveys to determine: (1) if identified threats are having a direct negative effect on the species or habitat, and (2) if adaptive management actions need to be implemented.

Suitable foraging habitat for northern harrier includes low-height and sparsely covered vegetation such as non-native grassland, coastal sage scrub, mulefat scrub, abandoned agriculture, and disturbed habitat. Suitable nesting habitat for northern harrier include dense scrub habitats that limit predation or predator harassment such as mulefat scrub, coastal sage scrub, marsh, and cattail habitat. Overall, Tijuana River Valley Regional Park provides high-quality suitable foraging and nesting habitat for northern harriers as demonstrated by observed foraging behavior and the Park being occupied by up to five northern harrier territories in 2022. The following threats were observed:

- **Nest disturbance.** Northern harrier is a ground-nesting species. Territory 1's nest site is close to an authorized public trail. Territory 1 successfully fledged in 2022; however, increase in public use (e.g., campground users) and U.S. Border Patrol activities could affect future nesting success if trail usage encroaches on nesting harriers.
- **Predator harassment.** Predator harassment was observed in 2021; however, it was not observed in 2022. Unauthorized dumping of trash and litter was detected during 2022 surveys, and an expected increase of trash from the recently opened campground could encourage increased park usage by northern harrier nesting predators (e.g., coyotes, raccoons, ravens) in the future.

4.8.2 Adaptive Management Recommendations

The Tijuana River Valley Regional Park supports suitable foraging and nesting habitat; however, threats such as nest disturbance and predator harassment, without effective management, may diminish the success of the species over time. The results of the 2022 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Monitor trail use in vicinity of the Territory 1 nest site.** Install a trail counter on the trail in the vicinity of the Territory 1's nest site to track trail use. This will provide a trail use baseline and inform if seasonal trail closure is warranted to prevent nest disturbance. Trail closure is not recommended at this time.
- **Clean up trash.** Regularly maintain trash cans and remove trash around the campground to prevent attraction of nest predators. Trash removal is especially important during the nesting season due to the campground proximity to Territory 1 and Territory 4.
- **Continue monitoring from March through June.** 2022 surveys were conducted monthly from March through June and were able to document different northern harrier behavior (e.g., territorial behavior in March, nest building in April, nest success in June). It is recommended to continue monitoring using this survey timing.

4.9 Least Bell's Vireo

ESA monitored the status of breeding least Bell's vireo populations and habitat conditions and threats to inform management needs in the Santa Margarita County Preserve. The submitted 45-day report is provided in **Appendix I, Least Bell's Vireo 45-Day Report**. In response to detections of least Bell's vireo nest parasitism observed within the Santa Margarita County Preserve in 2021, a brown-headed cowbird (*Molothrus ater*) trapping program was also implemented in 2022. The brown-headed cowbird trapping annual report is provided in **Appendix J, Brown-Headed Cowbird Trapping Annual Report**.

4.9.1 Least Bell's Vireo Survey

The survey area encompasses a portion of the Santa Margarita River and adjacent upland areas, recreational trails and access roads, and the Preserve's staging area on the north side of De Luz Road. All vegetation communities within the Santa Margarita channel were surveyed. Potentially suitable nesting habitat for least Bell's vireo occurs only in southern riparian woodland (20.41 acres), southern riparian forest (13.41 acres), southern willow scrub (4.94 acres), southern cottonwood-willow riparian forest (2.71 acres), southern riparian scrub (0.67 acres), southern sycamore-alder riparian woodland (0.47 acres), and southern coast live oak riparian forest (0.43 acres), all together totaling 43.04 acres.

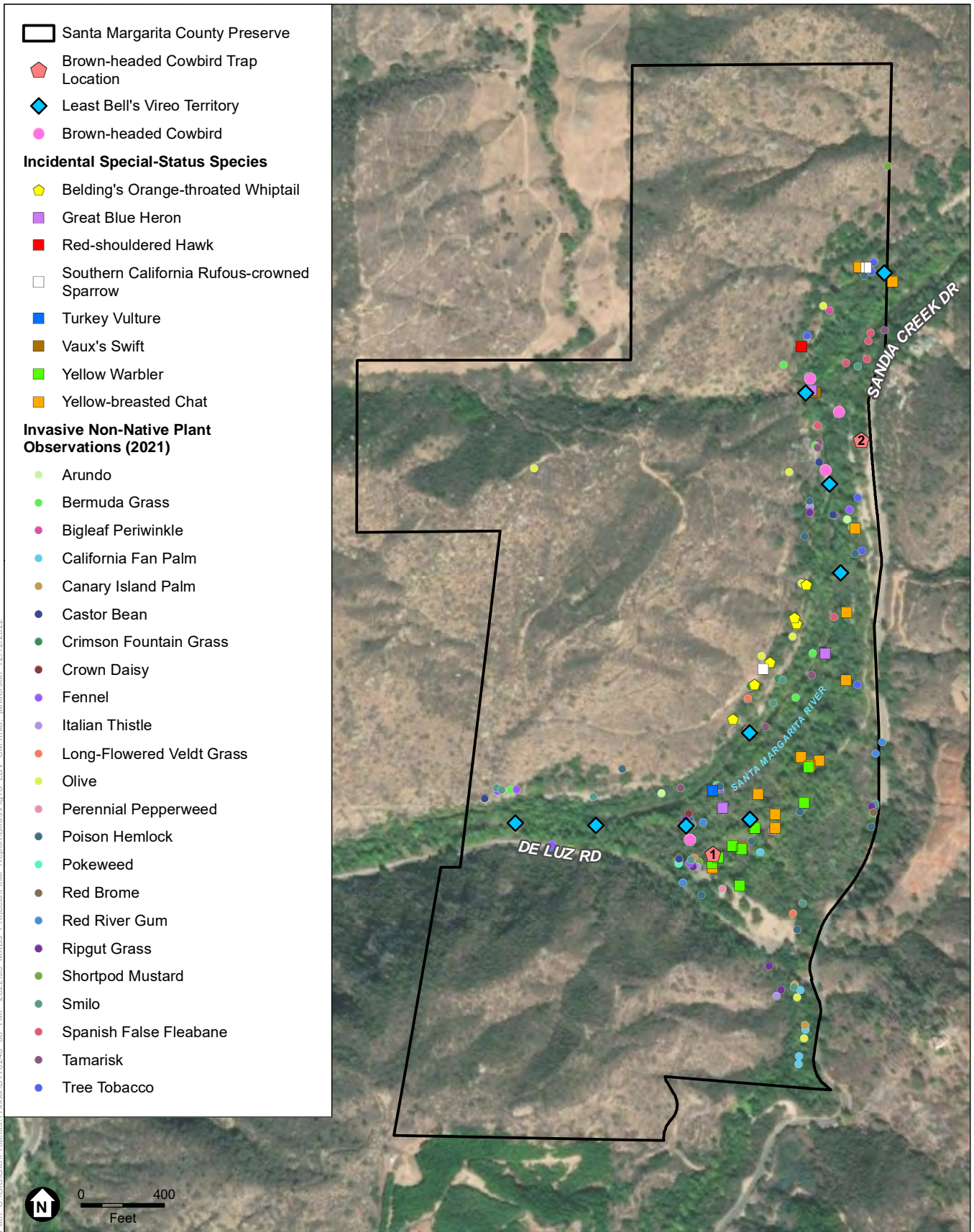
Survey results are summarized in **Table 19** below and depicted on **Figure 18**. Least Bell's vireos were detected during all 2022 focused surveys. Based on the results of the protocol-level least Bell's vireo surveys, the survey area contains least Bell's vireo habitat that was occupied by up to nine least Bell's vireo territories. At least three of those territories produced young. Nest searching was not part of this survey protocol and no nests were discovered. Brown-headed cowbirds were observed during only three surveys and no juvenile brown-headed cowbirds were observed during any survey (**Table 20**). Additional incidentally observed special-status species included Belding's orange-throated whiptail, great blue heron, red-shouldered hawk, southern California rufous-crowned sparrow, turkey vulture, Vaux's swift (*Chaetura vauxi*), yellow warbler, and yellow-breasted chat (Figure 18). A complete list of all wildlife observed during the surveys is included in Appendix I.

TABLE 19
LEAST BELL'S VIREO TERRITORY SURVEY RESULTS:
SANTA MARGARITA COUNTY PRESERVE

Species	Territories		
	Pairs	Single Males	Total
Least Bell's Vireo	4	5	9

TABLE 20
BROWN-HEADED COWBIRD DETECTIONS:
SANTA MARGARITA COUNTY PRESERVE

Date	Count
4/14/22	1
4/28/22	2
6/21/22	1



SOURCE: ESRI, 2021; ESA, 2022 COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 18
Least Bell's Vireo Monitoring and Management Results
Santa Margarita County Preserve

4.9.2 Habitat and Threats Assessment

Threats and habitat were assessed during species surveys to determine: (1) if identified threats are having a direct negative effect on the species or habitat, and (2) if adaptive management actions need to be implemented.

Suitable breeding habitat for least Bell's vireo include riparian woodlands, particularly those dominated by willows. Overall, Santa Margarita County Preserve provides high-quality suitable breeding habitat as demonstrated by the Preserve being occupied by up to nine least Bell's vireo territories in 2022. The following threats were observed:

- **Nest parasitism by brown-headed cowbird.** The observations of adult brown-headed cowbirds within Santa Margarita County Preserve are indicative of the continued threat of brood parasitism. Cowbirds were observed on three out of the eight protocol surveys. No direct evidence of cowbird parasitism was observed during surveys in 2022, but the continued presence of cowbirds in the Preserve is indicative of a continued threat.
- **Invasive non-native plant species.** Invasive non-native plant species occur on the Preserve in scattered locations; however, several of these species have the ability to become established in a short period of time. Tamarisk, an invasive non-native plant species is rated "High" by the California Invasive Plant Council (Cal-IPC) for the severe impacts it can have on hydrological processes and plant and animal communities (Cal-IPC 2022). This invasive non-native species can outcompete and displace native plant species, resulting in degraded riparian habitats. Mature trees and seedlings of tamarisk were observed in riparian habitats throughout the Preserve. Additionally, arundo and perennial pepperweed, both rated "High" by Cal-IPC are present in small numbers on the Preserve. Similar to tamarisk, these invasive non-native plant species can quickly become established in disturbed soils along the river and outcompete native plant species. Displacement of native vegetation can negatively impact vireo prey availability and nesting habitat.
- **Unauthorized access and preserve usage.** The Preserve is open to the public and has multi-use trails; however, multiple forms of unauthorized preserve usage were observed during least Bell's vireo surveys in 2022, including off-leash dogs and unauthorized trails. These forms of unauthorized preserve usage can impact least Bell's vireo individuals and suitable habitat and potentially disturb nests.

4.9.3 Brown-Headed Cowbird Trapping

The two trap locations are depicted in Figure 18. A total of 20 brown-headed cowbirds were captured within Santa Margarita County Preserve from April 1–June 30, 2022. This included 12 adult males, 7 adult females, and 1 juvenile. There were 182 actual trap days out of a potential 182. Total trap days are calculated by multiplying the number of traps by the number of days they are in operation, then subtracting the number of days individual traps are inactive for various reasons. There were 0.11 cowbirds captured per trap day. The ratio of male to female captures was 1:0.6. Trapping results for each trap location are summarized in **Table 21** below. One non-target species, California towhee, was captured in Trap 2 on June 17, 2022, and was released from the trap unharmed on the same day. No incidences of vandalism occurred during the 2022 trapping period. Detailed trapping methods and results are provided in Appendix J.

TABLE 21
BROWN-HEADED COWBIRD TRAPPING RESULTS:
SANTA MARGARITA COUNTY PRESERVE

Trap Number	Brown-Headed Cowbirds Captured			Total
	Adult Male	Adult Female	Juvenile	
1	8	5	0	13
2	4	2	1	7
Total	12	7	1	20

4.9.4 Adaptive Management Recommendations

The following are adaptive management recommendations to maintain suitable breeding habitat for least Bell's vireo and maintain breeding pairs within Santa Margarita County Preserve:

- Implement brown-headed cowbird trapping program.** The brown-headed cowbird trapping effort in 2022 successfully captured 20 cowbirds, including one juvenile cowbird, suggesting nest parasitism still occurred within the Preserve in 2022. Continued implementation of brown-headed cowbird trapping within the Santa Margarita County Preserve during the breeding season is recommended alongside least Bell's vireo nest monitoring to determine the effectiveness of the trapping program. The trapping program should be evaluated annually over a 2- to 5-year period to determine trends in (1) cowbird captures, (2) brood parasitism, and (3) least Bell's vireo nesting success. Thresholds for the density of cowbird females and the allowable level of parasitism for least Bell's vireo should be established to guide the cowbird trapping program (Parker et al. 2022). Partnering with adjacent land managers in the area to provide trapping in suitable habitat will improve catch rates and decrease parasitism impacts to vireo and songbird species in the area. Least Bell's vireo nest monitoring is not recommended at this time as monitoring can be disruptive and impact nest success.
- Conduct habitat restoration and habitat enhancement.** Removal of invasive non-native plant species through mechanical or chemical methods is recommended outside of the avian nesting season (March–September). Hand tools and herbicide (aquatic-safe) could be used during the nesting season, if a biologist is present to clear the impact areas in front of the restoration crew. This may be needed for annual and perennial invasive non-native species that grow and seed out during nesting season. Poison hemlock and fennel are annual invasive non-native species with growing seasons that coincide with nesting season. Ideally, herbicide should be applied before seed sets on plants, which may involve multiple treatment visits throughout the season. The current distribution and density of invasive non-native plants is low on the Preserve, which would make it an ideal time to control these small populations before they increase substantially. Furthermore, removal or treatment of invasive non-native plants creates an opportunity for habitat enhancement and restoration in areas that have low plant diversity.
- Limit unauthorized access and illegal preserve use.** Increased enforcement is recommended (e.g., increased ranger patrols, signage installation, unauthorized trail closures) to reduce unauthorized preserve use, such as unauthorized trails and off-leash dogs, that could impact least Bell's vireo habitat and breeding success.

- **Collaborate with partner agencies and land managers.** Coordination with adjacent land managers is essential to managing brown-headed cowbirds and non-native plant populations in the area. Partnering with land managers upstream and downstream of the Preserve will vastly increase the efficiency of the cowbird trapping program and spread of non-native plants from upstream properties. Brown-headed cowbird traps are generally spaced at least a mile apart for trap efficiency, as traps placed closer together do not equate to higher trap rates.

4.10 Stephens' Kangaroo Rat

ESA and Blackhawk conducted a burrow/sign search and habitat characterization to inform SKR management needs in Ramona Grasslands County Preserve and Hellhole Canyon County Preserve. Aardvark Biological Services LLC conducted live-trapping within SKR Management Unit 3 to determine presence/absence of SKR. ESA and Habitat West conducted focused management within suitable SKR habitat of Hellhole Canyon County Preserve. The habitat assessment memorandums, live-trapping memorandum, cultural resources memorandum for focused SKR habitat management, and representative photographs of focused management at Hellhole Canyon County Preserve are included in **Appendix K, Stephens' Kangaroo Rat Monitoring and Maintenance Memorandums and Representative Photographs.**

4.10.1 Ramona Grasslands County Preserve

4.10.1.1 Habitat Assessment

Habitat assessments were conducted at 28 monitoring plots within Ramona Grasslands County Preserve. Of these plots, 15 were determined to be occupied by SKR and 13 were determined to be unoccupied (**Figure 19, Table 22**). Each plot was rated for SKR potential and, in total, 15 monitoring plots were characterized as having a high potential, 7 were characterized as having a medium potential, 5 were characterized as having a low potential, and 1 was characterized as having no potential for SKR (**Table 23**).

TABLE 22
SKR MONITORING RESULTS: RAMONA GRASSLANDS COUNTY PRESERVE

Occupancy/Potential		# of Monitoring Plots
SKR Occupancy	Occupied	15
	Unoccupied	13
SKR Potential	High	15
	Medium	7
	Low	5
	No	1

NOTE: SKR = Stephens' kangaroo rat.

TABLE 23
SKR HABITAT ASSESSMENT SUMMARY: RAMONA GRASSLANDS COUNTY PRESERVE

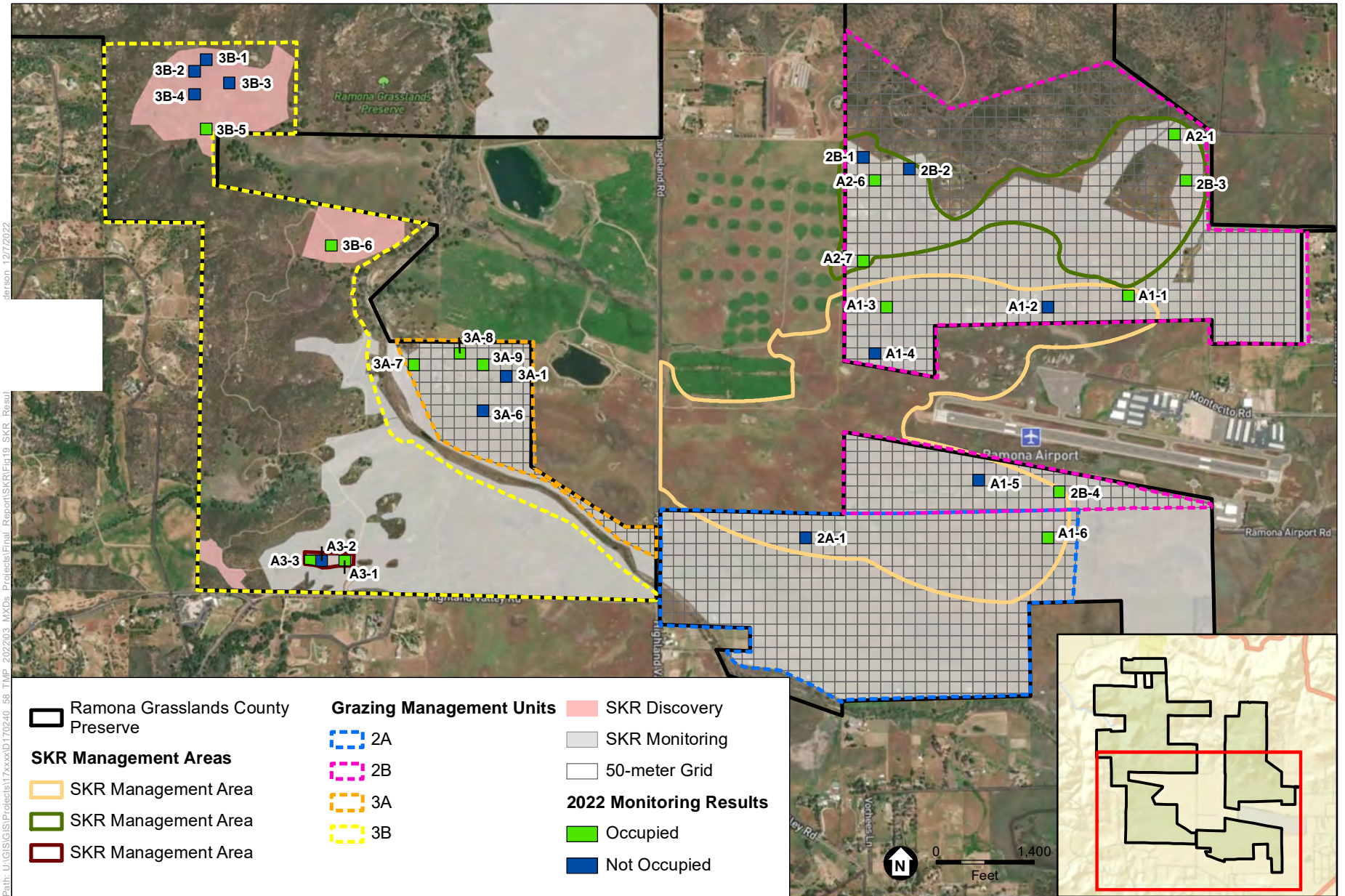
Fall 2022										Fall 2021
Plot ID	% Bare Ground	Living Herb Density	Shrub/Tree Density (%)	Plant Litter (Dead) (%)	Gopher/Ground Squirrel Density	Obstruction Factor	*Potential K-Rat Sign	SKR Occupancy Determination	Rating†	Rating†
A1-1	0-5	Low	0-5	75-95	Low/High	Low	B, S, T	Occupied	High**	High**
A1-2	0-5	Low	0-5	75-95	Medium/Low	High	None	Not Occupied	None	Low
A1-3	5-25	Low	0-5	75-95	Medium/Medium	Low	B, S	Occupied	High**	High**
A1-4	0-5	Low	0-5	75-95	Medium/Low	High	None	Not Occupied	Low	Low
A1-5	5-25	Low	0-5	75-95	High/Medium	Medium	None	Not Occupied	Medium	High**
A1-6	5-25	Medium	0-5	75-95	Low/Low	Low	B, S, TV, TD	Occupied	High**	High**
A2-1	25-50	Low	0-5	50-75	High/High	Low	B, S, T, TD	Occupied	High**	High**
A2-6	5-25	Low	0-5	50-75	Medium/Medium	Medium	B, S, T, TD	Occupied	High**	High**
A2-7	0-5	Low	0-5	75-95	Medium/Medium	Low	B, S, T, TD	Occupied	High**	High**
A3-1	5-25	Medium	0-5	75-95	Medium/High	Low	B, S	Occupied	High**	High**
A3-2	5-25	Medium	0-5	75-95	Medium/High	Low	None	Not Occupied	High	High**
A3-3	5-25	Medium	0-5	75-95	Medium/High	Low	B, S	Occupied	High**	High**
2A-1	0-5	Medium	0-5	75-95	High/Low	Medium	None	Not Occupied	Low	High**
2B-1	0-5	Low	0-5	75-95	Medium/Medium	Low	None	Not Occupied	Low	Medium
2B-2	5-25	Medium	0-5	75-95	High/Low	High	None	Not Occupied	Low	Low
2B-3	50-75	Low	0-5	75-95	Low/High	Low	B, S	Occupied	High**	N/A
2B-4	5-25	Low	0-5	75-95	High/Medium	Medium	S	Occupied	Medium**	N/A
3A-1	0-5	Medium	0-5	75-95	High/Low	High	None	Not Occupied	Low	Low
3A-6	0-5	Medium	0-5	75-95	High/Medium	Low	None	Not Occupied	High	High
3A-7	0-5	Low	0-5	75-95	Low/Low	Medium	B, S	Occupied	High**	Low
3A-8	0-5	Low	0-5	75-95	Medium/Medium	Medium	B, S	Occupied	High**	High**
3A-9	5-25	Low	0-5	75-95	Medium/High	Low	B, S	Occupied	High**	Low
3B-1	0-5	Low	0-5	75-95	Medium/High	Medium	None	Not Occupied	Medium	Medium
3B-2	5-25	Low	0-5	75-95	Medium/Medium	Low	None	Not Occupied	Medium	Medium
3B-3	5-25	Low	5-25	75-95	Medium/Medium	Medium	None	Not Occupied	Medium	Medium
3B-4	0-5	Low	0-5	75-95	Medium/Medium	Low	None	Not Occupied	Medium	High
3B-5	5-25	Low	5-25	75-95	Medium/Medium	Medium	S, T, TD	Occupied	Medium**	Medium
3B-6	5-25	Low	0-5	75-95	Medium/High	Low	B, S	Occupied	High**	High

NOTES: SKR = Stephens' kangaroo rat.

* = Potential Kangaroo Rat Sign: B=Burrow(s); S = Scat; T = Tracks; TD = Tail Drag; TV = Trails in Vegetation; O = Other.

** = Exhibited habitat conditions and observed sign indicates plot is likely occupied by SKR.

† = Estimated potential for SKR occupancy based on habitat community condition and observed kangaroo rat sign.



SOURCE: Mapbox; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 19
Stephens' Kangaroo Rat Monitoring Results
Ramona Grasslands County Preserve

While some permanent monitoring plots changed between no, low, medium, and high SKR suitability, overall SKR habitat suitability remained generally equivalent within SKR monitoring areas between fall 2021 and fall 2022 monitoring efforts (Table 23). These findings may be partly attributed to the randomized assignment of non-permanent monitoring plots that varies between monitoring years, drought/precipitation, and annual grazing practices. The following variables influenced the survey results:

- **Drought.** Drought can artificially appear beneficial for SKR suitability because it is likely to decrease vegetation density and height; however, it ultimately reduces food availability over time and can increase dead plant litter that may increase obstruction factors. Extended droughts, in particular, have the potential to significantly reduce food availability for SKR. The fall of 2022 was marked by below-average rainfall, as it occurred before the typical onset of the rainy season after the hot, dry summer months.
- **Grazing.** In an ecological regime that is free of anthropogenic influences, such as cattle grazing, consistently higher rainfall could serve to reduce habitat suitability for SKR by promoting vegetation cover that excludes SKR. However, all of the monitoring areas are actively grazed, thereby reducing significant vegetative growth during years of above-average rainfall.

Detailed monitoring methods and results, including plot photographs and habitat assessment forms, are included in Appendix K.

Regional monitoring efforts for SKR included monitoring surveys performed by the Riverside County Habitat Conservation Agency (RCHCA). RCHCA staff conducted SKR sign search (e.g., burrows and scats) surveys in the southeast portion of the Preserve to determine live-trapping locations. However, no SKR sign was detected; therefore, live-trapping did not occur.

4.10.1.2 Live-Trapping

No SKR individuals, burrows, or diagnostics signs (e.g., tracks, scat, or tail drag) were detected during the surveys. Detailed trapping methods and results are provided in Appendix K.

4.10.1.3 Adaptive Management Recommendations

The following are the adaptive management recommendations to ensure persistence of SKR at Ramona Grasslands County Preserve:

- **Cattle grazing.** Continue cattle grazing within SKR Management Areas. Cattle grazing assists in keeping dead plant litter to a minimum, which allows for SKR movement, facilitating foraging and breeding behaviors.
- **Survey timing.** To enable consistent data comparisons on a year-to-year basis, future monitoring efforts should continue to be conducted within the fall dry season during the months of October through December. Annual weather patterns in the greater San Diego region are known to have significant variability in rainfall quantities, while generally dry conditions prevail for the majority of the year. This rainfall variability can cause significant, albeit temporary, changes in herb density, dead plant litter, bare ground, and obstruction factors that tend to be most dramatic when comparing site conditions during the wet season. Dry-season monitoring is likely to yield a more consistent comparison of the assessment areas. Live-trapping surveys should be conducted every 10 years during the same seasonal window.

4.10.2 Hellhole Canyon County Preserve

Habitat assessments were conducted at three monitoring plots within the Sierra Verde Addition of Hellhole Canyon County Preserve. All three plots were determined to be occupied or potentially occupied by SKR (**Figure 20, Table 24**). Each plot was rated for SKR potential, and, in total, all three monitoring plots were characterized as having a high potential (**Table 25**).

TABLE 24
SKR MONITORING RESULTS: HELLHOLE CANYON COUNTY PRESERVE

Occupancy/Potential		# of Monitoring Plots
SKR Occupancy	Occupied	3*
	Unoccupied	0
SKR Potential	High	3
	Medium	0
	Low	0
	No	0

NOTES: SKR = Stephens' kangaroo rat.

* Occupancy status was determined as "potentially occupied" based on the positive detection of one SKR in plot 2 during fall 2020 live-trapping surveys, positive kangaroo rat sign during fall 2022 monitoring, the proximity of all three plots (within 150 feet of one another), and no factors that could reasonably be expected to entirely preclude SKR movement between the three plots.

TABLE 25
SKR HABITAT ASSESSMENT SUMMARY: HELLHOLE CANYON COUNTY PRESERVE

Fall 2022										Fall 2021
Plot ID	% Bare Ground	Living Herb Density	Shrub/Tree Density (%)	Plant Litter (Dead) (%)	Gopher/Ground Squirrel Density	Obstruction Factor	*Potential K-Rat Sign	SKR Occupancy Determination	Rating†	Rating†
1	5–25	Low	5–25	50–75	High/Low	Low	B, S	Occupied	High**	High**
2	5–25	Low	5–25	50–75	High/Low	Low	B, S, TV	Occupied	High**	High**
3	5–25	Low	25–30	50–75	High/Low	Medium	B, S	Occupied	High**	High**

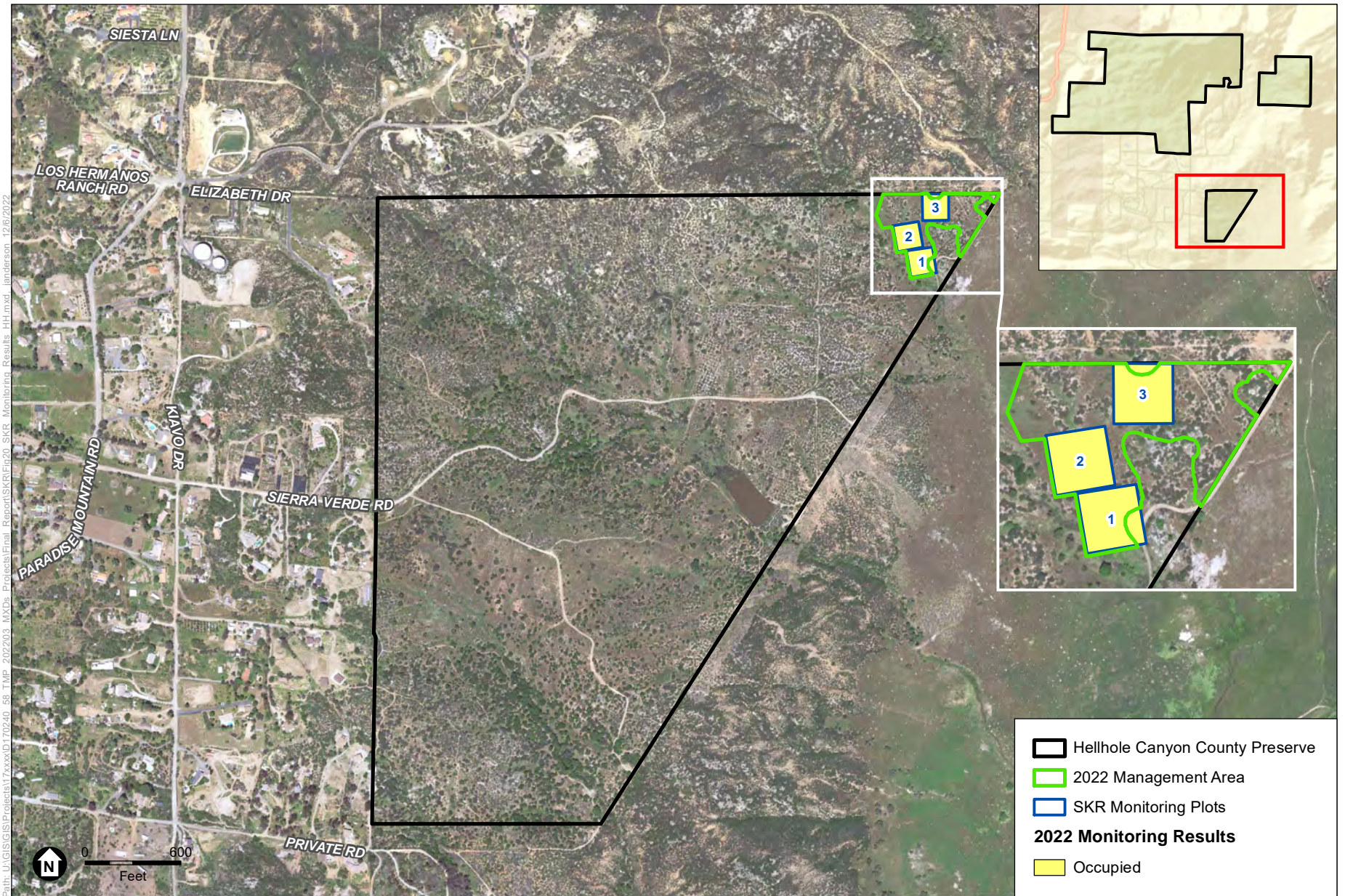
NOTES: SKR = Stephens' kangaroo rat.

* = Potential Kangaroo Rat Sign: B = Burrow(s); S = Scat; T = Tracks; TD = Tail Drag; TV = Trails in Vegetation; O = Other

** = Exhibited habitat conditions and observed sign indicates plot is likely occupied by SKR.

† = Estimated potential for SKR occupancy based on habitat community condition and observed kangaroo rat sign.

SKR occupancy potentially remained the same across the three monitoring plots between fall 2021 and fall 2022 monitoring. SKR was found present at only one of the three monitoring plots during the fall 2020 live-trapping effort, but Dulzura kangaroo rat (DKR, *Dipodomys simulans*) was also found present during the live-trapping effort. Based on sign detected during the fall 2022 habitat assessment monitoring effort, SKR presence was potentially detected at all three monitoring plots; however, habitat assessment monitoring cannot conclusively differentiate between SKR and DKR. Based on the fall 2020 live-trapping effort, SKR and DKR are both present on-site and there are no obstruction factors that could preclude the possibility of SKR from any of the three monitoring plots, especially considering the proximity of the three plots (all within 150 feet of one another). Therefore, SKR was considered to be potentially present at all three monitoring plots (Table 25).



SOURCE: NAIP, 2020; SanGIS, 2022; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
 Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 20
 Stephens' Kangaroo Rat Monitoring and Management Results
 Hellhole Canyon County Preserve

Habitat suitability is high for SKR within the Sierra Verde Addition of Hellhole Canyon County Preserve. These findings may vary seasonally due to a number of variables, such as drought/precipitation, survey timing, food availability, and competition among sympatric species. The following variables influenced survey results:

- **Drought.** Drought can artificially appear beneficial for SKR suitability because it is likely to decrease vegetation density and height, it ultimately reduces food availability over time and can increase dead plant litter that may increase obstruction factors. Extended droughts, in particular, have the potential to significantly reduce food availability for SKR. The period of time between fall 2021 and fall 2022 monitoring was marked by below-average rainfall, and the fall 2021 monitoring effort occurred before the typical onset of the rainy season after the hot, dry summer months.
- **Vegetation composition.** The open areas within the SKR monitoring plots are primarily vegetated with low-growing filarees, with a smaller percentage of taller-growing ruderal species (e.g., tocalote and shortpod mustard) that provide low obstruction factors without grazing practices. Most of the annual vegetation present in the SKR monitoring plots consists of broadleaf filaree, a low-growing annual plant that facilitates SKR movement and is a potential food source. Taller growths of annual vegetation that may preclude or reduce SKR movement were generally not observed.

Detailed monitoring methods and results, including plot photographs and habitat assessment forms are included in Appendix K.

4.10.2.1 Stephens' Kangaroo Rat Focused Management

Focused management occurred in 2022 in response to the invasive non-native plant cover observed in 2021 within suitable SKR habitat at Hellhole Canyon County Preserve. The management area, excluding the culturally sensitive areas, consists of approximately 4.68 acres (Figure 20). Non-native vegetation consisted primarily of non-native grasses, tocalote, and shortpod mustard. Representative photographs of focused management activities are provided in Appendix K.

As a result of the establishment of the 20-foot exclusionary areas and the presence of a cultural resources specialist during ground-disturbing activities, no elements of the four prehistoric archaeological sites were impacted during the habitat maintenance activities. ESA biologist Jaclyn Catino-Davenport returned to the site on November 3, 2022, to remove pin flags, document site conditions after management activities, and confirm that cut biomass was collected and removed from the site for proper disposal off-site.

4.10.2.2 Adaptive Management Recommendations

The incidental observations of thatch and non-native plant species in 2022, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Habitat enhancement.** Continued focused SKR management is necessary to maintain suitable SKR habitat within the Sierra Verde Addition of Hellhole Canyon County Preserve. Continued focused management of an approximately 5.8-acre management area is recommended to ensure persistence of suitable SKR habitat. Focused SKR management can include targeted dethatching, mowing, and/or scraping. Targeted dethatching and mowing can reduce the overall height of the existing vegetation to a desired level and assist with disarticulation of herbaceous

weeds. Scraping can reduce vegetation density and increase open ground, maximizing the ability of SKR to move across the landscape. Focused SKR management can be conducted by County Operations Division staff (e.g., park rangers) with guidance from a cultural resources specialist and biologist to orient staff within the recommended management area, identify and discuss SKR and cultural resources avoidance strategies, and provide management recommendations.

- **Survey timing.** To enable consistent data comparisons on a year-to-year basis, future monitoring efforts should continue to be conducted during the fall dry season during October through December. Annual weather patterns in the greater San Diego region are known to have significant variability in rainfall quantities, while generally dry conditions prevail for the majority of the year. This rainfall variability can cause significant, albeit temporary, changes in herb density, dead plant litter, bare ground, and obstruction factors that tend to be most dramatic when comparing site conditions during the wet season. Dry-season monitoring is likely to yield a more consistent comparison of the assessment areas. Live-trapping surveys should be conducted every 10 years during the same seasonal window.

4.11 Pallid Bat

ESA conducted surveys to monitor the status of pallid bat occupancy and roosting and foraging habitat and document current distribution and threat data to inform management needs in Hellhole Canyon County Preserve, Mount Olympus County Preserve, and Wilderness Gardens County Preserve. Field forms, including the habitat and threats assessment form, are included in **Appendix L, Bat Habitat Assessment Field Forms**. Transect acoustic monitoring was conducted to provide supplemental information and to document if pallid bat was potentially roosting on-site. Pallid bat was detected during transect acoustic monitoring within the Mount Olympus County Preserve (**Table 26**). Additional incidentally observed special-status species include turkey vulture, Cooper’s hawk, and Belding’s orange-throated whiptail at Hellhole Canyon County Preserve (**Figure 21**); and western bluebird and red diamond rattlesnake (*Crotalus ruber*) at Wilderness Gardens County Preserve (**Figure 23**).

TABLE 26
TRANSECT ACOUSTIC BAT SURVEY RESULTS

Bat Species Detected	Mount Olympus County Preserve (06/09/2022)	Wilderness Gardens County Preserve (06/10/2022)	Hellhole Canyon County Preserve (07/07/2022)	Total
Pallid bat ^{a,b} <i>Antrozous pallidus</i>	2	–	–	2
Big brown bat <i>Eptesicus fuscus</i>	24	6	–	30
California myotis <i>Myotis californicus</i>	–	–	2	2
Yuma myotis ^b <i>Myotis yumanensis</i>	2	5	–	7
Canyon bat <i>Parastrellus hesperus</i>	28	1	2	31
Mexican free-tailed bat <i>Tadarida brasiliensis</i>	1	–	–	1
TOTAL	57	12	4	73

NOTES:

^a California Species of Special Concern.

^b County of San Diego Sensitive Animal Group 2 Species.

4.11.1 Roosting and Foraging Habitat Assessment

The pallid bat is a multiple-habitat roosting species. It has an affinity for roosting in human-made structures, but can also be found roosting in a variety of natural crevice and cavity situations, such as rock crevices, natural caves, mines, under tree bark, and in tree cavities and hollows.

4.11.1.1 Hellhole Canyon County Preserve

There is an abundance of rocky outcrops and boulders that could provide suitable roosting habitat for the pallid bat in Hellhole Canyon County Preserve. The rocky and boulder-strewn areas that appear most suitable for pallid bat and other crevice- and cavity-roosting bat species include the rocky/boulder draw near the “grotto” and along Hell Creek from the beginning of significant boulder habitat to the western end of Hell Creek within the Preserve (Figure 21). There are also a number of oaks and other tree species on-site that have the potential for providing pallid bat roosting opportunities under bark and/or in tree hollows and cavities. Most of the suitable trees are found along Hell Creek within the Preserve. There are no human-made structures that could serve as roosting habitat for the pallid bat in the Hellhole Canyon County Preserve.

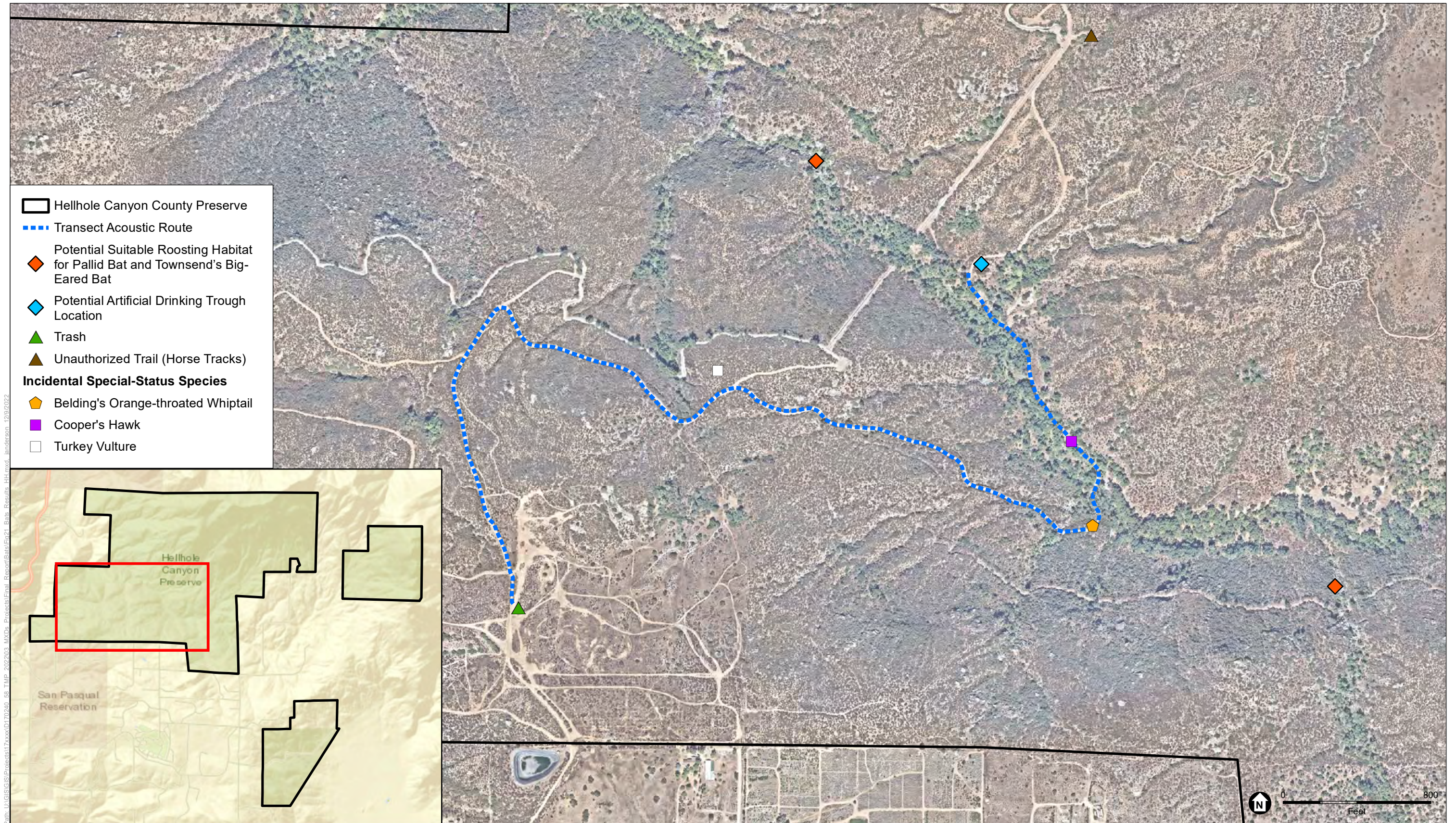
4.11.1.2 Mount Olympus County Preserve

There is an abundance of rocky outcrops and boulders throughout the Mount Olympus County Preserve that could provide suitable roosting habitat for the pallid bat. There are some oaks and other tree species on-site that have the potential for providing pallid bat roosting opportunities under bark and/or in tree hollows and cavities. Most of the suitable trees are found in the forested eastern portion of the Preserve along Pala Temecula Road. There are abandoned human-made structures that could also serve as roosting habitat for the pallid bat in the Mount Olympus County Preserve (**Figure 22**). Pallid bat was detected during transect acoustic monitoring, indicating the Preserve is likely being used for roosting (Table 26).

4.11.1.3 Wilderness Gardens County Preserve

The historic and unused buildings near the center of Wilderness Gardens County Preserve and the exposed rocky habitat such as the rocky outcrops near the northern boundary of the Preserve provide potential pallid bat roosting habitat (Figure 23). There are also potential suitable trees that could have loose bark, cavities, and hollows along the San Luis Rey River, along the base of and in the draws of the chaparral-covered hillside that dominates the Preserve, and near the two ponds on-site that have the potential for providing pallid bat roosting opportunities.

This page is intentionally left blank.



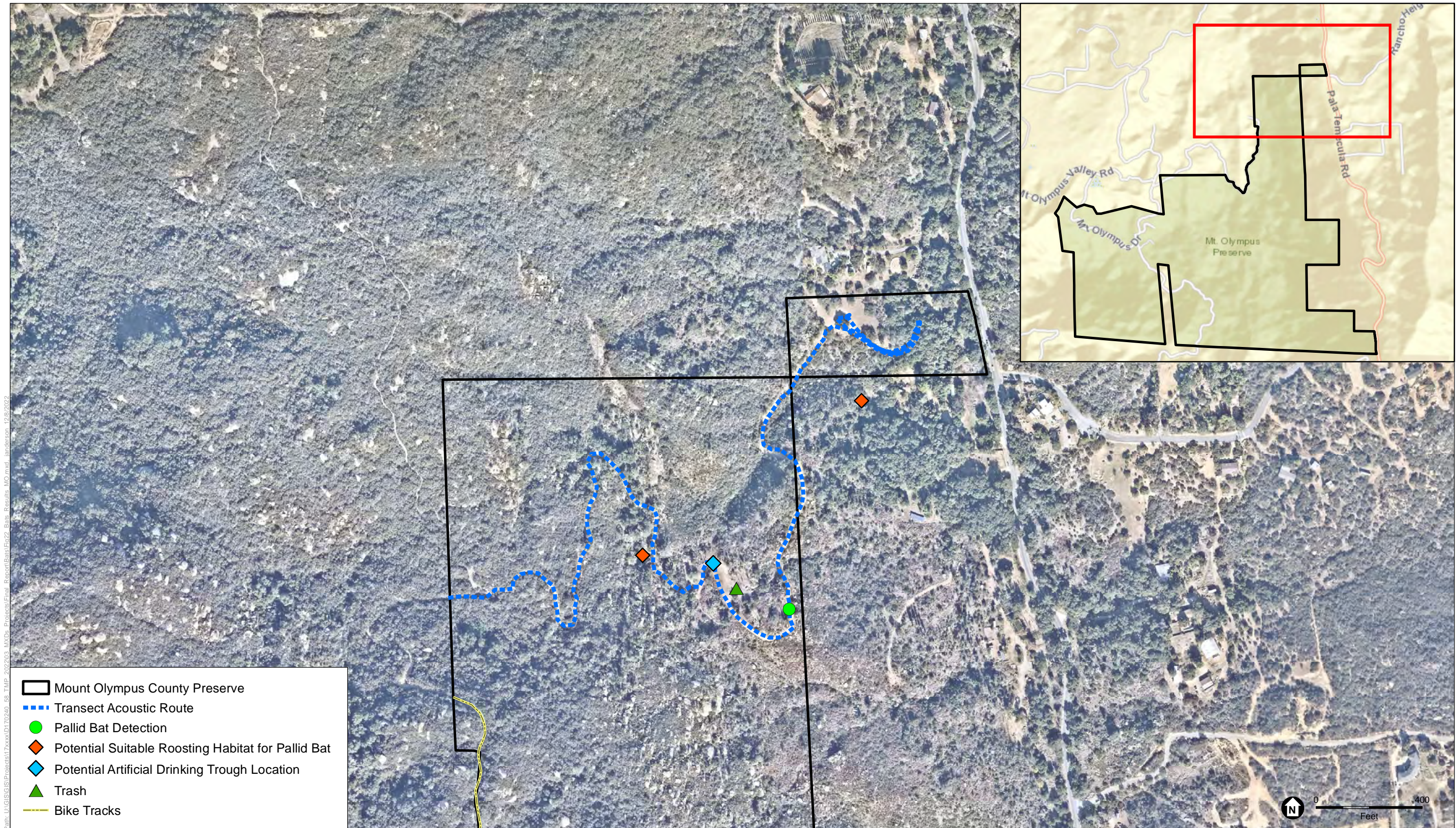
Path: U:\GIS\Projects\7xxxx\DI\20240_58_TMP_2022\03_MXDs\Projects\Final_Report\Bats\Fig21_Bats_Results_Hellhole_anderson_12/9/2022

SOURCE: Nearmap, 2020; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 21
Bat Monitoring Results
Hellhole Canyon County Preserve



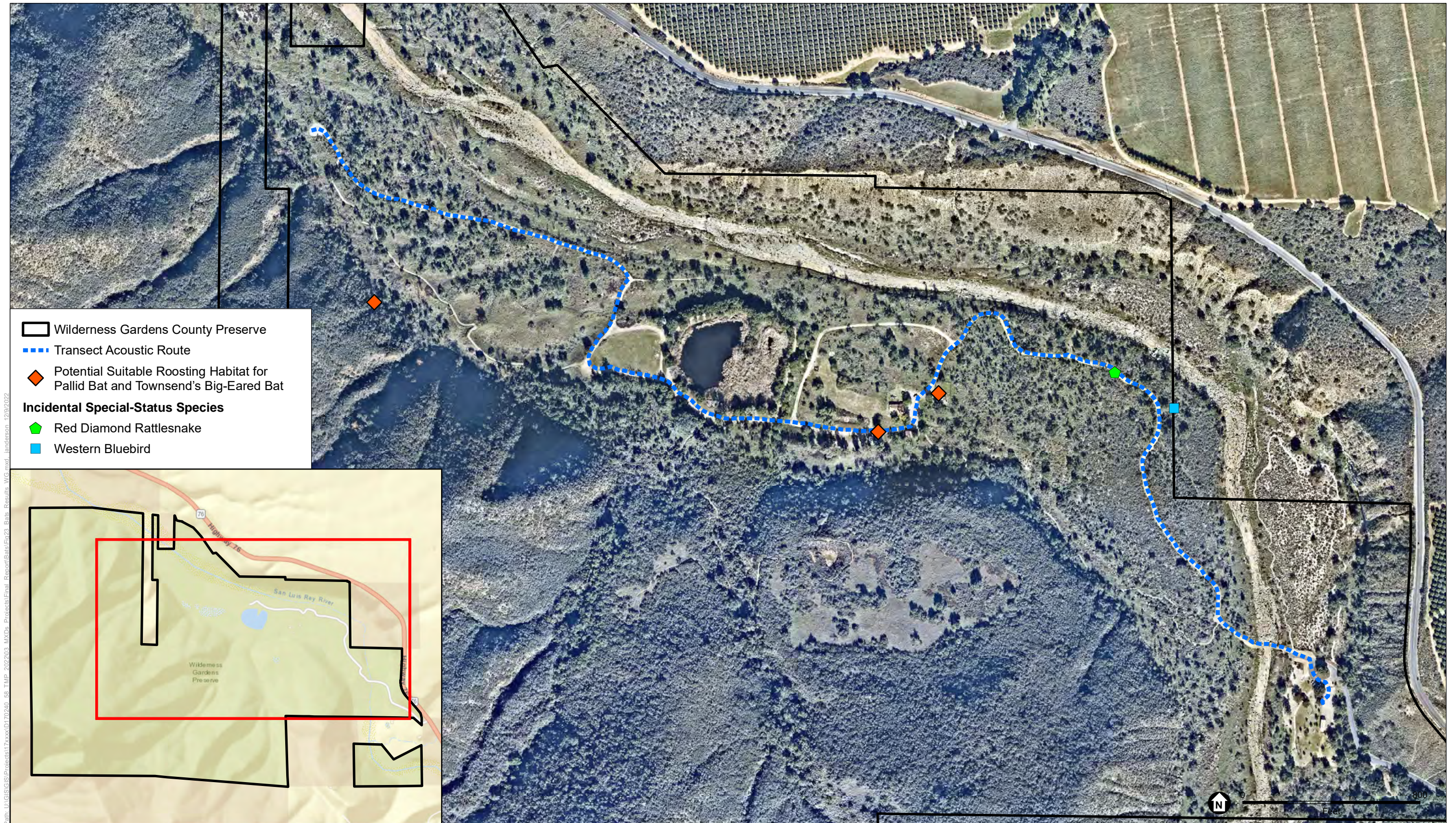
Path: U:\GIS\GIS\Projects\17xxxx\170240_58_TMP_2022\03_Maps\Projects\Final_Report\Bat\Fig22_Bats_Results_MO.mxd - 12/8/2022

SOURCE: Nearmap, 2021; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 22
Bat Monitoring Results
Mount Olympus County Preserve



Path: U:\GIS\GIS\Projects\17xxxx\170240_58_TMP_2022\03_Maps\Projects\Final_Report\Bats\Fig23_Bats_Results_MVC.mxd, Janderson, 12/9/2022

SOURCE: Nearmap, 2021; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 23
Bat Monitoring Results
Wilderness Gardens County Preserve

This page is intentionally left blank.

4.11.2 Threats Assessment

Threats and suitable roosting and foraging habitat were assessed during the species surveys to determine: (1) if identified threats are having a direct negative effect on the species or habitat, and (2) if adaptive management actions need to be implemented. The following threats were observed:

- **Invasive non-native grasses.** Invasive non-native grass cover at all three Preserves presents a potentially significant impact to pallid bat foraging habitat. Invasive non-native grass cover and associated thatch cover vary across each Preserve, but can be characterized as dense cover, particularly within grassland habitats on-site. Pallid bats require open and sparsely vegetated areas for foraging such that they can easily access terrestrial arthropods; therefore, dense invasive non-native grass cover reduces suitable foraging habitat.
- **Dumping/trash.** Trash and litter were observed at Mount Olympus and Hellhole Canyon County Preserves. At Hellhole Canyon County Preserve, trash was detected near the southwest access point, which is only for authorized personnel use and not open to the public. At Mount Olympus County Preserve, trash was detected near an abandoned structure. Trash degrades the habitat quality for wildlife, including bats.
- **ORV activity.** ORV signs (tracks) were observed within the Mount Olympus County Preserve. ORV activity could potentially impact terrestrial arthropods and negatively affect foraging pallid bats.
- **Illegal trail use.** Illegal trail/unauthorized off-trail usage was detected at the top of Mount Olympus County Preserve starting at approximately (33.419484°, -117.094807°) and continuing south along an unauthorized dirt trail on the ridgeline. Illegal trail/unauthorized off-trail usage (e.g., horse tracks) was detected north of the Escondido Canal, where no authorized trails are located. Continued illegal trail usage could potentially degrade foraging habitat for pallid bats.

4.11.3 Adaptive Management Recommendations

The following are adaptive management recommendations to maintain and enhance suitable roosting and foraging habitat for pallid bat:

- **Foraging habitat enhancement.** Focused pallid bat foraging habitat management can include targeted dethatching, mowing, and/or herbicide treatment. Targeted dethatching and mowing can reduce the overall height of the existing vegetation to a desired level and increase open ground, maximizing the ability of pallid bats to forage. Herbicide treatment can be used to maintain open ground areas. Focused management should occur outside of the avian nesting season (March–September) at Hellhole Canyon County Preserve and Wilderness Gardens County Preserve. Mechanical methods and herbicide could be used during the avian nesting season if a biologist is present to clear the impact areas in front of the restoration crew. Thatch removal should be implemented with weed eaters and rakes; debris should be hauled out and disposed of off-site at a county landfill. Ideally, herbicide should be applied before seed sets on plants, which may involve multiple treatment visits throughout the season. Targeted dethatching, mowing, and/or herbicide should be prioritized along roads and trails and disturbed areas that provide openings for foraging pallid bats.
- **Install and enhance drinking sources.** Install drinking sources for pallid bats at Hellhole Canyon County Preserve and Mount Olympus County Preserve. Spring- and/or water-table-

fed artificial drinking troughs should be installed in the Preserves where such aquatic features are present and logistically feasible (i.e., near roads and/or trails). Potential artificial drinking trough locations for Hellhole Canyon and Mount Olympus County Preserves are included on Figure 21 and Figure 22, respectively. Both locations are near access roads and are assumed to have access to potential wells that could fill the drinking troughs. On Wilderness Gardens County Preserve, the existing pond can be enhanced by clearing cattails and other wetland vegetation to provide better opportunities for pallid bats to drink while in flight.

- **Create roost structures.** Create and install artificial roost structures in Hellhole Canyon, Mount Olympus, and Wilderness Gardens County Preserves. Artificial roosts that are large, thermally stable, and provide roosting opportunities for crevice- and cave-roosting bats are recommended. This can include cinderblock style “combat town” structures typically found on military bases. Artificial roost locations that are near foraging habitat such as riparian areas, oak woodlands, and near water sources are ideal, but they should be put in areas where they would not be subject to disturbance and vandalism.
- **Clean up trash.** Regularly remove trash and litter at Mount Olympus and Hellhole Canyon County Preserves. Place additional signage at known unauthorized access points stating Mount Olympus and sections of Hellhole Canyon County Preserves are not open to the public and littering on-site is illegal. Trash and litter are centralized around the old homestead, but also observed in limited amounts throughout the Mount Olympus County Preserve. Trash and litter are centralized around the southwest access point on Hellhole Canyon County Preserve. This access point is open only to authorized personnel and is not open to the public.
- **Continue monitoring on an annual basis.** Pallid bats are most readily detected by mist net capture and by finding their guano and culled insect parts in their night roosts. In absence of mist netting or obvious roosts to detect pallid bat sign, the alternative is to use electronic bat detectors. Pallid bats appear to have low detection rates and their echolocation calls can resemble other more common species such as the big brown bat (*Eptesicus fuscus*). Future pallid bat monitoring should implement a combination of acoustic monitoring (either passive or transect) and mist netting to confirm presence of species and document individual bat information to inform population dynamics.

4.12 Townsend’s Big-Eared Bat

ESA conducted surveys to monitor the status of Townsend’s big-eared bat occupancy and roosting and foraging habitat to document current distribution and threat data to inform management needs in Hellhole Canyon County Preserve and Wilderness Gardens County Preserve. Field forms, including the habitat and threats assessment form, are included in Appendix L. Transect acoustic monitoring was conducted to provide supplemental information and to document if Townsend’s big-eared bat was potentially roosting on-site. Townsend’s big-eared bat was not detected during transect acoustic monitoring surveys (Table 26). Additional incidentally observed special-status species include turkey vulture, Cooper’s hawk, American peregrine falcon, and Belding’s orange-throated whiptail at Hellhole Canyon County Preserve (Figure 21) and western bluebird and red diamond rattlesnake at Wilderness Gardens County Preserve (Figure 23).

4.12.1 Roosting and Foraging Habitat Assessment

Townsend's big-eared bat is an obligate cave-roosting species that depends on caves and cave-analogs for its roosting requirements. Roosting situations include natural caves, including boulder caves, mines, tree hollows, and human-made structures that provide cave-like environments.

4.12.1.1 Hellhole Canyon County Preserve

There is an abundance of boulder habitat that could provide suitable roosting habitat in Hellhole Canyon County Preserve. The boulder strewn areas that appear most suitable for the Townsend's big-eared bat include the boulder draw near the "grotto" and along Hell Creek from the beginning of significant boulder habitat to the western end of Hell Creek. In 2022, significant boulders and rocky outcrops were identified just off-site to the north of the Preserve (Figure 21). On-site trees with tree hollows and cavities also have the potential for providing Townsend's big-eared bat roosting opportunities. Most of the suitable trees are found along Hell Creek in the Preserve. There are no human-made structures that could serve as roosting habitat for the Townsend's big-eared bat in the Preserve.

4.12.1.2 Wilderness Gardens County Preserve

The historic and unused buildings near the center of Wilderness Gardens County Preserve and the exposed rocky habitat such as the rocky outcrops near the northwest boundary of the Preserve provide potential Townsend's big-eared bat roosting habitat (Figure 23). Exposed rocky habitat such as the rocky outcrops near the northern boundary of the Preserve serve as potential roosting habitat for the Townsend's big-eared bat as well. There are also potential suitable trees that could have loose bark, cavities, and hollows along the San Luis Rey River, along the base of and in the draws of the chaparral-covered hillside that dominates the Preserve, and near the two ponds on-site that have the potential for providing Townsend's big-eared bat roosting opportunities.

4.12.2 Threats Assessment

Threats to roosting and foraging habitat were assessed during species surveys to determine: (1) if identified threats are having a direct negative effect on the species or habitat, and (2) if adaptive management actions need to be implemented. The following threats were observed:

- **Dumping/trash.** Some trash and litter were observed at Hellhole Canyon County Preserve. The trash was located near the southwest access point, which is only for authorized personnel use and not open to the public. Trash and litter degrade the habitat quality for wildlife, including bats.
- **Illegal trail use.** Illegal trail/unauthorized off-trail usage was detected on the Hellhole Canyon County Preserve. Horse tracks were seen in an area just north of the Escondido Canal where no authorized trails are located. Continued illegal trail usage could potentially degrade foraging habitat for Townsend's big-eared bats.

4.12.3 Adaptive Management Recommendations

The following are adaptive management recommendations to maintain and enhance suitable roosting and foraging habitat for Townsend's big-eared bat:

- **Foraging habitat enhancement.** Focused Townsend's big-eared bat foraging habitat management can include targeted dethatching, mowing, and/or herbicide treatment. Targeted dethatching and mowing can reduce the overall height of the existing vegetation to a desired level and increase open ground, maximizing the ability of Townsend's big-eared bats to forage. Herbicide treatment can be used to maintain open ground areas. Focused management should occur outside of the avian nesting season (March–September) at Hellhole Canyon County Preserve and Wilderness Gardens County Preserve. Mechanical methods and herbicide could be used during the avian nesting season if a biologist is present to clear the impact areas in front of the restoration crew. Thatch removal should be implemented with weed eaters and rakes; debris should be hauled out and disposed of off-site at a county landfill. Ideally, herbicide should be applied before seed sets on plants, which may involve multiple treatment visits throughout the season. Targeted dethatching, mowing, and/or herbicide should be prioritized along roads and trails and disturbed areas that provide openings for foraging Townsend's big-eared bats.
- **Install and enhance drinking sources.** Install drinking sources for Townsend's big-eared bats at Hellhole Canyon County Preserve. Spring- and/or water-table-fed artificial drinking troughs should be installed in the Preserves where such aquatic features are present and logistically feasible (i.e., near roads and/or trails). Potential artificial drinking trough locations for Hellhole Canyon County Preserve and Mount Olympus County Preserve are included on Figure 21 and Figure 22, respectively. Both locations are near access roads and are assumed to have access to potential wells that could fill the drinking troughs. On Wilderness Gardens County Preserve, the existing pond can be enhanced by clearing cattails and other wetland vegetation to provide better opportunities for Townsend's big-eared bats to drink while in flight.
- **Create roost structures.** Create and install artificial roost structures in Hellhole Canyon and Wilderness Gardens County Preserves. Artificial roosts that are large, thermally stable, and provide roosting opportunities for cave-roosting bats are recommended. This can include cinderblock style "combat town" structures typically found on military bases. Artificial roost locations that are near foraging habitat such as riparian areas, oak woodlands, and near water sources are ideal, but they should be put in areas where they would not be subject to disturbance and vandalism.
- **Clean up trash.** Regularly remove trash and litter at Hellhole Canyon County Preserve. Place additional signage at known unauthorized access points stating sections of Hellhole Canyon County Preserve are not open to the public and littering on-site is illegal. Trash and litter were centralized around the southwest access point of the Preserve. This access point is open only to authorized personnel and is not open to the public.
- **Continue monitoring on an annual basis.** Future monitoring of Townsend's big-eared bat should continue to occur at Hellhole Canyon County Preserve and Wilderness Gardens County Preserve. Townsend's big-eared bat is known to have low detection probabilities when only acoustic techniques are used; future Townsend's big-eared bat monitoring should implement a combination of acoustic monitoring (either passive or transect) and mist netting to confirm presence of species and document individual bat information to inform population dynamics.

4.13 Peak Forage Production and Residual Dry Matter Monitoring

4.13.1 Peak Forage Production Monitoring

The average lb/acre of peak forage for a given management unit at Ramona Grasslands County Preserve is presented in **Table 27** and **Figure 24**. The results of the average peak forage production values from each monitoring plot in 2022 can be found in **Appendix M, Peak Forage Production and Residual Dry Matter Monitoring Reports**. This is the first time that peak production monitoring was conducted at the Preserve. Over time, DPR will use monitoring results to detect year-to-year fluctuations in forage production. Peak production targets are not established for the Preserve or per management unit; rather, peak production monitoring results inform stocking rates for the year.

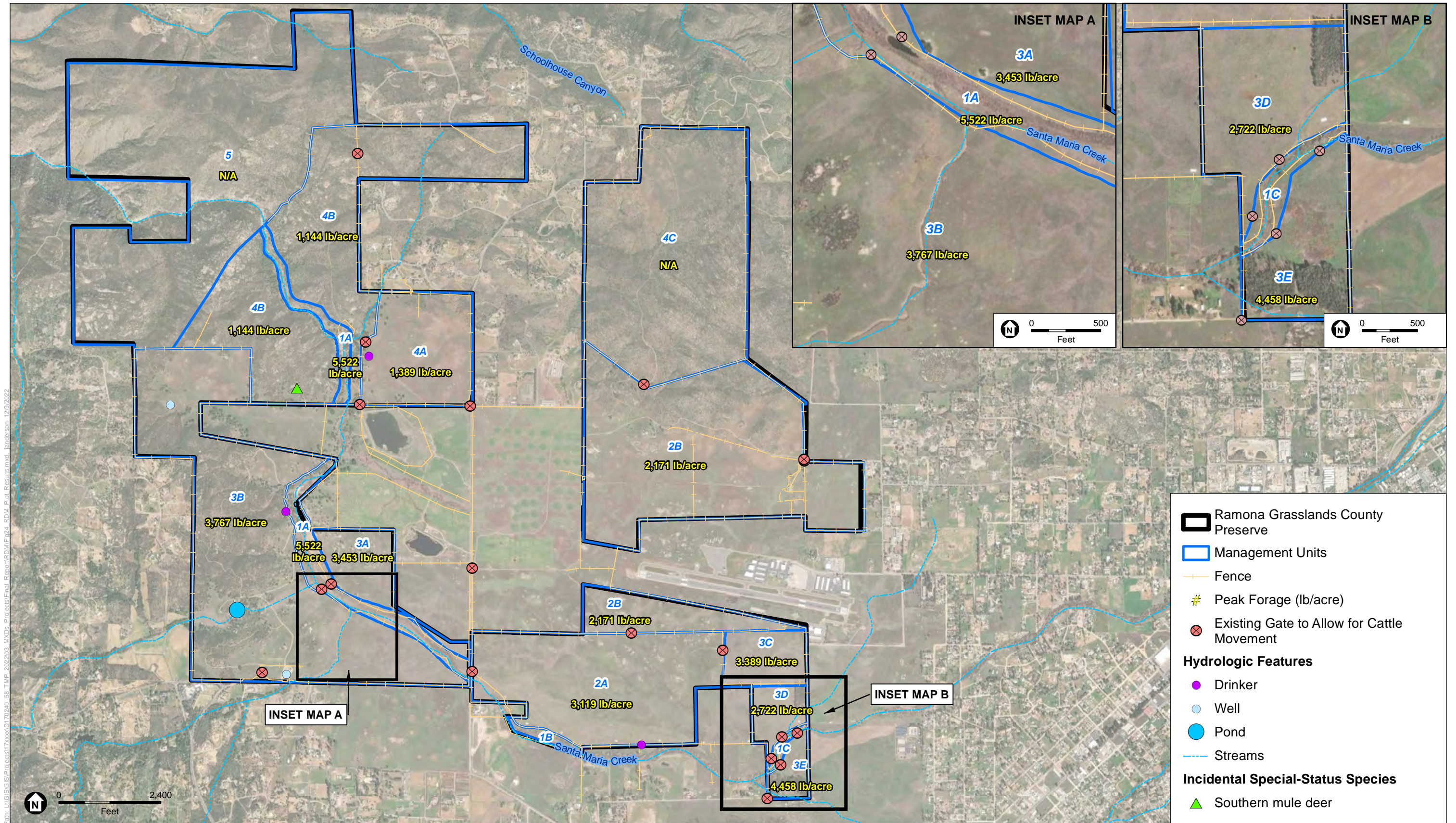
TABLE 27
PEAK FORAGE PRODUCTION MONITORING SUMMARY: RAMONA GRASSLANDS COUNTY PRESERVE

Management Unit	Managed Resources	Average Peak Forage Production (lb/acre)
		2022
1A	Riparian pastures and arroyo toad habitat	5,522
2A	SKR habitat	3,119
2B	SKR habitat	2,171
3A	SKR habitat	3,453
3B	Species diversity, fire hazard reduction, and soil conservation	3,767
3C	Vernal pool habitat	3,389
3D	Vernal pool habitat	2,722
3E	Not grazed	4,458
4A	Species diversity, fire hazard reduction, and soil conservation	1,389
4B	Species diversity, fire hazard reduction, and soil conservation	1,144
4C	Not grazed	N/A
5	Not grazed	N/A

NOTES: lb/acre = pounds per acre; N/A = not applicable, no monitoring plots established for these management units; SKR = Stephens' kangaroo rat

These results are an average of the peak production values of all monitoring plots per management unit from 2022.

This page is intentionally left blank.



SOURCE: ESRI, AECOM 2017; ESA 2022

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 24
Peak Forage Production Monitoring Results
Ramona Grasslands County Preserve

This page is intentionally left blank.

4.13.2 Residual Dry Matter Monitoring

The results of vegetation sampling within each management unit at Ramona Grasslands County Preserve are discussed below, and 2022 RDM values are summarized in **Table 28** and **Figure 25**. The results of the average RDM values from each of the individual RDM plots from 2011 through 2022 can be found in **Appendix M**. All RDM values, with the exception of management units 4A and 4B, were above the target RDM values. Management units 4A and 4B had RDM values within their target RDM value range.

The majority of management units were above their target RDM values in 2022. These results were likely influenced by the lack of a grazing lessee at the Preserve since April 2022. Results were likely also influenced by the rainstorm event in early September 2022 that initiated vegetative growth. Extreme fluctuations in rainfall in recent years (e.g., drought conditions in 2018, above-average rainfall in 2019, below-average to average rainfall in 2020, and drought conditions in 2021) drive substantial variability in vegetative cover from year to year. The decrease in RDM values between 2021 and 2022 is likely due to low rainfall levels and continued drought conditions in the region. Ramona Airport reported approximately 6.5 inches of accumulated rainfall from January to September 2021 and approximately 4 inches of accumulated rainfall from January to September 2022 (NOAA 2022).

4.13.3 Adaptive Management Recommendations

The following are adaptive management recommendations based on the annual RDM monitoring results for all management units:

- Continue spring peak forage monitoring in all units (except 4C and 5). This monitoring assesses the amount of forage available for grazing in a given year, allowing the grazing lessee to adjust their grazing regime (e.g., stocking density and grazing duration) with the RDM target values in mind to meet management targets.
- Continue long-term RDM monitoring in all units (except 4C and 5). This is important to ensure that RDM values do not exceed or drop below the range needed to meet the management targets and increase biodiversity.
- Invasive non-native plant mapping should be conducted throughout the Preserve annually, if feasible, per the monitoring recommendations in the TMP (ESA and ICF 2022).
- Continue active restoration of management unit 3E to remove non-native species by a combination of mowing, herbicide treatment, and/or targeted grazing. Quantitative vegetation monitoring, such as Relevé assessment, is recommended within this management unit to document pre-restoration and post-restoration conditions.
- Seed bare ground surrounding water troughs. Extensive areas of bare ground were observed surrounding the water troughs during 2018–2022 surveys. Native grass seed should be planted around water troughs and in bare ground near water troughs to improve soil quality. Seed should be from a local, credible source or collected within the Preserve by hired seed collectors or DPR rangers who have been taught by a consultant how to collect native plant seeds. Plant species that could be distributed in areas with bare ground, such as those around the troughs, include purple needlegrass (*Stipa pulchra*), nodding needlegrass (*Stipa cernua*), wild rye (*Elymus triticoides*), and Lemmon's canary grass (*Phalaris lemmonii*). These species have been verified as native grasses found within the Preserve, according to the San Diego

Natural History Museum Plant Atlas Database. Seeds should not come from outside of San Diego County.

- Conduct rare plant surveys throughout the Preserve at 10-year intervals in the spring and late summer, per the monitoring recommendations in the TMP (ESA and ICF 2022). Rare plants have been incidentally observed during RDM monitoring; however, these incidental observations are not representative of comprehensive rare plant surveys. Rare plant surveys should focus on areas with rare soils and sensitive habitats, and areas where rare plants have been recorded in the past. The rare plant surveys should be used to update the sensitive plant maps from the Vegetation Management Plan (ICF 2012), identify populations of sensitive species for more intensive monitoring, and determine if any new sensitive species are present. Following the completion of rare plant surveys, monitoring plots located within sensitive plant populations should be adjusted to avoid impacts to the species.
- Cattle grazing frequency and rotations should be carefully monitored to restrict access to vernal pool and playa habitat during the wet season, as well as when clay soils are still moist and malleable. The TMP requires quantitative monitoring every 5 years and qualitative monitoring twice annually (ESA and ICF 2022). To better evaluate functional trends in vernal pool and alkali playa habitat, it is recommended to increase quantitative monitoring to twice annually and conduct it concurrently with qualitative monitoring (e.g., during the wet phase in early spring to capture aquatic plant and wildlife species, and during the dry phase to capture flowering plants at their peak). Conduct SKR surveys, per the TMP (ESA and ICF 2022). SKR burrow count/sign surveys, quantitative habitat assessments, and SKR live-trapping should be conducted to determine whether grazing is meeting management goals for this species or if other management actions are needed.

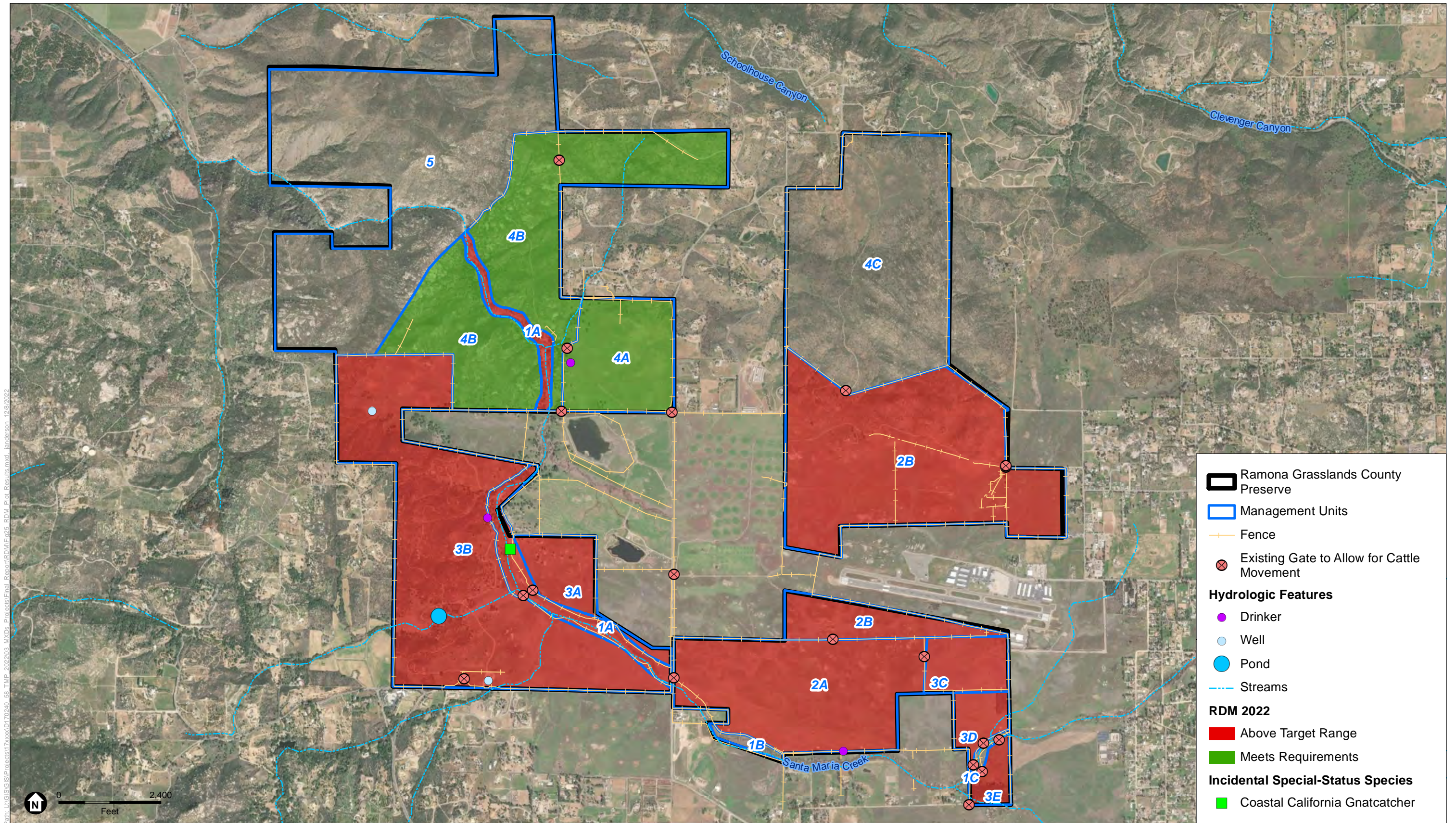
TABLE 28
SUMMARY OF 2022 RDM RESULTS

Management Unit	Target RDM Value	Average RDM (lb/acre)											2022 Results	
		2011*	2012*	2013*	2014*	2015*	2016*	2017*	2018*	2019*	2020	2021		2022
1A	800 to 2,000 lb/acre	4,900	2,137	586	453	350	843	679	233	2,522	4,178	1,833	2,478	Does not meet grazing requirements.
2A	400 to 800 lb/acre	6,241	3,381	1,728	517	1,137	1,479	1,085	394	3,071	3,352	2,348	2,186	Does not meet grazing requirements.
2B	400 to 800 lb/acre	3,957	1,844	933	301	1,124	747	798	338	3,167	3,786	2,962	1,400	Does not meet grazing requirements.
3A	400 to 800 lb/acre	3,688	2,796	384	136	238	282	1,521	20	1,767	2,600	2,540	1,627	Does not meet grazing requirements.
3B	800 to 1,500 lb/acre	2,450	2,405	635	402	385	880	803	27	2,420	2,587	2,413	1,933	Does not meet grazing requirements.
3C	800 to 1,500 lb/acre	4,055	2,890	1,013	810	403	1,543	919	233	2,622	2,100	3,711	2,456	Does not meet grazing requirements.
3D	800 to 1,500 lb/acre	6,855	3,740	1,406	1,450	370	1,190	709	167	489	1,800	2,622	2,522	Does not meet grazing requirements.
3E	800 to 1,500 lb/acre	0	123	2,540	1,547	1,330	5,883	4,923	5,908	925	1,025	2,675	5,608	Does not meet grazing requirements.
4A	800 to 1,500 lb/acre	4,122	2,407	2,086	100	513	890	876	78	2,522	1,889	1,267	911	Meets grazing requirements.
4B	800 to 1,500 lb/acre	2,688	1,140	1,210	400	1,053	633	573	244	1,417	1,594	2,039	1,272	Meets grazing requirements.
4C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not proposed for managed grazing.
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not proposed for managed grazing.

NOTES: RDM = residual dry matter; lb/acre = pounds per acre; N/A = not applicable.

* RDM values from 2011–2019 were compared to previous target RDM values as described in the Ramona Grasslands Preserve Vegetation Management Plan (ICF 2012). These results are an average of the RDM values of all monitoring plots per management unit 2011 through 2022.

This page is intentionally left blank.



SOURCE: ESRI, AECOM 2017; ESA 2022

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report



Figure 25
Residual Dry Matter Monitoring Results
Ramona Grasslands County Preserve

This page is intentionally left blank.

CHAPTER 5

References

- AECOM. 2021. *Summary of 2021 SDMMP Northern Harrier Surveys*. Prepared for San Diego Management and Monitoring Program. December.
- Bartolome, J. W., W. E. Frost, N. K. McDougald, and M. Conner. 2002. *Guidelines for Residual Dry Matter Management on Coastal and Foothill Rangelands in California*. Rangeland Management 8092: 1–7.
- Brehme, C. S., D. R. Clark, and R. N. Fisher. 2016. *Stephens' Kangaroo Rat Monitoring on MCB Camp Pendleton, Results and Trends Analyses for Fall-Winter 2014*. Prepared for Wildlife Management Branch, AC/S Environmental Security, Marine Corps Base Camp Pendleton.
- Brown, J. 1991. *Sensitive and declining butterfly species (Insecta: Lepidoptera) in San Diego County, California*. Draft report prepared for Dudek and Associates. 27 pages. California Department of Fish and Game (CDFG). 2012. *Staff Report on Burrowing Owl Mitigation*. State of California Natural Resources Agency Department of Fish and Game. March.
- California Department of Fish and Game (CDFG). 2012. *Staff Report on Burrowing Owl Mitigation*. State of California Natural Resources Agency Department of Fish and Game. March.
- California Invasive Plant Council (Cal-IPC). 2022. <https://www.cal-ipc.org/plants/inventory/about-the-inventory/> Accessed August 2022.
- County of San Diego. 1997. *Multiple Species Conservation Program County of San Diego Subarea Plan*. October 22, 1997.
- County of San Diego. 1998. *Final Multiple Species Conservation Program, MSCP Plan*. Available at: <https://www.sandiegocounty.gov/content/dam/sdc/pds/mscp/docs/SCMSCP/FinalMSCPProgramPlan.pdf>.
- County of San Diego. 2001. *Framework Management Plan*. Subarea Plan.
- County of San Diego. 2010. *County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements, Biological Resources*. Land Use and Environmental Group. Department of Planning and Land Use. Department of Public Works. Fourth Revision.
- Environmental Science Associates (ESA). 2019a. *Cultural Resources Survey and Inventory for the Hellhole Canyon Preserve Additions, County of San Diego, California*. Prepared for the County of San Diego Department of Parks and Recreation. August 2019.

- ESA. 2019b. *Ramona Grasslands, Santa Ysabel, and Boulder Oaks Preserves Grazing Management Plan*. Prepared for the County of San Diego Department of Parks and Recreation. October 2019.
- ESA. 2021. *Baseline Biodiversity Survey Report for the Hellhole Canyon Preserve Additions*. Prepared for the County of San Diego Department of Parks and Recreation. October 2021.
- ESA. 2022a. *Raptor Foraging Surveys & Nest Monitoring 2021–2022 Summary Report Ramona Grasslands Preserve & El Capitan Preserve*. Prepared for the County of San Diego Department of Parks and Recreation. December 2022.
- ESA. 2022b. *Targeted Monitoring Plan Resource-Specific Monitoring 2021 Annual Report*. Prepared for the County of San Diego Department of Parks and Recreation. May 2022.
- ESA and ICF International, Inc. (ICF). 2015. *Comprehensive Monitoring Plan (Targeted Monitoring Plan)*. Prepared for the County of San Diego Department of Parks and Recreation. July 2015.
- ESA and ICF. 2019a. *Draft Targeted Monitoring Plan*. Prepared for the County of San Diego Department of Parks and Recreation. July 2019.
- ESA and ICF. 2019b. *Draft Targeted Monitoring Plan Update*. Prepared for the County of San Diego Department of Parks and Recreation. December 2019.
- ESA and ICF. 2021a. *Draft Targeted Monitoring Plan Update*. Prepared for the County of San Diego Department of Parks and Recreation. September 2021.
- ESA and ICF. 2021b. *Draft Targeted Monitoring Plan Update*. Prepared for the County of San Diego Department of Parks and Recreation. December 2021.
- ESA and ICF. 2022. *Draft Targeted Monitoring Plan Update*. Prepared for the County of San Diego Department of Parks and Recreation. December 2022.
- ICF International (ICF). 2008. *Baseline Biological Resources Evaluation, Lakeside Linkage Preserve*. Prepared for Department of Parks and Recreation, County of San Diego. December.
- ICF. 2012. *Final Ramona Grasslands Preserve Vegetation Management Plan*. Prepared for Department of Parks and Recreation, County of San Diego. June 2012.
- Marschalek, D., and D. Deutschman. 2015. *Initial Investigation of Critical Biological Uncertainties for Harbison’s Dun Skipper (*Euphyes vestris harbisoni*) on Conserved Lands in San Diego County*. San Diego, CA. Prepared for California Department of Fish and Wildlife.
- Marschalek, D., and D. Deutschman. 2016. *Rare Butterfly Management and Conservation Planning. Task 7: 2016 Harbison’s Dun Skipper Flight Season Surveys*. Prepared for San Diego Association of Governments. August 30, 2016.

- Montgomery, S.J., D.J. Grout, C.M. Wolf, V.M. Shoblock, A. Davenport, and R.N. Knight. 2008. *Stephens' kangaroo rat monitoring program, and results of annual monitoring sessions between spring 2002 and fall 2004, at Naval Weapons Station Seal Beach Detachment Fallbrook*. Unpublished report submitted by SJM Biological Consultants to the Environmental Programs and Services Office, Naval Weapons Station Seal Beach Detachment Fallbrook, Fallbrook, CA.
- National Oceanic and Atmospheric Administration (NOAA). 2022. National Weather Service – Advanced Hydrologic Prediction Service. <https://water.weather.gov/precip/>.
- Parker, S. S., Hall, L. S., Whitfield, M. J., Riege, L., Selm, K. R., and Corado, R. 2022. *Developing an adaptive management approach to cowbird control on the Santa Clara River, California*. *Journal of Wildlife Management* 86:e22284. <https://doi.org/10.1002/jwmg.22284>.
- Ralph, J.C., S. Droege, and J.R. Sauer. 1995. *Managing and Monitoring Birds Using Point Counts: Standards and Applications*. In USDA Forest Service Gen. Tech Rep. PSW-GTR-149.
- Rebman and Dossey. 2006. *Baseline survey of willow monardella on MCAS Miramar*.
- SDMMP. 2020. *Management and Monitoring Strategic Plan (MSP Roadmap) 2020 Rare Plant Inspect and Manage Monitoring Protocol for Occurrences on Conserved Lands in Western San Diego County*. March 16, 2020.
- SDMMP. 2022. *Management and Monitoring Strategic Plan (MSP Roadmap) 2022 Rare Plant Inspect and Manage Monitoring Protocol for Occurrences on Conserved Lands in Western San Diego County*. February 24, 2022.
- University of California Agriculture and Natural Resources (UCANR). 2016. *Rangeland Management Series Annual Range Forage Production*. ANR Publication 8018. January 2016.
- USFWS. 2001. *Least Bell's Vireo Survey Guidelines*. Prepared by the U.S. Department of the Interior. January 19, 2001.
- USFWS. 2013. *Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats*. March 2013.
- USFWS. 2017. *USFWS Pacific Southwest Region Survey Guidelines for the Listed Large Branchiopods*. November 13, 2017.

This page is intentionally left blank.

Appendix A
**San Diego Fairy Shrimp 90-Day
Report**





1720 Midvale Drive
San Diego, CA, 92105
Phone: 619.972.7932
Phone: 619.972.8714
www.blackhawkenv.com

July 4, 2022

Ms. Stacey Love
Recovery Permit Coordinator
U.S. Fish and Wildlife Service – Carlsbad Fish and Wildlife Office
2177 Salk Ave, Suite 250
Carlsbad, CA 92008
Email: stacey_love@fws.gov
Office: (760) 431-9440 x 263

Re: USFWS 90-Day Report of 2022 Wet Season Fairy Shrimp Surveys for Ramona Grasslands County Preserve, Ramona, San Diego County, California

Dear Ms. Love:

Environmental Science Associates (ESA) was contracted by the County of San Diego Parks and Recreation Department (DPR) with Blackhawk Environmental (Blackhawk) as a sub-consultant to conduct resource-specific monitoring for the federally endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*, BRSA) and the federally endangered Riverside fairy shrimp (*Streptocephalus woottoni*, STWO) within the Ramona Grasslands County Preserve (Preserve) during the wet season of early 2022 (CDFW 2022). As directed by DPR's Targeted Monitoring Plan (TMP), the survey effort primarily focused on establishing BRSA/STWO presence/absence status of 20 vernal pools (study pools). The TMP is a County-wide approach aligned with the San Diego Multiple Species Conservation Plan (MSCP), adopted South County MSCP Subarea Plan, and draft North County MSCP. TMP implementation collects high quality, accurate data to detect population trends, changes in habitat quality, and wildlife corridor functionality to guide adaptive management for County preserves. Listed/non-listed fairy shrimp species presence/absence on the Ramona Grasslands County Preserve is but one component of this broad-based approach toward ecological management of the County's open space parks and preserves.

The 2021/2022 wet season continued the years-long drought conditions of southern California. Enough rain events occurred to inundate some, but not all, of the 20 study pools. For a subset of the 20 study pools, inundation persisted long enough to facilitate fairy shrimp life history functions from hatching through death. Data was collected from the study pools that retained water long enough to support fairy shrimp during the early 2022 wet season to result in useful data. At no point during the wet season surveys were all 20 study pools inundated with water; therefore, each wet season survey included a subset of the 20 study pools. In addition, in the intervening days between the inundation surveys and the follow-up wet season surveys, some study pools dried up, resulting in an even smaller subset of study pools that could be sampled. This report includes sections on purpose and regulatory background, project location and description, survey methods, survey results, conclusion, surveyor certification and references sections. Attachments include: A) Project Figures and B) Wildnote Survey Forms.

Purpose and Regulatory Background

The County of San Diego is a participant in the MSCP and South County MSCP Subarea Plan and is required to conduct biological monitoring of habitats and species covered under the MSCP to ensure that the goals and conditions for species coverage are achieved (County of San Diego 1998). The Preserve consists of approximately 3,490 acres in South County MSCP Subarea Plan Area and the draft North County MSCP Plan Area.

The TMP was prepared by DPR with review and input by the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) (collectively known as the Wildlife Agencies), along with review and input from the San Diego Management and Monitoring Program (SDMMP) resource experts (ESA and ICF 2019). The TMP is an adaptive management plan that includes focused goals and objectives for target resources and detailed monitoring protocols and is intended to achieve the management directives for species per the adopted South County MSCP Framework Management Plan (County of San Diego 2001). The TMP addresses monitoring and adaptive management within 20 DPR open space parks and preserves for 22 plant and wildlife species and two vegetation communities, located in the South County MSCP Subarea Plan and draft North County MSCP Plan Areas, including Ramona Grasslands County Preserve and the onsite vernal pool/alkali playa habitat.

Project Location and Description

The Preserve is located within part of the historic Santa María Rancho in the western portion of the Santa Maria Valley, approximately two miles west of downtown Ramona, California, and six miles east of Interstate 15 (Figure 1). The Preserve is in Township 13 South, Range 1 East, and Range 1 West as depicted on the United States Geological Survey (USGS) 7.5-minute San Pasqual, California quadrangle (Figure 2). The Preserve is within the Santa Maria Valley, consisting of a broad basin surrounded by gentle hills and steep rocky slopes ranging in elevation from approximately 410 meters (1,350 feet) above mean sea level (MSL) along the valley floor to over 518 meters (1,700 feet) above MSL in the rocky hills of the northern sections of the Preserve. The survey area and the 20 study pools are shown on the attached Figures 2 and 3.

Historic use of the Preserve consists of cattle grazing and other anthropogenic uses. The Preserve contains a network of dirt roads and trails used primarily for ranch access as well as DPR maintenance purposes. Cattle grazing is generally confined to lowland areas within the Preserve and consists year-round without formalized rotation or rest periods. Stocking rates are established on an annual basis, primarily based on weather and forage conditions.

The northwest portion of the Preserve [west of Rangeland Road and generally north of the Ramona Municipal Water District (RMWD)] is characterized by rocky hills bisected by Bandy Canyon, through which the Santa Maria Creek flows. The southwest portion of the Preserve consists of rolling hills with rocky outcrops and areas of oak woodland that transition into the lower topography grasslands to the south. The northeast portion of the Preserve (east of Rangeland Road and north of Ramona Airport) is characterized by rocky chaparral-covered hillsides in the north and lower-lying valley grasslands in the south. The southeast portion of the Preserve (east of Rangeland Road and south of the Ramona Airport) consists of low, rolling hills supporting grasslands and rocky outcrops.

RMWD utilizes land west of Rangeland Road for storage and infiltration of treated sewage effluent. Treated effluent is piped from a treatment facility to two storage reservoirs that exist on its property. Treated effluent is disposed of on RMWD property and on ranchland east of Rangeland Road through infiltration in a series of spray fields. The irrigated spray fields are an important year-round source of green forage for cattle grazing. The RMWD property is located west and east of Rangeland Road and is bordered by the Preserve to the north, south and west.

The Ramona Airport is located east of Rangeland Road and borders the Preserve to the north and south. Low-density residential areas are present to the north of the Preserve (accessible by Rangeland Road), adjacent to the Preserve's southern boundary, and along much of the Preserve's western and boundary. Other areas around the periphery of the Preserve are used for dry farming and small citrus and avocado orchards.

Survey Methods

A survey notification from USFWS-permitted fairy shrimp Blackhawk biologist Kris Alberts (USFWS permit TE039640-5) to the USFWS was sent via email on February 23, 2022. Following this notification, a total of three modified wet season protocol fairy shrimp surveys were conducted within inundated study pools of the Ramona Grasslands County Preserve by Mr. Alberts, who was accompanied by ESA biologist Brenda McMillan on surveys 1 and 2 and ESA biologist Mary Cozy on survey 3. The wet season surveys occurred on March 3 and 14 and April 5, 2022 (Table 1). Inundation surveys were conducted within 24 hours of significant rain events that preceded the wet season surveys to document which study pools contained 3 centimeters or more of water following the rain events; inundation surveys were conducted on February 24, 2022 by Blackhawk biologist Hayley Milner, and March 6 and 30, 2022 by Blackhawk biologist Katie Quint. Any study pools with 3 centimeters or more of water during the inundation surveys were sampled approximately one week later and/or until the study pools dried up; any study pools found dry during the inundation surveys were not sampled during the wet season surveys.

Modified protocol-level surveys, as stipulated herein, included one round of wet season surveys according to USFWS Pacific Southwest Region Survey Guidelines for the Listed Large Branchiopods (dated November 13, 2017). Wet season surveys are conducted during the wet season, which typically occurs between October and May. Wet season surveys included inundation surveys of the 20 study pools to determine if they supported more than 3 centimeters of standing water within 24 hours after a rain event. Following initial inundation of basins, surveys were scheduled for 7-day intervals and continued until the basins dry; however, the survey interval was extended to every 10 to 14 days if seasonally appropriate and to facilitate fairy shrimp development for collecting adult voucher specimens. Blackhawk and ESA, per agreement with the County of San Diego, understood that the survey area may include up to four wet season sampling visits over the course of the wet season. Data collection was performed on USFWS-approved standardized data forms using the Wildnote application. Initial inundation surveys were conducted following any subsequent rain event following drying of the study pools. If rainfall and/or temperatures were not favorable for surveying, an altered survey schedule was to be followed.

Wet season surveys for basins that retained surface water followed USFWS protocol (USFWS 2017). The permitted biologist utilized mesh nets, pipettes and/or measuring cups to collect live fairy shrimp and co-occurring aquatic invertebrates for viewing under 10X to 30X hand lenses. Adult fairy shrimp were

identified to the *Branchinecta* species level in this manner by the diagnostic shapes of the distal ends of adult male antennas and the paired or non-paired dorsolateral processes of adult females. Co-occurring aquatic invertebrate species were identified to the Family level and documented on the Wildnote survey forms. All collected animals were released back into the pool from which they were observed following identification and documentation, except for a small number of adult fairy shrimp voucher specimens collected once per pool, if populations were ample enough in a given pool to warrant voucher collection.

In addition to species identification methods, each pool was measured for its average and maximum depths, present surface area (length X width) and water temperature at the time of sampling. Maximum surface area dimensions were assumed to match the previously mapped polygons of each pool. Habitat conditions and any other pertinent notes were also documented following USFWS protocol. Finally, digital photographs of each pool visited for wet season surveys were collected and included with the Wildnote survey forms (Attachment B).

If and when listed fairy shrimp were detected during the course of the surveys, Blackhawk provided notice of presence first to ESA and DPR, and then to the USFWS, within 10 working days of initial detection. As appropriate, Blackhawk requested termination of surveys for the remainder of the wet season for each individual pool if and when listed fairy shrimp species were detected. As required, Blackhawk prepared and processed voucher specimens for designated institutions as required under Mr. Alberts's individual 10(a)(1)(A) permits. The results of the survey were then detailed in this 90-day letter report required by the individual qualified biologist's recovery permit and submitted to USFWS.

Wet season survey conditions are presented in Table 1.

Table 1. Wet Season Survey Conditions

Date	Personnel	Time	Weather Conditions
3/5/2022	KA, BM	0720–1715	49°F–62°F, calm winds, mostly sunny
3/14/2022	KA, BM	0715–1400	48°F–78°F, calm winds, clear
4/5/2022	KA, MC	0900–1020	65°F–73°F, calm winds, clear

Conditions: °F = degrees Fahrenheit. mph = miles per hour.

Observers: KA = Kris Alberts, BM = Brenda McMillan, MC = Mary Cozy

Results

Wet season surveys were conducted at all study pools with 3 centimeters or more of standing water following 24 hours of significant rain events (generally considered to be 0.25 inch or more of rain in a 24-hour period). At no point during the wet season surveys were all 20 study pools inundated with water; therefore, each wet season survey included a subset of the 20 study pools. In addition, in the intervening days between the inundation surveys and the follow-up wet season surveys, some study pools dried up, resulting in an even smaller subset of study pools that could be sampled for aquatic invertebrates and fairy shrimp. Furthermore, once a listed fairy shrimp species was found present in a given study pool, both inundation and wet season surveys were discontinued for the remainder of the season for any such study pool.

One listed fairy shrimp species was found present in the Ramona Grasslands Preserve: San Diego fairy shrimp. No other fairy shrimp species were documented. San Diego fairy shrimp were found present by the thousands in study pools EV3, E59 and CS, and by the hundreds in E61 (Figure 3). The remaining 16 study pools did not yield any fairy shrimp during these surveys. Adult voucher specimens were collected from study pools EV3, E59, CS and E61, prepared by Mr. Alberts and transported for storage at the Natural History Museum of Los Angeles County, a USFWS-designated repository. A California Natural Diversity Database (CNDDDB) form that detailed the San Diego fairy shrimp detections was sent to the CDFW for their records.

All wet season survey results and photographs are included in Attachment B.

Conclusion

During the 2022 survey, four of the 20 study pools subject to the TMP were documented with San Diego fairy shrimp present: EV3, E59, CS and E61. No other fairy shrimp species were observed, though it is highly likely that this species is also present in other vernal pools within the Preserve. The absence of the more regionally abundant versatile fairy shrimp (*Branchinecta lindahli*) suggests that the vernal pool systems within the Preserve are currently devoid of this species.

If you have any questions regarding this report, please feel free to call me at 619-972-8714 or e-mail me at kris@blackhawkenv.com, and I will address all questions and concerns.

Sincerely,

A handwritten signature in cursive script that reads "Kris Alberts".

Kris Alberts
Principal Biologist
USFWS Permit TE039640-5



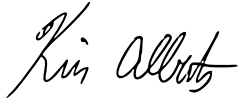
ATTACHMENTS

A: Project Figures

B: Wildnote Survey Forms

Surveyor Certification

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.



Kris Alberts (TE039640-5)

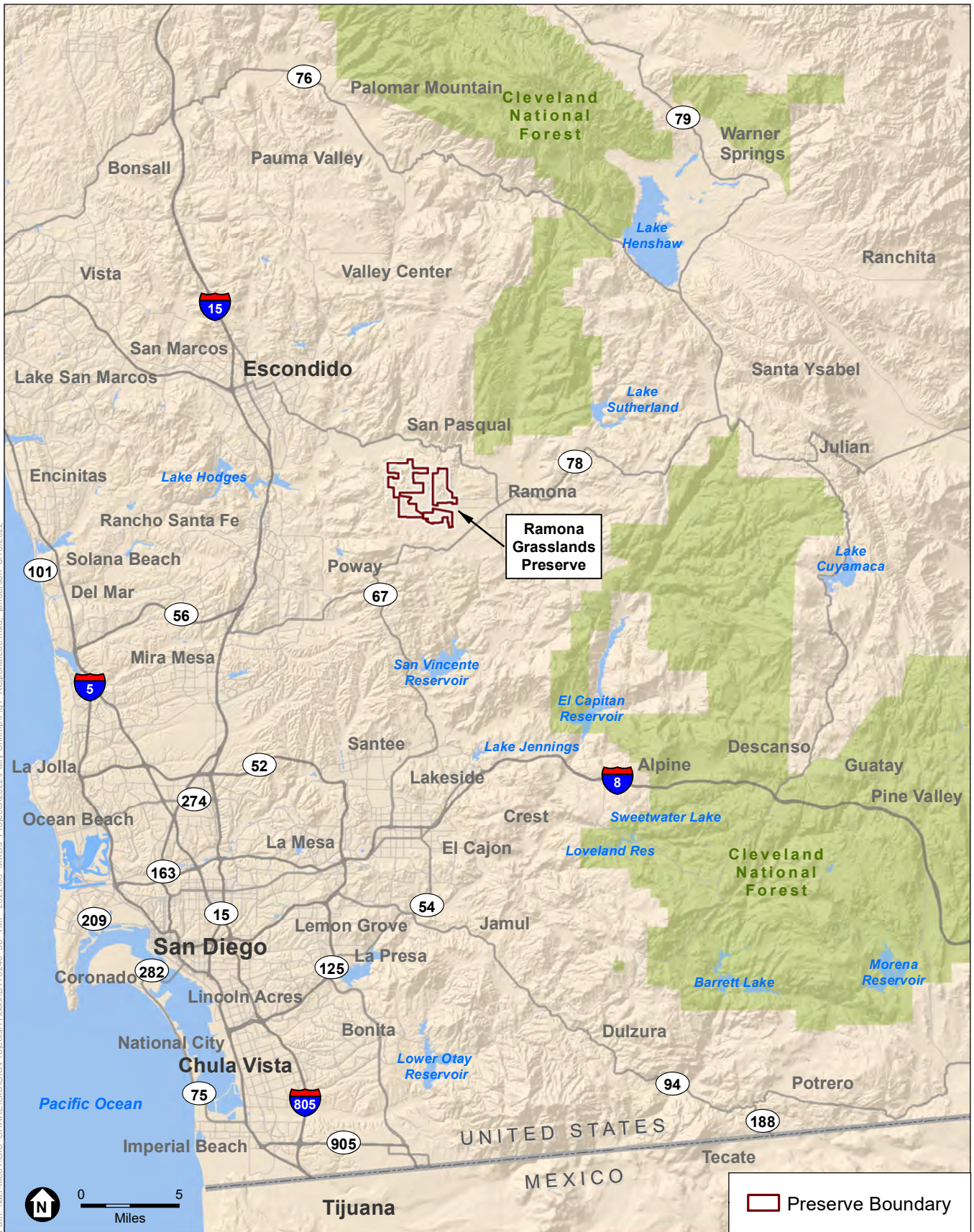
References

- California Department of Fish and Wildlife (CDFW). 2022 (April). Natural Diversity Database. Special Animals List. 141 pp.
- County of San Diego. 1998. *Implementing Agreement by and between United States Fish and Wildlife Service, California Department of Fish and Game, County of San Diego*. County of San Diego Multiple Species Conservation Program. March 17, 1998.
- County of San Diego. 2001. *Framework Management Plan*. Subarea Plan.
- ESA and ICF. 2019. *Draft Targeted Monitoring Plan Update*. Prepared for the County of San Diego Department of Parks and Recreation. December 2019.
- US Fish & Wildlife Service (USFWS). 2017. *USFWS Pacific Southwest Region Survey Guidelines for the Listed Large Branchiopods*. November 13, 2017.
- US Geological Service. 1975. 7.5-minute quadrangle: San Pasqual, California. Original Print 1967; photo revised 1975.

ATTACHMENT A

Project Figures



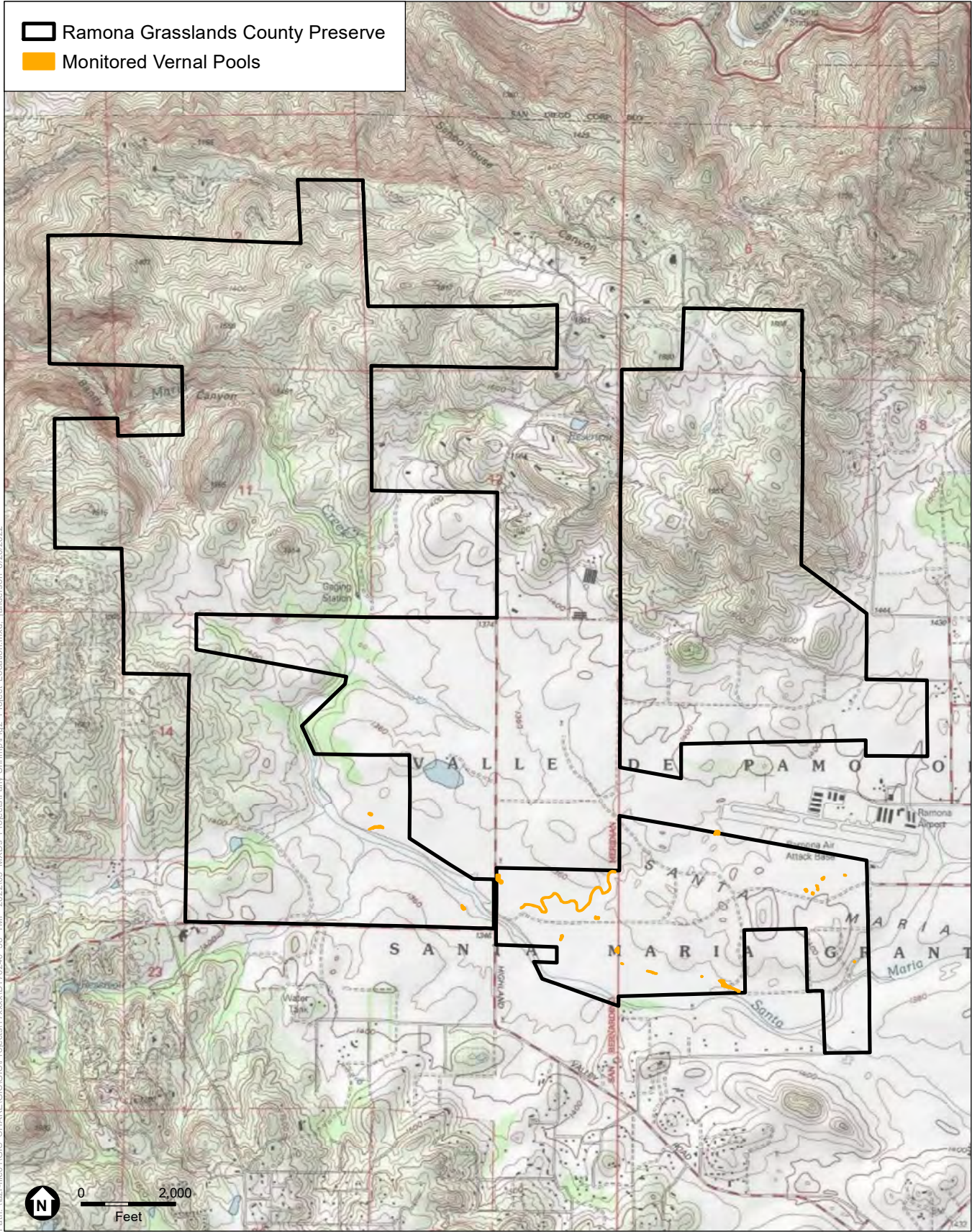


SOURCE: ESRI

COSD DPR 557744_TO 58 TMP Implementation

Figure 1
Preserve Location



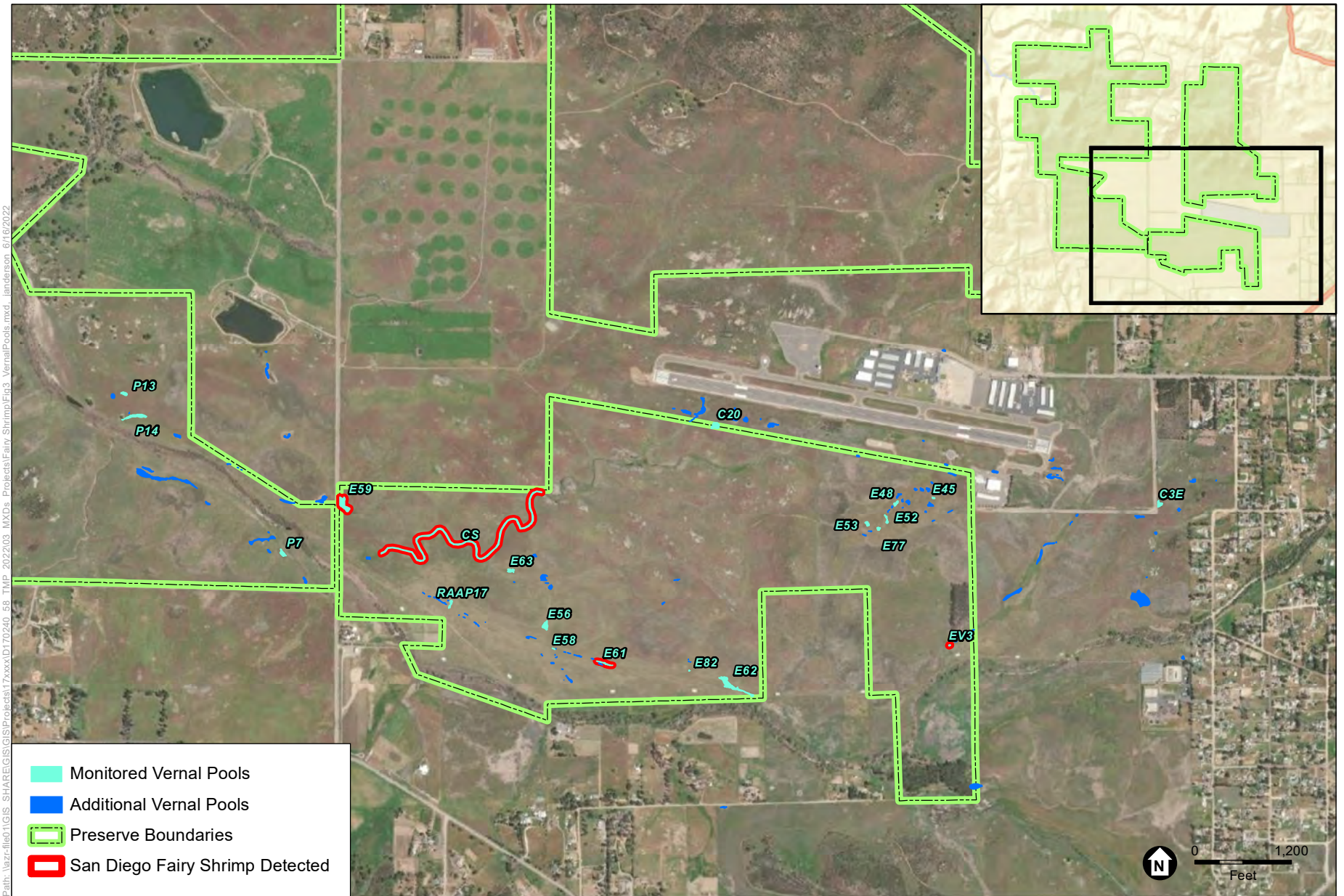


SOURCE: USGS 7.5 minute, San Pasqual quadrangle

COSD DPR 557744_TO 58 TMP Implementation

Figure 2
Project Location





SOURCE: ESRI; ESA 2022

COSD DPR 557744_TO 58 TMP Implementation

Figure 3
 Vernal Pool Monitoring Results
 Ramona Grasslands County Preserve

ATTACHMENT B

Wildnote Survey Forms



BIO-13 U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods v2

Project	Ramona Grasslands Fairy Shrimp Surveys
ID	211544
Survey Date	03/03/2022
User	Kris Alberts
Project Name	Ramona Grasslands Fairy Shrimp Surveys
County	San Diego County
Surveyors	Kris Alberts, Brenda McMillan
Permit #	TE-039640-5
Time (Start-End)	0720-1715
Weather Conditions (Start-End)	Mostly sunny
Temperature (Start-End; °F)	49-62

VP Survey Data 1

Feature ID #	EV3
Air Temp (°F)	50
Water Temp (°F)	46
Depth Average (cm)	8
Depth Est. Max. (cm)	14
Surface Area Present	16.8

Crustaceans-ANOSTRACANS

Crustaceans-NOTOSTRACANS

Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	true
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Fairy shrimp present, but too young to identify.
Habitat Condition	AB, HG, NP

Photo



EV3 looking south.

VP Survey Data 2	
Feature ID #	E62
Air Temp (°F)	52
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry
Habitat Condition	HG, NP
Photo	



E62 looking SW.

VP Survey Data 3	
Feature ID #	E53
Air Temp (°F)	53
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry
Habitat Condition	HG, NP
Photo	



E53 looking SE.

VP Survey Data 4

Feature ID #	E52
Air Temp (°F)	57
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans- NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry
Habitat Condition	HG, NP
Photo	



E52 looking N.

VP Survey Data 5

Feature ID #	E48
Air Temp (°F)	57
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry
Habitat Condition	HG, NP
Photo	



E48 looking NE.

VP Survey Data 6	
Feature ID #	P13
Air Temp (°F)	68
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry, historically tilled, but not recently.
Habitat Condition	DP, MG, NP
Photo	



P13 looking E.

VP Survey Data 7

Feature ID #	P14
Air Temp (°F)	69
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry. Historically tilled, but not recently.
Habitat Condition	DP, MG, NP
Photo	



P13 looking S.

VP Survey Data 8

Feature ID #	E59
Air Temp (°F)	70
Water Temp (°F)	65.4
Depth Average (cm)	10
Depth Est. Max. (cm)	16
Surface Area Present	297
Crustaceans-ANOSTRACANS	BRSA
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	true
Crustaceans-OSTRACODS	true
Crustaceans-CLADOCERA	true
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Turbid, algae present, cow hoof prints abundant.
Habitat Condition	HG, NP
Photo	



E59 looking SE.

VP Survey Data 9

Feature ID #	CS
Air Temp (°F)	72
Water Temp (°F)	70
Depth Average (cm)	12
Depth Est. Max. (cm)	38
Surface Area Present	870.91
Crustaceans-ANOSTRACANS	BRSA
Crustaceans- NOTOSTRACANS	
Crustaceans-COPEPODS	true
Crustaceans-OSTRACODS	true
Crustaceans-CLADOCERA	true
Insects-COLEOPTERA	true
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	true
Platyhelminths (flatworms)	false
Notes	18 pools sampled within CS. Surface area is total. Water temp and depth is averaged.
Habitat Condition	AB, HG, NP

Photo



Farthest SW pool in CS, looking SW.

VP Survey Data 10

Feature ID #	E63
Air Temp (°F)	73
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry
Habitat Condition	HG, NP
Photo	



E63 looking SE.

VP Survey Data 11

Feature ID #	E58
Air Temp (°F)	72
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry.
Habitat Condition	HG, NP
Photo	



E58 looking SE.

VP Survey Data 12

Feature ID #	E61
Air Temp (°F)	71
Water Temp (°F)	69.4
Depth Average (cm)	13
Depth Est. Max. (cm)	22
Surface Area Present	20.02
Crustaceans-ANOSTRACANS	BRSA
Crustaceans- NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	true
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Voucher collected of 3 males and 3 females.
Habitat Condition	AB, HG, NP
Photo	



E61 looking NW.



Vouchered specimens.

VP Survey Data 13	
Feature ID #	P7
Air Temp (°F)	65
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry
Habitat Condition	MG, NP
Photo	



BIO-13 U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods v2

Project	Ramona Grasslands Fairy Shrimp Surveys
ID	214354
Survey Date	03/14/2022
User	Kris Alberts
Project Name	Ramona Grasslands Fairy Shrimp Surveys
County	San Diego County
Surveyors	Kris Alberts
Permit #	TE-039640-5
Time (Start-End)	0715-1400
Weather Conditions (Start-End)	Clear
Temperature (Start-End; °F)	48-78

VP Survey Data 1

Feature ID #	EV3
Air Temp (°F)	49
Water Temp (°F)	44.9
Depth Average (cm)	7
Depth Est. Max. (cm)	11
Surface Area Present	12.25
Crustaceans-ANOSTRACANS	BRSA
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	true
Crustaceans-OSTRACODS	true
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Turbid, suspended solids.
Habitat Condition	HG, NP

Photo



EV3 looking S.



Collected voucher of 3 males and 3 females with EV3 in the background.

VP Survey Data 2

Feature ID #	E62
Air Temp (°F)	54
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry.
Habitat Condition	HG, NP

Photo



E62 looking SE.

VP Survey Data 3	
Feature ID #	E82
Air Temp (°F)	55
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry
Habitat Condition	HG, NP
Photo	



E82 looking NW.

VP Survey Data 4	
Feature ID #	E53
Air Temp (°F)	57
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry.
Habitat Condition	HG, NP
Photo	



E53 looking SE.

VP Survey Data 5	
Feature ID #	E52
Air Temp (°F)	62
Water Temp (°F)	53.8
Depth Average (cm)	3.5
Depth Est. Max. (cm)	5.5
Surface Area Present	0.0225
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	One hoof print with turbid water.
Habitat Condition	HG, NP
Photo	



E52 hoof print with water, looking SW.

VP Survey Data 6

Feature ID #	E48
Air Temp (°F)	64
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry.
Habitat Condition	HG, NP
Photo	



E48 looking NW.

VP Survey Data 7

Feature ID #	E45
Air Temp (°F)	65
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry.
Habitat Condition	HG, NP
Photo	



E45 looking SW.

VP Survey Data 8

Feature ID #	E59
Air Temp (°F)	72
Water Temp (°F)	67.3
Depth Average (cm)	12
Depth Est. Max. (cm)	22
Surface Area Present	282.37
Crustaceans-ANOSTRACANS	BRSA
Crustaceans- NOTOSTRACANS	
Crustaceans-COPEPODS	true
Crustaceans-OSTRACODS	true
Crustaceans-CLADOCERA	true
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Turbid.
Habitat Condition	AB, HG, NP

Photo



E59 looking SE.



E59 voucher with 3 males and 3 females.

VP Survey Data 9

Feature ID #	CS
Air Temp (°F)	74
Water Temp (°F)	69.2
Depth Average (cm)	22
Depth Est. Max. (cm)	38
Surface Area Present	189.15
Crustaceans-ANOSTRACANS	BRSA
Crustaceans- NOTOSTRACANS	
Crustaceans-COPEPODS	true
Crustaceans-OSTRACODS	true
Crustaceans-CLADOCERA	true
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Turbid. Northernmost pool of CS swale. Young spadefoot tadpoles.
Habitat Condition	AB, HG, NP
Photo	



CS northernmost pool looking E.



CS voucher with 3 males and 3 females.

VP Survey Data 10

Feature ID #	E63
Air Temp (°F)	76
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry.
Habitat Condition	HG, NP
Photo	



E63 looking NE.

VP Survey Data 11

Feature ID #	E58
Air Temp (°F)	77
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry.
Habitat Condition	HG, NP
Photo	



E58 looking W.

VP Survey Data 12

Feature ID #	P14
Air Temp (°F)	77
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry.
Habitat Condition	DP, MG, NP
Photo	



P14 looking SW.

VP Survey Data 13

Feature ID #	P13
Air Temp (°F)	77
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry. Historically plowed, but not recently.
Habitat Condition	DP, MG, NP
Photo	



P13 looking E.

VP Survey Data 14

Feature ID #	P7
Air Temp (°F)	77
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry.
Habitat Condition	MG, NP
Photo	



P7 looking W.

BIO-13 U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods v2

Project	Ramona Grasslands Fairy Shrimp Surveys
ID	221404
Survey Date	04/05/2022
User	Kris Alberts
Project Name	Ramona Grasslands Fairy Shrimp Surveys
County	San Diego County
Surveyors	Kris Alberts, Mary Cozy
Permit #	TE-039640-5
Time (Start-End)	0900-1020
Weather Conditions (Start-End)	Clear, warm
Temperature (Start-End; °F)	65-73

VP Survey Data 1

Feature ID #	E52
Air Temp (°F)	66
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0

Crustaceans-ANOSTRACANS

Crustaceans-NOTOSTRACANS

Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry
Habitat Condition	HG, NP

Photo



VP Survey Data 2

Feature ID #	E53
Air Temp (°F)	66
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans- NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry
Habitat Condition	HG, NP
Photo	



VP Survey Data 3

Feature ID #	E58
Air Temp (°F)	69
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry
Habitat Condition	MG, NP
Photo	



VP Survey Data 4

Feature ID #	E62
Air Temp (°F)	72
Water Temp (°F)	
Depth Average (cm)	0
Depth Est. Max. (cm)	0
Surface Area Present	0
Crustaceans-ANOSTRACANS	
Crustaceans-NOTOSTRACANS	
Crustaceans-COPEPODS	false
Crustaceans-OSTRACODS	false
Crustaceans-CLADOCERA	false
Insects-COLEOPTERA	false
Insects-HEMIPTERA	false
Insects-DIPTERA CHIRONOMIDA	false
Insects-DIPTERA CULICIDAE	false
Platyhelminths (flatworms)	false
Notes	Dry
Habitat Condition	MG, NP
Photo	



Appendix B
**Vernal Pool/Alkali Playa
Management Representative
Photographs**





PHOTOGRAPH 1: View of E45 during maintenance, taken July 11, 2022.



PHOTOGRAPH 2: View of E45 after maintenance, taken July 11, 2022.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 3: View of E48 before maintenance, taken July 11, 2022.



PHOTOGRAPH 4: View of E48 after maintenance, taken July 11, 2022.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 5: View of E52 before maintenance, taken July 11, 2022.



PHOTOGRAPH 6: View of E52 after maintenance, taken July 11, 2022.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 7: View of E53 before maintenance, taken July 11, 2022.



PHOTOGRAPH 8: View of E53 after maintenance, taken July 11, 2022.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 9: View of E77 before maintenance, taken July 11, 2022.



PHOTOGRAPH 10: View of E77 after maintenance, taken July 11, 2022.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 11: View of E61 before maintenance, taken July 12, 2022.



PHOTOGRAPH 12: View of E61 after maintenance, taken July 12, 2022.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 13: View of E62 before maintenance, taken July 12, 2022.



PHOTOGRAPH 14: View of E62 after maintenance, taken July 12, 2022.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 15: View of E82 before maintenance, taken July 12, 2022.



PHOTOGRAPH 16: View of E82 after maintenance, taken July 12, 2022.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 17: View of EV3 before maintenance, taken July 12, 2022.



PHOTOGRAPH 18: View of EV3 after maintenance, taken July 12, 2022.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 19: View of E58 before maintenance, taken July 13, 2022.



PHOTOGRAPH 20: View of E58 after maintenance, taken July 13, 2022.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 21: View of E59 before maintenance, taken July 13, 2022.



PHOTOGRAPH 22: View of E59 after maintenance, taken July 13, 2022.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 23: View of P7 before maintenance, taken July 13, 2022.



PHOTOGRAPH 24: View of P7 after maintenance, taken July 13, 2022.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 25: View of RAAP17 before maintenance, taken July 13, 2022.



PHOTOGRAPH 26: View of RAAP17 after maintenance, taken July 13, 2022.

D201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 27: View of E56 before maintenance, taken July 14, 2022.



PHOTOGRAPH 28: View of E56 after maintenance, taken July 14, 2022.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 29: View of P13 before maintenance, taken July 14, 2022.



PHOTOGRAPH 30: View of P13 after maintenance, taken July 14, 2022.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 31: View of P14 before maintenance, taken July 14, 2022.



PHOTOGRAPH 32: View of P14 after maintenance, taken July 14, 2022.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 33: View of Alkali Playa area before maintenance, taken July 14, 2022.



PHOTOGRAPH 34: Representative photo of hand weeding in pools.

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 35: Photograph of Coulter's saltbush (*Atriplex coulteri*)



PHOTOGRAPH 36: Photograph of Parish's brittlescale (*Atriplex parishii*)

D201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation





PHOTOGRAPH 37: Photograph of Cagney swale bank



PHOTOGRAPH 38: Photograph of Cagney swale bank



PHOTOGRAPH 39: Photograph of Cagney swale bank



PHOTOGRAPH 40: Photograph of Cagney swale bank

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation

Appendix B
Representative Views of Cagney Swale Banks



Appendix C
**MSP Rare Plant Monitoring –
Permanent Photographic
Monitoring & Representative
Photographs**

C-1 San Diego Thornmint

Simon County Preserve Permanent Photo Points



San Diego thornmint photo monitoring at **SIPRACIL01** (Photo Point 1).

ACIL_4SIPR026_1_Photo1_04122022



San Diego thornmint photo monitoring at **SIPRACIL01** (Photo Point 2).

ACIL_4SIPR026_1_Photo2_04122022

Simon County Preserve Representative Photographs



San Diego thornmint both vegetative and flowering amongst sensitive native Palmer's grappling hook at Simon County Preserve.



San Diego thornmint blooming among native clustered tarweed and invasive non-native tocalote at Simon County Preserve.

Simon County Preserve Representative Management Photographs



Photo at **SIPRACIL01** permanent Photo Point 1 after invasive non-native plant removal management.



San Diego thornmint representative photograph of management area at Simon County Preserve.

Sycamore Canyon/Goodan Ranch County Preserve Permanent Photo Points



San Diego thornmint photo monitoring at **SYGOACIL01**.

ACIL_4SYCA027_1_Photo1_04012022



San Diego thornmint photo monitoring at **SYGOACIL02**.

ACIL_4SYCA027_2_Photo1_04012022



San Diego thornmint photo monitoring at **SYGOACIL03**.

ACIL_4SYCA027_3_Photo1_04062022



San Diego thornmint photo monitoring at **SYGOACIL04**.

ACIL_4SYCA027_4_Photo1_04072022

Date & Time: Thu, Apr 07, 2022, 08:13:51 PDT
Position: +032.930080° / -116.968939° (±16.4ft)
Altitude: 1198ft (±31.2ft)
Datum: WGS-84
Azimuth/Bearing: 137° S43E 2436mils True (±12°)
Elevation Angle: -06.0°
Horizon Angle: +00.7°
Zoom: 1.0X
ACIL_4SYCA027_5_Photo1_04072022



San Diego thornmint photo monitoring at **SYGOACIL05**.

ACIL_4SYCA027_5_Photo1_04072022

Date & Time: Mon, Apr 11, 2022, 14:31:08 PDT
Position: +032.935104° / -116.975932° (±32.8ft)
Altitude: 1034ft (±62.3ft)
Datum: WGS-84
Azimuth/Bearing: 171° S09E 3040mils True (±12°)
Elevation Angle: -08.9°
Horizon Angle: +00.7°
Zoom: 1.0X
ACIL_4SYCA027_6_Photo1_04112022



San Diego thornmint photo monitoring at **SYGOACIL06**.

ACIL_4SYCA027_6_Photo1_04112022



San Diego thornmint photo monitoring at **SYGOACIL07**.

ACIL_4SYCA027_7_Photo1_04112022



San Diego thornmint photo monitoring at **SYGOACIL08**.

ACIL_4SYCA027_8_Photo1_04112022



San Diego thornmint photo monitoring at **SYGOACIL09**.

ACIL_4SYCA027_9_Photo1_04062022



San Diego thornmint photo monitoring at **SYGOACIL10**.

ACIL_4SYCA027_10_Photo1_04062022



San Diego thornmint photo monitoring at **SYGOACIL11**.

ACIL_4SYCA027_11_Photo1_04072022

Sycamore Canyon/Goodan Ranch County Preserve Representative Photographs



San Diego thornmint flowering with sensitive native Palmer's grappling hook at Sycamore Canyon/Goodan Ranch County Preserve.



San Diego thornmint population displaying varied phenology (flowering and seedlings) due to rain events followed by heat waves in 2022 at Sycamore Canyon/Goodan Ranch County Preserve.



San Diego thornmint in full bloom at Sycamore Canyon/Goodan Ranch County Preserve.



San Diego thornmint seedlings growing underneath invasive non-native purple false brome and associated thatch at Sycamore Canyon/Goodan Ranch County Preserve.



Sensitive native small-flowered bindweed detected within San Diego thornmint monitoring plots at Sycamore Canyon/Goodan Ranch County Preserve.



Native dot-seed plantain detected at Sycamore Canyon/Goodan Ranch County Preserve.

Sycamore Canyon/Goodan Ranch County Preserve Representative Management Photographs



San Diego thornmint **SYGOACIL01** before management at Sycamore Canyon/Goodan Ranch County Preserve.

San Diego thornmint **SYGOACIL01** after management at Sycamore Canyon/Goodan Ranch County Preserve.



San Diego thornmint **SYGOACIL02** before management at Sycamore Canyon/Goodan Ranch County Preserve.

San Diego thornmint **SYGOACIL02** after management at Sycamore Canyon/Goodan Ranch County Preserve.



San Diego thornmint **SYGOACIL04** after management at Sycamore Canyon/Goodan Ranch County Preserve.



San Diego thornmint **SYGOACIL05** after management at Sycamore Canyon/Goodan Ranch County Preserve.



San Diego thornmint **SYGOACIL07** before management at Sycamore Canyon/Goodan Ranch County Preserve.



San Diego thornmint **SYGOACIL07** after management at Sycamore Canyon/Goodan Ranch County Preserve.



San Diego thornmint **SYGOACIL08** after management at Sycamore Canyon/Goodan Ranch County Preserve.



San Diego thornmint **SYGOACIL09** before management at Sycamore Canyon/Goodan Ranch County Preserve.



San Diego thornmint **SYGOACIL09** after management at Sycamore Canyon/Goodan Ranch County Preserve.



San Diego thornmint **SYGOACIL11** before management at Sycamore Canyon/Goodan Ranch County Preserve.



San Diego thornmint **SYGOACIL11** after management at Sycamore Canyon/Goodan Ranch County Preserve.

El Capitan County Preserve Representative Photographs



Representative habitat at El Capitan County Preserve. Habitat is not suitable for San Diego thornmint.



Sensitive native delicate clarkia detected at El Capitan County Preserve.

Ramona Grasslands County Preserve Representative Photographs



Representative habitat at Ramona Grasslands County Preserve. Habitat is not suitable for San Diego thornmint.



Native dot-seed plantain and clustered tarweed detected in historically reported San Diego thornmint location at Ramona Grasslands County Preserve.

C-2 Orcutt's Bird's-Beak

Tijuana River Valley Regional Park Permanent Photo Points



Orcutt's bird's-beak photo monitoring at **COOR7_1TIRI009_1**.

COOR7_1TIRI009_1_Photo1_06062022



Orcutt's bird's-beak photo monitoring at **COOR7_1SMGU006_1**.

COOR7_1SMGU006_1_Photo1_06062022

Tijuana River Valley Regional Park Representative Photograph



Orcutt's bird's-beak observed at Tijuana River Valley Regional Park



Orcutt's bird's-beak observed at Tijuana River Valley Regional Park

C-3 Otay Tarplant


Furby-North County Preserve Permanent Photo Point

Date & Time: Mon, May 23, 2022, 10:16:33 PDT
Position: +032.532780° / -117.033978° (±15.9ft)
Altitude: 400ft (±10.5ft)
Datum: WGS-84
Azimuth/Bearing: 354° N06W 4298 mils True (±12°)
Elevation Angle: -28.9°
Horizon Angle: +02.4°
Zoom: 0.5X
DECO13_30MEA026_1_Photo1_05232022



Otay tarplant photo monitoring at **DECO13_30MEA026_1**.
DECO13_30MEA026_1_Photo1_05232022

Furby-North County Preserve Representative Photographs



Otay tarplant detected at Furby-North County Preserve.



Otay tarplant detected at Furby-North County Preserve.



Otay tarplant growing amongst invasive non-native grasses at Furby-North County Preserve.

Furby-North County Preserve Representative Management Photographs



Management (hand-pulling invasive non-native grasses) occurring within the Otay tarplant monitoring plot at Furby-North County Preserve.



Site conditions of the Otay tarplant monitoring plot after management at Furby-North County Preserve.

C-4 San Miguel Savory

Boulder Oaks County Preserve Representative Management Photographs



Representative photo of San Miguel savory surrounded by scattered invasive non-native grasses at Boulder Oaks County Preserve.



Management (hand-pulling invasive non-native grasses) occurring around San Miguel savory at Boulder Oaks County Preserve.

C-5 Variegated Dudleya

Lusardi Creek County Preserve Representative Management Photographs



Representative photo of invasive non-native grass cover within the variegated dudleya herbivore exclusion fencing prior to management at Lusardi Creek County Preserve.

Representative photo within the variegated dudleya herbivore exclusion fencing after management at Lusardi Creek County Preserve.



Dense cover of invasive non-native grasses and thatch prior to management adjacent to the variegated dudleya monitoring plot at Lusardi Creek County Preserve.

Site conditions after management adjacent to the variegated dudleya monitoring plot at Lusardi Creek County Preserve.

Sycamore Canyon/Goodan Ranch County Preserve Representative Management Photographs



Variegated dudleya, typically found growing along rock edges, surrounded by invasive non-native purple false brome at Sycamore Canyon/Goodan Ranch County Preserve.



Variegated dudleya after management at Sycamore Canyon/Goodan Ranch County Preserve.



Photo of variegated dudleya monitoring plot before management at Sycamore Canyon/Goodan Ranch County Preserve.

Photo of variegated dudleya monitoring plot after management at Sycamore Canyon/Goodan Ranch County Preserve.

C-6 Willowy Monardella

Sycamore Canyon/Goodan Ranch County Preserve Permanent Photo Points

Date & Time: Tue, Jun 07, 2022, 09:44:36 PDT
Position: +032.918281° / -116.974141° (±32.8ft)
Altitude: 770ft (±62.3ft)
Datum: WGS-84
Azimuth/Bearing: 209° S29W 3716mils True (±12°)
Elevation Angle: -09.9°
Horizon Angle: +00.1°
Zoom: 0.5X
MOLIV_4SYCA006_1_Photo1_06072022



Willow monardella photo monitoring at **SYC201501**.

MOLIV_4SYCA006_1_Photo1_06072022

Date & Time: Tue, Jun 07, 2022, 15:39:17 PDT
Position: +032.921155° / -116.988874° (±16.4ft)
Altitude: 663ft (±31.2ft)
Datum: WGS-84
Azimuth/Bearing: 057° N57E 1019mils True (±16°)
Elevation Angle: -05.8°
Horizon Angle: -00.8°
Zoom: 0.5X
MOLIV_4SYCA002_1_Photo1_06072022



Willow monardella photo monitoring at **SYC201602**.

MOLIV_4SYCA002_1_Photo1_06072022

Date & Time: Tue, Jun 07, 2022, 12:46:08 PDT
Position: +032.903881° / -116.982395° (±16.6ft)
Altitude: 608ft (±9.4ft)
Datum: WGS-84
Azimuth/Bearing: 038° N38E 0676mils True (±12°)
Elevation Angle: -05.0°
Horizon Angle: +01.9°
Zoom: 0.5X
MOLIV_4SPCA006_2_Photo1_06072022



Willowy monardella photo monitoring at **SYC202103**.

MOLIV_4SPCA006_2_Photo1_06072022

Sycamore Canyon/Goodan Ranch County Preserve Representative Photographs



Funereal duskywing (*Erynnis funeralis*) pollinating willow monardella at Sycamore Canyon/Goodan Ranch County Preserve.



Willow monardella growing and flowering amongst native California buckwheat and dead standing biomass at Sycamore Canyon/Goodan Ranch County Preserve.



Willow monardella in full bloom at Sycamore Canyon/Goodan Ranch County Preserve.



Willow monardella growing in clusters at Sycamore Canyon/Goodan Ranch County Preserve.

Appendix D
**MSP Rare Plant Occurrence
Monitoring Forms**



D-1 San Diego Thornmint

MSP Occurr. ID & Sample point:	ACIL_4SIPR026_1
Preserve	Simon Preserve
MgtUnit	4
Land Owner	County Of San Diego Dpr
Land Manager	County of San Diego DPR
Update Sample Info?	no
Can this survey be shared publicly?	yes
Scientific Name	Acanthomintha ilicifolia
Date	4/12/2022
Time Start	07:30
Surveyors	Sonya Vargas, Douglas Gordon-Blackwood
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	13500
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	medium
Sampling Area Radius (meters)	10
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	6
Category for Percent Flowering in Sampling Area	3
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	2
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	9
GPS Accuracy Units	inch
PlotX	516451
PlotY	3654129
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	516451
Photo1Y	3654129
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
CameraType	Samsung S21 Ultra
Photo1Dir	228
Photo1Hei	1.2
Photo1Ang	2

MSP Occurr. ID & Sample point:	ACIL_4SIPR026_1
Update Photo1 Information?	no
PhotoNumPhoto1	ACIL_4SIPR026_1_Photo1_04122022
Photo2X	516451
Photo2Y	3654129
Check your location of the PHOTO POINT 2 against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo2Dir	29
Photo2Hei	1.2
Photo2Ang	24
UpdatePhoto2Info	no
PhotoNumPhoto2	ACIL_4SIPR026_1_Photo2_04122022
SANDAG 2012 Vegetation Alliance/Association	Deinandra fasciculata Provisional Alliance
Cryptogamic Crust Cover:	2
Thatch Cover: (consider invasive grasses only)	1
Thatch Depth: Ave:	1
Thatch Depth: Max (cm):	NA
Dead Standing Biomass?	yes
Dead Standing Biomass Species	Centaurea melitensis, Microseris douglasii ssp. platycarpha, Deinandra fasciculata, Hirschfeldia incana
Dead Standing Biomass Cover	2
Dead Standing Biomass Height Average (cm)	30
Feral Pig Activity	1
Ground Squirrel Activity	1
Gopher Activity	3
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thormmint	12
Adenostoma fasciculatum - chamise	3
Apiastrum angustifolium - mock parsley	0.2
Avena barbata - slender oat	0.2
Bloomeria crocea - common goldenstar	0.2
Bromus hordeaceus - soft brome	0.2
Bromus rubens - Red brome	1
Centaurea melitensis - Maltese star-thistle	1
Deinandra fasciculata - clustered tarweed	2
Eriophyllum confertiflorum - golden-yarrow	0
Erodium botrys - longbeak stork's bill	0.2
Festuca microstachys - small fescue	0.2
Festuca myuros - annual fescue	0.2

MSP Occurr. ID & Sample point:	ACIL_4SIPR026_1
Fritillaria biflora var. biflora - chocolate lily	1.5
Harpagonella palmeri - Palmer's grappling-hook	2
Hirschfeldia incana - shortpod mustard	0.2
Hypochaeris glabra - smooth cat's ear	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Microseris douglasii ssp. Platycarpha - Douglas' silverpuffs	0.2
Sanicula arguta - sharptooth blacksnakeroot	0.2
Sonchus asper - spiny sowthistle	0.2
Xylococcus bicolor - mission manzanita	20
Other species?	yes
othename1	Acmispon brachycarpus
otherper1	0.2
othename2	Stebbinsoseris heterocarpa
otherper2	1
othename3	Erodium brachycarpum
otherper3	0.2
othename4	Senecio vulgaris
otherper4	0.2
othename5	Clarkia epilobioides
otherper5	0.2
other	Jepsonia parryi (0.2), Poa secunda ssp. secunda (0.2)
Bare Ground (exclude cryptogamic crust layer- see below):	46.5
Cryptogamic Soil Crusts:	0.2
Rock:	4
Litter:	2
Water:	0
Total Live Veg Cover:	47.3
Dead Shrubs:	0
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	no
Which survey contains the maximum extent information?	
Enter Occurrence ID and sample point number:	
Number of Plants in the Current Mapped Extent	13955
Exact or Estimate for Number in Current Mapped Extent	estimate
Uncertainty for Current Mapped Extent	medium
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Area of the Current Mapped Extent (optional if shapefile of extent will be included)	Polygon submitted

MSP Occurr. ID & Sample point:	ACIL_4SIPR026_1
Units of Area of Current Mapped Extent	sq_ft
Uncertainty for Area of Current Mapped Extent	very_low
Mapping Method of Current Mapped Extent Polygon	exact
Species found in maximum extent?	yes
Reason not found:	NA
Surrounding Land Use	Conserved open space preserve. Surrounded by residential development, recreation, telecommunication towers, and electrical transmission lines.
Non-native Forbs	3
Non-native Forbs Description	Non-native forbs (<i>Hirschfeldia incana</i> , <i>Sonchus</i> , <i>Hedypnois</i> , <i>Hypochaeris</i> , and <i>Centaurea melitensis</i>) present in maximum extent and 10m buffer
Non-native Grasses	4
Non-native Grasses Description	Non-native grasses (<i>Bromus hordeaceus</i> , <i>Bromus rubens</i> , <i>Festuca myuros</i> , <i>Avena barbata</i>) present in max extent and 10 m buffer
Non-native Woody Plants	1
Non-native Woody Plants Description	NA
Competitive Native Plants	1
Competitive Native Plants Description	NA
Dumping/Trash	3
Dumping/Trash Description	Old glass bottles present in survey area
Encampments	1
Encampments Description	NA
Feral Pig	1
Feral Pig Description	NA
Trampling	3
Trampling Description	Minimal trampling as a result of IMG monitoring
Vandalism	1
Vandalism Description	NA
Current Grazing	1
Current Grazing Description	NA
Historic Grazing	no
Historic Grazing Description	NA
Historic Agriculture	no
Historic Agriculture Description	NA
Altered Hydrology	1
Altered Hydrology Description	NA
Erosion	1
Erosion Description	NA

MSP Occurr. ID & Sample point:	ACIL_4SIPR026_1
Urban Runoff	1
Urban Runoff Description	NA
Slope Movement	1
Slope Movement Description	NA
Soil Compaction	1
Soil Compaction Description	NA
Fuel Mod Zone/FireBreak	1
Fuel Mod Zone/FireBreak Description	NA
Road Construction/Maintenance	1
Road Construction/Maintenance Description	NA
Veg Clearing	1
Veg Clearing Description	NA
Restoration	1
Restoration Description	
ORV/Mtn Bike Activity Disturbance	1
ORV/Mtn Bike Activity Type	NA
Evidence of Recent Fire?	no
Year Burned	
Trails Disturbance?	1
Trails Authorized?	NA
Hiking	NA
Biking	NA
Equestrian	NA
Dog	NA
Service Vehicles	NA
Other	NA
Notes on trail use	NA
Other Disturbances?	2
Describe other disturbances:	Herbivory noted on <i>Fritillaria biflora</i> within monitoring plot
Management Recommendations	Continued monitoring, invasive forbs and grasses treatment from 10 M buffer
Manage Actions in the past year	Unknown
CNDDDB Incidental sightings	Turkey vulture, <i>Acanthomintha ilicifolia</i> , <i>Convolvulus simulans</i> , <i>Microseris douglasii</i> var. <i>platycarpa</i> , <i>Harpagonella palmeri</i>
Notes	NA
TimeFinish	12:56

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_1
Preserve	Sycamore Canyon And Goodan Ranch Preserves
Management Unit	4
Land Owner	County of San Diego DPR
Land Manager	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	Acanthomintha ilicifolia
Date	4/1/2022
Time Start	08:29
Surveyors	Adrienne Lee, Sonya Vargas
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	3290
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	2
Category for Percent Flowering in Sampling Area	6
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	6
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	3
GPS Accuracy Units	ft
PlotX	501592
PlotY	3644272
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	501600
Photo1Y	3644281
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Camera Type	iPhone 11
Photo1 Dir	203 Degrees
Photo1 Hei	5 Feet

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_1
Photo1Ang	1 Degrees
Update Photo1 Information?	no
PhotoNumPhoto1	ACIL_4SYCA027_1_Photo1_04012022
SANDAG 2012 Vegetation Alliance/Association:	Brachypodium distachyon Semi-Natural Stand Type
Cryptogamic Crust Cover:	2
Thatch Cover: (consider invasive grasses only)	2
Thatch Depth: Ave:	3
Thatch Depth: Max (cm):	3
Dead Standing Biomass?	yes
Dead Standing Biomass Species	Baccharis sarathroides, Centaurea melitensis, Deinandra fasciculata, Isocoma menziesii
Dead Standing Biomass Cover Class	2
DeadStandingHeightAverage_cm	86
Feral Pig Activity	1
Ground Squirrel Activity	4
Gopher Activity	1
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thommint	0.2
Acmispon glaber - deerweed	0.2
Anagallis arvensis - scarlet pimpernel	0.2
Apiastrum angustifolium - mock parsley	1
Artemisia californica - coastal sagebrush	0.2
Baccharis sarothroides - desertbroom	1
Brachypodium distachyon - purple false brome	9
Bromus hordeaceus - soft brome	0.2
Bromus madritensis - compact brome	1
Calochortus spp. - mariposa lily	0.2
Calystegia macrostegia - island false bindweed	0.2
Centaurea melitensis - Maltese star-thistle	1
Chlorogalum parviflorum - smallflower soap plant	0.2
Crassula connata - sand pygmyweed	0.2
Deinandra fasciculata - clustered tarweed	4
Eriophyllum confertiflorum - golden-yarrow	0.2
Erodium botrys - longbeak stork's bill	0.2
Erodium cicutarium - redstem stork's bill	1
Festuca myuros - annual fescue	0.2
Harpagonella palmeri - Palmer's grappling-hook	1
Heteromeles arbutifolia - toyon	1

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_1
Hypochaeris glabra - smooth cat's ear	1
Lepidium spp. - pepperweed	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Malosma laurina - laurel sumac	1
Plantago erecta - California plantain	0.2
Rhamnus crocea - spiny redberry	1
Salvia mellifera - black sage	0.2
Selaginella cinerascens - mesa spikemoss	0.2
Sisyrinchium bellum - western blue-eyed grass	0.2
Sonchus asper - spiny sowthistle	0.2
Sonchus oleraceus - common sowthistle	0.2
Bare Ground (exclude cryptogamic crust layer- see below):	63
Cryptogamic Soil Crusts:	1
Rock:	5
Litter:	3
Water:	0
Total Live Veg Cover:	27
Dead Shrubs:	1
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	no
Which survey contains the maximum extent information?	
Enter Occurrence ID and sample point number:	
Number of Plants in the Current Mapped Extent	41921
Exact or Estimate for Number in Current Mapped Extent	estimate
Uncertainty for Current Mapped Extent	medium
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Area of the Current Mapped Extent (optional if shapefile of extent will be included)	Polygon submitted
Units of Area of Current Mapped Extent	
Uncertainty for Area of Current Mapped Extent	very_low
Mapping Method of Current Mapped Extent Polygon	exact
Species found in maximum extent?	yes
Reason not found:	NA
Surrounding Land Use	Conserved open space preserve, open to hiking, mountain biking, equestrian use.
Non-Native Forbs	7
Non-Native Forbs Description	Erodium spp., Centaurea melitensis, Sonchus spp., Logfia gallica, Hypochaeris glabra, Cynara cardunculus

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_1
Non-native Grasses	7
Non-native Grasses Description	Brachypodium distachyon, Bromus spp., Festuca myuros
Non-native Woody Plants	1
Non-native Woody Plants Description	NA
Competitive Native Plants	4
Competitive Native Plants Description	Deinandra fasciculata
Dumping/Trash	1
Dumping/Trash Description	NA
Encampments	1
Encampments Description	NA
Feral Pig	1
Feral Pig Description	NA
Trampling	1
Trampling Description	NA
Vandalism	1
Vandalism Description	NA
Current Grazing	1
Current Grazing Description	NA
Historic Grazing	unknown
Historic Grazing Description	NA
Historic Agriculture	unknown
Historic Agriculture Description	NA
Altered Hydrology	1
Altered Hydrology Description	NA
Erosion	1
Erosion Description	NA
Urban Runoff	1
Urban Runoff Description	NA
Slope Movement	1
Slope Movement Description	NA
Soil Compaction	1
Soil Compaction Description	NA
Fuel Mod Zone/FireBreak	1
Fuel Mod Zone/FireBreak Description	NA
Road Construction/Maintenance	1
Road Construction/Maintenance Description	NA
Veg Clearing	1
Veg Clearing Description	NA
Restoration	1

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_1
Restoration Description	NA
ORV/Mtn Bike Activity Disturbance	1
ORV/Mtn Bike Activity Type	NA
Evidence Recent Fire	no
Year Burned	NA
Trails Disturbance	1
If Trails are Present, are they Authorized?	NA
Hiking	NA
Biking	NA
Equestrian	NA
Dog	NA
Service Vehicles	NA
Other	NA
Notes on trail use	NA
Other Disturbances?	1
Describe other disturbances:	NA
Management Recommendations	Continued monitoring, invasive grass and forb treatment
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Acanthomintha ilicifolia, Harpagonella palmeri, Selaginella cinerascens
Notes	
Time Finish	09:26

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_2
Preserve	Sycamore Canyon And Goodan Ranch Preserves
Management Unit:	4
Land Owner:	County of San Diego DPR
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	Acanthomintha ilicifolia
Date	4/1/2022
Time Start	12:27
Surveyors	Adrienne Lee, Sonya Vargas
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	47
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	very_low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	2
Category for Percent Flowering in Sampling Area	6
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	3
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	3
GPS Accuracy Units	ft
PlotX	501526
PlotY	3644274
Check your location of the SAMPLE PLOT against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	501540
Photo1Y	3644278
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Camera Type	iPhone 11
Photo1Dir	259 Degrees
Photo1Hei	5 Feet

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_2
Photo1 Ang	3 Degrees
Update Photo1 Information?	no
Photo Number Photo1	ACIL_4SYCA027_2_Photo1_04012022
SANDAG 2012 Vegetation Alliance/Association:	Brachypodium distachyon Semi-Natural Stand
Cryptogamic Crust Cover	2
Thatch Cover	2
Thatch Depth Average	3
Thatch Depth Max (cm)	3
Dead Standing Biomass?	yes
Dead Standing Biomass Species	Rhamnus crocea, Acmispon glaber, Isocoma menziesii, Deinandra fasciculata, Centaurea melitensis
Dead Standing Biomass Cover Class	2
Dead Standing Height Average (cm)	24
Feral Pig Activity	1
Ground Squirrel Activity	4
Gopher Activity	1
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thormmint	0.2
Acmispon glaber - deerweed	0.2
Allium sp. - onion	0.2
Apiastrum angustifolium - mock parsley	0.2
Avena barbata - slender oat	0.2
Brachypodium distachyon - purple false brome	10
Bromus hordeaceus - soft brome	2
Bromus madritensis - compact brome	4
Calystegia macrostegia - island false bindweed	0.2
Castilleja exserta - exserted Indian paintbrush	0.2
Centaurea melitensis - Maltese star-thistle	1
Chlorogalum parviflorum - smallflower soap plant	0.2
Convolvulus simulans - field bindweed	0.2
Crassula connata - sand pygmyweed	0.2
Cryptantha spp. - cryptantha	0.2
Deinandra fasciculata - clustered tarweed	2
Erodium botrys - longbeak stork's bill	1
Erodium cicutarium - redstem stork's bill	0.2
Festuca myuros - annual fescue	0.2
Harpagonella palmeri - Palmer's grappling-hook	0.2
Hypochaeris glabra - smooth cat's ear	3

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_2
Isocoma menziesii - Menzies' goldenbush	0.2
Rhamnus crocea - spiny redberry	0.2
Selaginella cinerascens - mesa spikemoss	0.2
Sisyrinchium bellum - western blue-eyed grass	0.2
Sonchus asper - spiny sowthistle	0.2
Uropappus lindleyi - Silver puffs	0.2
Bare Ground (exclude cryptogamic crust layer- see below):	54
Cryptogamic Soil Crusts:	1
Rock:	15
Litter:	2
Water:	0
Total Live Veg Cover:	27
Dead Shrubs:	1
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	yes
Which survey contains the maximum extent information?	ACIL_4SYCA027_1
Management Recommendations	Continued monitoring, invasive grass and forb treatment
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Acanthomintha ilicifolia, Convolvulus simulans, Harpagonella palmeri, Selaginella cinerascens
Notes	
Time Finish	13:05

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_3
Preserve Name:	Sycamore Canyon And Goodan Ranch Preserves
Management Unit:	4
Land Owner:	County of San Diego DPR
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	Acanthomintha ilicifolia
Date	4/6/2022
TimeStart	13:02
Surveyors	Adrienne Lee, Amanda French
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	1265
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	3
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	3
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	3
GPS Accuracy Units	ft
PlotX	501549
PlotY	3644379
Check your location of the SAMPLE PLOT against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	501539
Photo1Y	3644385
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
CameraType	iPhone 11
Photo1Dir	134 Degrees
Photo1Hei	5 Feet

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_3
Photo1Ang	6 Degrees
Update Photo1 Information?	no
PhotoNumPhoto1	ACIL_4SYCA027_3_Photo1_04062022
SANDAG 2012 Vegetation Alliance/Association:	Artemisia californica-Salvia mellifera Alliance
Cryptogamic Crust Cover:	1
Thatch Cover: (consider invasive grasses only)	2
Thatch Depth: Ave:	2
Thatch Depth: Max (cm):	1
Dead Standing Biomass?	yes
Dead Standing Biomass Species	Artemisia californica, Baccharis sarathroides, Malosma laurina
Dead Standing Biomass Cover	2
Dead Standing Biomass Height Average (cm)	65
Feral Pig Activity	1
Ground Squirrel Activity	1
Gopher Activity	1
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	
Acanthomintha ilicifolia - San Diego thornmint	0.2
Acmispon glaber - deerweed	0.2
Anagallis arvensis - scarlet pimpernel	0.2
Apiastrum angustifolium - mock parsley	0.2
Artemisia californica - coastal sagebrush	8
Avena barbata - slender oat	0.2
Baccharis sarothroides - desertbroom	1
Brachypodium distachyon - purple false brome	2
Bromus hordeaceus - soft brome	0.2
Bromus madritensis - compact brome	0.2
Centaurea melitensis - Maltese star-thistle	1
Chlorogalum parviflorum - smallflower soap plant	0.2
Corethrogyne filaginifolia - California sandaster	0.2
Cryptantha spp. - cryptantha	0.2
Deinandra fasciculata - clustered tarweed	1
Eriogonum fasciculatum - California buckwheat	1
Eriophyllum confertiflorum - golden-yarrow	0.2
Festuca myuros - annual fescue	0.2
Harpagonella palmeri - Palmer's grappling-hook	0.2
Heteromeles arbutifolia - toyon	2
Logfia gallica - narrowleaf cottonrose	1

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_3
Lonicera subspicata - southern honeysuckle	1
Malosma laurina - laurel sumac	6
Marah macrocarpa - Chilicothe	0.2
Plantago erecta - California plantain	0.2
Quercus X acutidens - Oak hybrid	0.2
Salvia apiana - white sage	1
Salvia mellifera - black sage	9
Sisyrinchium bellum - western blue-eyed grass	0.2
Sonchus asper - spiny sowthistle	0.2
Stipa spp. - needlegrass	0.2
Bare Ground (exclude cryptogamic crust layer- see below):	50.2
Cryptogamic Soil Crusts:	0
Rock:	10
Litter:	1
Water:	0
Total Live Veg Cover:	37.8
Dead Shrubs:	1
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	yes
Which survey contains the maximum extent information?	ACIL_4SYCA027_1
Management Recommendations	Continued monitoring, invasive grass and forb treatment
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Acanthomintha ilicifolia, Harpagonella palmeri
Notes	NA
TimeFinish	13:34

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_4
Preserve Name:	Sycamore Canyon And Goodan Ranch Preserves
Management Unit:	4
Land Owner:	County Of San Diego DPR
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	Acanthomintha ilicifolia
Date	4/7/2022
Time Start	09:47
Surveyors	Adrienne Lee, Rachel Le
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	0
Exact or Estimate for Number in Sampling Area	exact
Uncertainty for Sampling Area	very_low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	1
Category for Percent Flowering in Sampling Area	1
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	3
GPS Accuracy Units	ft
PlotX	502544
PlotY	3643691
Check your location of the SAMPLE PLOT against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	502553
Photo1Y	3643680
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Camera Type	iPhone 11
Photo1Dir	125 Degrees
Photo1Hei	5 Feet

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_4
Photo1 Ang	5 Degrees
Update Photo1 Information?	no
PhotoNumPhoto1	ACIL_4SYCA027_4_Photo1_04072022
SANDAG 2012 Vegetation Alliance/Association:	Brachypodium distachyon Semi-Natural Stand
Cryptogamic Crust Cover:	1
Thatch Cover: (consider invasive grasses only)	2
Thatch Depth: Ave:	3
Thatch Depth: Max (cm):	4
Dead Standing Biomass?	yes
Dead Standing Biomass Species	Acmispon glaber, Centaurea melitensis, Deinandra fasciculata
Dead Standing Biomass Cover Class	2
Dead Standing Biomass Height Average (cm)	30
Feral Pig Activity	1
Ground Squirrel Activity	1
Gopher Activity	1
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	NA
Acmispon glaber - deerweed	1
Allium sp. - onion	0.2
Avena barbata - slender oat	0.2
Brachypodium distachyon - purple false brome	40
Calystegia macrostegia - island false bindweed	0.2
Centaurea melitensis - Maltese star-thistle	1
Convolvulus simulans - field bindweed	0.2
Deinandra fasciculata - clustered tarweed	1
Dichelostemma capitatum - bluedicks	0.2
Hypochaeris glabra - smooth cat's ear	0.2
Lonicera subspicata - southern honeysuckle	1
Malosma laurina - laurel sumac	2
Salvia apiana - white sage	0.2
Sonchus asper - spiny sowthistle	0.2
Bare Ground (exclude cryptogamic crust layer- see below):	37.4
Cryptogamic Soil Crusts:	0
Rock:	5
Litter:	5
Water:	0
Total Live Veg Cover:	47.6
Dead Shrubs:	5

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_4
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	yes
Which survey contains the maximum extent information?	ACIL_4SYCA027_1
Management Recommendations	Continued monitoring, invasive grass and forb treatment
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Convolvulus simulans
Notes	NA
TimeFinish	10:19

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_5
Preserve Name:	Sycamore Canyon And Goodan Ranch Preserves
Management Unit:	4
Land Owner:	County Of San Diego DPR
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	Acanthomintha ilicifolia
Date	4/7/2022
Time Start	08:14
Surveyors	Adrienne Lee, Rachel Le
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	330
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	2
Category for Percent Flowering in Sampling Area	6
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	2
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	3
GPS Accuracy Units	ft
PlotX	502915
PlotY	3643523
Check your location of the SAMPLE PLOT against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	502903
Photo1Y	3643535
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Camera Type	iPhone 11
Photo1Dir	150 Degrees
Photo1Hei	5 Feet

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_5
Photo1Ang	3 Degrees
Update Photo1 Information?	no
PhotoNumPhoto1	ACIL_4SYCA027_5_Photo1_04072022
SANDAG 2012 Vegetation Alliance/Association:	Adenostoma fasciculata-Xylococcus bicolor Association
Cryptogamic Crust Cover:	2
Thatch Cover: (consider invasive grasses only)	2
Thatch Depth: Ave:	3
Thatch Depth: Max (cm):	4
Dead Standing Biomass?	yes
Dead Standing Biomass Species	Acmispon glaber, Xylococcus bicolor
Dead Standing Biomass Cover Class	2
Dead Standing Biomass Height Average (cm)	48
Feral Pig Activity	1
Ground Squirrel Activity	1
Gopher Activity	1
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thormmint	0.2
Acmispon glaber - deerweed	1
Adenostoma fasciculatum - chamise	3
Allium sp. - onion	0.2
Apiastrum angustifolium - mock parsley	0.2
Brachypodium distachyon - purple false brome	20
Bromus hordeaceus - soft brome	0.2
Ceanothus tomentosus - woolyleaf ceanothus	1
Centaurea melitensis - Maltese star-thistle	0.2
Cercocarpus betuloides - birch-leaf mountain-mahogany	2
Deinandra fasciculata - clustered tarweed	1
Dichelostemma capitatum - bluedicks	0.2
Eriophyllum confertiflorum - golden-yarrow	0.2
Erodium cicutarium - redstem stork's bill	0.2
Harpagonella palmeri - Palmer's grappling-hook	0.2
Heteromeles arbutifolia - toyon	1
Hypochaeris glabra - smooth cat's ear	0.2
Lepidium spp. - pepperweed	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Lonicera subspicata - southern honeysuckle	1
Malosma laurina - laurel sumac	4
Plantago erecta - California plantain	0.2

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_5
Quercus X acutidens - Oak hybrid	1
Rhamnus crocea - spiny redberry	3
Salvia apiana - white sage	0.2
Sisyrinchium bellum - western blue-eyed grass	0.2
Stipa spp. - needlegrass	0.2
Xylococcus bicolor - mission manzanita	6
Bare Ground (exclude cryptogamic crust layer- see below):	39.6
Cryptogamic Soil Crusts:	0.2
Rock:	10
Litter:	2
Water:	0
Total Live Veg Cover:	47.2
Dead Shrubs:	1
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	yes
Which survey contains the maximum extent information?	ACIL_4SYCA027_1
Management Recommendations	Continued monitoring, invasive grass and forb treatment
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Acanthomintha ilicifolia, Harpagonella palmeri
Notes	NA
TimeFinish	09:02

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_6
Preserve Name:	Sycamore Canyon And Goodan Ranch Preserves
Management Unit:	4
Land Owner:	County Of San Diego Dpr
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	195
Can this survey be shared publicly on sdmmp.com?	no
Scientific Name - Common Name: (required)	yes
Preserve Name:	Acanthomintha ilicifolia
Date	4/11/2022
Time Start	14:31
Surveyors	Adrienne Lee, Sonya Vargas, Pablo Corcoran
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	1400
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	2
Category for Percent Flowering in Sampling Area	6
Category for Percent Fruiting in Sampling Area	2
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	2
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	4
GPS Accuracy Units	ft
PlotX	502262
PlotY	3644082
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	502253
Photo1Y	3644093
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Camera Type	iPhone 11
Photo1Dir	333 Degrees

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_6
Photo1Hei	5 Feet
Photo1Ang	6 Degrees
Update Photo1 Information?	no
PhotoNumPhoto1	ACIL_4SYCA027_6_Photo1_04112022
SANDAG 2012 Vegetation Alliance/Association:	Deinandra fasciculata Association
Cryptogamic Crust Cover:	1
Thatch Cover: (consider invasive grasses only)	2
Thatch Depth: Ave:	3
Thatch Depth: Max (cm):	1
Dead Standing Biomass?	yes
Dead Standing Biomass Species	Centaurea melitensis, Deinandra fasciculata, Hesperoyucca whipplei, Rhus integrifolia
Dead Standing Biomass Cover Class	2
Dead Standing Height Average (cm)	132
Feral Pig Activity	1
Ground Squirrel Activity	1
Gopher Activity	1
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thommint	0.2
Anagallis arvensis - scarlet pimpernel	0.2
Apiastrum angustifolium - mock parsley	5
Artemisia californica - coastal sagebrush	0.2
Brachypodium distachyon - purple false brome	3
Bromus diandrus - ripgut brome	0.2
Bromus hordeaceus - soft brome	0.2
Bromus madritensis - compact brome	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Cneoridium dumosum - bush rue	0.2
Cryptantha spp. - cryptantha	0.2
Deinandra fasciculata - clustered tarweed	5
Erodium cicutarium - redstem stork's bill	0.2
Festuca myuros - annual fescue	0.2
Harpagonella palmeri - Palmer's grappling-hook	0.2
Heteromeles arbutifolia - toyon	3
Hirschfeldia incana - shortpod mustard	0.2
Malosma laurina - laurel sumac	4
Phalaris spp. - canarygrass	0.2
Quercus X acutidens - Oak hybrid	1

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_6
Rhus integrifolia - lemonade sumac	4
Salvia apiana - white sage	0.2
Salvia mellifera - black sage	2
Sonchus asper - spiny sowthistle	0.2
Xylococcus bicolor - mission manzanita	2
Bare Ground (exclude cryptogamic crust layer- see below):	65.6
Cryptogamic Soil Crusts:	0
Rock:	1
Litter:	1
Water:	0
Total Live Veg Cover:	32.2
Dead Shrubs:	0.2
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	yes
Which survey contains the maximum extent information?	ACIL_4SYCA027_1
Management Recommendations	Continued monitoring, treatment of invasive grasses and forbs, including competitive native plants
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Acanthomintha ilicifolia, Harpagonella palmeri
Notes	NA
TimeFinish	15:10

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_7
Preserve Name:	Sycamore Canyon And Goodan Ranch Preserves
Management Unit:	4
Land Owner:	County Of San Diego DPR
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	Acanthomintha ilicifolia
Date	4/11/2022
Time Start	08:55
Surveyors	Adrienne Lee, Sonya Vargas, Pablo Corcoran
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	1322
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	4
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	4
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	5
GPS Accuracy Units	ft
PlotX	502376
PlotY	3644068
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	502361
Photo1Y	3644080
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Camera Type	iPhone 11
Photo1 Dir	116 Degrees
Photo1 Hei	5 Feet

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_7
Photo1Ang	3 Degrees
Update Photo1 Information?	no
PhotoNumPhoto1	ACIL_4SYCA027_7_Photo1_04112022
SANDAG 2012 Vegetation Alliance/Association:	Brachypodium distachyon Semi-Natural Stand
Cryptogamic Crust Cover:	1
Thatch Cover: (consider invasive grasses only)	2
Thatch Depth: Ave:	3
Thatch Depth: Max (cm):	3
Dead Standing Biomass?	yes
Dead Standing Biomass Species	Acmispon glaber, Centaurea melitensis, Deinandra fasciculata, Gutierrezia sarothrae
Dead Standing Biomass Cover Class	2
Dead Standing Biomass Height Average (cm)	30
Feral Pig Activity	1
Ground Squirrel Activity	1
Gopher Activity	1
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thormmint	0.2
Acmispon glaber - deerweed	0.2
Anagallis arvensis - scarlet pimpernel	0.2
Apiastrum angustifolium - mock parsley	0.2
Brachypodium distachyon - purple false brome	30
Bromus hordeaceus - soft brome	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Chlorogalum parviflorum - smallflower soap plant	0.2
Deinandra fasciculata - clustered tarweed	5
Erodium cicutarium - redstem stork's bill	0.2
Galium angustifolium - narrowleaf bedstraw	0.2
Gutierrezia sarothrae - broom snakeweed	0.2
Harpagonella palmeri - Palmer's grappling-hook	0.2
Heteromeles arbutifolia - toyon	0.2
Hypochaeris glabra - smooth cat's ear	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Lonicera subspicata - southern honeysuckle	0.2
Malosma laurina - laurel sumac	2
Rhamnus crocea - spiny redberry	2
Salvia apiana - white sage	0.2
Salvia mellifera - black sage	0.2

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_7
Sisyrinchium bellum - western blue-eyed grass	0.2
Sonchus oleraceus - common sowthistle	0.2
Stipa spp. - needlegrass	0.2
Bare Ground (exclude cryptogamic crust layer- see below):	52.8
Cryptogamic Soil Crusts:	0.2
Rock:	1
Litter:	1
Water:	0
Total Live Veg Cover:	43
Dead Shrubs:	2
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	yes
Which survey contains the maximum extent information?	ACIL_4SYCA027_1
Management Recommendations	Continued monitoring, invasive grass and forb treatment
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Acanthomintha ilicifolia, Harpagonella palmeri
Notes	NA
TimeFinish	10:11

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_8
Preserve Name:	Sycamore Canyon And Goodan Ranch Preserves
Management Unit:	4
Land Owner:	County Of San Diego DPR
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	Acanthomintha ilicifolia
Date	4/11/2022
Time Start	13:21
Surveyors	Adrienne Lee, Sonya Vargas, Pablo Corcoran
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	730
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	medium
Sampling Area Radius (meters):	10
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	4
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	4
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	4
GPS Accuracy Units	ft
PlotX	502267
PlotY	3644249
Check your location of the SAMPLE PLOT against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	502258
Photo1Y	3644250
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Camera Type	iPhone 11
Photo1Dir	121 Degrees
Photo1Hei	5 Feet

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_8
Photo1 Ang	4 Degrees
Update Photo1 Information?	no
PhotoNumPhoto1	ACIL_4SYCA027_8_Photo1_04112022
SANDAG 2012 Vegetation Alliance/Association:	Brachypodium distachyon Semi-Natural Stand
Cryptogamic Crust Cover:	1
Thatch Cover: (consider invasive grasses only)	2
Thatch Depth: Ave:	3
Thatch Depth: Max (cm):	3
Dead Standing Biomass?	yes
Dead Standing Biomass Species	Centaurea melitensis, Deinandra fasciculata
Dead Standing Biomass Cover Class	2
Dead Standing Biomass Height Average (cm)	12
Feral Pig Activity	1
Ground Squirrel Activity	1
Gopher Activity	1
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	1
Anagallis arvensis - scarlet pimpernel	0.2
Apiastrum angustifolium - mock parsley	4
Avena barbata - slender oat	0.2
Bloomeria crocea - common goldenstar	0.2
Brachypodium distachyon - purple false brome	20
Bromus hordeaceus - soft brome	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Convolvulus simulans - field bindweed	0.2
Deinandra fasciculata - clustered tarweed	0.2
Harpagonella palmeri - Palmer's grappling-hook	0.2
Heteromeles arbutifolia - toyon	0.2
Lonicera subspicata - southern honeysuckle	0.2
Lupinus succulentus - Hollowleaf annual lupine	0.2
Malosma laurina - laurel sumac	1
Quercus X acutidens - Oak hybrid	2
Rhus integrifolia - lemonade sumac	2
Sisyrinchium bellum - western blue-eyed grass	0.2
Uropappus lindleyi - Silver puffs	0.2
Bare Ground (exclude cryptogamic crust layer- see below):	61.2
Cryptogamic Soil Crusts:	0

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_8
Rock:	1
Litter:	5
Water:	0
Total Live Veg Cover:	32.6
Dead Shrubs:	0.2
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	yes
Which survey contains the maximum extent information?	ACIL_4SYCA027_1
Management Recommendations	Continued monitoring, invasive grass and forb treatment
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Acanthomintha ilicifolia, Convolvulus simulans, Harpagonella palmeri
Notes	NA
TimeFinish	13:50

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_9
Preserve Name:	Sycamore Canyon And Goodan Ranch Preserves
Management Unit:	4
Land Owner:	County of San Diego DPR
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	
Date	4/6/2022
Time Start	10:52
Surveyors	Adrienne Lee, Amanda French
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	825
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	3
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	3
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	3
GPS Accuracy Units	ft
PlotX	501736
PlotY	3644403
Check your location of the SAMPLE PLOT against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	501748
Photo1Y	3644395
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Camera Type	iPhone 11
Photo1Dir	299 Degrees
Photo1Hei	5 Feet

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_9
Photo1Ang	3 Degrees
Update Photo1 Information?	no
PhotoNumPhoto1	ACIL_4SYCA027_9_Photo1_04062022
SANDAG 2012 Vegetation Alliance/Association:	Brachypodium distachyon Semi-Natural Stand
Cryptogamic Crust Cover:	1
Thatch Cover: (consider invasive grasses only)	2
Thatch Depth: Ave:	3
Thatch Depth: Max (cm):	3
Dead Standing Biomass?	yes
Dead Standing Biomass Species	Rhamnus crocea, Salvia apiana, Centaurea melitensis
Dead Standing Biomass Cover Class	2
Dead Standing Biomass Height Average (cm)	25
Feral Pig Activity	1
Ground Squirrel Activity	1
Gopher Activity	1
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	0.2
Anagallis arvensis - scarlet pimpernel	0.2
Apiastrum angustifolium - mock parsley	0.2
Avena barbata - slender oat	0.2
Brachypodium distachyon - purple false brome	20
Bromus madritensis - compact brome	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Convolvulus simulans - field bindweed	0.2
Deinandra fasciculata - clustered tarweed	1
Eriophyllum confertiflorum - golden-yarrow	0.2
Erodium cicutarium - redstem stork's bill	0.2
Harpagonella palmeri - Palmer's grappling-hook	0.2
Heteromeles arbutifolia - toyon	3
Hypochaeris glabra - smooth cat's ear	0.2
Lonicera subspicata - southern honeysuckle	0.2
Malosma laurina - laurel sumac	0.2
Quercus X acutidens - Oak hybrid	6
Rhamnus crocea - spiny redberry	1
Rhus integrifolia - lemonade sumac	3
Rhus ovata - sugar sumac	1
Salvia apiana - white sage	1

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_9
Salvia mellifera - black sage	0.2
Sonchus asper - spiny sowthistle	0.2
Xylococcus bicolor - mission manzanita	0.2
Bare Ground (exclude cryptogamic crust layer- see below):	49.8
Cryptogamic Soil Crusts:	0
Rock:	2
Litter:	8
Water:	0
Total Live Veg Cover:	39.2
Dead Shrubs:	1
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	yes
Which survey contains the maximum extent information?	ACIL_4SYCA027_1
Management Recommendations	Continued monitoring, invasive grass and forb treatment
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Acanthomintha ilicifolia, Convolvulus simans, Harpagonella palmeri
Notes	NA
TimeFinish	11:26

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_10
Preserve Name:	Sycamore Canyon And Goodan Ranch Preserves
Management Unit:	4
Land Owner:	County Of San Diego Dpr
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	Acanthomintha ilicifolia
Date	4/6/2022
Time Start	08:19
Surveyors	Adrienne Lee, Amanda French
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	630
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	3
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	3
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	3
GPS Accuracy Units	ft
PlotX	501927
PlotY	3644367
Check your location of the SAMPLE PLOT against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	501908
Photo1Y	3644364
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Camera Type	iPhone 11
Photo1Dir	093 Degrees
Photo1Hei	5 Feet

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_10
Photo1 Ang	6 Degrees
Update Photo1 Information?	no
PhotoNumPhoto1	ACIL_4SYCA027_10_Photo1_04062022
SANDAG 2012 Vegetation Alliance/Association:	Salvia mellifera-Malosma laurina Association
Cryptogamic Crust Cover:	1
Thatch Cover: (consider invasive grasses only)	1
Thatch Depth: Ave:	1
Thatch Depth: Max (cm):	NA
Dead Standing Biomass?	yes
Dead Standing Biomass Species	Deinandra fasciculata, Apiastrum angustifolium, Hesperoyucca whipplei
Dead Standing Biomass Cover Class	2
Dead Standing Biomass Height Average (cm)	13
Feral Pig Activity	1
Ground Squirrel Activity	1
Gopher Activity	1
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	1
Adenostoma fasciculatum - chamise	0.2
Anagallis arvensis - scarlet pimpernel	0.2
Apiastrum angustifolium - mock parsley	5
Ceanothus tomentosus - woolyleaf ceanothus	3
Centaurea melitensis - Maltese star-thistle	0.2
Cneoridium dumosum - bush rue	1
Convolvulus simulans - field bindweed	0.2
Deinandra fasciculata - clustered tarweed	1
Erodium cicutarium - redstem stork's bill	0.2
Harpagonella palmeri - Palmer's grappling-hook	0.2
Hesperoyucca whipplei - chaparral yucca	0.2
Heteromeles arbutifolia - toyon	1
Lupinus succulentus - Hollowleaf annual lupine	0.2
Malosma laurina - laurel sumac	0.2
Quercus X acutidens - Oak hybrid	5
Salvia mellifera - black sage	8
Sonchus asper - spiny sowthistle	0.2
Xylococcus bicolor - mission manzanita	1
Bare Ground (exclude cryptogamic crust layer- see below):	64.8
Cryptogamic Soil Crusts:	0

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_10
Rock:	1
Litter:	6
Water:	0
Total Live Veg Cover:	28
Dead Shrubs:	0.2
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	yes
Which survey contains the maximum extent information?	ACIL_4SYCA027_1
Management Recommendations	Continued monitoring, invasive grass and forb treatment
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Acanthomintha ilicifolia, Convolvulus simulans, Harpagonella palmeri
Notes	NA
TimeFinish	09:06

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_11
Preserve Name:	Sycamore Canyon And Goodan Ranch Preserves
Management Unit:	4
Land Owner:	County of San Diego DPR
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	Acanthomintha ilicifolia
Date	4/7/2022
TimeStart	10:53
Surveyors	Adrienne Lee, Rachel Le
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	285
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	3
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	3
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	3
GPS Accuracy Units	ft
PlotX	502684
PlotY	3643722
Check your location of the SAMPLE PLOT against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	502694
Photo1Y	3643719
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Camera Type	iPhone 11
Photo1Dir	268
Photo1Hei	1.4

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_11
Photo1Ang	20 down
Update Photo1 Information?	no
PhotoNumPhoto1	ACIL_4SYCA027_11_Photo1_04072022
SANDAG 2012 Vegetation Alliance/Association:	Brachypodium distachyon Semi-Natural Stand
Cryptogamic Crust Cover:	1
Thatch Cover: (consider invasive grasses only)	2
Thatch Depth: Ave:	3
Thatch Depth: Max (cm):	5
Dead Standing Biomass?	yes
Dead Standing Biomass Species	Acmispon glaber, Salvia apiana, Centaurea melitensis, Deinandra fasciculata
Dead Standing Biomass Cover Class	2
Dead Standing Biomass Height Average (cm)	37
Feral Pig Activity	1
Ground Squirrel Activity	1
Gopher Activity	1
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thormmint	0.2
Acmispon glaber - deerweed	1
Allium sp. - onion	0.2
Apiastrum angustifolium - mock parsley	0.2
Brachypodium distachyon - purple false brome	30
Centaurea melitensis - Maltese star-thistle	1
Convolvulus simulans - field bindweed	0.2
Deinandra fasciculata - clustered tarweed	1
Dichelostemma capitatum - blue-dicks	0.2
Eriophyllum confertiflorum - golden-yarrow	0.2
Heteromeles arbutifolia - toyon	3
Hypochaeris glabra - smooth cat's ear	0.2
Isocoma menziesii - Menzies' goldenbush	0.2
Lonicera subspicata - southern honeysuckle	0.2
Malosma laurina - laurel sumac	2
Rhamnus crocea - spiny redberry	2
Rhus integrifolia - lemonade sumac	1
Rhus ovata - sugar sumac	3
Salvia apiana - white sage	1
Sisyrinchium bellum - western blue-eyed grass	0.2
Sonchus asper - spiny sowthistle	0.2

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_11
Sonchus oleraceus - common sowthistle	0.2
Xylococcus bicolor - mission manzanita	2
Bare Ground (exclude cryptogamic crust layer- see below):	33.6
Cryptogamic Soil Crusts:	0
Rock:	7
Litter:	5
Water:	0
Total Live Veg Cover:	49.4
Dead Shrubs:	5
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	yes
Which survey contains the maximum extent information?	ACIL_4SYCA027_1
Management Recommendations	Continued monitoring, invasive grass and forb treatment
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Acanthomintha ilicifolia, Convolvulus simulans
Notes	NA
TimeFinish	11:28

D-2 Orcutt's Bird's-Beak

MSP Occurr. ID & Sample point:	COOR7_1TIRI009_1
Preserve Name:	Tijuana River Valley Regional Park
Management Unit:	1
Land Owner:	County Of San Diego DPR
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	Dicranostegia orcuttiana
Date	6/6/2022
Time Start	09:10
Surveyors	Brenda McMillan and Pablo Corcoran
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	71
Exact or Estimate for Number in Sampling Area	exact
Uncertainty for Sampling Area	very_low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	3
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	2
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	2
GPS Accuracy Units	m
PlotX	490646
PlotY	3600256
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	490655
Photo1Y	3600256
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
CameraType	iPhone 12
Photo1Dir	261
Photo1Hei	1.3
Photo1Ang	16

MSP Occurr. ID & Sample point:	COOR7_1TIRI009_1
Update Photo1 Information?	no
PhotoNumPhoto1	COOR7_1TIRI009_1_Photo1_06062022
SANDAG 2012 Vegetation Alliance/Association:	Artemisia californica-Eriogonum fasciculatum-Opuntia littoralis/Dudleya (edulis) Association
Cryptogamic Crust Cover:	2
Thatch Cover: (consider invasive grasses only)	2
Thatch Depth: Ave:	2
Thatch Depth: Max (cm):	1
Dead Standing Biomass?	yes
Dead Standing Biomass Cover Species	Stephanomeria diegensis, Brassica tournefortii
Dead Standing Biomass Cover Class	2
Dead Standing Biomass Height Average (cm)	100
Feral Pig Activity	1
Ground Squirrel Activity	2
Gopher Activity	2
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	NA
Acmispon glaber - deerweed	0.2
Artemisia californica - coastal sagebrush	21
Atriplex semibaccata - Australian saltbush	0.2
Baccharis sarothroides - desertbroom	0.2
Bahiopsis laciniata - torhleaf goldeneye	2
Brassica tournefortii - Asian mustard	2
Bromus rubens - Red brome	2.5
Calochortus splendens - splendid mariposa lily	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Cneoridium dumosum - bush rue	15
Cryptantha spp. - cryptantha	0.2
Daucus pusillus - American wild carrot	0.2
Deinandra fasciculata - clustered tarweed	1
Dichelostemma capitatum - bluedicks	0.2
Dicranostegia orcuttiana - Orcutt's birds-beak	2
Dudleya edulis - fingertips	1
Dudleya pulverulenta - chalk dudleya	1
Eriogonum fasciculatum - California buckwheat	3
Ferocactus viridescens - San Diego barrel cactus	1
Festuca myuros - annual fescue	0.2
Glebionis coronaria - Crown daisy	0.2
Hypochaeris glabra - smooth cat's ear	0.2

MSP Occurr. ID & Sample point:	COOR7_1TIRI009_1
Lepidium nitidum - shining pepperweed	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Malosma laurina - laurel sumac	2
Navarretia hamata - hooked pincushionplant	0.2
Osmadenia tenella - false rosinweed	0.2
Selaginella bigelovii - bushy spikemoss	0.2
Selaginella cinerascens - mesa spikemoss	7
Silene gallica - common catchfly	0.2
Stephanomeria diegensis - San Diego wirelettuce	0.2
Stipa lepida - Foothill needle grass	1
Stylocline gnaphaloides - mountain neststraw	0.2
OtherAsSpec	yes
othername1	Descaurania pinnata
otherper1	0.2
Bare Ground (exclude cryptogamic crust layer- see below):	15.3
Cryptogamic Soil Crusts:	0.2
Rock:	10
Litter:	5
Water:	0
Total Live Veg Cover:	65.5
Dead Shrubs:	4
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	no
Enter Occurrence ID and sample point number:	COOR7_1TIRI009_1
Number of Plants in the Current Mapped Extent	305
Exact or Estimate for Number in Current Mapped Extent	exact
Uncertainty for Current Mapped Extent	very_low
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Area of the Current Mapped Extent (optional if shapefile of extent will be included)	Polygon submitted
Units of Area of Current Mapped Extent	acres
Uncertainty for Area of Current Mapped Extent	very_low
Mapping Method of Current Mapped Extent Polygon	exact
Species found in maximum extent?	yes
Reason not found:	NA
Surrounding Land Use	Conserved open space preserve. Open to hiking, mountain biking, equestrian use. Adjacent to US-Mexico border.
Non-native Forbs	5

MSP Occurr. ID & Sample point:	COOR7_1TIRI009_1
Non-native Forbs Description	More Bratou, Glecor, Saltra present
Non-native Grasses	6
Non-native Grasses Description	Increase in Brorub
Non-native Woody Plants	2
Non-native Woody Plants Description	Tamarisk in buffer
Competitive Native Plants	1
Competitive Native Plants Description	NA
Dumping/Trash	3
Dumping/Trash Description	Couple cans
Encampments	1
Encampments Description	NA
Feral Pig	1
Feral Pig Description	NA
Trampling	3
Trampling Description	
Vandalism	1
Vandalism Description	NA
Current Grazing	1
Current Grazing Description	NA
Historic Grazing	no
Historic Grazing Description	NA
Historic Agriculture	no
Historic Agriculture Description	NA
Altered Hydrology	1
Altered Hydrology Description	NA
Erosion	3
Erosion Description	
Urban Runoff	1
Urban Runoff Description	NA
Slope Movement	3
Slope Movement Description	
Soil Compaction	1
Soil Compaction Description	NA
Fuel Mod Zone/FireBreak	1
Fuel Mod Zone/FireBreak Description	NA
Road Construction/Maintenance	4
Road Construction/Maintenance Description	Border patrol maintains roads within DPR preserve
Veg Clearing	1
Veg Clearing Description	NA

MSP Occurr. ID & Sample point:	COOR7_1TIRI009_1
Restoration	1
Restoration Description	NA
ORV/Mtn Bike Activity Disturbance	3
ORV/Mtn Bike Activity Type	Off road Border Patrol activity observed.
Evidence Recent Fire	no
Year Burned	
Threat from trails (category)	3
If Trails are Present, are they Authorized?	no
Hiking	unknown
Biking	unknown
Equestrian	unknown
Dog	unknown
Service Vehicles	yes
Other	yes
Notes on trail use	Border patrol
Other Disturbances?	2
Describe other disturbances:	N/A
Management Recommendations	Continued monitoring, invasive non-native grass and forb (mustard) control
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Coastal California gnatcatcher, Selaginella cinerascens, Ferocactus viridescens, Dichondra occidentalis
Notes	NA
TimeFinish	11:39

MSP Occurr. ID & Sample point:	COOR7_1SMGU006_1
Preserve Name:	Tijuana River Valley Regional Park
Management Unit:	1
Land Owner:	County of San Diego DPR
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	Dicranostegia orcuttiana
Date	6/6/2022
Time Start	14:00
Surveyors	Brenda McMillan and Pablo Corcoran
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	10
Exact or Estimate for Number in Sampling Area	exact
Uncertainty for Sampling Area	very_low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	4
Category for Percent Flowering in Sampling Area	4
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	3
GPS Accuracy Units	ft
PlotX	491709
PlotY	3600493
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	491707
Photo1Y	3600501
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Camera Type	iPhone 12
Photo1Dir	101
Photo1Hei	1.3

MSP Occurr. ID & Sample point:	COOR7_1SMGU006_1
Photo1Ang	7 down
Update Photo1 Information?	no
PhotoNumPhoto1	COOR7_1SMGU007__1_Photo1_06062022
SANDAG 2012 Vegetation Alliance/Association:	Encelia californica-Artemisia californica Association
Cryptogamic Crust Cover:	1
Thatch Cover: (consider invasive grasses only)	4
Thatch Depth: Ave:	3
Thatch Depth: Max (cm):	4
Dead Standing Biomass?	yes
Dead Standing Biomass Species	Hirschfeldia incana, Brassica tournefortii
Dead Standing Biomass Cover Class	3
Dead Standing Biomass Height Average (cm)	75
Feral Pig Activity	1
Ground Squirrel Activity	1
Gopher Activity	4
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	NA
Artemisia californica - coastal sagebrush	7.5
Avena spp. - oat	0.2
Bahiopsis laciniata - torhleaf goldeneye	0.2
Brassica tournefortii - Asian mustard	10
Bromus rubens - Red brome	3
Centaurea melitensis - Maltese star-thistle	0.2
Clematis pauciflora - ropevine clematis	0.2
Cneoridium dumosum - bush rue	0.2
Cuscuta californica var. californica - California dodder	0.2
Dicranostegia orcuttiana - Orcutt's birds-beak	0.2
Dudleya pulverulenta - chalk dudleya	0.2
Encelia californica - California brittlebush	10
Eriogonum fasciculatum - California buckwheat	8
Hirschfeldia incana - shortpod mustard	0.2
Malosma laurina - laurel sumac	3
Pellaea mucronata - birdfoot cliffbrake	0.2
Peritoma arborea - bladderpod spiderflower	12
Pterostegia drymarioides - woodland pterostegia	0.2
Rhamnus crocea - spiny redberry	8
Rhus integrifolia - lemonade sumac	6
Scrophularia californica - California figwort	0.2

MSP Occurr. ID & Sample point:	COOR7_1SMGU006_1
Stephanomeria diegensis - San Diego wirelettuce	0.2
Yucca schidigera - Mojave yucca	3
OtherAsSpec	yes
othername1	Keckiella antirrhinoides
otherper1	1
othername2	Sambucus nigra
otherper2	1
Bare Ground (exclude cryptogamic crust layer- see below):	10.9
Cryptogamic Soil Crusts:	0
Rock:	2
Litter:	7
Water:	0
Total Live Veg Cover:	75.1
Dead Shrubs:	5
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	no
Which survey contains the maximum extent information?	COOR7_1SMGU006_1
Number of Plants in the Current Mapped Extent	10
Exact or Estimate for Number in Current Mapped Extent	exact
Uncertainty for Current Mapped Extent	very_low
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Area of the Current Mapped Extent (optional if shapefile of extent will be included)	Polygon submitted
Units of Area of Current Mapped Extent	acres
Area_exact_or_estim	very_low
Mapping Method of Current Mapped Extent Polygon	exact
Species found in maximum extent?	yes
Reason not found:	
Surrounding Land Use	Conserved open space preserve. Adjacent to US-Mexico border.
Non-Native Forbs	5
Non-native Forbs Description	
Non-native Grasses	4
Non-native Grasses Description	
Non-native Woody Plants	2
Non-native Woody Plants Description	
Competitive Native Plants	1
Competitive Native Plants Description	
Dumping/Trash	1

MSP Occurr. ID & Sample point:	COOR7_1SMGU006_1
Dumping/Trash Description	
Encampments	1
Encampments Description	
Feral Pig	1
Feral Pig Description	
Trampling	3
Trampling Description	
Vandalism	1
Vandalism Description	
Current Grazing	1
Current Grazing Description	
Historic Grazing	no
Historic Grazing Description	
Historic Agriculture	no
Historic Agriculture Description	
Altered Hydrology	1
Altered Hydrology Description	
Erosion	4
Erosion Description	
Urban Runoff	1
Urban Runoff Description	
Slope Movement	4
Slope Movement Description	
Soil Compaction	1
Soil Compaction Description	
Fuel Mod Zone/Fire Break	1
Fuel Mod Zone/Fire Break Description	
Road Construction/Maintenance	2
Road Construction/Maintenance Description	Border patrol maintains roads within DPR preserve
Veg Clearing	1
Veg Clearing Description	
Restoration	1
Restoration Description	
ORV/Mtn Bike Activity Disturbance	1
ORV/Mtn Bike Activity Type	
Evidence of Recent Fire	no
If Sign of Recent Fire: Year Burned?	
Threat from trails (category)	3
If Trails are Present, are they Authorized?	no

MSP Occurr. ID & Sample point:	COOR7_1SMGU006_1
Hiking	no
Biking	no
Equestrian	no
Dog	no
Service Vehicles	no
Other	yes
TrailUse_illegal_descript	Border Patrol
Other Disturbances?	1
Describe other disturbances:	NA
Manage Recommendations	Continued monitoring, invasive plant species control
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Least Bell's vireo, Yellow warbler, Coastal California gnatcatcher
Notes	NA
TimeFinish	14:55

D-3 Otay Tarplant

MSP Occurr. ID & Sample point:	DECO13_3OMEA026_1
Preserve Name:	Furby-North Property (Otay Mesa East)
Management Unit:	3
Land Owner:	County Of San Diego Dpr
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	Dicranostegia orcuttiana
Date	5/23/2022
Time Start	11:22
Surveyors	Adrienne Lee, Sonya Vargas
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	141
Exact or Estimate for Number in Sampling Area	exact
Uncertainty for Sampling Area	low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	2
Category for Percent Flowering in Sampling Area	6
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	3
GPS Accuracy Units	ft
PlotX	496809
PlotY	3602882
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	496811
Photo1Y	3602874
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Camera Type	iPhone 11
Photo1Dir	334
Photo1Hei	1.3

MSP Occurr. ID & Sample point:	DECO13_3OMEA026_1
Photo1Ang	32
Update Photo1 Information?	no
PhotoNumPhoto1	DECO13_3OMEA026_1_Photo1_05232022
SANDAG 2012 Vegetation Alliance/Association:	Simmondsia chinensis Alliance
Cryptogamic Crust Cover:	2
Thatch Cover: (consider invasive grasses only)	2
Thatch Depth: Ave:	3
Thatch Depth: Max (cm):	2
Dead Standing Biomass?	yes
Dead Standing Biomass Species	Glebionis coronaria, Hirschfeldia incana, Artemisia californica, Brassica nigra, Eriophyllum confertiflorum
Dead Standing Biomass Cover Class	2
Dead Standing Height Average (cm)	72
Feral Pig Activity	1
Ground Squirrel Activity	1
Gopher Activity	1
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	
Allium sp. - onion	0.2
Anagallis arvensis - scarlet pimpernel	0.2
Antirrhinum nuttallianum - Island snapdragon	0.2
Artemisia californica - coastal sagebrush	6
Avena barbata - slender oat	0.2
Brassica nigra - black mustard	1
Bromus diandrus - ripgut brome	0.2
Bromus hordeaceus - soft brome	5
Bromus madritensis - compact brome	5
Centaurea melitensis - Maltese star-thistle	2
Deinandra conjugens - Otoy tarplant	0.2
Deinandra fasciculata - clustered tarweed	0.2
Eriophyllum confertiflorum - golden-yarrow	0.2
Festuca myuros - annual fescue	0.2
Festuca perennis - Italian rye grass	0.2
Glebionis coronaria - Crown daisy	4
Hirschfeldia incana - shortpod mustard	1
Isocoma menziesii - Menzies' goldenbush	1
Peritoma arborea - bladderpod spiderflower	0.2
Simmondsia chinensis - jojoba	7
Sisyrinchium bellum - western blue-eyed grass	0.2

MSP Occurr. ID & Sample point:	DECO13_3OMEA026_1
Solanum spp. - nightshade	0.2
Stipa spp. - needlegrass	0.2
OtherAsSpec	yes
othername1	Stachys rigida ssp. rigida
otherper1	1
Bare Ground (exclude cryptogamic crust layer- see below):	57
Cryptogamic Soil Crusts:	0.2
Rock:	1
Litter:	5
Water:	0
Total Live Veg Cover:	35.8
Dead Shrubs:	1
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	no
Which survey contains the maximum extent information?	
Number of Plants in the Current Mapped Extent	610
Exact or Estimate for Number in Current Mapped Extent	exact
Uncertainty for Current Mapped Extent	low
Count is clusters or individuals?	individuals
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Area of the Current Mapped Extent (optional if shapefile of extent will be included)	Polygon submitted
Units of Area of Current Mapped Extent	
Uncertainty for Area of Current Mapped Extent	low
Mapping Method of Current Mapped Extent Polygon	exact
Species found in maximum extent?	yes
Reason not found:	NA
Surrounding Land Use	Conserved open space preserve, utility easement, residential roads and properties.
Non-native Forbs	5
Non-native Forbs Description	Glebionis coronaria, Hirschfeldia incana, Brassica nigra, Centaurea melitensis
Non-native Grasses	6
Non-native Grasses Description	Bromus diandrus, Bromus hordaceaus, Bromus madritensis, Festuca myuros, Festuca perennis, Avena barbata
Non-native Woody Plants	1
Non-native Woody Plants Description	
Competitive Native Plants	1
Competitive Native Plants Description	
Dumping/Trash	3

MSP Occurr. ID & Sample point:	DECO13_3OMEA026_1
Dumping/Trash Description	Rusted vehicle
Encampments	1
Encampments Description	
Feral Pig	1
Feral Pig Description	
Trampling	1
Trampling Description	
Vandalism	1
Vandalism Description	
Current Grazing	1
Current Grazing Description	
Historic Grazing	unknown
Historic Grazing Description	
Historic Agriculture	unknown
Historic Agriculture Description	
Altered Hydrology	1
Altered Hydrology Description	
Erosion	1
Erosion Description	
Urban Runoff	1
Urban Runoff Description	
Slope Movement	1
Slope Movement Description	
Soil Compaction	1
Soil Compaction Description	
Fuel Mod Zone/Fire Break	1
Fuel Mod Zone/Fire Break Description	
Road Construction/Maintenance	1
Road Construction/Maintenance Description	
Veg Clearing	1
Veg Clearing Description	
Restoration	7
Restoration Description	Thatch removal
ORV/Mtn Bike Activity Disturbance	1
ORV/Mtn Bike Activity Type	
EvidenceRecentFire	unknown
Year Burned	
Threat from trails (category)	1
If Trails are Present, are they Authorized?	

MSP Occurr. ID & Sample point:	DECO13_3OMEA026_1
Hiking	
Biking	
Equestrian	
Dog	
Service Vehicles	
Other	
Notes on trail use	
Other Disturbances?	1
Describe other disturbances:	NA
Management Recommendations	Continued monitoring, continued invasive grass and forb treatment
Management Actions in the past year	Thatch removal
CNDDDB Incidental sightings	Deinandra conjugens, coastal California gnatcatcher
Notes	NA
TimeFinish	12:27

D-4 Willowy Monardella

MSP Occurr. ID & Sample point:	MOLIV_4SYCA006_1
Preserve Name:	Sycamore Canyon And Goodan Ranch Preserves
Management Unit:	4
Land Owner:	Sycamore Canyon and Goodan Ranch Preserves
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	Monardella viminea
Date	6/7/2022
Time Start	09:47
Surveyors	Adrienne Lee, Karla Alcaraz, Robert Laudy, Maureen Laudy
Affiliation	Environmental Science Associates, Friends of Goodan Ranch and Sycamore Canyon Open Space
Number of Plants in the Sampling Area	55
Exact or Estimate for Number in Sampling Area	exact
Uncertainty for Sampling Area	very_low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	clusters
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	2
Category for Percent Flowering in Sampling Area	6
Category for Percent Fruiting in Sampling Area	2
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	3
GPS Accuracy Units	ft
PlotX	502412
PlotY	3642218
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	502417
Photo1Y	3642228
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change

MSP Occurr. ID & Sample point:	MOLIV_4SYCA006_1
Camera Type	iPhone 11
Photo1Dir	"South
Photo1Hei	176 Degrees"
Photo1Ang	1.5
Update Photo1 Information?	no
PhotoNumPhoto1	MOLIV_4SYCA006_1_Photo1_06072022
SANDAG 2012 Vegetation Alliance/Association:	Eriogonum fasciculatum Association
Cryptogamic Crust Cover	1
Thatch Cover: (consider invasive grasses only)	3
Thatch Depth: Ave:	4
Thatch Depth: Max (cm):	9
Dead Standing Biomass?	yes
Dead Standing Biomass Species	Eriogonum fasciculatum, Artemisia californica, Rhamnus crocea, Acmispon glaber, Salvia mellifera
Dead Standing Biomass Cover Class	2
Dead Standing Height Average (cm)	48
Feral Pig Activity	1
Ground Squirrel Activity	1
Gopher Activity	4
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	
Artemisia californica - coastal sagebrush	1
Avena barbata - slender oat	0.2
Brachypodium distachyon - purple false brome	5
Bromus diandrus - ripgut brome	0.2
Bromus hordeaceus - soft brome	0.2
Bromus madritensis - compact brome	0.2
Calystegia macrostegia - island false bindweed	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Deinandra fasciculata - clustered tarweed	0.2
Eriogonum fasciculatum - California buckwheat	13
Eriophyllum confertiflorum - golden-yarrow	0.2
Erodium spp. - stork's bill	0.2
Galium spp. - bedstraw	0.2
Helianthus gracilentus - slender sunflower	0.2
Malosma laurina - laurel sumac	1
Mirabilis laevis - desert wishbone-bush	0.2
Monardella viminea - Willowy monardella	3
Prunus ilicifolia - hollyleaf cherry	1

MSP Occurr. ID & Sample point:	MOLIV_4SYCA006_1
Rhamnus crocea - spiny redberry	5
Salvia apiana - white sage	0.2
Salvia mellifera - black sage	2
OtherAsSpec	yes
othername1	Cirsium sp.
otherper1	0.2
Bare Ground (exclude cryptogamic crust layer- see below):	28.2
Cryptogamic Soil Crusts:	0
Rock:	25
Litter:	12
Water:	0
Total Live Veg Cover:	33.8
Dead Shrubs:	1
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	no
Which survey contains the maximum extent information?	
Number of Plants in the Current Mapped Extent	294
Exact or Estimate for Number in Current Mapped Extent	exact
Uncertainty for Current Mapped Extent	low
Count is clusters or individuals?	clusters
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Area of the Current Mapped Extent (optional if shapefile of extent will be included)	
Units of Area of Current Mapped Extent	
Uncertainty for Area of Current Mapped Extent	very_low
Mapping Method of Current Mapped Extent Polygon	exact
Species found in maximum extent?	yes
Reason not found:	
Surrounding Land Use	Conserved open space preserve, open to hiking, mountain biking, equestrian use.
Non-native Forbs	4
Non-native Forbs Description	Centaurea melitensis, Erodium spp.
Non-native Grasses	7
Non-native Grasses Description	Avena barbata, Brachypodium distachyon, Bromus spp.
Non-native Woody Plants	1
Non-native Woody Plants Description	
Competitive Native Plants	1
Competitive Native Plants Description	
Dumping/Trash	1

MSP Occurr. ID & Sample point:	MOLIV_4SYCA006_1
Dumping/Trash Description	
Encampments	1
Encampments Description	
Feral Pig	1
Feral Pig Description	
Trampling	1
Trampling Description	
Vandalism	1
Vandalism Description	
Current Grazing	1
Current Grazing Description	
Historic Grazing	unknown
Historic Grazing Description	
Historic Agriculture	unknown
Historic Agriculture Description	
Altered Hydrology	3
Altered Hydrology Description	
Erosion	3
Erosion Description	
Urban Runoff	1
Urban Runoff Description	
Slope Movement	1
Slope Movement Description	
Soil Compaction	1
Soil Compaction Description	
Fuel Mod Zone/Fire Break	1
Fuel Mod Zone/Fire Break Description	
Road Construction/Maintenance	1
Road Construction/Maintenance Description	
Veg Clearing	1
Veg Clearing Description	
Restoration	1
Restoration Description	
ORV/Mtn Bike Activity Disturbance	1
ORV/Mtn Bike Activity Type	
Evidence of Recent Fire	no
If Sign of Recent Fire: Year Burned?	
Threat from trails (category)	3
If Trails are Present, are they Authorized?	both

MSP Occurr. ID & Sample point:	MOLIV_4SYCA006_1
Hiking	yes
Biking	yes
Equestrian	unknown
Dog	unknown
Service Vehicles	no
Other	no
Notes on trail use	
Other Disturbances?	1
Describe other disturbances:	NA
Management Recommendations	Continued monitoring, treatment of non-native grasses
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Monardella viminea
Notes	NA
TimeFinish	10:53

MSP Occurr. ID & Sample point:	MOLIV_4SPCA006_2
Preserve Name:	Sycamore Canyon And Goodan Ranch Preserves
Management Unit:	4
Land Owner:	County of San Diego DPR
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	Monardella viminea
Date	6/7/2022
TimeStart	12:48
Surveyors	Adrienne Lee, Karla Alcaraz, Robert Laudy, Maureen Laudy
Affiliation	Environmental Science Associates, Friends of Goodan Ranch and Sycamore Canyon Open Space
Number of Plants in the Sampling Area	11
Exact or Estimate for Number in Sampling Area	exact
Uncertainty for Sampling Area	very_low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	clusters
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	4
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPS Accuracy	3
GPS Accuracy Units	ft
PlotX	501657
PlotY	3640638
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	501646
Photo1Y	3640631
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Camera Type	iPhone 11

MSP Occurr. ID & Sample point:	MOLIV_4SPCA006_2
Photo1Dir	Northeast
Photo1Hei	5 Feet
Photo1Ang	5 Degrees
Update Photo1 Information?	no
PhotoNumPhoto1	MOLIV_4SPCA006_2_Photo1_06072022
SANDAG 2012 Vegetation Alliance/Association:	Eriogonum fasciculatum-Salvia apiana Association
Cryptogamic Crust Cover:	1
Thatch Cover: (consider invasive grasses only)	2
Thatch Depth: Ave:	3
Thatch Depth: Max (cm):	4
Dead Standing Biomass?	yes
If Yes, Species:	Salvia apiana, Artemisia californica
If Yes, Cover Class:	2
If Yes, Ave. Height (in cm)?	40
Feral Pig Activity	1
Ground Squirrel Activity	1
Gopher Activity	4
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	
Acmispon glaber - deerweed	0.2
Ambrosia psilostachya - Cuman ragweed	0.2
Artemisia californica - coastal sagebrush	1
Avena barbata - slender oat	1
Baccharis sarothroides - desertbroom	0.2
Brachypodium distachyon - purple false brome	0.2
Bromus diandrus - ripgut brome	5
Bromus hordeaceus - soft brome	0.2
Bromus madritensis - compact brome	1
Calystegia macrostegia - island false bindweed	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Cuscuta spp. - dodder	0.2
Deinandra fasciculata - clustered tarweed	0.2
Eriogonum fasciculatum - California buckwheat	15
Erodium spp. - stork's bill	0.2
Festuca myuros - annual fescue	0.2
Hirschfeldia incana - shortpod mustard	0.2
Mirabilis laevis - desert wishbone-bush	0.2
Monardella viminea - Willowy monardella	1
Pseudognaphalium spp. - cudweed	0.2

MSP Occurr. ID & Sample point:	MOLIV_4SPCA006_2
Rhamnus crocea - spiny redberry	1
Salvia apiana - white sage	1
OtherAsSpec	no
Bare Ground (exclude cryptogamic crust layer- see below):	35.2
Cryptogamic Soil Crusts:	0
Rock:	30
Litter:	5
Water:	0
Total Live Veg Cover:	28.8
Dead Shrubs:	1
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	no
Which survey contains the maximum extent information?	
Number of Plants in the Current Mapped Extent	35
Exact or Estimate for Number in Current Mapped Extent	exact
Uncertainty for Current Mapped Extent	low
Count is clusters or individuals?	clusters
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Area of the Current Mapped Extent (optional if shapefile of extent will be included)	Polygon submitted
Units of Area of Current Mapped Extent	
Uncertainty for Area of Current Mapped Extent	very_low
Mapping Method of Current Mapped Extent Polygon	exact
Species found in maximum extent?	yes
Reason not found:	NA
Surrounding Land Use	Conserved open space preserve, open to hiking, mountain biking, equestrian use.
Non-native Forbs	4
Non-native Forbs Description	Centaurea melitensis, Erodium spp., Hirschfeldia incana
Non-native Grasses	7
Non-native Grasses Description	Avena barbata, Brachypodium distachyon, Bromus spp., Festuca myuros
Non-native Woody Plants	1
Non-native Woody Plants Description	
Competitive Native Plants	1
Competitive Native Plants Description	
Dumping/Trash	1
Dumping/Trash Description	
Encampments	1

MSP Occurr. ID & Sample point:	MOLIV_4SPCA006_2
Encampments Description	
Feral Pig	1
Feral Pig Description	
Trampling	1
Trampling Description	
Vandalism	1
Vandalism Description	
Current Grazing	1
Current Grazing Description	
Historic Grazing	unknown
Historic Grazing Description	
Historic Agriculture	unknown
Historic Agriculture Description	
Altered Hydrology	1
Altered Hydrology Description	
Erosion	3
Erosion Description	
Urban Runoff	1
Urban Runoff Description	
Slope Movement	1
Slope Movement Description	
Soil Compaction	1
Soil Compaction Description	
Fuel Mod Zone/Fire Break	1
Fuel Mod Zone/Fire Break Description	
Road Construction/Maintenance	1
Road Construction/Maintenance Description	
Veg Clearing	1
Veg Clearing Description	
Restoration	1
Restoration Description	
ORV/Mtn Bike Activity Disturbance	1
ORV/Mtn Bike Activity Type	
Evidence of Recent Fire	no
If Sign of Recent Fire: Year Burned?	
Threat from trails (category)	2
If Trails are Present, are they Authorized?	both
Hiking	yes
Biking	yes

MSP Occurr. ID & Sample point:	MOLIV_4SPCA006_2
Equestrian	unknown
Dog	unknown
Service Vehicles	no
Other	no
Notes on trail use	
Other Disturbances?	1
Describe other disturbances:	
Management Recommendations	Continued monitoring, treatment of non-native grasses
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Monardella viminea
Notes	NA
TimeFinish	13:29

MSP Occurr. ID & Sample point:	MOLIV_4SYCA002_1
Preserve Name:	Sycamore Canyon And Goodan Ranch Preserves
Management Unit:	4
Land Owner:	California Department Of Fish And Wildlife
Land Manager:	County of San Diego DPR
Are there updates or new sample information? (click yes for more options)	no
Can this survey be shared publicly on sdmmp.com?	yes
Scientific Name - Common Name: (required)	Monardella viminea
Date	6/7/2022
TimeStart	15:40
Surveyors	Adrienne Lee, Karla Alcaraz
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	3
Exact or Estimate for Number in Sampling Area	exact
Uncertainty for Sampling Area	very_low
Sampling Area Radius (meters):	10
Count is clusters or individuals?	clusters
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	5
Category for Percent Flowering in Sampling Area	3
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPSAccuracy	3
GPSAccuracyUnits	ft
PlotX	501046
PlotY	3642552
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	501038
Photo1Y	3642546
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Camera Type	iPhone 11
Photo1Dir	200
Photo1Hei	1.3

MSP Occurr. ID & Sample point:	MOLIV_4SYCA002_1
Photo1Ang	11
Update Photo1 Information?	no
PhotoNumPhoto1	MOLIV_4SYCA002_1_Photo1_06072022
SANDAG 2012 Vegetation Alliance/Association:	Eriogonum fasciculatum Association
Cryptogamic Crust Cover:	1
Thatch Cover: (consider invasive grasses only)	2
Thatch Depth: Ave:	3
Thatch Depth: Max (cm):	7
Dead Standing Biomass?	yes
If Yes, Species:	Salvia apiana, Eriogonum fasciculatum
If Yes, Cover Class:	2
If Yes, Ave. Height (in cm)?	72
Feral Pig Activity	1
Ground Squirrel Activity	1
Gopher Activity	3
Sampling Area Representative of Maximum Extent?	yes
If no, Note Differences:	
Acmispon glaber - deerweed	0.2
Avena barbata - slender oat	1
Brachypodium distachyon - purple false brome	0.2
Bromus diandrus - ripgut brome	4
Bromus hordeaceus - soft brome	0.2
Bromus madritensis - compact brome	1
Centaurea melitensis - Maltese star-thistle	0.2
Cercocarpus minutiflorus - smooth mountain-mahogany	4
Deinandra fasciculata - clustered tarweed	0.2
Eriogonum fasciculatum - California buckwheat	5
Erodium spp. - stork's bill	0.2
Festuca myuros - annual fescue	1
Heteromeles arbutifolia - toyon	1
Hirschfeldia incana - shortpod mustard	0.2
Lonicera subspicata - southern honeysuckle	0.2
Monardella viminea - Willowy monardella	0.2
Prunus ilicifolia - hollyleaf cherry	2
Salvia apiana - white sage	0.2
Silene gallica - common catchfly	0.2
OtherAsSpec	no
Bare Ground (exclude cryptogamic crust layer- see below):	19.6
Cryptogamic Soil Crusts:	0

MSP Occurr. ID & Sample point:	MOLIV_4SYCA002_1
Rock:	57
Litter:	2
Water:	0
Total Live Veg Cover:	21.2
Dead Shrubs:	0.2
Total Cover (should be >= 100%) (Enter values above and click to automatically calculate)	100
Is the maximum extent information already entered?	no
Which survey contains the maximum extent information?	
Number of Plants in the Current Mapped Extent	3
Exact or Estimate for Number in Current Mapped Extent	exact
Uncertainty for Current Mapped Extent	low
Count is clusters or individuals?	clusters
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Area of the Current Mapped Extent (optional if shapefile of extent will be included)	
Units of Area of Current Mapped Extent	
Uncertainty for Area of Current Mapped Extent	very_low
Mapping Method of Current Mapped Extent Polygon	exact
Species found in maximum extent?	yes
Reason not found:	NA
Surrounding Land Use	Conserved open space preserve, open to hiking, mountain biking, equestrian use.
Non-native Forbs	3
Non-native Forbs Description	Centaurea melitensis, Erodium spp., Hirschfeldia incana, Silene gallica
Non-native Grasses	5
Non-native Grasses Description	Avena barbata, Brachypodium distachyon, Bromus spp., Festuca myuros
Non-native Woody Plants	1
Non-native Woody Plants Description	
Competitive Native Plants	3
Competitive Native Plants Description	Eriogonum fasciculata
Dumping/Trash	1
Dumping/Trash Description	
Encampments	1
Encampments Description	
Feral Pig	1
Feral Pig Description	
Trampling	1
Trampling Description	

MSP Occurr. ID & Sample point:	MOLIV_4SYCA002_1
Vandalism	1
Vandalism Description	
Current Grazing	1
Current Grazing Description	
Historic Grazing	unknown
Historic Grazing Description	
Historic Agriculture	unknown
Historic Agriculture Description	
Altered Hydrology	3
Altered Hydrology Description	
Erosion	3
Erosion Description	
Urban Runoff	1
Urban Runoff Description	
Slope Movement	1
Slope Movement Description	
Soil Compaction	1
Soil Compaction Description	
Fuel Mod Zone/Fire Break	1
Fuel Mod Zone/Fire Break Description	
Road Construction/Maintenance	1
Road Construction/Maintenance Description	
Veg Clearing	1
Veg Clearing Description	
Restoration	1
Restoration Description	
ORV/Mtn Bike Activity Disturbance	1
ORV/Mtn Bike Activity Type	
Evidence of Recent Fire	no
If Sign of Recent Fire: Year Burned?	
Threat from trails (category)	3
If Trails are Present, are they Authorized?	both
Hiking	yes
Biking	yes
Equestrian	unknown
Dog	unknown
Service Vehicles	yes
Other	no
Notes on trail use	

MSP Occurr. ID & Sample point:	MOLIV_4SYCA002_1
Other Disturbances?	1
Describe other disturbances:	NA
Management Recommendations	Continued monitoring, treatment of non-native grasses
Management Actions in the past year	Unknown
CNDDDB Incidental sightings	Monardella viminea
Notes	NA
TimeFinish	16:03

Appendix E
**Harbison's Dun Skipper
Representative Photographs,
Field Forms, and Lyons &
Marschalek Report**



E-1 Representative Photographs

Hellhole Canyon County Preserve Harbison's Dun Skipper Representative Photographs



Harbison's dun skipper larval host plant San Diego sedge (*Carex spissa*) observed during adult flight surveys at Hellhole Canyon County Preserve.



Harbison's dun skipper observed basking in the sun with wings opened at Hellhole Canyon County Preserve.



Harbison's dun skipper observed perched on a leaf with wings closed at Hellhole Canyon County Preserve.

E-2 Field Forms

HARBISON'S DUN SKIPPER HABITAT AND THREATS ASSESSMENT MATRIX AT HELLHOLE CANYON COUNTY PRESERVE

Site	Date	Latitude	Longitude	Oaks					Sycamores					Willows				
				% composition	% healthy	% thin canopy	% dead	% fire damage	% composition	% healthy	% thin canopy	% dead	% fire damage	% composition	% healthy	% thin canopy	% dead	% fire damage
Hellhole Canyon County Preserve	5/27/22	33.22105409	-116.932351	10	100	0	0	0	10	100	10	0	0	40	60	20	0	0
Hellhole Canyon County Preserve	5/27/22	33.22580563	-116.9447417	50	75	10	15	0	15	100	0	0	0	25	100	0	0	0

Site	Date	Latitude	Longitude	Cottonwoods					Eucalyptus					Ornamental				
				% composition	% healthy	% thin canopy	% dead	% fire damage	% composition	% healthy	% thin canopy	% dead	% fire damage	% composition	% healthy	% thin canopy	% dead	% fire damage
Hellhole Canyon County Preserve	5/27/22	33.22105409	-116.932351	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hellhole Canyon County Preserve	5/27/22	33.22580563	-116.9447417	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Site	Date	Latitude	Longitude	Royal Empress Tree					Ash					Carex spissa			Water		
				% composition	% healthy	% thin canopy	% dead	% fire damage	% composition	% healthy	% thin canopy	% dead	% fire damage	% all green	% brown tips	% mostly brown	Flowing water	Standing Water	
Hellhole Canyon County Preserve	5/27/22	33.22105409	-116.932351	0	0	0	0	0	0	0	0	0	0	0	50	35	15	N	Y
Hellhole Canyon County Preserve	5/27/22	33.22580563	-116.9447417	0	0	0	0	0	0	0	0	0	0	0	65	20	15	N	Y

Site	Threats													Threats: Non-Native Vegetation															
	Grazing	Dumping/Trash	Encampments	Feral Pig Activity	Illegal Trails	GSOB	KSHB/PSHB	Drought	Climate Change	Human Intrusion	Pesticide	Altered Hydrology	Altered Fire	Typha sp.	Arundo donax	Tamarisk	Pampas Grass	Smilo Grass	Thistle	Tree Tobacco	Mustard	Fennel	Palm Trees	Castor Bean	Fountaingrass	Ice Plant	Horehound	Tocalote	Umbrella Sedge
Hellhole Canyon County Preserve	N	N	N	N	N	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	Y
Hellhole Canyon County Preserve	N	N	N	N	N	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y

NOTES:

Tree Species

% composition: across all tree species, adds up to 100%
 % healthy, % thin canopy, % dead: within a tree species, adds up to 100%
 % fire damage: within a tree species; same tree could be included in other categories

San Diego Sedge

Carex spissa: % of plants that have leaves that are all green; green with brown tips; or all brown; adds up to 100%

Threats

GSOB: gold-spotted oak borer
 KSHB/PSHB: Kuroshio shot hole borer/polyphagous shot hole borer (*Euwallacea* sp.)
 Tamarisk: *Tamarix* sp.
 Pampas grass: *Cortaderia* sp.
 Smilo grass: *Stipa miliacea*
 Thistle: several genera possible
 Tree Tobacco: *Nicotiana glauca*
 Mustard: *Brassica nigra* or *Hirschfeldia incana*
 Fennel: *Foeniculum vulgare*
 Palm Trees: several genera possible
 Castor Bean: *Ricinus communis*
 Fountaingrass: *Pennisetum setaceum*
 Ice Plant: several genera possible
 Horehound: *Marrubium vulgare*
 Tocalote: *Centaurea melitensis*
 Umbrella Sedge: *Cyperus involucratus*

N = No; Y = Yes; U - Unknown

**E-3 2022 Harbison's Dun
Skipper Adult Surveys
Report (Lyons and
Marschalek)**

Hermes Copper Butterfly Surveys and Translocation Efforts

Task 8: 2022 Harbison's Dun Skipper Adult Surveys
SANDAG Contract #: 5005783



Abigail Lyons

and

Daniel Marschalek, PhD (PI)
Department of Biological & Clinical Sciences
University of Central Missouri



29 November 2022

Table of Contents

Table of Contents.....	2
Figures.....	3
Tables.....	3
Executive Summary.....	4
Introduction.....	5
Methods.....	6
Results.....	7
Discussion.....	12
Conclusions.....	14
Acknowledgements.....	14
Literature Cited.....	15
Appendix A: 2022 adult Harbison’s dun skipper observations.....	17

Figures

Figure 1. Harbison's dun skipper distribution in 2022.	8
Figure 2. Valley Fire which occurred in September 2020.	13
Figure 3. Map of the Barrett Lake area that includes two Barrett Lake subsites.	13

Tables

Table 1. Comparison of Harbison's dun skipper annual adult population sizes.	9
Table 2. Site totals for 2022 surveys.	10
Table 3. Proportion of male and female adult skippers captured and recaptured at each site.	10
Table 4. Adult Harbison's dun skipper recaptures. The total time from the first capture to the subsequent captures is the minimum known lifespan.	11

Executive Summary

This report summarizes our butterfly survey efforts of 2022. Additional analysis of habitat and vegetation data for this project/task are planned for 2023.

The Harbison's dun skipper (*Euphyes vestris harbisoni*) has a very restricted distribution in southern California and northern Mexico and entomologists have expressed concern that threats will lead to the extirpation of populations. The larvae of this skipper feed only on San Diego sedge (*Carex spissa*) and are generally associated with riparian oak woodlands.

In 2021, surveys for Harbison's dun skipper adults were conducted to assess year to year variation in population size and update the status of each local population/site. Surveys focused on the relatively small geographic area where skippers were observed in past years. In 2013-2017, 14 sites had confirmed observations of Harbison's dun skipper adults. All but one of these sites were surveyed in 2021, with Harbison's dun skipper adults observed at only six sites. Population sizes at those six sites were similar to the smallest population sizes recorded during the 2013-2017 surveys.

Based on these surveys in 2021, a subset of sites was selected to perform a mark-recapture study and more accurately estimate population sites. Selected sites included Barrett Lake, Skye Valley, Hollenbeck Canyon Wildlife Area, and Beaver Hollow (San Diego National Wildlife Refuge). Not surprisingly, the number of marked individuals demonstrated larger populations compared to the daily maximum count, but the number of adults were still low. Only a limited number of individuals were recaptured, limiting our ability to accurately estimate population sizes. Additionally, habitat sampling was conducted at several sites during the 2022 flight season. These data, as well as GIS derived data, will be analyzed in 2023.

Overall, transect counts (visual observations) continue to describe small populations when skippers are present. However, the large size and uneven terrain of some riparian oak woodlands, patchy distribution of adult skippers, and shifting locations of San Diego sedge present challenges to accurately categorizing presence/absence and relative population sizes.

Introduction

The Harbison's dun skipper (*Euphyes vestris harbisoni*) is restricted to southern Orange County, extreme western Riverside County, and San Diego County (Brown and McGuire 1983, Marschalek et al. 2019), with one record from Mexico (Marschalek et al. 2019). Entomologists have expressed concern that the skipper is rare and may be negatively impacted by habitat loss and degradation (Brown 1991, Glassberg 2001). In 1989, the United States Fish and Wildlife Service (USFWS) issued a notice of review, on which Harbison's dun skipper was listed as a Category 2 species (USFWS 1989).

Prior to our initial efforts in 2013, nearly all of the known information about this skipper was restricted to descriptions in two published papers (Brown 1982, Brown and McGuire 1983). These papers identified this subspecies as morphologically different from the other subspecies, and described its biology (life history and nectaring sources) and distribution. The larvae of this skipper feed only on San Diego sedge (*Carex spissa*) and are generally associated with oak woodlands. The known distribution of the skipper at that time included southern Orange County and San Diego County, with the skipper present in nearly all areas containing considerable numbers of the sedge. Brown and McGuire (1983) also mentioned that the skipper appears to be facing several threats related to urbanization and development. They recorded a local extirpation at Adobe Falls in San Diego due to development, pollution, and subsequent invasion of the riparian area by non-native plants.

Further information about the skipper was obtained by conducting surveys as part of a project funded by a CDFW Local Assistance Grant (Marschalek and Deutschman 2015) and a previous SANDAG contract (Marschalek and Deutschman 2016, 2017a,b). Based on these surveys for larvae and adults in 2013-2017, the current Harbison's dun skipper distribution includes the foothills in the northern and southern parts of San Diego County, extreme western Riverside County, and southern Orange County (Marschalek et al. 2019). In San Diego County, there appears to be a substantial gap near Poway due to local extirpations likely resulting from wildfires. It is unclear whether the skipper currently occupies Silverado Canyon, its northernmost location, following the 1987 Silverado Fire. Extirpation from Silverado Canyon would represent a substantial range contraction based on historic localities. To the south, the Harbison's dun skipper has been documented in northern Baja California, Mexico. There are a number of threats to the Harbison's dun skipper, including recent extirpations further reducing its distribution, habitat alteration/loss, wildfires, drought, climate change, grazing, and habitat degradation associated with the spread of the goldspotted oak borer (*Agrilus auroguttatus*).

Following surveys in 2021, the status of local populations in San Diego County was updated. Although the previous year (2020-2021 winter) had been relatively dry, there were a couple winters (2018-2019, 2019-2020) that experienced greater precipitation compared to the

extreme drought in 2015-2017 (Williams et al. 2020). The increased precipitation could have provided the opportunity for the skipper to increase population sizes and expand to new areas since the 2017 surveys. Adult Harbison's dun skippers were detected at 6 of 12 sites with weekly surveys, and Recon Environmental, Inc. provided additional observations from three areas on the north side of Otay Mountain. Substantial changes to the specific locations of the sedge at some sites was unexpected and provided challenges with locating skippers, and recent fires likely caused extirpations at other sites.

The objective of surveys in 2022 was to further update the status of populations in San Diego County, as well as utilize a mark-recapture study to more accurately estimate population sizes. Vegetation sampling was also conducted at a number of sites to quantify habitat preferences, and several GIS environmental data layers will be utilized to compare areas of the habitat utilized by adult skippers. This report summarizes data associated with adult skipper surveys, while habitat and vegetation data analysis will be completed in 2023.

Methods

We conducted surveys for Harbison's dun skipper adults at sites where we had previously detected adults (Marschalek et al. 2019). Visual surveys consisted of systematic searches around San Diego sedge patches conducted during periods of appropriate weather (sunny or partly sunny, 24° to 35°C, and modest wind speeds). If skippers were not detected in the immediate area of past observations, a wider area was searched. These surveys provide an index of population size and describe the adult flight season phenology, behavior, and nectar sources.

Based on the results of the 2021 surveys, Barrett Lake, Skye Valley Road, Hollenbeck Canyon Wildlife Area, and Beaver Hollow (San Diego National Wildlife Refuge) were selected as the subset sites for the mark recapture survey. After an initial visual assessment and count of adult skippers, any visible adult skippers were captured and uniquely marked with a felt tip marker, and subsequently released. The proportion of recaptured individuals allowed for the calculation of population estimates following the Jolly-Seber Method. The low sample size (both number of individuals marked and resighted) precluded the use of Program MARK and associated analyses.

Assessment of the Harbison's dun skipper habitat occurred during the 2022 flight season, with data obtained through field measurements and GIS environmental data. Analysis will occur in 2023.

Results

We were able to detect Harbison's dun skipper adults at 7 of 10 sites with weekly surveys (Figure 1, Table 1). Skippers were not detected at Pamo Valley and the habitat appeared very dry, although *Carex spissa* was detected. A single survey at Elfin Survey and Sycuan Peak did not detect skippers, although small amounts of *Carex spissa* were detected at both sites. A large patch of *Carex spissa* that was observed at Sycuan Peak in 2017 was not present in 2021 and 2022 (just a few small sedge plants). Skippers were detected at Skye Valley Road in 2022, which burned in the Valley Fire during September 2020 and had no observations during 2021 surveys, demonstrating a recolonization. The maximum count for sites not included in a marking study was two individuals.

Initial visual surveys conducted immediately prior to capturing/marketing activities indicated similar numbers of adults as in 2021, with Barrett Lake having the highest maximum visual observation of five skipper (Table 1). Capturing and marking adult skippers provides a minimum population size, with Barrett Lake again having the highest number of individuals captured (Table 2).

A total of 63 adults were marked across the six sites, with 32 marked at Barrett Lake. A total of nine skippers were recaptured, with recaptures only occurring at Barrett Lake and Beaver Hollow. The Jolly-Seber population size estimate for Barrett Lake was 36, and 10 at Beaver Hollow. Due to the low recapture rates, estimates were only possible for these two sites. Adult male skippers were caught and recaptured in a higher proportion to females across all sites (Table 3). Of the nine recaptures, six were recaptured once, and three were recaptured for a third time. The average known minimum lifespan (day first captured to day last seen) for recaptured adult skippers was 7.3 days (Table 4).

Vegetation sampling was completed; however, analysis still needs to be performed. Anecdotally, there appeared to be fewer substantial changes to the specific sedge locations from 2021 to 2022 than there were observed from 2017 to 2021. Both the Skye Valley Road and northern Barrett Lake sites, which burned during the Valley Fire in 2020, showed more vegetation growth in 2022 compared to 2021. Very few adult Harbison's dun skippers were observed nectaring, but those that were observed were on California buckwheat (*Eriogonum fasciculatum*).

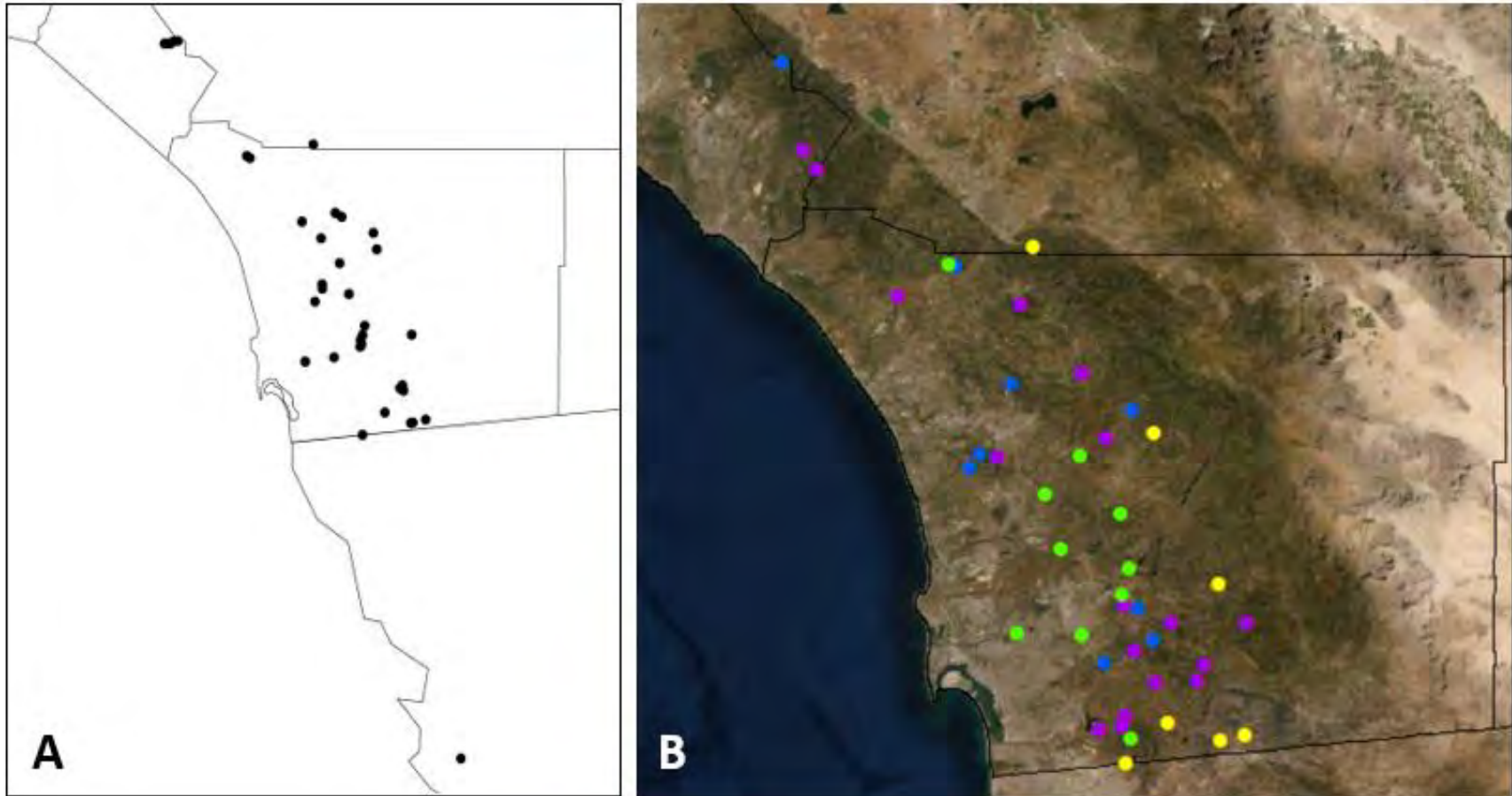


Figure 1. Harbison's dun skipper distribution in 2022. A: Map shows all known locations regardless of current status. B: Map of all known locations in the United States with the most recent status (purple = extant, blue = probably extant but uncertainty exists, green = extirpated, yellow = not surveyed).

Table 1. Comparison of Harbison’s dun skipper annual adult population sizes. Counts in bold represent maximum daily count for weekly surveys while counts not bolded are the highest count among two to three surveys during the flight season (one survey at SDNWR-Las Montanas (South) in 2013, one survey at San Pasqual Academy in 2021, one survey at Elfin Forest and Sycuan Peak Ecological Reserve in 2022).

Location	2013	2014	2016	2017	2021	2022
Barrett Lake	6-8	4	11	1	3	5
Boden Canyon Ecological Reserve	5-6	1	1	1	0	-
Blue Sky Ecological Reserve	0	0	-	-	-	-
Calavera Nature Preserve	0	-	-	-	-	-
Camp Pendleton	-	-	0 (1 pupa)	-	-	-
Carlsbad Highlands Ecol. Reserve	0	-	-	-	-	-
Crestridge Ecological Reserve	1	0	0	0	2	3
Daley Ranch	1	2	4	-	0	-
El Capitan (west of reservoir)	0	-	-	-	-	-
Elfin Forest	-	-	1	-	0	0
Hellhole Canyon County Park	4	1	1	0	2	2
Hollenbeck Canyon Wildlife Area	6-10	5-6	2	3-4	2	2
Lake Hodges	5-6	4	15-20	-	4	2
Loveland Reservoir	8	4-5 or 3-6	3	2	-	-
Pamo Valley (CNF)	1-2	2-3	0	2	2	0
Red Mountain	1	-	0	-	0	-
SDNWR- Beaver Hollow	-	-	-	-	-	2
SDNWR- Las Montanas (South)	2	1	0	-	0	-
San Pasqual Academy	0-1	-	0	-	0	-
Skye Valley Road	2	2	15-17	1	0	1
Sycamore Canyon County Park	0	0	-	-	-	-
Sycuan Peak Ecological Reserve	5-6	2	8-12	-	0	0

Table 2. Site totals for 2022 surveys. The Pollard Index represents the total number of adult skippers observed at the site; maximum count is the minimum population at the site (highest daily count); Jolly-Seber estimates were only calculated for those sites with recaptures.

Metric	Barrett Lake	HCWA	Beaver Hollow	Skye Valley	Crestridge	Lake Hodges	Hellhole Canyon
Peak Abundance	1-Jun-22	6-Jun-22	10-Jun-22	6-Jun-22	3-Jun-22	7-Jun-22	18-Jun-22
Pollard Index	44	10	15	6	13	6	2
Max Count	8	3	4	2	5	3	2
Total Marked	32	8	10	4	7	2	-
Jolly-Seber Estimate	36	-	10	-	-	-	-
Recapture Rate	0.22	0	0.2	0	0	0	-

Table 3. Proportion of male and female adult skippers captured and recaptured at each site.

Site	Males	Females	Total	Males Recaptured	Females Recaptured	Total Recaptured	Male Recapture Rate	Female Recapture Rate	Total Recapture Rate
Barrett Lake	26	6	32	6	1	7	0.23	0.17	0.22
Beaver Hollow	9	1	10	2	0	2	0.22	0	0.20
HCWA	6	2	8	-	-	-	-	-	-
Skye Valley	4	0	4	-	-	-	-	-	-
Crestridge	6	1	7	-	-	-	-	-	-
Lake Hodges	2	0	2	-	-	-	-	-	-
Total	53	10	63	-	-	-	-	-	-

Table 4. Adult Harbison’s dun skipper recaptures. The total time from the first capture to the subsequent captures is the minimum known lifespan.

Skipper ID	First Capture	Second Capture	Third Capture	lifespan (min)
3	31-May-22	3-Jun-22	-	4
10	1-Jun-22	10-Jun-22	-	10
16	3-Jun-22	9-Jun-22	-	7
18	3-Jun-22	10-Jun-22	-	7
26	6-Jun-22	10-Jun-22	-	5
35	8-Jun-22	15-Jun-22	17-Jun-22	10
42	9-Jun-22	10-Jun-22	-	2
43	10-Jun-22	17-Jun-22	20-Jun-22	11
48	13-Jun-22	20-Jun-22	22-Jun-22	10
			Average	7.33

Discussion

Historically, local population sizes of the Harbison's dun skipper have been small (Brown and McGuire 1983, Marschalek et al. 2019). We found that the populations were smaller in 2021 and continued to stay small in 2022 based on visual counts. A marking study yielded a higher minimum population size based on the number of captured individuals on a daily and annual basis. Although the number of marked individuals were small, the Jolly-Seber population estimates indicate that more skippers are present than were observed during surveys. We continue to see minor changes to the distribution of San Diego Sedge within riparian oak woodlands, as well as minor changes to the upland habitat. Because some of these riparian oak woodlands are quite large/long, we were unable to search the entire area to determine if adult skippers were congregating in a location different than in 2017. Relatively small changes in the habitat were observed in 2017 (Marschalek and Deutschman 2017b) but was more related to upland vegetation rather than the precise location of the sedge. Due to these changes within and adjacent to riparian oak woodlands the full woodland and adjacent uplands should represent a single management unit.

An observation that is promising for the long-term persistence of the skipper is that adults were found in an area that burned one to two years prior to the sightings. The northern subsite at Barrett Lake and the Skye Valley Road site were occupied in the past (Marschalek and Deutschman 2016) and burned in September 2020 (Figure 2). The northern Barrett Lake site was occupied in 2021 and has apparent connectivity with a drainage to the south that did not burn and is occupied (Figure 3). No skippers were observed at Skye Valley Road in 2021, but a small population was found in 2022.



Figure 2. Valley Fire which occurred in September 2020. A) Southern portion of the Valley Fire near Barrett Lake, B) Barrett Lake northern subsite in June 2021 looking north, C) Barrett Lake northern subsite in June 2022 looking North.



Figure 3. Map of the Barrett Lake area that includes two Barrett Lake subsites. The northern subsite burned in September 2020 and Harbison’s dun skippers were present in June 2021. The southern subsite did not burn.

Conclusions

We continue to see small, isolated populations of Harbison's dun skipper at historic locations in San Diego County. While the marking study did yield higher numbers of adults than visual surveys, the small numbers continued to create issues for making accurate population estimates. Many of the recaptured skippers were observed in close proximity to the original capture location and there was no movement observed among sites.

Most of our work has focused on surveying specific locations where skippers were observed in the past, so these findings do not necessarily represent the entire woodland (habitat patch). These woodlands can range from about 100 meters to several kilometers in length. While time consuming, it would be informative to completely and thoroughly survey entire riparian oak woodlands and the upland habitat to determine all areas used by the adult skippers. The dynamic nature and composition (poison oak and uneven terrain) of the riparian woodlands results in needing more effort to detect adult Harbison's dun skippers compared to other San Diego butterflies. For example, Hermes copper (*Lycaena hermes*) and Quino checkerspot (*Euphydryas editha quino*) are relatively consistently found on the same roads/trails or hilltops, respectively.

Like other butterflies in southern California, population sizes of the Harbison's dun skipper are declining. Studies across the western United States (Forister et al. 2021) and much of North America (Crossley et al. 2021) have found that most butterflies, including both specialist species and relatively common species, have declined over the last several decades. Both studies contributed these trends to increased temperatures and decreased precipitation, resulting in about a 1.6% annual decline (Forister et al. 2021). The western United States has experienced a megadrought over the last two decades, being the second driest 19-year period since 800 CE (Williams et al. 2020). These geographically widespread conditions extending over several decades pose substantial challenges for conservation. For a species that only feeds on a plant that requires more soil moisture than most other plant species, the predicted dry conditions through the end of the century (Global Climate Change Impacts in the United States 2009) will continue to threaten the long-term viability of the Harbison's dun skipper.

Acknowledgements

We would like to thank many people for assistance with this project, including sharing their knowledge of the Harbison's dun skipper, San Diego sedge, permits, and access to reserves. These include, but are not limited to (alphabetically): Bill Bretz, California Department of Fish & Wildlife, City of Chula Vista, City of San Diego, Cleveland National Forest, County of San Diego, Endangered Habitats League, Recon Environmental Inc., Sweetwater Authority, and Escondido

Creek Conservancy, United States Fish and Wildlife Service. Also, much appreciation to David Faulkner and Haakon Hoyer-Neilson for assistance conducting butterfly surveys.

Literature Cited

- Brown, J.W. 1982. Only where the *Carex* grows. *Environment Southwest*. 498:22.
- Brown, J.W. 1991. Sensitive and declining butterfly species (Insecta: Lepidoptera) in San Diego County, California. Draft report prepared for Dudek and Associates. 27 pp.
- Brown, J.W. and W.W. McGuire. 1983. A new subspecies of *Euphyes vestris* (Boisduval) from southern California (Lepidoptera: Hesperiiidae). *Transactions of the San Diego Society of Natural History*. 20:57-68.
- Crossley, M.S, O.M. Smith, L.L. Berry, R. Philips-Cosio, J. Glassberg, K.M. Holman, J.G. Holmquest, A.R. Meier, S.A. Varriano, M.R. McClung, M.D. Moran and W.E. Snyder. 2021. Recent climate change is creating hotspots of butterfly increase and decline across North America. *Global Change Biology*. 27:2702-2714.
- Glassberg, J. 2001. *Butterflies Through Binoculars: The West*. Oxford University Press, New York. 374 pages.
- Global Climate Change Impacts in the United States, Thomas R. Karl, Jerry M. Melillo, and Thomas C. Peterson, (eds.). Cambridge University Press, 2009. Accessed from: <https://nca2009.globalchange.gov/projected-change-north-american-precipitation-2080-2099/index.html>
- Forister M.L., C.A. Halsch, C.C. Nice, J.A. Fordyce, T.E. Dilts, J.C. Oliver, K.L. Prudic, A.M. Shapiro, J.K. Wilson and J. Glassberg. 2021. Fewer butterflies seen by community scientists across the warming and drying landscapes of the American West. *Science*. 371:1042-1045.
- Marschalek, D.A. and D.H. Deutschman. 2015. Initial investigation of critical biological uncertainties for Harbison's dun skipper (*Euphyes vestris harbisoni*) on conserved lands in San Diego County. California Department of Fish & Wildlife Final Report. 23 pp. + app.
- Marschalek, D.A. and D.H. Deutschman. 2016. Rare butterfly management and conservation planning: Harbison's dun skipper flight season surveys. Final Report for San Diego Association of Governments. 23 pp.
- Marschalek, D.A. and D.H. Deutschman. 2017a. Rare butterfly management and conservation planning: Harbison's dun skipper host plant, larval, and hibernaculum surveys. Final Report for San Diego Association of Governments. 14 pp.
- Marschalek, D.A. and D.H. Deutschman. 2017b. Rare butterfly monitoring and translocation: 2017 Harbison's dun skipper flight season surveys. Final Report for San Diego Association of Governments. 11 pp.

- Marschalek, D.A., D.K. Faulkner and D.H. Deutschman. 2019. Ecology of the threatened Harbison's dun skipper (*Euphyes vestris harbisoni*) for conservation efforts within a habitat conservation plan. *Journal of Insect Conservation*. 23:331-339.
- United States Fish and Wildlife Service. 1989. Endangered and threatened wildlife and plants; Animal notice review. *Federal Register* 50 CFR 17. 54:554-579.
- Williams, A.P, E.R. Cook, J.E. Smerdon, B.I. Cook, J.T. Abatzoglou, K. Bolles, S.H. Baek, A.M. Badger and B. Livneh. 2020. Large contribution from anthropogenic warming to an emerging North American megadrought. *Science*. 368:314-318.

Appendix A: 2022 adult Harbison's dun skipper observations

Date	Site	Latitude	Longitude
1-Jun-22	Beaver Hollow	32.750104	-116.836725
1-Jun-22	Barrett Lake (N)	32.712724	-116.702341
1-Jun-22	Barrett Lake (N)	32.712688	-116.702299
1-Jun-22	Barrett Lake (N)	32.712633	-116.702287
1-Jun-22	Barrett Lake (N)	32.712635	-116.702281
1-Jun-22	Barrett Lake (N)	32.712733	-116.702335
1-Jun-22	Barrett Lake (N)	32.713137	-116.702548
2-Jun-22	Crestridge	32.826282	-116.860501
2-Jun-22	Crestridge	32.826411	-116.860461
3-Jun-22	Barrett Lake (N)	32.713043	-116.70257
3-Jun-22	Barrett Lake (N)	32.71313	-116.702553
3-Jun-22	Barrett Lake (N)	32.713162	-116.702542
3-Jun-22	Barrett Lake (N)	32.712955	-116.702591
3-Jun-22	Barrett Lake (N)	32.712665	-116.702303
3-Jun-22	Beaver Hollow	32.750091	-116.836708
3-Jun-22	Beaver Hollow	32.750106	-116.836731
3-Jun-22	Crestridge	32.826307	-116.860517
3-Jun-22	Crestridge	32.826277	-116.860507
3-Jun-22	Crestridge	32.826478	-116.86038
6-Jun-22	Barrett Lake (N)	32.712722	-116.702329
6-Jun-22	Barrett Lake (N)	32.712729	-116.702324
6-Jun-22	Barrett Lake (N)	32.712893	-116.702545
6-Jun-22	Barrett Lake (N)	32.713008	-116.70259
6-Jun-22	Barrett Lake (N)	32.71313	-116.702556
6-Jun-22	Skye Valley	32.726581	-116.693959
6-Jun-22	Skye Valley	32.726476	-116.693738
6-Jun-22	HCWA1	32.694537	-116.793576
6-Jun-22	HCWA1	32.694518	-116.793587
7-Jun-22	Lake Hodges	33.082924	-117.113773
7-Jun-22	Lake Hodges	33.082851	-117.113985
8-Jun-22	HCWA1	32.694575	-116.793781
8-Jun-22	HCWA1	32.694585	-116.793779
8-Jun-22	Beaver Hollow	32.750094	-116.836725
8-Jun-22	Beaver Hollow	32.750133	-116.836189
8-Jun-22	Beaver Hollow	32.750102	-116.83673
8-Jun-22	Skye Valley	32.726573	-116.69397
8-Jun-22	Barrett Lake (N)	32.712734	-116.702319
8-Jun-22	Barrett Lake (N)	32.713118	-116.702554
9-Jun-22	Barrett Lake (N)	32.713131	-116.702551
9-Jun-22	Barrett Lake (N)	32.712978	-116.702587
9-Jun-22	Barrett Lake (N)	32.713166	-116.702585

Date	Site	Latitude	Longitude
10-Jun-22	Barrett Lake (N)	32.712657	-116.702275
10-Jun-22	Barrett Lake (N)	32.713116	-116.702562
10-Jun-22	Barrett Lake (N)	32.712812	-116.702469
10-Jun-22	Barrett Lake (N)	32.712977	-116.702586
10-Jun-22	Skye Valley	32.726533	-116.693869
10-Jun-22	Beaver Hollow	32.750723	-116.839059
10-Jun-22	Beaver Hollow	32.750711	-116.839048
10-Jun-22	Beaver Hollow	32.750796	-116.838994
13-Jun-22	Barrett Lake (N)	32.713027	-116.702633
13-Jun-22	Barrett Lake (N)	32.713127	-116.702544
13-Jun-22	Skye Valley	32.726601	-116.693984
13-Jun-22	HCWA1	32.694532	-116.793731
14-Jun-22	Lake Hodges	33.082912	-117.113926
15-Jun-22	HCWA1	32.694467	-116.793692
15-Jun-22	Beaver Hollow	32.7501	-116.836719
15-Jun-22	Beaver Hollow	32.750153	-116.83623
15-Jun-22	Barrett Lake (N)	32.712711	-116.702319
15-Jun-22	Barrett Lake (S)	32.696815	-116.703658
16-Jun-22	Crestridge	32.828545	-116.859016
16-Jun-22	Crestridge	32.826371	-116.860503
17-Jun-22	Barrett Lake (N)	32.713154	-116.702568
17-Jun-22	Barrett Lake (N)	32.712991	-116.702493
17-Jun-22	HCWA1	32.694569	-116.793715
17-Jun-22	Beaver Hollow	32.750118	-116.836715
18-Jun-22	Hellhole Canyon	33.221474	-116.933144
18-Jun-22	Hellhole Canyon	33.221241	-116.932936
20-Jun-22	Barrett Lake (N)	32.713116	-116.702561
20-Jun-22	Barrett Lake (N)	32.712992	-116.7026
20-Jun-22	Barrett Lake (N)	32.712959	-116.702598
22-Jun-22	Barrett Lake (N)	32.713135	-116.702568
22-Jun-22	Barrett Lake (N)	32.713077	-116.702571
22-Jun-22	HCWA1	32.694535	-116.79369
24-Jun-22	Barrett Lake (N)	32.713133	-116.702355
24-Jun-22	Beaver Hollow	32.750667	-116.839028
26-May-22	Barrett Lake (N)	32.7129	-116.70255
26-May-22	Barrett Lake (N)	32.712932	-116.702555
26-May-22	Barrett Lake (N)	32.713122	-116.702564
26-May-22	Barrett Lake (N)	32.713147	-116.702549
26-May-22	HCWA1	32.694558	-116.793716
27-May-22	Barrett Lake (N)	32.713159	-116.702505
27-May-22	Barrett Lake (N)	32.712867	-116.702476
30-May-22	Crestridge	32.826279	-116.860512

Date	Site	Latitude	Longitude
30-May-22	Crestridge	32.826287	-116.860529
30-May-22	Crestridge	32.826287	-116.860511
30-May-22	Lake Hodges	33.083059	-117.11376
30-May-22	Lake Hodges	33.083057	-117.11374
31-May-22	Barrett Lake (N)	32.713143	-116.702559
31-May-22	Barrett Lake (N)	32.712925	-116.702588
31-May-22	Barrett Lake (N)	32.712703	-116.702343

Appendix F

Burrowing Owl Field Forms



F-1 Fulcrum Field Forms

TMP Monitoring, BUOW

Created	2022-03-23 13:27:45 UTC by SC Fulcrum03
Updated	2022-05-26 13:28:10 UTC by SC Fulcrum03
Location	33.033858211934884, -116.95006518862466

Parent Form

Project Name:	TMP Monitoring, BUOW
Preserve/Park Name	Ramona Grasslands
General Survey Type	TMP Monitoring
Specific Survey Type	BUOW Protocol
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Rachel Le, Jack Quinzon
Date:	2022-03-23

START Weather Details:

Start - Time:	06:27
Wind Direction	NA
Air Temp Current (F)	48
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	0
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	12:46
End - Temperature:	80
End - Wind Direction From (select one):	NE
End - Low Wind Speed:	5
End - High Wind Speed:	15
End - Average Wind Speed:	10
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
Project Location (description):	Parcels 2,3,4
Observation Type:	Bird, Mammal, Reptile, Butterfly/Moth

Bird

Wrentit; *Chamaea fasciata*; WREN, no

Bird (Common or Scientific Name):	Wrentit; <i>Chamaea fasciata</i> ; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Spotted Towhee; *Pipilo maculatus*; SPTO, no

Bird (Common or Scientific Name):	Spotted Towhee; <i>Pipilo maculatus</i> ; SPTO
-----------------------------------	--

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

House Finch; *Haemorhous mexicanus*; HOFI, no

Bird (Common or Scientific Name):	House Finch; <i>Haemorhous mexicanus</i> ; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Savannah Sparrow; *Passerculus sandwichensis*; SAVS, no

Bird (Common or Scientific Name):	Savannah Sparrow; <i>Passerculus sandwichensis</i> ; SAVS
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Western Meadowlark; *Sturnella neglecta*; WEME, no

Bird (Common or Scientific Name):	Western Meadowlark; <i>Sturnella neglecta</i> ; WEME
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Oak Titmouse; *Baeolophus inornatus*; OATI, no

Bird (Common or Scientific Name):	Oak Titmouse; <i>Baeolophus inornatus</i> ; OATI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Crow; *Corvus brachyrhynchos*; AMCR, no

Bird (Common or Scientific Name):	American Crow; <i>Corvus brachyrhynchos</i> ; AMCR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Red-shouldered Hawk; *Buteo lineatus*; RSHA, yes

Bird (Common or Scientific Name):	Red-shouldered Hawk; <i>Buteo lineatus</i> ; RSHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown

California Horned Lark; *Eremophila alpestris actia*; HOLA - ssp actia, yes

Bird (Common or Scientific Name):	California Horned Lark; <i>Eremophila alpestris actia</i> ; HOLA - ssp actia
Is the Bird Sensitive ?	yes
Sub-Species Info:	coastal range of CA to n Baja CA

Sensitive Bird Observation

Observation Type:	Both
-------------------	------

Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Grasshopper Sparrow; *Ammodramus savannarum*; GRSP, yes

Bird (Common or Scientific Name):	Grasshopper Sparrow; <i>Ammodramus savannarum</i> ; GRSP
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

California Towhee; *Melospiza crissalis*; CALT, no

Bird (Common or Scientific Name):	California Towhee; <i>Melospiza crissalis</i> ; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Common Raven; *Corvus corax*; CORA, no

Bird (Common or Scientific Name):	Common Raven; <i>Corvus corax</i> ; CORA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

White-crowned Sparrow; *Zonotrichia leucophrys*; WCSP, no

Bird (Common or Scientific Name):	White-crowned Sparrow; <i>Zonotrichia leucophrys</i> ; WCSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Red-tailed Hawk; *Buteo jamaicensis*; RTHA, no

Bird (Common or Scientific Name):	Red-tailed Hawk; <i>Buteo jamaicensis</i> ; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Cooper's Hawk; *Accipiter cooperii*; COHA, yes

Bird (Common or Scientific Name):	Cooper's Hawk; <i>Accipiter cooperii</i> ; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown

Bird Age (check all that apply):	Unknown
Additional Notes:	Flushed out of riparian

Cinnamon Teal; *Spatula cyanoptera*; CITE, no

Bird (Common or Scientific Name):	Cinnamon Teal; <i>Spatula cyanoptera</i> ; CITE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Western Bluebird; *Sialia mexicana*; WEBL, yes

Bird (Common or Scientific Name):	Western Bluebird; <i>Sialia mexicana</i> ; WEBL
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult

Lark Sparrow; *Chondestes grammacus*; LASP, no

Bird (Common or Scientific Name):	Lark Sparrow; <i>Chondestes grammacus</i> ; LASP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Bald Eagle; *Haliaeetus leucocephalus*; BAEA, yes

Bird (Common or Scientific Name):	Bald Eagle; <i>Haliaeetus leucocephalus</i> ; BAEA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	Hunting coots

Northern Shoveler; *Spatula clypeata*; NSHO, no

Bird (Common or Scientific Name):	Northern Shoveler; <i>Spatula clypeata</i> ; NSHO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Coot; *Fulica americana*; AMCO, no

Bird (Common or Scientific Name):	American Coot; <i>Fulica americana</i> ; AMCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Wigeon; *Mareca americana*; AMWI, no

Bird (Common or Scientific Name): American Wigeon; *Mareca americana*; AMWI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Bufflehead; *Bucephala albeola*; BUFF, no

Bird (Common or Scientific Name): Bufflehead; *Bucephala albeola*; BUFF

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Lewis's Woodpecker; *Melanerpes lewis*; LEWO, yes

Bird (Common or Scientific Name): Lewis's Woodpecker; *Melanerpes lewis*; LEWO

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Visual

Number of individuals observed: 1

Behavior (check all that apply): Foraging

Bird Sex (check all that apply): Unknown

Bird Age (check all that apply): Adult

Great-tailed Grackle; *Quiscalus mexicanus*; GTGR, no

Bird (Common or Scientific Name): Great-tailed Grackle; *Quiscalus mexicanus*; GTGR

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Tricolored Blackbird; *Agelaius tricolor*; TRBL, yes

Bird (Common or Scientific Name): Tricolored Blackbird; *Agelaius tricolor*; TRBL

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Additional Notes: Heard singing from pond

California Quail; *Callipepla californica*; CAQU, no

Bird (Common or Scientific Name): California Quail; *Callipepla californica*; CAQU

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Golden Eagle; *Aquila chrysaetos*; GOEA, yes

Bird (Common or Scientific Name): Golden Eagle; *Aquila chrysaetos*; GOEA

Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	Heading towards nest location

White-breasted Nuthatch; *Sitta carolinensis*; WBNU, no

Bird (Common or Scientific Name):	White-breasted Nuthatch; <i>Sitta carolinensis</i> ; WBNU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Kestrel; *Falco sparverius*; AMKE, no

Bird (Common or Scientific Name):	American Kestrel; <i>Falco sparverius</i> ; AMKE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Yellow-rumped Warbler; *Setophaga coronata*; YRWA, no

Bird (Common or Scientific Name):	Yellow-rumped Warbler; <i>Setophaga coronata</i> ; YRWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Lesser Goldfinch; *Spinus psaltria*; LEGO, no

Bird (Common or Scientific Name):	Lesser Goldfinch; <i>Spinus psaltria</i> ; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Butterfly/Moth

Behr's Metalmark; *Apodemia virgulti*

Butterfly/Moth (Common or Scientific Name):	Behr's Metalmark; <i>Apodemia virgulti</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Mammal

Coyote; *Canis latrans*

Mammal (Common or Scientific Name):	Coyote; <i>Canis latrans</i>
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Audubons Cottontail; *Sylvilagus audubonii*

Mammal (Common or Scientific Name):	Audubons Cottontail; <i>Sylvilagus audubonii</i>
Is the Mammal Sensitive ?	no

Sub-Species Info: N/A

California Ground Squirrel; *Ostospermophilus beecheyi*

Mammal (Common or Scientific Name): California Ground Squirrel; *Ostospermophilus beecheyi*

Is the Mammal Sensitive ? no

Sub-Species Info: N/A

Reptile

Western Rattlesnake; *Crotalus oreganus*

Reptile (Common or Scientific Name): Western Rattlesnake; *Crotalus oreganus*

Is the Reptile Sensitive ? no

Sub-Species Info: N/A

Western Fence Lizard; *Sceloporus occidentalis*

Reptile (Common or Scientific Name): Western Fence Lizard; *Sceloporus occidentalis*

Is the Reptile Sensitive ? no

Sub-Species Info: N/A

Granite Spiny Lizard; *Sceloporus orcutti*

Reptile (Common or Scientific Name): Granite Spiny Lizard; *Sceloporus orcutti*

Is the Reptile Sensitive ? no

Sub-Species Info: N/A

Common Side-blotched Lizard; *Uta stansburiana*

Reptile (Common or Scientific Name): Common Side-blotched Lizard; *Uta stansburiana*

Is the Reptile Sensitive ? no

Sub-Species Info: N/A

BUOW Protocol

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: At least 3 suitable burrows around this outcrop

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: A few marginal burrows at this outcrop

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply):

None

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Additional Notes:

Small burrows near rocks

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple small burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Possible coyote

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: In creek bank

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes:

Multiple burrows

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Additional Notes:

Multiple burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple small burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): Whitewash

Additional Notes: Burrow is small, not active despite presence of whitewash

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows including coyote

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Additional Notes:

Multiple burrows

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes:

Multiple burrows

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple widely spaced burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Several in vicinity

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows around rocks

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple widely spaced burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple widely spaced burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple widely spaced burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple widely spaced burrows

Photo(s):



Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple widely spaced burrows

Inactive

Status (select one):	Inactive
----------------------	----------

Sign Observed (check all that apply): None
Additional Notes: Multiple widely spaced burrows

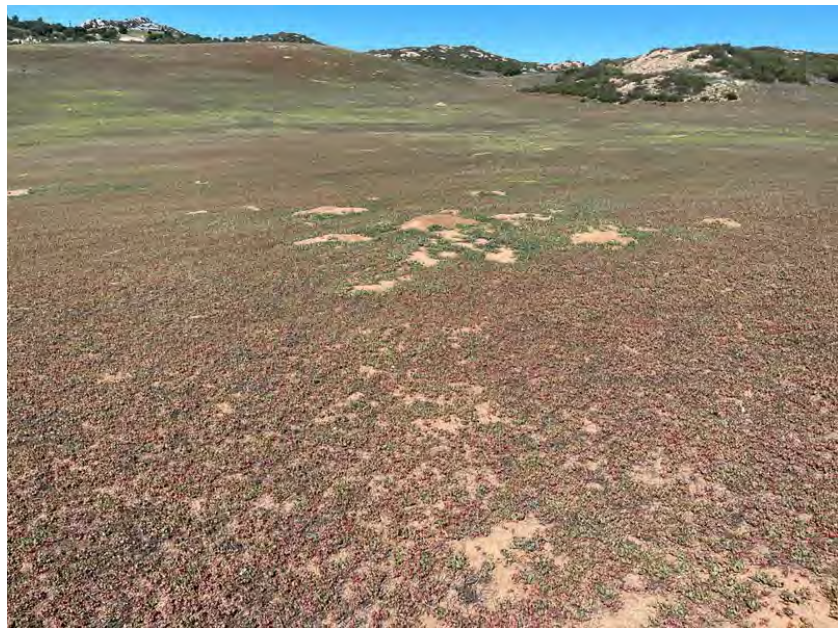
Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple widely spaced burrows

Photo(s):



Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows around boulders

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows

Photo(s):



Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple widely spaced burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple widely spaced burrows

Photo(s):



Inactive

Status (select one):	Inactive
----------------------	----------

Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple widely spaced burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): Whitewash

Additional Notes: Some fur on ground. No definite BUOW sign

Photo(s):



Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple widely spaced burrows

TMP Monitoring, BUOW

Created	2022-03-24 13:39:31 UTC by SC Fulcrum03
Updated	2022-03-25 23:11:24 UTC by SC Fulcrum03
Location	33.0510665, -116.938614167

Parent Form

Project Name:	TMP Monitoring, BUOW
Preserve/Park Name	Ramona Grasslands
General Survey Type	TMP Monitoring
Specific Survey Type	BUOW Protocol
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Mary Cozy, Rachel Le
Date:	2022-03-24

START Weather Details:

Start - Time:	06:39
Wind Direction	NA
Air Temp Current (F)	44
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	0
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	12:39
End - Temperature:	82
End - Wind Direction From (select one):	NE
End - Low Wind Speed:	5
End - High Wind Speed:	8
End - Average Wind Speed:	6
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
Project Location (description):	Parcels 6,1,7,8,9
Notes	Bulls on parcel 6 kept us out of that field.
Observation Type:	Bird, Mammal, Reptile

Bird

Western Meadowlark; *Sturnella neglecta*; WEME, no

Bird (Common or Scientific Name):	Western Meadowlark; <i>Sturnella neglecta</i> ; WEME
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Common Raven; *Corvus corax*; CORA, no

Bird (Common or Scientific Name): Common Raven; *Corvus corax*; CORA

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Mourning Dove; *Zenaida macroura*; MODO, no

Bird (Common or Scientific Name): Mourning Dove; *Zenaida macroura*; MODO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Killdeer; *Charadrius vociferus*; KILL, no

Bird (Common or Scientific Name): Killdeer; *Charadrius vociferus*; KILL

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Black-necked Stilt; *Himantopus mexicanus*; BNST, no

Bird (Common or Scientific Name): Black-necked Stilt; *Himantopus mexicanus*; BNST

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Long-billed Dowitcher; *Limnodromus scolopaceus*; LBDO, no

Bird (Common or Scientific Name): Long-billed Dowitcher; *Limnodromus scolopaceus*; LBDO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Northern Pintail; *Anas acuta*; NOPI, no

Bird (Common or Scientific Name): Northern Pintail; *Anas acuta*; NOPI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

American Wigeon; *Mareca americana*; AMWI, no

Bird (Common or Scientific Name): American Wigeon; *Mareca americana*; AMWI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Green-winged Teal; *Anas crecca*; GWTE, no

Bird (Common or Scientific Name): Green-winged Teal; *Anas crecca*; GWTE

Is the Bird Sensitive ? no

Sub-Species Info: N/A

American Pipit; *Anthus rubescens*; AMPI, no

Bird (Common or Scientific Name): American Pipit; *Anthus rubescens*; AMPI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Gadwall; *Mareca strepera*; GADW, yes

Bird (Common or Scientific Name): Gadwall; *Mareca strepera*; GADW

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Unknown

Bird Age (check all that apply): Adult

Mallard; *Anas platyrhynchos*; MALL, no

Bird (Common or Scientific Name): Mallard; *Anas platyrhynchos*; MALL

Is the Bird Sensitive? no

Sub-Species Info: N/A

Bufflehead; *Bucephala albeola*; BUFF, no

Bird (Common or Scientific Name): Bufflehead; *Bucephala albeola*; BUFF

Is the Bird Sensitive? no

Sub-Species Info: N/A

Ruddy Duck; *Oxyura jamaicensis*; RUDU, no

Bird (Common or Scientific Name): Ruddy Duck; *Oxyura jamaicensis*; RUDU

Is the Bird Sensitive? no

Sub-Species Info: N/A

European Starling; *Sturnus vulgaris*; EUST, no

Bird (Common or Scientific Name): European Starling; *Sturnus vulgaris*; EUST

Is the Bird Sensitive? no

Sub-Species Info: N/A

California Horned Lark; *Eremophila alpestris actia*; HOLA - ssp actia, yes

Bird (Common or Scientific Name): California Horned Lark; *Eremophila alpestris actia*; HOLA - ssp actia

Is the Bird Sensitive? yes

Sub-Species Info: coastal range of CA to n Baja CA

Sensitive Bird Observation

Observation Type: Visual

Number of individuals observed: 2

Behavior (check all that apply): Foraging

Bird Sex (check all that apply): Male, Female

Bird Age (check all that apply): Adult

Northern Mockingbird; *Mimus polyglottos*; NOMO, no

Bird (Common or Scientific Name): Northern Mockingbird; *Mimus polyglottos*; NOMO

Is the Bird Sensitive? no

Sub-Species Info: N/A

White-crowned Sparrow; *Zonotrichia leucophrys*; WCSP, no

Bird (Common or Scientific Name):	White-crowned Sparrow; Zonotrichia leucophrys; WCSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Golden Eagle; Aquila chrysaetos; GOEA, yes

Bird (Common or Scientific Name):	Golden Eagle; Aquila chrysaetos; GOEA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Bell's Sage Sparrow; Amphisipiza belli belli; BESP - Bell's, yes

Bird (Common or Scientific Name):	Bell's Sage Sparrow; Amphisipiza belli belli; BESP - Bell's
Is the Bird Sensitive ?	yes
Sub-Species Info:	Found in CA, Baja CA, SW Nevada, and western Arizona

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Brewer's Sparrow; Spizella breweri; BRSP, no

Bird (Common or Scientific Name):	Brewer's Sparrow; Spizella breweri; BRSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1

Vermilion Flycatcher; Pyrocephalus rubinus; VEFL, yes

Bird (Common or Scientific Name):	Vermilion Flycatcher; Pyrocephalus rubinus; VEFL
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

California Towhee; Melozone crissalis; CALT, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Vesper Sparrow; Poocetes gramineus; VESP, yes

Bird (Common or Scientific Name):	Vesper Sparrow; Poocetes gramineus; VESP
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	2
Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	Wintering

Turkey Vulture; Cathartes aura; TUVU, yes

Bird (Common or Scientific Name):	Turkey Vulture; Cathartes aura; TUVU
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Mammal

California Ground Squirrel; Ostospermophilus beecheyi

Mammal (Common or Scientific Name):	California Ground Squirrel; Ostospermophilus beecheyi
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Coyote; Canis latrans

Mammal (Common or Scientific Name):	Coyote; Canis latrans
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Audubons Cottontail; Sylvilagus audubonii

Mammal (Common or Scientific Name):	Audubons Cottontail; Sylvilagus audubonii
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Reptile

Granite Spiny Lizard; *Sceloporus orcutti*

Reptile (Common or Scientific Name):	Granite Spiny Lizard; <i>Sceloporus orcutti</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

Common Side-blotched Lizard; *Uta stansburiana*

Reptile (Common or Scientific Name):	Common Side-blotched Lizard; <i>Uta stansburiana</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

Western Rattlesnake; *Crotalus oreganus*

Reptile (Common or Scientific Name):	Western Rattlesnake; <i>Crotalus oreganus</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

BUOW Protocol

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Photo(s):



Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply):

None

Additional Notes:

Multiple crevices

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Photo(s):



Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple burrows

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple burrows

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple widely spaced burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Photo(s):



Inactive

Status (select one):	Inactive
----------------------	----------

Sign Observed (check all that apply):

None

Additional Notes:

Multiple burrows

Photo(s):



Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Inactive

Status (select one):

Inactive

Sign Observed (check all that apply):

None

Additional Notes:

Multiple burrows

Photo(s):



Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple burrows

Photo(s):



Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple burrows

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple burrows

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple burrows

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple widely spaced burrows

Photo(s):



Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple widely spaced burrows on hill

Photo(s):



Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple widely spaced burrows on hill

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple widely spaced burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Additional Notes: Multiple burrows

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple widely spaced burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

TMP Monitoring, BUOW

Created	2022-04-21 13:25:31 UTC by SC Fulcrum03
Updated	2022-04-21 19:14:14 UTC by SC Fulcrum03
Location	33.03326597440339, -116.94646392959817

Parent Form

Project Name:	TMP Monitoring, BUOW
Preserve/Park Name	Ramona Grasslands
General Survey Type	TMP Monitoring
Specific Survey Type	BUOW Protocol
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Rachel Le, Pablo Corcoran
Date:	2022-04-21

START Weather Details:

Start - Time:	06:25
Wind Direction	NA
Air Temp Current (F)	38
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	30
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	12:09
End - Temperature:	69
End - Wind Direction From (select one):	W
End - Low Wind Speed:	1
End - High Wind Speed:	5
End - Average Wind Speed:	3
End - Cloud Cover (%):	0
End - Precipitation (select one):	None

Notes	Parcels 2,3,4,5. No active burrows
Observation Type:	Bird, Mammal, Butterfly/Moth, Reptile

Photos





Bird

Blue Grosbeak; *Passerina caerulea*; BLGR, no

Bird (Common or Scientific Name):	Blue Grosbeak; <i>Passerina caerulea</i> ; BLGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Grasshopper Sparrow; *Ammodramus savannarum*; GRSP, yes

Bird (Common or Scientific Name):	Grasshopper Sparrow; <i>Ammodramus savannarum</i> ; GRSP
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling, Perched (not singing)
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Western Meadowlark; *Sturnella neglecta*; WEME, no

Bird (Common or Scientific Name):	Western Meadowlark; <i>Sturnella neglecta</i> ; WEME
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Grasshopper Sparrow; *Ammodramus savannarum*; GRSP, yes

Bird (Common or Scientific Name):	Grasshopper Sparrow; <i>Ammodramus savannarum</i> ; GRSP
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

American Pipit; *Anthus rubescens*; AMPI, no

Bird (Common or Scientific Name):	American Pipit; <i>Anthus rubescens</i> ; AMPI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

White-crowned Sparrow; *Zonotrichia leucophrys*; WCSP, no

Bird (Common or Scientific Name):	White-crowned Sparrow; <i>Zonotrichia leucophrys</i> ; WCSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Savannah Sparrow; *Passerculus sandwichensis*; SAVS, no

Bird (Common or Scientific Name):	Savannah Sparrow; <i>Passerculus sandwichensis</i> ; SAVS
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Cliff Swallow; *Petrochelidon pyrrhonota*; CLSW, no

Bird (Common or Scientific Name):	Cliff Swallow; <i>Petrochelidon pyrrhonota</i> ; CLSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Violet-green Swallow; *Tachycineta thalassina*; VGSW, no

Bird (Common or Scientific Name):	Violet-green Swallow; <i>Tachycineta thalassina</i> ; VGSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

White-throated Swift; *Aeronautes saxatalis*; WTSW, no

Bird (Common or Scientific Name):	White-throated Swift; <i>Aeronautes saxatalis</i> ; WTSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Ash-throated Flycatcher; *Myiarchus cinerascens*; ATFL, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; <i>Myiarchus cinerascens</i> ; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Oak Titmouse; *Baeolophus inornatus*; OATI, no

Bird (Common or Scientific Name):	Oak Titmouse; <i>Baeolophus inornatus</i> ; OATI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Wigeon; *Mareca americana*; AMWI, no

Bird (Common or Scientific Name):	American Wigeon; Mareca americana; AMWI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Barn Swallow; Hirundo rustica; BARS, no

Bird (Common or Scientific Name):	Barn Swallow; Hirundo rustica; BARS
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Lewis's Woodpecker; Melanerpes lewis; LEWO, yes

Bird (Common or Scientific Name):	Lewis's Woodpecker; Melanerpes lewis; LEWO
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Vermilion Flycatcher; Pyrocephalus rubinus; VEFL, yes

Bird (Common or Scientific Name):	Vermilion Flycatcher; Pyrocephalus rubinus; VEFL
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Cassin's Kingbird; Tyrannus vociferans; CAKI, no

Bird (Common or Scientific Name):	Cassin's Kingbird; Tyrannus vociferans; CAKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Western Kingbird; Tyrannus verticalis; WEKI, no

Bird (Common or Scientific Name):	Western Kingbird; Tyrannus verticalis; WEKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Common Raven; Corvus corax; CORA, no

Bird (Common or Scientific Name):	Common Raven; Corvus corax; CORA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Cooper's Hawk; *Accipiter cooperii*; COHA, yes

Bird (Common or Scientific Name):	Cooper's Hawk; <i>Accipiter cooperii</i> ; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Lazuli Bunting; *Passerina amoena*; LAZB, no

Bird (Common or Scientific Name):	Lazuli Bunting; <i>Passerina amoena</i> ; LAZB
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Lark Sparrow; *Chondestes grammacus*; LASP, no

Bird (Common or Scientific Name):	Lark Sparrow; <i>Chondestes grammacus</i> ; LASP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Sensitive Bird Observation

Number of individuals observed:	1
---------------------------------	---

California Horned Lark; *Eremophila alpestris actia*; HOLA - ssp actia, yes

Bird (Common or Scientific Name):	California Horned Lark; <i>Eremophila alpestris actia</i> ; HOLA - ssp actia
Is the Bird Sensitive ?	yes
Sub-Species Info:	coastal range of CA to n Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Turkey Vulture; *Cathartes aura*; TUVU, yes

Bird (Common or Scientific Name):	Turkey Vulture; <i>Cathartes aura</i> ; TUVU
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	2
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown

Bird Age (check all that apply): Adult

Red-tailed Hawk; *Buteo jamaicensis*; RTHA, no

Bird (Common or Scientific Name): Red-tailed Hawk; *Buteo jamaicensis*; RTHA

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Nuttall's Woodpecker; *Dryobates nuttallii*; NUWO, no

Bird (Common or Scientific Name): Nuttall's Woodpecker; *Dryobates nuttallii*; NUWO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Northern Flicker; *Colaptes auratus*; NOFL, no

Bird (Common or Scientific Name): Northern Flicker; *Colaptes auratus*; NOFL

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Acorn Woodpecker; *Melanerpes formicivorus*; ACWO, no

Bird (Common or Scientific Name): Acorn Woodpecker; *Melanerpes formicivorus*; ACWO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Butterfly/Moth

Orange Sulphur; *Colias eurytheme*

Butterfly/Moth (Common or Scientific Name): Orange Sulphur; *Colias eurytheme*

Is the Butterfly/Moth Sensitive ? no

Sub-Species Info: N/A

Mammal

Audubons Cottontail; *Sylvilagus audubonii*

Mammal (Common or Scientific Name): Audubons Cottontail; *Sylvilagus audubonii*

Is the Mammal Sensitive ? no

Sub-Species Info: N/A

California Ground Squirrel; *Ostospermophilus beecheyi*

Mammal (Common or Scientific Name): California Ground Squirrel; *Ostospermophilus beecheyi*

Is the Mammal Sensitive ? no

Sub-Species Info: N/A

Coyote; *Canis latrans*

Mammal (Common or Scientific Name): Coyote; *Canis latrans*

Is the Mammal Sensitive ? no

Sub-Species Info: N/A

Striped Skunk; *Mephitis mephitis*

Mammal (Common or Scientific Name): Striped Skunk; *Mephitis mephitis*

Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Reptile

Common Side-blotched Lizard; *Uta stansburiana*

Reptile (Common or Scientific Name):	Common Side-blotched Lizard; <i>Uta stansburiana</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

Granite Spiny Lizard; *Sceloporus orcutti*

Reptile (Common or Scientific Name):	Granite Spiny Lizard; <i>Sceloporus orcutti</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

Western Fence Lizard; *Sceloporus occidentalis*

Reptile (Common or Scientific Name):	Western Fence Lizard; <i>Sceloporus occidentalis</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

TMP Monitoring, BUOW

Created	2022-04-25 13:08:26 UTC by SC Fulcrum03
Updated	2022-04-25 18:48:47 UTC by SC Fulcrum03
Location	33.05104494530103, -116.93654965214974

Parent Form

Project Name:	TMP Monitoring, BUOW
Preserve/Park Name	Ramona Grasslands
General Survey Type	TMP Monitoring
Specific Survey Type	BUOW Protocol
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Pablo
Date:	2022-04-25

START Weather Details:

Start - Time:	06:08
Wind Direction	NA
Air Temp Current (F)	49
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	0
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	11:47
End - Temperature:	85
End - Wind Direction From (select one):	NE
End - Low Wind Speed:	3
End - High Wind Speed:	5
End - Average Wind Speed:	4
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
Notes	Polygons 1,6,7,8,9 - no active burrows
Observation Type:	Bird, Butterfly/Moth

Photos



Bird

Common Raven; *Corvus corax*; CORA, no

Bird (Common or Scientific Name): Common Raven; *Corvus corax*; CORA

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Cassin's Kingbird; *Tyrannus vociferans*; CAKI, no

Bird (Common or Scientific Name): Cassin's Kingbird; *Tyrannus vociferans*; CAKI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Western Meadowlark; *Sturnella neglecta*; WEME, no

Bird (Common or Scientific Name): Western Meadowlark; *Sturnella neglecta*; WEME

Is the Bird Sensitive ? no

Sub-Species Info: N/A

California Horned Lark; *Eremophila alpestris actia*; HOLA - ssp actia, yes

Bird (Common or Scientific Name): California Horned Lark; *Eremophila alpestris actia*; HOLA - ssp actia

Is the Bird Sensitive ? yes

Sub-Species Info: coastal range of CA to n Baja CA

Sensitive Bird Observation

Observation Type: Both

Number of individuals observed: 2

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male, Female

Bird Age (check all that apply): Adult

Savannah Sparrow; *Passerculus sandwichensis*; SAVS, no

Bird (Common or Scientific Name):	Savannah Sparrow; Passerculus sandwichensis; SAVS
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Butterfly/Moth

Checkered White; Pontia protodice

Butterfly/Moth (Common or Scientific Name):	Checkered White; Pontia protodice
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Mourning Cloak; Nymphalis antiopa

Butterfly/Moth (Common or Scientific Name):	Mourning Cloak; Nymphalis antiopa
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

BUOW Protocol

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Photo(s):	



Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple burrows

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple burrows

Photo(s):



Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple burrows

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None
Additional Notes: Multiple burrows

Inactive

Status (select one): Inactive
Sign Observed (check all that apply): None

Additional Notes:	Multiple burrows
Inactive	
Status (select one):	Inactive
Sign Observed (check all that apply):	None
Inactive	
Status (select one):	Inactive
Sign Observed (check all that apply):	None
Inactive	
Status (select one):	Inactive
Sign Observed (check all that apply):	None
Inactive	
Status (select one):	Inactive
Sign Observed (check all that apply):	None
Inactive	
Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows
Inactive	
Status (select one):	Inactive
Sign Observed (check all that apply):	None
Inactive	
Status (select one):	Inactive
Sign Observed (check all that apply):	None
Inactive	
Status (select one):	Inactive
Sign Observed (check all that apply):	None
Inactive	
Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows
Inactive	
Status (select one):	Inactive
Sign Observed (check all that apply):	None
Inactive	
Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Multiple burrows

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Additional Notes: Multiple burrows

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows

TMP Monitoring, BUOW

Created	2022-05-26 12:26:33 UTC by SC Fulcrum03
Updated	2022-05-26 17:47:35 UTC by SC Fulcrum03
Location	33.03390329241111, -116.94987243052286

Parent Form

Project Name:	TMP Monitoring, BUOW
Preserve/Park Name	Ramona Grasslands
General Survey Type	TMP Monitoring
Specific Survey Type	BUOW Protocol
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Karla, Pablo
Date:	2022-05-26

START Weather Details:

Start - Time:	05:15
Wind Direction	NA
Air Temp Current (F)	51
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	0
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	10:46
End - Temperature:	71
End - Wind Direction From (select one):	W
End - Low Wind Speed:	5
End - High Wind Speed:	9
End - Average Wind Speed:	7
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
Notes	Parcels 2,3,4,5. All burrows inactive. No sign, no owls
Observation Type:	Bird

Bird

Blue Grosbeak; *Passerina caerulea*; BLGR, no

Bird (Common or Scientific Name):	Blue Grosbeak; <i>Passerina caerulea</i> ; BLGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

California Horned Lark; *Eremophila alpestris actia*; HOLA - ssp actia, yes

Bird (Common or Scientific Name):	California Horned Lark; <i>Eremophila alpestris actia</i> ; HOLA - ssp actia
-----------------------------------	--

Is the Bird Sensitive ?	yes
Sub-Species Info:	coastal range of CA to n Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Grasshopper Sparrow; Ammodramus savannarum; GRSP, yes

Bird (Common or Scientific Name):	Grasshopper Sparrow; Ammodramus savannarum; GRSP
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Grasshopper Sparrow; Ammodramus savannarum; GRSP, yes

Bird (Common or Scientific Name):	Grasshopper Sparrow; Ammodramus savannarum; GRSP
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Cattle Egret; Bubulcus ibis; CAEG, no

Bird (Common or Scientific Name):	Cattle Egret; Bubulcus ibis; CAEG
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

BUOW Protocol

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

TMP Monitoring, BUOW

Created	2022-05-27 12:22:40 UTC by SC Fulcrum03
Updated	2022-06-01 16:40:07 UTC by SC Fulcrum03
Location	33.05103016089001, -116.93661427136225

Parent Form

Project Name:	TMP Monitoring, BUOW
Preserve/Park Name	Ramona Grasslands
General Survey Type	TMP Monitoring
Specific Survey Type	BUOW Protocol
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Jack Quinzon, Karla
Date:	2022-05-27

START Weather Details:

Start - Time:	05:22
Air Temp Current (F)	54
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	100
Start - Precipitation (select one):	None

END Weather Details:

Time Out:	12:02
End - Temperature:	67
End - Wind Direction From (select one):	SW
End - Low Wind Speed:	4
End - High Wind Speed:	8
End - Average Wind Speed:	6
End - Cloud Cover (%):	10
End - Precipitation (select one):	None

Notes	Parcels 6,7,8,9,1. No active burrows. No sign. No owls.
Observation Type:	Bird, Mammal, Reptile

Photos





Bird

Cassin's Kingbird; *Tyrannus vociferans*; CAKI, no

Bird (Common or Scientific Name): Cassin's Kingbird; *Tyrannus vociferans*; CAKI

Is the Bird Sensitive? no

Sub-Species Info: N/A

Grasshopper Sparrow; *Ammodramus savannarum*; GRSP, yes

Bird (Common or Scientific Name): Grasshopper Sparrow; *Ammodramus savannarum*; GRSP

Is the Bird Sensitive? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Grasshopper Sparrow; *Ammodramus savannarum*; GRSP, yes

Bird (Common or Scientific Name):	Grasshopper Sparrow; <i>Ammodramus savannarum</i> ; GRSP
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Red-tailed Hawk; *Buteo jamaicensis*; RTHA, no

Bird (Common or Scientific Name):	Red-tailed Hawk; <i>Buteo jamaicensis</i> ; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Vermilion Flycatcher; *Pyrocephalus rubinus*; VEFL, yes

Bird (Common or Scientific Name):	Vermilion Flycatcher; <i>Pyrocephalus rubinus</i> ; VEFL
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Grasshopper Sparrow; *Ammodramus savannarum*; GRSP, yes

Bird (Common or Scientific Name):	Grasshopper Sparrow; <i>Ammodramus savannarum</i> ; GRSP
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Mammal

Audubons Cottontail; *Sylvilagus audubonii*

Mammal (Common or Scientific Name):	Audubons Cottontail; <i>Sylvilagus audubonii</i>
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Coyote; *Canis latrans*

Mammal (Common or Scientific Name):	Coyote; <i>Canis latrans</i>
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Reptile

Common Side-blotched Lizard; *Uta stansburiana*

Reptile (Common or Scientific Name):	Common Side-blotched Lizard; <i>Uta stansburiana</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

Western Fence Lizard; *Sceloporus occidentalis*

Reptile (Common or Scientific Name):	Western Fence Lizard; <i>Sceloporus occidentalis</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

Granite Spiny Lizard; *Sceloporus orcutti*

Reptile (Common or Scientific Name):	Granite Spiny Lizard; <i>Sceloporus orcutti</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

TMP Monitoring, BUOW

Created	2022-06-16 12:33:13 UTC by SC Fulcrum03
Updated	2022-06-16 17:11:48 UTC by SC Fulcrum03
Location	33.034185964610984, -116.94968515248287

Parent Form

Project Name:	TMP Monitoring, BUOW
Preserve/Park Name	Ramona Grasslands
General Survey Type	TMP Monitoring
Specific Survey Type	BUOW Protocol
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Pablo/Karla
Date:	2022-06-16

START Weather Details:

Start - Time:	05:33
Air Temp Current (F)	58
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	0
Start - Precipitation (select one):	None

END Weather Details:

Time Out:	10:11
End - Temperature:	75
End - Wind Direction From (select one):	W
End - Low Wind Speed:	3
End - High Wind Speed:	5
End - Average Wind Speed:	4
End - Cloud Cover (%):	0
End - Precipitation (select one):	None

Notes
Parcels 2,3,4,5
Parcel 5 has the most suitable burrows with short grass, but still no owls
All burrows still inactive. No sign detected

Observation Type: Bird, Mammal, Butterfly/Moth

Photos



Invasive plants obscuring suitable burrow



SE Facing view of parcel 2



West facing view of parcel 3



West facing view of parcel 4



NW facing view of parcel 5

Bird

California Horned Lark; *Eremophila alpestris actia*; HOLA - ssp actia, yes

Bird (Common or Scientific Name): California Horned Lark; *Eremophila alpestris actia*; HOLA - ssp actia

Is the Bird Sensitive ? yes

Sub-Species Info: coastal range of CA to n Baja CA

Sensitive Bird Observation

Observation Type: Both

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Lark Sparrow; *Chondestes grammacus*; LASP, no

Bird (Common or Scientific Name): Lark Sparrow; *Chondestes grammacus*; LASP

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Western Meadowlark; *Sturnella neglecta*; WEME, no

Bird (Common or Scientific Name): Western Meadowlark; *Sturnella neglecta*; WEME

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Ash-throated Flycatcher; *Myiarchus cinerascens*; ATFL, no

Bird (Common or Scientific Name): Ash-throated Flycatcher; *Myiarchus cinerascens*; ATFL

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Cassin's Kingbird; *Tyrannus vociferans*; CAKI, no

Bird (Common or Scientific Name):	Cassin's Kingbird; <i>Tyrannus vociferans</i> ; CAKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Nuttall's Woodpecker; *Dryobates nuttallii*; NUWO, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; <i>Dryobates nuttallii</i> ; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

European Starling; *Sturnus vulgaris*; EUST, no

Bird (Common or Scientific Name):	European Starling; <i>Sturnus vulgaris</i> ; EUST
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Grasshopper Sparrow; *Ammodramus savannarum*; GRSP, yes

Bird (Common or Scientific Name):	Grasshopper Sparrow; <i>Ammodramus savannarum</i> ; GRSP
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Cattle Egret; *Bubulcus ibis*; CAEG, no

Bird (Common or Scientific Name):	Cattle Egret; <i>Bubulcus ibis</i> ; CAEG
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Great Horned Owl; *Bubo virginianus*; GHOW, no

Bird (Common or Scientific Name):	Great Horned Owl; <i>Bubo virginianus</i> ; GHOW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Peregrine Falcon; *Falco peregrinus anatum*; PEFA, yes

Bird (Common or Scientific Name):	American Peregrine Falcon; <i>Falco peregrinus anatum</i> ; PEFA
Is the Bird Sensitive ?	yes
Sub-Species Info:	Found throughout North America (south of tundra) and northern Mexico

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	2
Behavior (check all that apply):	Territorial display
Bird Sex (check all that apply):	Unknown

Bird Age (check all that apply):	Adult
Additional Notes:	Chasing each other and screaming

Butterfly/Moth

Checkered White; *Pontia protodice*

Butterfly/Moth (Common or Scientific Name):	Checkered White; <i>Pontia protodice</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Orange Sulphur; *Colias eurytheme*

Butterfly/Moth (Common or Scientific Name):	Orange Sulphur; <i>Colias eurytheme</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Bernardino Blue; *Euphilotes bernardino*

Butterfly/Moth (Common or Scientific Name):	Bernardino Blue; <i>Euphilotes bernardino</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Mammal

Coyote; *Canis latrans*

Mammal (Common or Scientific Name):	Coyote; <i>Canis latrans</i>
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Southern Mule Deer; *Odocoileus hemionus fuliginata*

Mammal (Common or Scientific Name):	Southern Mule Deer; <i>Odocoileus hemionus fuliginata</i>
Is the Mammal Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Mammal Observation

Observation Type:	Visual sighting
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Mammal Sex (check all that apply):	Unknown
Mammal Age (check all that apply):	Adult

BUOW Protocol

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Burrow complex on this little hill is more suitable than any in parcel two or three. No tall grass of the scaring entrances.

Photo(s):



TMP Monitoring, BUOW

Created	2022-06-17 12:29:50 UTC by SC Fulcrum03
Updated	2022-06-17 17:52:33 UTC by SC Fulcrum03
Location	33.05110635238984, -116.93637178290349

Parent Form

Project Name:	TMP Monitoring, BUOW
Preserve/Park Name	Ramona Grasslands
General Survey Type	TMP Monitoring
Specific Survey Type	BUOW Protocol
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Karla/Pablo
Date:	2022-06-17

START Weather Details:

Start - Time:	05:29
Air Temp Current (F)	55
Start - Low Wind Speed:	3
Start - High Wind Speed:	5
Start - Average Wind Speed:	4
Start - Cloud Cover (%):	0
Start - Precipitation (select one):	None

END Weather Details:

Time Out:	10:51
End - Temperature:	77
End - Wind Direction From (select one):	W
End - Low Wind Speed:	4
End - High Wind Speed:	8
End - Average Wind Speed:	6
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
Project Location (description):	Parcels 6,7,8,9,1
Notes	No BUOW. All burrows still inactive. No sign observed.
Observation Type:	Bird, Mammal, Reptile, Butterfly/Moth

Photos



SE facing view of parcel 6



Mylar balloon near suitable burrows



East facing view of parcel 8. Grass is nice and short



NW facing view of parcel 7



NE facing view of parcel 9



NW facing view of parcel 1

Bird

Lark Sparrow; *Chondestes grammacus*; LASP, no

Bird (Common or Scientific Name): Lark Sparrow; *Chondestes grammacus*; LASP

Is the Bird Sensitive? no

Sub-Species Info: N/A

Northern Mockingbird; *Mimus polyglottos*; NOMO, no

Bird (Common or Scientific Name): Northern Mockingbird; *Mimus polyglottos*; NOMO

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Vermilion Flycatcher; *Pyrocephalus rubinus*; VEFL, yes

Bird (Common or Scientific Name):	Vermilion Flycatcher; <i>Pyrocephalus rubinus</i> ; VEFL
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Territorial display
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	Apparently a pair

Golden Eagle; *Aquila chrysaetos*; GOEA, yes

Bird (Common or Scientific Name):	Golden Eagle; <i>Aquila chrysaetos</i> ; GOEA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	Tagged on left wing

Butterfly/Moth

Bernardino Blue; *Euphilotes bernardino*

Butterfly/Moth (Common or Scientific Name):	Bernardino Blue; <i>Euphilotes bernardino</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Funereal Duskywing; *Erynnis funeralis*

Butterfly/Moth (Common or Scientific Name):	Funereal Duskywing; <i>Erynnis funeralis</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Checkered White; *Pontia protodice*

Butterfly/Moth (Common or Scientific Name):	Checkered White; <i>Pontia protodice</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Orange Sulphur; *Colias eurytheme*

Butterfly/Moth (Common or Scientific Name):	Orange Sulphur; <i>Colias eurytheme</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Mammal

San Diego Black-tailed Jackrabbit; *Lepus californicus bennettii*

Mammal (Common or Scientific Name):	San Diego Black-tailed Jackrabbit; <i>Lepus californicus bennettii</i>
Is the Mammal Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Mammal Observation

Observation Type:	Visual sighting
Number of individuals observed:	3
Behavior (check all that apply):	Foraging
Mammal Sex (check all that apply):	Unknown
Mammal Age (check all that apply):	Adult

Photo(s) of Mammal:



Audubons Cottontail; *Sylvilagus audubonii*

Mammal (Common or Scientific Name):	Audubons Cottontail; <i>Sylvilagus audubonii</i>
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Reptile

Granite Spiny Lizard; *Sceloporus orcutti*

Reptile (Common or Scientific Name):	Granite Spiny Lizard; <i>Sceloporus orcutti</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

Western Fence Lizard; *Sceloporus occidentalis*

Reptile (Common or Scientific Name):	Western Fence Lizard; <i>Sceloporus occidentalis</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

BUOW Protocol

Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None
Additional Notes:	Good open patch of ground with a view. Multiple burrows

Photo(s):



Inactive

Status (select one):	Inactive
Sign Observed (check all that apply):	None

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Perfect looking burrow

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows along this outcrop. Should be in polygon

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows. Good view. Should be in polygon

Photo(s):



Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple burrows

Inactive

Status (select one): Inactive

Sign Observed (check all that apply): None

Additional Notes: Multiple suitable burrows along ridge.

Photo(s):



F-2 Habitat and Threats Assessment

<i>Scientific Name:</i> _____		<i>Common Name:</i> _____	
<i>MSP Occurrence ID:</i> _____		<i>New MSP Occurrence?</i> Yes: _____, No: _____, Unknown: _____	
<i>Sample Point #:</i> _____		<i>New Sample Point?</i> Yes: _____, No: _____, Unknown: _____	
<i>Occurrence Name:</i> _____		<i>CNDDDB EO#:</i> _____	<i>Translocated?</i> Yes: _____, No: _____, Unknown: _____
<i>Preserve:</i> _____			
<i>Land Owner:</i> _____		<i>Land Manager:</i> _____	
<i>Surveyors & Affiliation:</i> _____			
<i>Date:</i> _____		<i>Time Start:</i> _____	
I. SAMPLE PLOT INFORMATION. <i>Count # plants in 10m radius sample plot, see p. 4 for category definitions for phenology, herbivory, disease & stunted growth. Record notes on p. 3.</i>			
# Plants/Sample Plot: _____ Exact: _____ Estimate: _____ Uncertainty? _____ Sample plot radius _____ m			
For both exact counts and estimates, indicate: Counted/estimated indiv. plants: _____ OR Counted/estimated clusters of plants: _____			
For geophytes: are counts of flowering or vegetative individuals? Flowering: _____ Vegetative: _____			
Phenology in Sample Plot (Categories 1-6): Vegetative: _____ Flowering: _____ Fruiting: _____ Dead: _____			
Evidence in Sample Plot (Categories 1-6) of: Herbivory: _____ Disease: _____ Stunted Growth: _____			
Is Sample Plot within Current Mapped Extent? <u> </u> Yes <u> </u> No			
II. SAMPLE PLOT LOCATION & SITE PHOTOMONITORING - <i>consult SDMMP list of GPS coordinates for plot center and photo locations.</i>			
<i>Enter here only if new habitat plot location or to make a correction to coordinates in list provided.</i>			
GPS/Smartphone Accuracy: +/- _____ m Datum: _____ (NAD83 Recommended) Coord. Syst: UTM: _____ State Plane: _____			
Center of Plot Coord: E: _____ N: _____ No Change: _____ New: _____ Correction: _____			
Camera type: _____ PhotoCoord: E: _____ N: _____ No Change: _____ New: _____ Correction: _____			
Location 1: _____			
Direction (facing)		Height (m)	Camera Angle
E: _____	N: _____		
Photo Location 2 [Coordinates]		Direction (facing)	Height (m)
		Camera Angle	Up or Down
		Photo #	
III. SAMPLE PLOT ASSESSMENT - <i>Assess habitat covariates in 10m radius sample plot. Vegetation alliance can be assigned using San Diego vegetation key (AECOM 2012) in office or field using "Associated Species" data. See page 4 for mammal activity categories. Record any notes on p. 3.</i>			
SANDAG 2012 Vegetation Alliance/Association: _____			
Cover Classes: 1 (0%); 2 (>0 - <10%); 3 (10 to <25%); 4 (25 to <50%); 5 (50% to <75%); 6 (\geq 75%)			
Cryptogamic Crust Cover: _____ (category)		Thatch (Non-Native Grass) Cover: _____ (category)	
Thatch Depth categories: 1 (no thatch); 2 (<1 cm); 3 (1 to <5 cm); 4 (5 to <10 cm); 5 (10 to <15 cm); 6 (15 to < 20 cm); 7 (\geq 20 cm)			
Thatch Depth: Ave. _____ (category)		Thatch Depth: Max: _____ cm	
Dead Standing Biomass? Yes: _____ No: _____ If yes, species: _____ Cover Class (1-6): _____ Ave. Height: _____ cm			
Mammal Species Activity Categories (1-4): Feral Pig Activity: _____ Ground Squirrel Activity: _____ Gopher Activity: _____			
Habitat plot representative of maximum extent? Yes: _____ No: _____ If no, note differences on Page 3.			
IV. ASSOCIATED SPECIES IN SAMPLE PLOT <i>Record cover estimate, not cover category. See % cover diagram, p. 5. Record substrate, total veg & total cover at bottom of form. Total cover should be at least 100% to account for entire plot. Record notes on p. 3.</i>			
Species	% Cover	Species	% Cover
Bare Ground: 5 Cryptogamic Soil Crust: _____ Rock: _____ Litter: _____			
Water: _____		Total Live Vegetation: _____ Dead Shrubs: _____ Total Cover: _____ (Σ =100%)	

Scientific Name: <u>Burrowing Owl</u>	MSP Occurrence ID: <u>N/A</u>	
Preserve: <u>Ramona Grasslands Preserve</u>	Occurrence Name: <u>N/A</u>	
Date: <u>June 17, 2022</u>	Surveyors & Affiliation/Agency: <u>Brennan Mulrooney (ESA)</u>	
V. CURRENT MAPPED EXTENT INFORMATION. <i>Count or estimate number of plants in mapped extent. Area can be calculated based on GIS perimeter mapping or visual mapping on aerial photo in the office.</i>		
# Plants/Current Mapped Extent: _____, Exact Count: _____, Estimate (1000s, 10k): _____, Uncertainty? _____		
For both exact counts and estimates, indicate: Counted/estimated individual plants: _____ OR Counted/estimated clusters of plants: _____		
For geophytes: are counts of flowering or vegetative individuals? Flowering: _____ Vegetative: _____		
Area of Current Mapped Extent: _____ Units: _____ Exact (GPS mapping): _____ Estimate: _____		
Perimeter of current extent determined by walking it or estimated by other means (mapped on aerials)? Walked: _____ Other (describe p. 3): _____		
Species in Maximum Extent? Yes: _____ No: _____ If not, why _____		
VI. THREATS ASSESSMENT IN MAXIMUM EXTENT - <i>Assess threats within the occurrence's maximum extent (cumulative extent over years of monitoring) plus 10-m surrounding buffer. Record notes on p. 3.</i>		
Surrounding Land Use/Activity at or Adjacent to Site: <u>Airport and associated aviation activities, rural development, grazing, RMWD activities</u>		
Associated with management of grazing lands (occasional vehicular traffic)		
<i>Disturbance Classes (rank each threat as 1-7): 1 = no sign of disturbance, 2 = disturbance in 10m surrounding buffer but not within maximum extent, 3 = disturbance occurs in >0 % to <10% of area within maximum extent, 4 = disturbance in 10% to <25% of maximum extent, 5 = disturbance in 25 to <50% of maximum extent, 6 = disturbance occurs within 50 to <75% of maximum extent, and 7 = disturbance occurs within ≥75% of maximum extent.</i>		
Non-Native Forbs <u>6</u>	Feral Pig Activity <u>1</u>	Erosion <u>3</u>
Non-Native Grasses <u>7</u>	Trampling <u>6</u>	Urban Runoff <u>4</u>
Non-Native Woody Plants <u>3</u>	Vandalism <u>1</u>	Slope Movement <u>1</u>
Competitive Native Plants <u>5</u>	Grazing (Y/N/UNK) <u>Y</u>	Soil Compaction <u>6</u>
Dumping/Trash <u>3</u>	Historic Agriculture (Y/N/Unk) <u>UNK</u>	
Encampments <u>1</u>	Altered Hydrology <u>Y</u>	
Fuel Modification Zone/Fire Break <u>1</u>		
Road Construction/Maintenance: <u>1</u> If Observed, Briefly Describe: _____		
Vegetation Clearing: <u>4</u> If Observed, Briefly Describe: <u>some evidence of mowing in one polygon</u>		
Restoration Project (Impacts): <u>1</u> If Observed, Briefly Describe: _____		
ORV Activity <u>1</u> If Observed, List Type(s) of ORV Activity: _____		
Evidence of Recent Fire <u>1</u> If Sign of Recent Fire: Year Burned? _____ OR Unknown Burn Year? _____		
Disturbance from Trails (authorized & unauthorized) <u>1</u> If Trails are Present, are they Authorized (circle one)? <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No / <input type="checkbox"/> Both / <input type="checkbox"/> Unknown		
Type of Trail Use (Yes/No)? Hiking: <u>Yes</u> Biking: _____ Equestrian: _____ Dog: _____ Service Vehicles: _____		
Other (Describe): _____		
Illegal Trail Use? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown Describe: _____ Other Disturbance? List & Rank: _____		
Collection? Yes: _____ No: _____ Collector: _____		
Collection #: _____ Herbarium: _____ Species Collected: _____		
Collection 2, Collector: _____ (enter additional collections on p. 3)		
Collection #: _____ Herbarium: _____ Species Collected: _____		

Occurrence ID: N/A Species: Burrowing Owl Date: June 17, 2022

VI. MANAGEMENT RECOMMENDATIONS

Mowing or grazing of parcels with tall weeds and grass, especially in the areas of rocky outcrops make those potential More attractive to burrowing owls

VII. MANAGEMENT ACTIONS IN LAST YEAR

Unknown

VIII. CNDDDB SPECIES DETECTED & NOTES

List any sensitive plant or animal species to add to the CNDDDB:

American Peregrine Falcon, Bald Eagle, California Horned Lark, Cooper's Hawk, Golden Eagle

Grasshopper Sparrow, Lewis's Woodpecker, Tricolored Blackbird, Vermilion Flycatcher

Oregon Vesper Sparrow

San Diego Black-tailed Jackrabbit

Time Finish: 10:51

Categories of % Individuals in Sample Plot for Phenological Stages (Vegetative, Flowering, Fruiting & Dead) and for Evidence of Herbivory, Disease and Stunted Growth.

- 1 = 0% (not detected)
- 2 = >0% to <10%
- 3 = 10% to <25%
- 4 = 25% to <50%
- 5 = 50% to <75%
- 6 = \geq 75%

% Cover Class Definitions within Sample Plot for Cryptogamic Crust and Thatch.

See page 5 for illustrations of different cover classes.

- 1 = 0% cover (not detected)
- 2 = >0% to <10% cover
- 3 = 10% to <25% cover
- 4 = 25% to <50% cover
- 5 = 50% to <75% cover
- 6 = \geq 75% cover

Feral Pig Activity within Sample Plot:

- 1 = No feral pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pig) detected.
- 2 = Signs of pig activity (rooting, wallowing, vegetation destruction) in sample plot appear months old.
- 3 = Signs of recent pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pig) in adjacent area but not within sample plot.
- 4 = Recent signs of pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pigs) within sample plot.

Ground Squirrel Activity within Sample Plot:

- 1 = No ground squirrel burrows detected.
- 2 = Burrows and/or ground squirrels observed in adjacent area but not within sample plot.
- 3 = Single squirrel or burrow seen within sample plot.
- 4 = Multiple burrows and/or squirrels seen within sample plot.

Botta's Pocket Gopher Activity within Sample Plot:

- 1 = No pocket gopher mounds detected.
- 2 = Mounds or gophers observed in adjacent area but not within sample plot.
- 3 = <10 mounds observed within sample plot.
- 4 = \geq 10 mounds or one or more gophers seen within sample plot.

Disturbance Categories within the Maximum Extent:

- 1 = No sign of disturbance within maximum extent or in adjacent 10 m buffer.
- 2 = Disturbance does not occur within maximum extent but is detected within the surrounding 10 m buffer area.
- 3 = Disturbance present in >0% to <10% of area within maximum extent.
- 4 = Disturbance occurs in 10% to <25% of area within maximum extent.
- 5 = Disturbance occurs in 25% to <50% of area within maximum extent.
- 6 = Disturbance occurs 50% to <75% of area within maximum extent.
- 7 = Disturbance occurs \geq 75% of area within maximum extent.

Cover Diagrams from CNPS

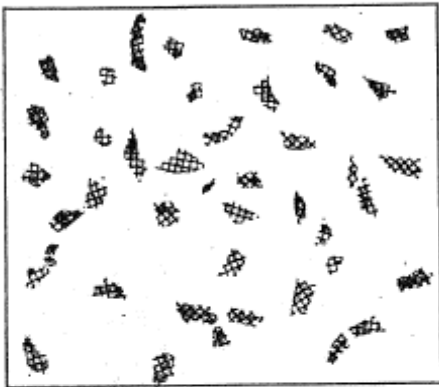
1%



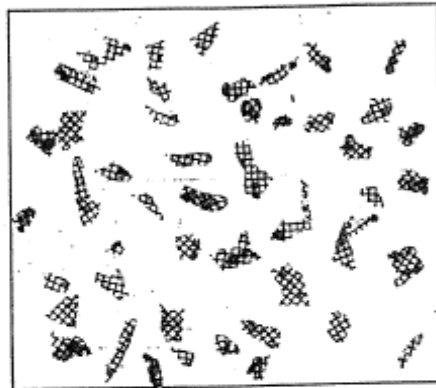
5%



10%



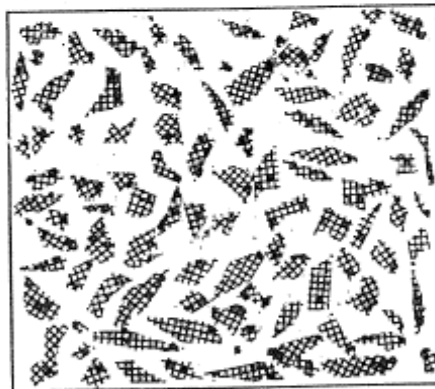
15%



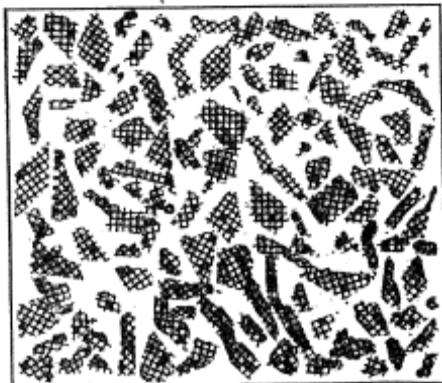
25%



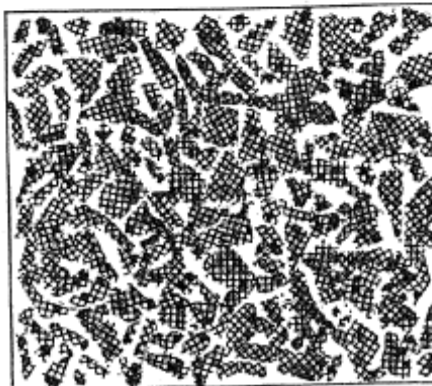
35%



50%



75%



Appendix G
**San Diego Cactus Wren Photo
Monitoring and Field Forms**



G-1 Photo Monitoring



2011 Before clearing and planting



2012 After cactus installation



2013 July



2014 July



2016 July



2018 July



2019 July



2022 July

D:201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation

Appendix G
Cactus Wren Habitat Restoration Photo-Monitoring
Lakeside Linkage County Preserve
Photopoint A West





2011 Before clearing and planting



2012 After cactus installation



2013 July



2014 July



2016 July



2018 July



2019 July



2022 July

D201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation

Appendix G
Cactus Wren Habitat Restoration Photo-Monitoring
Lakeside Linkage County Preserve
Photopoint B North





2011 Before clearing and planting



2012 After cactus installation



2013 July



2014 July



2016 July



2018 July



2019 July



2022 July

D201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation

Appendix G
Cactus Wren Habitat Restoration Photo-Monitoring
Lakeside Linkage County Preserve
Photopoint B West





2011 Before clearing and planting



2012 After cactus installation



2013 July



2014 July



2016 July



2018 July



2019 July



2022 July

D201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation

Appendix G
Cactus Wren Habitat Restoration Photo-Monitoring
Lakeside Linkage County Preserve
Photopoint C West





2011 Before clearing and planting



2012 After cactus installation



2013 July



2014 July



2016 July



2018 July



2019 July



2022 July

D201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation

Appendix G
Cactus Wren Habitat Restoration Photo-Monitoring
Lakeside Linkage County Preserve
Photopoint D East





2011 Before clearing and planting



2012 After cactus installation



2013 July



2014 July



2016 July



2018 July



2019 July



2022 July

D201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation

Appendix G
Cactus Wren Habitat Restoration Photo-Monitoring
Lakeside Linkage County Preserve
Photopoint D North





2011 Before clearing and planting



2012 After cactus installation



2013 July



2014 July



2016 July



2018 July



2019 July



2022 July

D201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation

Appendix G
Cactus Wren Habitat Restoration Photo-Monitoring
Lakeside Linkage County Preserve
Photopoint D South





2011 Before clearing and planting



2012 After cactus installation



2013 July



2014 July



2016 July



2018 July



2019 July



2022 July

D201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation

Appendix G
Cactus Wren Habitat Restoration Photo-Monitoring
Lakeside Linkage County Preserve
Photopoint E East





2011 Before clearing and planting



2012 After cactus installation



2013 July



2014 July



2016 July



2018 July



2019 July



2022 July

D201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation

Appendix G
Cactus Wren Habitat Restoration Photo-Monitoring
Lakeside Linkage County Preserve
Photopoint F South





2011 Before clearing and planting



2012 After cactus installation



2013 July



2014 July



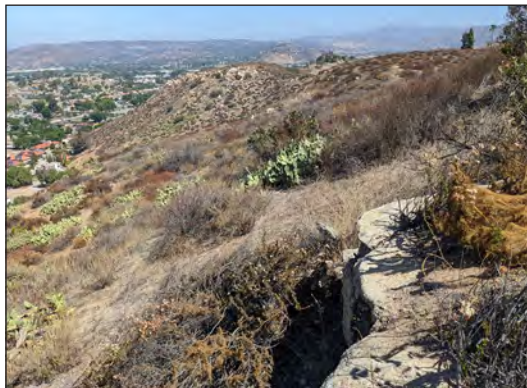
2016 July



2018 July



2019 July



2022 July

D201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation

Appendix G
Cactus Wren Habitat Restoration Photo-Monitoring
Lakeside Linkage County Preserve
Photopoint G North





2011 Before clearing and planting



2012 After cactus installation



2013 July



2014 July



2016 July



2018 July



2019 July



2022 July

D201700240.58

SOURCE: ESA, 2022

COSD DPR 557744_TO 58 TMP Implementation

Appendix G
Cactus Wren Habitat Restoration Photo-Monitoring
Lakeside Linkage County Preserve
Photopoint H East



G-2 Point Count Spreadsheet Scans

Surveyors: Jaclyn Catino-Davenport, Rachel Le

Point count spreadsheet										
Date:	03/10/22	≤ 50 m			≥ 50 m			Flyover		
Station #	Species	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min
5	RSHA				" 2					
0705 - 0715	HOFI	" 3			" 3	" 2				
	AMCR				" 3					
	LEGO	3								
	WCSP	^{HT} ^{HT} 10								
	CALT	" 3			' 1					
	NOMO				' 1					
	REBY									
	ANHU	" 2								
	YRWA	' 1		' 1						
	WREN		' 1		#					
R CSP	CAGN		' 1							
	BLPH			' 1						
	ACMPA			" 2						
↓	BEWR			' 1						
R2										
0730 -	LEGO	" 3								
0735	CALT	" 4			' 1	' 1				
	HOFT				' 1		" 4			
	RCPA				" 4					
	BEWR			' 1	' 1					
	CAGN				' 1					
	AMCR				" 3	' 1				
	ANHU	' 1								
	WREN	" 3				' 1				
	MODU					' 1				
↓	Domestic Sowl						' 1			
2	CALT	" 2								
0826 - 0836	MODU	" 4		' 1						
	WCSP	" 2	^{HT} 5	^{HT} 5						
	NOMO	' 1								
↓	HOFI	" 7					" 2			

Surveyors: Jaclyn Catino Davenport, Rachel Le

Point count spreadsheet

Date: 03/06/22		≤ 50 m			≥ 50 m			Flyover		
Station #	Species	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min
2	SPTO	' 1		' 1						
	ANHU	' 1								
	CAKI	" 2								
	AMCK				" 2		' 1			
	WREN		' 1		' 1					
	BUSH	" 2								
	CAQU	" 2								
	BEWR	' 1								
	ALHU		' 1							
	RCPA					" 3				
↓	BLPH			' 1						
1	MDDO	' 1								
0453-0903	BEWR	" 3			' 1					
	MOFI		" 2			" 5				
	RCPA				" 4					
	CDRA			' 1	' 1					
	CAQU				" 3					
	ANHU	' 1								' 1
	RSIT									
	MALL								" 2	
	CALT			' 1						
	NOMO						' 1			
↓	WREN			' 1			' 1			
R2	MOFI	" 2			" 7					
1006-1016	ANHU	" 2		' 1						
	BLPH									
	COXA	" 2								
	CALT		" 3							
	AMCK					' 1				
	AcWD					" 2				
	LEGO					" 2				' 1
↓	CAGN		" 2							

Surveyors: Jadyn K Catino-Davenport, Rachel LE

Point count spreadsheet										
Date: D3	16/22	≤ 50 m			≥ 50 m			Flyover		
Station #	Species	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min
R2	CAQU			' 1						
|	ROPI									" 2
|	PCFL						' 1			
|	RSHA						" 2			
|	CAKI						' 1			
|	SPTO						' 1			
|	NLLWO			' 1						
↓	BEWR			" 2						
4	MOFI			" "	" "					
104-114	RCSP	' 1								
|	CALT	" 2					' 1			
|	SAPH	' 1								
|	LEGD				' 1					
|	RSHA				' 1		' 1	' 1		
|	CAQU	" 2								
|	CAGN		' 1							
|	NOMO						' 1			
|	ANHU			' 1						
|	TRSW									' 1
|	AMCR						' 1			
↓	ROPI									" 3

Surveyors: Jaclyn Catino Davenport, Jack Quizon

Point count spreadsheet										
Date: 04/21/22	≤ 50 m			≥ 50 m			Flyover			
Station #	Species	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min
0640	1	HOFT				"(3)				
		CALT	"(2)		'(1)	'(1)				
		CAQU			"(4)					
		CAKI			'(1)					
		BUSH	"(4)							
		RCSP	"(2)		'(1)					
		CATH			'(1)					
		BEWR			'(1)					
		WREN			'(1)	"(2)				
		LEGO			'(1)		'(1)			
		MODD							'(1)	
		AMCR				'(1)				
		CSJA				'(1)				
		BUOR	"(2)							
		COYE				'(1)				
		NDMO					'(1)			
		ANHU		'(1)						
		ROPI					"(2)			
		SPTO					'(1)			
		CORA								'(1)
0650	↓	ATFL					'(1)			
0750	2	HOFT		"(2)		"(3)				
		LEGO	"(2)			"(3)		"(2)		'(1)
		ANHU	"(2)				'(1)		"(2)	
		CAQU				'(1)	"(2)			
		WREN	'(1)			'(1)				
		MODR				"(3)				
		AMCR				"(2)		'(1)		
		MODD	'(1)				'(1)			
		NDMO				'(1)				
	↓	CALT				'(1)		'(1)		
		PHAI								

Surveyors: Jaclyn Catino-Davenport, Jack Quinzer

Point count spreadsheet

Date: 04/21/22		≤ 50 m			≥ 50 m			Flyover		
Station #	Species	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min
2	BUSA		" (2)							
	WISW						" (1)			
↓	CATH			' (1)						
RI	QBN	" (2)								
	CACW	' (1)								
	CALT			" (2)	" (2)		' (1)			
	HOFT				" (3)					
	WREN				" (2)					
	SPTD				" (2)					
	BEWR				' (1)					
	MODD	' (1)					' (1)			
	ANHU	' (1)			" (1)					
	LEGO				" (2)					
	BLPH				' (1)					
	CAKI				' (1)					
	CAQU				' (1)		' (1)			
	CATH						' (1)			
	AMCR						' (1)			' (1)
	RCPA						' (1)			
↓	ROPI						" (2)			
5	CALT	" (3)								
	HOFT				" (4)					
	MODD				" (2)		' (1)	' (1)		
	BEWR				' (1)					
	LEGO				" (2)	' (1)				
	ANHU							' (1)		
	CAQU				" (1)					
	BUSH					" (2)				
	NDMO						" (2)			
	SPTD						' (1)			
↓	BARS									' (1)
4	HOFT			" (2)	" (3)					

0800
1818

0828

0928

0938

Surveyors: Jaclyn Catino - Davenport Jack Owinzon

Point count spreadsheet

0950
~~1000~~

1000
1018

1028

Date: 04/21/22		≤ 50 m			≥ 50 m			Flyover			
Station #	Species	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min	
4	LEGO	"(2)			"(1)			"(2)		"(1)	
	CALT				"						
	ANHU	"(2)								"(1)	
	CAKI				"(1)					"(1)	
	NOMO				"(1)						
	CASJ				"(1)						
	COMA				scribble					"(1)	
	CLSW							"(2)	"(10)		
	WREN		"(1)			"(1)					
	CORA						"(2)				
	ROPI									"(2)	
	↓	CATH			"(1)						
	R2	ANHU	"(1)						"(2)		
		MODO	"(1)			"(1)		"(1)			
		MOPT				"(4)				"(1)	
CAQU		"(1)	"(1)		"(3)						
LEGO								"(1)		"(1)	
CALT		"(1)	"(1)	"(1)							
SDSP						"(1)					
YWAR						"(1)					
RIHA										"(1)	
BEWR				"(1)							
ACWD							"(1)				
↓		AMCR					"(1)				

Surveyors: Jaclyn Catino-Davenport, Karla A

Point count spreadsheet										
Date: 05/20/22		≤ 50 m			≥ 50 m			Flyover		
Station #	Species	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min
0649	R2	CAQU "4			"2					
		MOFI "2	'1		"3			"2		"2
		ANMU "1						"1		
		GREG						"1		
		CATH '1			'1					
		AMCK			'1					
		SPTD			'1					
		BHBR			'1					
		CALT ""3								
		LEGD				"2				
		<i>Oride sp.</i>						"1		
		MODD				'1				"1
		YWAR				'1				
		BUSH				'1				
0659	↓	HOSP					"1			
0718	4	COHA '1								
		MOFI		'1	"2			"3	"2	
		WEBL			'1					
		AMCK			'1	'1				
		HOSP			'1					
		GREG						"1		
		CATH			'1					
		NDDO				'1				
		CALT	'1				'1			
		CLSW				'1				
		CORA								"1
		<i>Peabody</i>					'1			
0728	↓	ALHU		'1						
0838	1	MOFI			"4					
		SPTD		"2	'1					
		CAQU			"2					
	↓	RCSP			'1					

Surveyors: _____

Point count spreadsheet

Date: 05/20/22		≤ 50 m			≥ 50 m			Flyover		
Station #	Species	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min
1	CAKI				" (2)					
	LEGO				" (2)					" (2)
	NOMO				' (1)	' (1)				
	NUUD				' (1)					
	HO SP				' (1)					
	TUVU							' (1)		
	WREN					' (1)				
	ROPI								" (2)	" (4)
	CORA									' (1)
	RTHA							' (1)		
	CALT							' (1)		
2	AMCR				' (1)					
	NOMO				" (2)			' (1)		
	CADU				" (2)	' (1)				
	CORA				' (1)					
	CAGN				' (1)					
	RTHA							' (1)		
	Pea fowl				' (1)					
	CALT	" (2)	' (1)							
	HOPI				" (3)	" (3)				
	TUVU							' (1)	' (1)	
	PSFL				' (1)					
	LEGO					' (1)				' (1)
	MOPD					" (2)	' (1)			
	ANMU								' (1)	
ALMU			' (1)							
CATH							' (1)			
EDD							" (2)			
↓	BEWR						' (1)			
	R1 CALT	" (2)			" (2)					
	MOSP				" (3)					
↓	BEWR	' (1)								

0848

0924

0934

0946

Surveyors: _____

Point count spreadsheet

Date: 05/20/22		≤ 50 m			≥ 50 m			Flyover		
Station #	Species	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min
R1 ↓ 5 ↓	HOPI				' (1)					
	WREN				' (1)					
	AMCR				' (1)	' (1)				
	SAPH				' (1)					
	CAQU				' (1)					
	CAGN					' (1)				
	SPTD						' (1)			
	CDRA							' (1)		
	HOPI				' (1)		' (4)	' (1)		
	LEGO							' (1)		
	CAKE				' (1)					
	HOSP				' (1)		' (3)			
	MOPD					' (1)				
	Rafowl					' (1)				
	ROPI								' (5)	
BEWR			' (1)							
CALT			' (3)							
SPTD							' (1)			
AMCR							' (1)			

0956
1022

1032

Surveyors: Jaclyn K Catino-Davenport; Pablo Gorreran

Point count spreadsheet										
Date: 07/01/22	≤ 50 m			≥ 50 m			Flyover			
Station #	Species	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min
0606	4	HOPI			||||| 7		|| 2			||||| 7
		CALT	||| 3	| 1	| 1					
		CLSW						||| 3	||| 3	|| 2
		NDMD			| 1					
		BLPH			| 1					
		AMCR			| 1	| 1				
		CAGN	| 1							
		WEKI Parrot sp.			| 1			| 1		
		LEGO				|| 2				
		Peafowl				| 1				
							|| 2			
0616	↓	ROPI								||| 3
07436	R2	LEGO				| 1				|| 2
		HOPI	|||| 4	| 1						
		COHA Peafowl			| 1					
		SPTD	| 1		| 1					
		MODD					| 1	| 1		
		BEWR	| 1							
		AMCK				||| 3				
		ANHU Parrot sp.	| 1	| 1						
		HOST					|| 2			
		CARU	||| 3							
		ROPI							||| 3	
		PSFL					| 1			
0746	↓	CALT		| 1						
0808	5	CALT	| 1			| 1				
		HOPI				| 1				||| 3
		BEWR				| 1				
		MODD				|| 2		| 1		
	↓	ANHU	| 1	|| 2						

Surveyors: JKC, PAC

Point count spreadsheet										
Date: 07/01/22		≤ 50 m			≥ 50 m			Flyover		
Station #	Species	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min
0818 0842	5	ROPI							"(2)	
	↓	LEGD							'(1)	'(1)
	↓	CAGN			'(1)					
	1	RSWA				'(1)				
	0842	CALT	"(2)					'(1)		
		NUWD				'(1)				
		AMCR				'(1)				
		MOFI				"(2)		"(2)		
		ANLU	'(1)	'(1)						
		Parrot sp				'(1)				
		MOSP				"(3)				
		NOMO		'(1)			"(2)			
		CLSW							'(1)	
		EUST								
	0852 0952	↓	ACWO						'(1)	
		CASJ						'(1)		
↓		RCSP			'(1)					
2		NOMO	"(2)							
↓		CALT	'(1)			'(1)				
002		MOOR				'(1)				
		BEWK	'(1)							
		MOBI	'(1)			"(2)				
		MOBO	'(1)							
		AMCR				"(3)				
↓	LEGD								'(1)	
	CARU			'(1)						

Surveyors: JKC; PAC

Point count spreadsheet										
Date: 07	01	22	≤ 50 m			≥ 50 m			Flyover	
Station #	Species	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min	0-3 min	3-5 min	5-10 min
R2	LEGO				" (2)			" (3)		' (1)
	NO MD				' (1)					
	MOFI				" (2)			' (1)	" (3)	
	ANMU	' (1)								
	CLSW								' (1)	
	NUWD						' (1)			
	CAKI									' (1)
	CALT			' (1)						

G-3 Threat Assessment Form

Scientific Name: *Campylorhynchus brunneicapillus sandiegensis*

MSP Occurrence ID: N/A

Preserve: Lakeside Linkage

Occurrence Name: N/A

Date: July 1, 2022

Surveyors & Affiliation/Agency: Jaclyn Catino-Davenport (ESA)

V. CURRENT MAPPED EXTENT INFORMATION. Count or estimate number of plants in mapped extent. Area can be calculated based on GIS perimeter mapping or visual mapping on aerial photo in the office.

Plants/Current Mapped Extent: _____, Exact Count: _____, Estimate (1000s, 10k): _____, Uncertainty? _____

For both exact counts and estimates, indicate: Counted/estimated individual plants: _____ OR Counted/estimated clusters of plants: _____

For geophytes: are counts of flowering or vegetative individuals? Flowering: _____ Vegetative: _____

Area of Current Mapped Extent: _____ Units: _____ Exact (GPS mapping): _____ Estimate: _____

Perimeter of current extent determined by walking it or estimated by other means (mapped on aerials)? Walked: _____ Other (describe p. 3): _____

Species in Maximum Extent? Yes: _____ No: _____ If not, why: _____

VI. THREATS ASSESSMENT IN MAXIMUM EXTENT - Assess threats within the **occurrence's maximum extent** (cumulative extent over yearsof monitoring) **plus 10-m surrounding buffer**. Record notes on p. 3.

Surrounding Land Use/Activity at or Adjacent to Site: Urban Development with small patches of rural development and open space.

Disturbance Classes (rank each threat as 1-7): 1 = no sign of disturbance, 2 = disturbance in 10m surrounding buffer but not within maximum extent, 3 = disturbance occurs in >0 % to <10% of area within maximum extent, 4 = disturbance in 10% to <25% of maximum extent, 5 = disturbance in 25 to < 50% of maximum extent, 6 = disturbance occurs within 50 to <75% of maximum extent, and 7 = disturbance occurs within ≥75% of maximum extent.

Non-Native Forbs	<u>3</u>	Feral Pig Activity	<u>1</u>	Erosion	<u>3</u>
Non-Native Grasses	<u>4</u>	Trampling	<u>3</u>	Urban Runoff	<u>3</u>
Non-Native Woody Plants	<u>3</u>	Vandalism	<u>3</u>	Slope Movement	<u>3</u>
Competitive Native Plants	<u>6</u>	Grazing (Y/N/UNK)	<u>Unknown</u>	Soil Compaction	<u>3</u>
Dumping/Trash	<u>4</u>	Historic Agriculture (Y/N/Unk)	<u>Unknown</u>		
Encampments	<u>1</u>	Altered Hydrology	<u>1</u>		

Fuel Modification Zone/Fire Break 4

Road Construction/Maintenance: 3 If Observed, Briefly Describe: None observed, assumed SDG&E maintain access road.

Vegetation Clearing: 4 If Observed, Briefly Describe: None observed, but evidence of recent trimming along fire break

Restoration Project (Impacts): 3 If Observed, Briefly Describe: New Cacti (Cholla) plants established plots near pt 4

ORV Activity 3 If Observed, List Type(s) of ORV Activity: Motorized bike (not ORV vehicle) seen on trail during survey

Evidence of Recent Fire 1 If Sign of Recent Fire: Year Burned?_OR Unknown Burn Year? Unknown

Disturbance from Trails (authorized & unauthorized) 4 If Trails are Present, are they Authorized (circle one)? Yes / No / Both / Unknown

Type of Trail Use (Yes/No)? Hiking: Yes Biking: Yes Equestrian: Yes Dog: Yes Service Vehicles: Yes Other (Describe): _____

Illegal Trail Use? Yes No Unknown Describe: both illegal foot traffic and bike trail.

Other Disturbance? List & Rank: Unleashed dogs (5). seen during every visit.

Collection? Yes: _____ No: _____ Collector: _____

Collection #: _____ Herbarium: _____ Species Collected: _____

Collection 2, Collector: _____ (enter additional collections on p. 3)

Collection #: _____ Herbarium: _____ Species Collected: _____

Occurrence ID: N/A Species: San Diego Cactus Wren Date: July 1, 2022

VI. MANAGEMENT RECOMMENDATIONS

Place more signage along unauthorized trails, fence off unauthorized trail, place more signage regarding off leash dogs and potential establish more of a ranger presence on the Preserve.

VII. MANAGEMENT ACTIONS IN LAST YEAR

Unknown

VIII. CNDDDB SPECIES DETECTED & NOTES

List any sensitive plant or animal species to add to the CNDDDB:

Turkey vulture, Cooper's hawk, American peregrine falcon, coastal California gnatcatcher, coastal cactus wren, western bluebird

Southern California rufous-crowned sparrow, yellow warbler

Time Finish: 11:22

Categories of % Individuals in Sample Plot for Phenological Stages (Vegetative, Flowering, Fruiting & Dead) and for Evidence of Herbivory, Disease and Stunted Growth.

- 1 = 0% (not detected)
- 2 = >0% to <10%
- 3 = 10% to <25%
- 4 = 25% to <50%
- 5 = 50% to <75%
- 6 = \geq 75%

% Cover Class Definitions within Sample Plot for Cryptogamic Crust and Thatch.

See page 5 for illustrations of different cover classes.

- 1 = 0% cover (not detected)
- 2 = >0% to <10% cover
- 3 = 10% to <25% cover
- 4 = 25% to <50% cover
- 5 = 50% to <75% cover
- 6 = \geq 75% cover

Feral Pig Activity within Sample Plot:

- 1 = No feral pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pig) detected.
- 2 = Signs of pig activity (rooting, wallowing, vegetation destruction) in sample plot appear months old.
- 3 = Signs of recent pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pig) in adjacent area but not within sample plot.
- 4 = Recent signs of pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pigs) within sample plot.

Ground Squirrel Activity within Sample Plot:

- 1 = No ground squirrel burrows detected.
- 2 = Burrows and/or ground squirrels observed in adjacent area but not within sample plot.
- 3 = Single squirrel or burrow seen within sample plot.
- 4 = Multiple burrows and/or squirrels seen within sample plot.

Botta's Pocket Gopher Activity within Sample Plot:

- 1 = No pocket gopher mounds detected.
- 2 = Mounds or gophers observed in adjacent area but not within sample plot.
- 3 = <10 mounds observed within sample plot.
- 4 = \geq 10 mounds or one or more gophers seen within sample plot.

Disturbance Categories within the Maximum Extent:

- 1 = No sign of disturbance within maximum extent or in adjacent 10 m buffer.
- 2 = Disturbance does not occur within maximum extent but is detected within the surrounding 10 m buffer area.
- 3 = Disturbance present in >0% to <10% of area within maximum extent.
- 4 = Disturbance occurs in 10% to <25% of area within maximum extent.
- 5 = Disturbance occurs in 25% to <50% of area within maximum extent.
- 6 = Disturbance occurs 50% to <75% of area within maximum extent.
- 7 = Disturbance occurs \geq 75% of area within maximum extent.

Cover Diagrams from CNPS

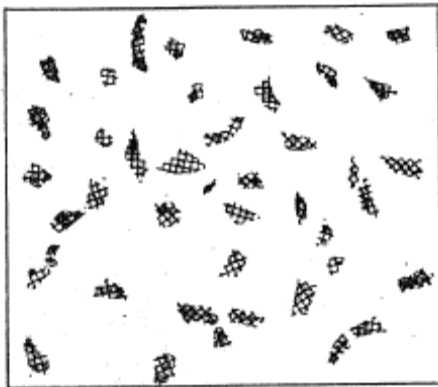
1%



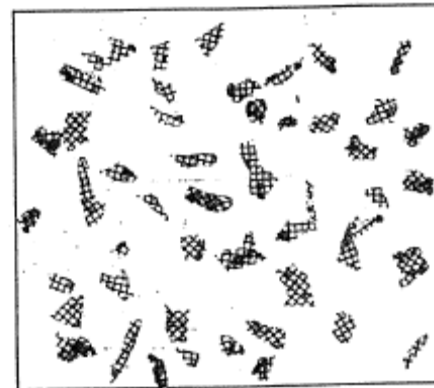
5%



10%



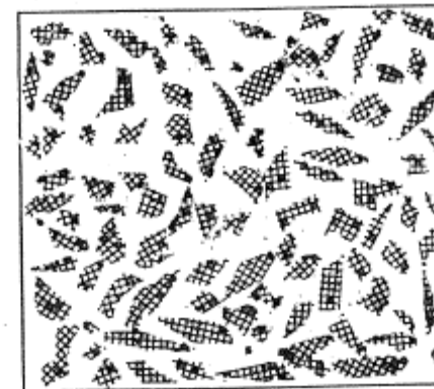
15%



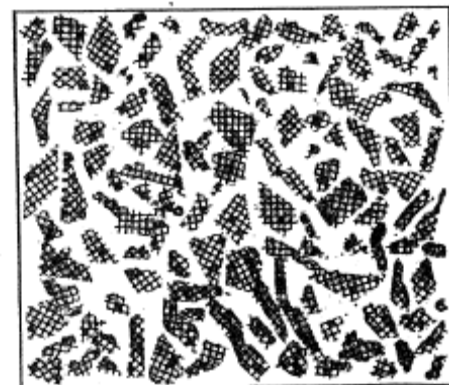
25%



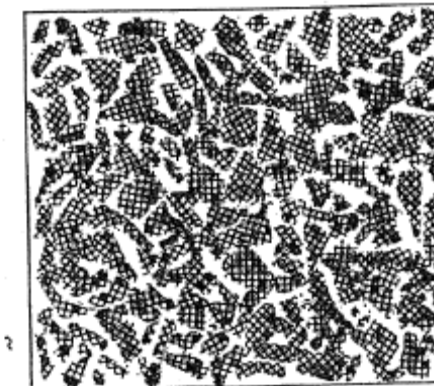
35%



50%



75%



Appendix H

Northern Harrier Representative Photographs and Field Forms



H-1 Representative Photographs

Tijuana River Valley Regional Park



Photo 1. Habitat (coastal sage scrub) of previous documented northern harrier nest sites (Territory 1 and Territory 4). Habitat still suitable and in good condition. Area of successful nest site in 2022.



Photo 2. Habitat (Diegan coastal sage scrub). Individuals observed in area throughout the 2022 surveys (Potential Territory 2). No nesting behavior was observed.



Photo 3. Habitat (mule fat scrub). Individual harriers actively foraging here throughout the 2022 surveys (Potential Territory 3). No breeding behavior observed.



Photo 4. Habitat (mule fat scrub). A pair of harriers were observed in March and April here and in the adjacent abandoned agricultural field, breeding behavior was observed during the 2022 surveys (Territory 5).

H-2 Field Forms

TMP Monitoring, Northern Harrier

Created	2022-03-18 13:43:42 UTC by SC Fulcrum05
Updated	2022-03-18 18:27:28 UTC by SC Fulcrum05
Location	32.5538110243236, -117.08460768760413

Parent Form

Project Name:	TMP Monitoring, Northern Harrier
Preserve/Park Name	Tijuana River Valley Regional Park
General Survey Type	TMP Monitoring
Specific Survey Type	TMP Northern Harrier
Observer/Surveyor:	Jaclyn Catino-Davenport
Assistant Observer/Surveyor:	Rachel Le
Date:	2022-03-18

START Weather Details:

Start - Time:	06:43
Wind Direction	N/A
Air Temp Current (F)	50.2
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	0
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	11:25
End - Temperature:	68.2
End - Wind Direction From (select one):	W
End - Low Wind Speed:	0
End - High Wind Speed:	11.9
End - Average Wind Speed:	5.6
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	Good
Notes	Ag field south of dairy mart rd is barren
Observation Type:	Bird, Mammal

Started at Butterfly Garden, went to south of Sunset Ave/Saturn Blvd, then to Hollister St/Monument Rd, then to Campground, and last at baseball field.

Photos



From Butterfly garden facing S



Facing E

Bird

Red-shouldered Hawk; Buteo lineatus; RSHA, yes

Bird (Common or Scientific Name):	Red-shouldered Hawk; Buteo lineatus; RSHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
-------------------	--------

Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Subadult

Black Phoebe; *Sayornis nigricans*; BLPH, no

Bird (Common or Scientific Name):	Black Phoebe; <i>Sayornis nigricans</i> ; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Pacific-slope Flycatcher; *Empidonax difficilis*; PSFL, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; <i>Empidonax difficilis</i> ; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Wrentit; *Chamaea fasciata*; WREN, no

Bird (Common or Scientific Name):	Wrentit; <i>Chamaea fasciata</i> ; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Nuttall's Woodpecker; *Dryobates nuttallii*; NUWO, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; <i>Dryobates nuttallii</i> ; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

House Finch; *Haemorhous mexicanus*; HOFI, no

Bird (Common or Scientific Name):	House Finch; <i>Haemorhous mexicanus</i> ; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Larus sp., no

Bird (Common or Scientific Name):	Larus sp.
Is the Bird Sensitive ?	no

Northern Harrier; *Circus hudsonius*; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; <i>Circus hudsonius</i> ; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Western Gull; *Larus occidentalis*; WEGU, no

Bird (Common or Scientific Name): Western Gull; Larus occidentalis; WEGU

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Mourning Dove; Zenaida macroura; MODO, no

Bird (Common or Scientific Name): Mourning Dove; Zenaida macroura; MODO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Song Sparrow; Melospiza melodia; SOSP, no

Bird (Common or Scientific Name): Song Sparrow; Melospiza melodia; SOSP

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Mallard; Anas platyrhynchos; MALL, no

Bird (Common or Scientific Name): Mallard; Anas platyrhynchos; MALL

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Common Yellowthroat; Geothlypis trichas; COYE, no

Bird (Common or Scientific Name): Common Yellowthroat; Geothlypis trichas; COYE

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Double-crested Cormorant; Phalacrocorax auritus; DCCO, yes

Bird (Common or Scientific Name): Double-crested Cormorant; Phalacrocorax auritus; DCCO

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Visual

Number of individuals observed: 1

Behavior (check all that apply): In flight

Bird Sex (check all that apply): Unknown

Bird Age (check all that apply): Unknown

Common Raven; Corvus corax; CORA, no

Bird (Common or Scientific Name): Common Raven; Corvus corax; CORA

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Yellow-rumped Warbler; Setophaga coronata; YRWA, no

Bird (Common or Scientific Name): Yellow-rumped Warbler; Setophaga coronata; YRWA

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Lesser Goldfinch; Spinus psaltria; LEGO, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Cooper's Hawk; Accipiter cooperii; COHA, yes

Bird (Common or Scientific Name):	Cooper's Hawk; Accipiter cooperii; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	Flushed off

American Kestrel; Falco sparverius; AMKE, no

Bird (Common or Scientific Name):	American Kestrel; Falco sparverius; AMKE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Bewick's Wren; Thryomanes bewickii; BEWR, no

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Bushtit; Psaltriparus minimus; BUSH, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Spotted Towhee; Pipilo maculatus; SPTO, no

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

California Towhee; Melozone crissalis; CALT, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Crow; Corvus brachyrhynchos; AMCR, no

Bird (Common or Scientific Name):	American Crow; Corvus brachyrhynchos; AMCR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

White-crowned Sparrow; *Zonotrichia leucophrys*; WCSP, no

Bird (Common or Scientific Name):	White-crowned Sparrow; <i>Zonotrichia leucophrys</i> ; WCSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Ruby-crowned Kinglet; *Regulus calendula*; RCKI, no

Bird (Common or Scientific Name):	Ruby-crowned Kinglet; <i>Regulus calendula</i> ; RCKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Red-winged Blackbird; *Agelaius phoeniceus*; RWBL, no

Bird (Common or Scientific Name):	Red-winged Blackbird; <i>Agelaius phoeniceus</i> ; RWBL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

California Thrasher; *Toxostoma redivivum*; CATH, no

Bird (Common or Scientific Name):	California Thrasher; <i>Toxostoma redivivum</i> ; CATH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

White-tailed Kite; *Elanus leucurus*; WTKI, yes

Bird (Common or Scientific Name):	White-tailed Kite; <i>Elanus leucurus</i> ; WTKI
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Anna's Hummingbird; *Calypte anna*; ANHU, no

Bird (Common or Scientific Name):	Anna's Hummingbird; <i>Calypte anna</i> ; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Tree Swallow; *Tachycineta bicolor*; TRES, no

Bird (Common or Scientific Name):	Tree Swallow; <i>Tachycineta bicolor</i> ; TRES
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Pied-billed Grebe; *Podilymbus podiceps*; PBGR, no

Bird (Common or Scientific Name):	Pied-billed Grebe; <i>Podilymbus podiceps</i> ; PBGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Ruddy Duck; *Oxyura jamaicensis*; RUDU, no

Bird (Common or Scientific Name):	Ruddy Duck; <i>Oxyura jamaicensis</i> ; RUDU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Coot; *Fulica americana*; AMCO, no

Bird (Common or Scientific Name):	American Coot; <i>Fulica americana</i> ; AMCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Common Gallinule; *Gallinula galeata*; COGA, no

Bird (Common or Scientific Name):	Common Gallinule; <i>Gallinula galeata</i> ; COGA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Orange-crowned Warbler; *Oreothlypis celata*; OCWA, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; <i>Oreothlypis celata</i> ; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Lincoln's Sparrow; *Melospiza lincolnii*; LISP, no

Bird (Common or Scientific Name):	Lincoln's Sparrow; <i>Melospiza lincolnii</i> ; LISP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Great-tailed Grackle; *Quiscalus mexicanus*; GTGR, no

Bird (Common or Scientific Name):	Great-tailed Grackle; <i>Quiscalus mexicanus</i> ; GTGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Cassin's Kingbird; *Tyrannus vociferans*; CAKI, no

Bird (Common or Scientific Name):	Cassin's Kingbird; <i>Tyrannus vociferans</i> ; CAKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Eurasian Collared-Dove; *Streptopelia decaocto*; ECDO, no

Bird (Common or Scientific Name):	Eurasian Collared-Dove; <i>Streptopelia decaocto</i> ; ECDO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Blue-gray Gnatcatcher; *Polioptila caerulea*; BGGN, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; <i>Polioptila caerulea</i> ; BGGN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Snowy Egret; *Egretta thula*; SNEG, no

Bird (Common or Scientific Name):	Snowy Egret; <i>Egretta thula</i> ; SNEG
-----------------------------------	--

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Red-tailed Hawk; *Buteo jamaicensis*; RTHA, no

Bird (Common or Scientific Name):	Red-tailed Hawk; <i>Buteo jamaicensis</i> ; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

House Wren; *Troglodytes aedon*; HOWR, no

Bird (Common or Scientific Name):	House Wren; <i>Troglodytes aedon</i> ; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Goldfinch; *Spinus tristis*; AMGO, no

Bird (Common or Scientific Name):	American Goldfinch; <i>Spinus tristis</i> ; AMGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Cooper's Hawk; *Accipiter cooperii*; COHA, yes

Bird (Common or Scientific Name):	Cooper's Hawk; <i>Accipiter cooperii</i> ; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Northern Harrier; *Circus hudsonius*; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; <i>Circus hudsonius</i> ; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Female
Bird Age (check all that apply):	Adult

Wilson's Warbler; *Cardellina pusilla*; WIWA, no

Bird (Common or Scientific Name):	Wilson's Warbler; <i>Cardellina pusilla</i> ; WIWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Northern Harrier; Circus hudsonius; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Territorial display
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Swooping repeatedly along tree line. Unknown if mating/territorial behavior after approx 5 swoops, beeline towards East.

White-tailed Kite; Elanus leucurus; WTKI, yes

Bird (Common or Scientific Name):	White-tailed Kite; Elanus leucurus; WTKI
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Northern Harrier; Circus hudsonius; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	2
Behavior (check all that apply):	Territorial display
Bird Sex (check all that apply):	Female, Male
Bird Age (check all that apply):	Adult
Additional Notes:	Pair, female performing undulating flight pattern over male. Male actively hunting on preserve.

Northern Harrier; Circus hudsonius; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
-------------------	--------

Number of individuals observed:	2
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Female, Unknown
Bird Age (check all that apply):	Adult, Unknown
Additional Notes:	One adult female and one female type seen at same time as pair. Seen circling east of preserve.

White-tailed Kite; *Elanus leucurus*; WTKI, yes

Bird (Common or Scientific Name):	White-tailed Kite; <i>Elanus leucurus</i> ; WTKI
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	2
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Female, Male
Bird Age (check all that apply):	Adult

Cooper's Hawk; *Accipiter cooperii*; COHA, yes

Bird (Common or Scientific Name):	Cooper's Hawk; <i>Accipiter cooperii</i> ; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Red-shouldered Hawk; *Buteo lineatus*; RSHA, yes

Bird (Common or Scientific Name):	Red-shouldered Hawk; <i>Buteo lineatus</i> ; RSHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Northern Mockingbird; *Mimus polyglottos*; NOMO, no

Bird (Common or Scientific Name):	Northern Mockingbird; <i>Mimus polyglottos</i> ; NOMO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

White-tailed Kite; *Elanus leucurus*; WTKI, yes

Bird (Common or Scientific Name):	White-tailed Kite; <i>Elanus leucurus</i> ; WTKI
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	Swooping on RTHA

Western Bluebird; *Sialia mexicana*; WEBL, yes

Bird (Common or Scientific Name):	Western Bluebird; <i>Sialia mexicana</i> ; WEBL
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown

Allen's Hummingbird; *Selasphorus sasin*; ALHU, no

Bird (Common or Scientific Name):	Allen's Hummingbird; <i>Selasphorus sasin</i> ; ALHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Northern Harrier; *Circus hudsonius*; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; <i>Circus hudsonius</i> ; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	2
Behavior (check all that apply):	Foraging, In flight
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	Adult pair seen circling up harassing RSHA. Adult female flew towards W, south of ball field. Adult male seen foraging over mule fat scrub east of ball field.

Northern Harrier; *Circus hudsonius*; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; <i>Circus hudsonius</i> ; NOHA
Is the Bird Sensitive ?	yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Visual

Number of individuals observed: 1

Behavior (check all that apply): In flight

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Subadult

Additional Notes: Flying S. Was seen being chased by adult male.

Mammal

California Ground Squirrel; *Ostospermophilus beecheyi*

Mammal (Common or Scientific Name): California Ground Squirrel; *Ostospermophilus beecheyi*

Is the Mammal Sensitive ? no

Sub-Species Info: N/A

Audubons Cottontail; *Sylvilagus audubonii*

Mammal (Common or Scientific Name): Audubons Cottontail; *Sylvilagus audubonii*

Is the Mammal Sensitive ? no

Sub-Species Info: N/A

TMP Monitoring, Northern Harrier

Created	2022-04-18 13:18:13 UTC by SC Fulcrum05
Updated	2022-04-18 18:01:24 UTC by SC Fulcrum05
Location	32.55384032603934, -117.08457365327102

Parent Form

Project Name:	TMP Monitoring, Northern Harrier
Preserve/Park Name	Tijuana River Valley Regional Park
General Survey Type	TMP Monitoring
Specific Survey Type	TMP Northern Harrier
Observer/Surveyor:	Jaclyn Catino-Davenport
Assistant Observer/Surveyor:	Rachel Le
Date:	2022-04-18

START Weather Details:

Start - Time:	06:18
Wind Direction	N/A
Air Temp Current (F)	61.9
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	80
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Notes	Offshore fog breaking up

END Weather Details:

Time Out:	10:56
End - Temperature:	68.1
End - Wind Direction From (select one):	SW
End - Low Wind Speed:	2.1
End - High Wind Speed:	7.5
End - Average Wind Speed:	4.8
End - Cloud Cover (%):	20
End - Precipitation (select one):	None
End - Visibility (select one):	Good
Notes	Medium sized raptor with long tail backlit by sun unknown if NOHA in E of pony land
Observation Type:	Bird, Mammal, Amphibian, Reptile

Amphibian

Started at butterfly garden, then went to Hollister st/monument rd, then south of sunset/saturn blvd, baseball field, then Campground last.

American Bullfrog: *Lithobates catesbeianus*

Amphibian (Common or Scientific Name):	American Bullfrog: <i>Lithobates catesbeianus</i>
Is the Amphibian Sensitive ?	no
Sub-Species Info:	N/A

Bird

Yellow Warbler; *Setophaga petechia*; YEWA, yes

Bird (Common or Scientific Name):	Yellow Warbler; <i>Setophaga petechia</i> ; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown

Black Phoebe; *Sayornis nigricans*; BLPH, no

Bird (Common or Scientific Name):	Black Phoebe; <i>Sayornis nigricans</i> ; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Red-shouldered Hawk; *Buteo lineatus*; RSHA, yes

Bird (Common or Scientific Name):	Red-shouldered Hawk; <i>Buteo lineatus</i> ; RSHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown

Western Gull; *Larus occidentalis*; WEGU, no

Bird (Common or Scientific Name):	Western Gull; <i>Larus occidentalis</i> ; WEGU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Mallard; *Anas platyrhynchos*; MALL, no

Bird (Common or Scientific Name):	Mallard; <i>Anas platyrhynchos</i> ; MALL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

California Towhee; *Melospiza crissalis*; CALT, no

Bird (Common or Scientific Name):	California Towhee; <i>Melospiza crissalis</i> ; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

White-tailed Kite; *Elanus leucurus*; WTKI, yes

Bird (Common or Scientific Name):	White-tailed Kite; <i>Elanus leucurus</i> ; WTKI
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	2
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult

Red-tailed Hawk; *Buteo jamaicensis*; RTHA, no

Bird (Common or Scientific Name):	Red-tailed Hawk; <i>Buteo jamaicensis</i> ; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Song Sparrow; *Melospiza melodia*; SOSP, no

Bird (Common or Scientific Name):	Song Sparrow; <i>Melospiza melodia</i> ; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Bushtit; *Psaltriparus minimus*; BUSH, no

Bird (Common or Scientific Name):	Bushtit; <i>Psaltriparus minimus</i> ; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Crow; *Corvus brachyrhynchos*; AMCR, no

Bird (Common or Scientific Name):	American Crow; <i>Corvus brachyrhynchos</i> ; AMCR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Orange-crowned Warbler; *Oreothlypis celata*; OCWA, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; <i>Oreothlypis celata</i> ; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Yellow Warbler; *Setophaga petechia*; YEWA, yes

Bird (Common or Scientific Name):	Yellow Warbler; <i>Setophaga petechia</i> ; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Unknown

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Hutton's Vireo; *Vireo huttoni*; HUVI, no

Bird (Common or Scientific Name):	Hutton's Vireo; <i>Vireo huttoni</i> ; HUVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Lesser Goldfinch; *Spinus psaltria*; LEGO, no

Bird (Common or Scientific Name):	Lesser Goldfinch; <i>Spinus psaltria</i> ; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Mourning Dove; *Zenaida macroura*; MODO, no

Bird (Common or Scientific Name):	Mourning Dove; <i>Zenaida macroura</i> ; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Wilson's Warbler; *Cardellina pusilla*; WIWA, no

Bird (Common or Scientific Name):	Wilson's Warbler; <i>Cardellina pusilla</i> ; WIWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Hooded Oriole; *Icterus cucullatus*; HOOR, no

Bird (Common or Scientific Name):	Hooded Oriole; <i>Icterus cucullatus</i> ; HOOR
Is the Bird Sensitive ?	no

Sub-Species Info: N/A

Yellow-breasted Chat; *Icteria virens*; YBCH, yes

Bird (Common or Scientific Name): Yellow-breasted Chat; *Icteria virens*; YBCH

Is the Bird Sensitive? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Both

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

House Wren; *Troglodytes aedon*; HOWR, no

Bird (Common or Scientific Name): House Wren; *Troglodytes aedon*; HOWR

Is the Bird Sensitive? no

Sub-Species Info: N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; *Vireo bellii pusillus*; LBVI

Is the Bird Sensitive? yes

Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 2

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Additional Notes: Countersigning

House Sparrow; *Passer domesticus*; HOSP, no

Bird (Common or Scientific Name): House Sparrow; *Passer domesticus*; HOSP

Is the Bird Sensitive? no

Sub-Species Info: N/A

Eurasian Collared-Dove; *Streptopelia decaocto*; ECDO, no

Bird (Common or Scientific Name): Eurasian Collared-Dove; *Streptopelia decaocto*; ECDO

Is the Bird Sensitive? no

Sub-Species Info: N/A

Cooper's Hawk; *Accipiter cooperii*; COHA, yes

Bird (Common or Scientific Name): Cooper's Hawk; *Accipiter cooperii*; COHA

Is the Bird Sensitive? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Subadult

Anna's Hummingbird; *Calypte anna*; ANHU, no

Bird (Common or Scientific Name):	Anna's Hummingbird; <i>Calypte anna</i> ; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Cliff Swallow; *Petrochelidon pyrrhonota*; CLSW, no

Bird (Common or Scientific Name):	Cliff Swallow; <i>Petrochelidon pyrrhonota</i> ; CLSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Nuttall's Woodpecker; *Dryobates nuttallii*; NUWO, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; <i>Dryobates nuttallii</i> ; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Rock Pigeon; *Columba livia*; ROPI, no

Bird (Common or Scientific Name):	Rock Pigeon; <i>Columba livia</i> ; ROPI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

White-crowned Sparrow; *Zonotrichia leucophrys*; WCSP, no

Bird (Common or Scientific Name):	White-crowned Sparrow; <i>Zonotrichia leucophrys</i> ; WCSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Cooper's Hawk; *Accipiter cooperii*; COHA, yes

Bird (Common or Scientific Name):	Cooper's Hawk; <i>Accipiter cooperii</i> ; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes

Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Visual

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Northern Rough-winged Swallow; Stelgidopteryx serripennis; NRWS, no

Bird (Common or Scientific Name): Northern Rough-winged Swallow; Stelgidopteryx serripennis; NRWS

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Downy Woodpecker; Dryobates pubescens; DOWO, no

Bird (Common or Scientific Name): Downy Woodpecker; Dryobates pubescens; DOWO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Black-crowned Night-Heron; Nycticorax nycticorax; BCNH, no

Bird (Common or Scientific Name): Black-crowned Night-Heron; Nycticorax nycticorax; BCNH

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; Vireo bellii pusillus; LBVI

Is the Bird Sensitive ? yes

Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Cooper's Hawk; Accipiter cooperii; COHA, yes

Bird (Common or Scientific Name): Cooper's Hawk; Accipiter cooperii; COHA

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Both

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Unknown

Bird Age (check all that apply): Subadult

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Countersigning

Yellow-breasted Chat; *Icteria virens*; YBCH, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; <i>Icteria virens</i> ; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	4
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Unknown

Bewick's Wren; *Thryomanes bewickii*; BEWR, no

Bird (Common or Scientific Name):	Bewick's Wren; <i>Thryomanes bewickii</i> ; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Northern Harrier; *Circus hudsonius*; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; <i>Circus hudsonius</i> ; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Seen 3 different times, likely same individual

Snowy Egret; *Egretta thula*; SNEG, no

Bird (Common or Scientific Name):	Snowy Egret; <i>Egretta thula</i> ; SNEG
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Common Raven; *Corvus corax*; CORA, no

Bird (Common or Scientific Name):	Common Raven; <i>Corvus corax</i> ; CORA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Common Yellowthroat; *Geothlypis trichas*; COYE, no

Bird (Common or Scientific Name):	Common Yellowthroat; <i>Geothlypis trichas</i> ; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Ash-throated Flycatcher; *Myiarchus cinerascens*; ATFL, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; <i>Myiarchus cinerascens</i> ; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Red-winged Blackbird; *Agelaius phoeniceus*; RWBL, no

Bird (Common or Scientific Name):	Red-winged Blackbird; <i>Agelaius phoeniceus</i> ; RWBL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Cooper's Hawk; *Accipiter cooperii*; COHA, yes

Bird (Common or Scientific Name):	Cooper's Hawk; <i>Accipiter cooperii</i> ; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	2 LBVI territories

Tree Swallow; *Tachycineta bicolor*; TRES, no

Bird (Common or Scientific Name):	Tree Swallow; Tachycineta bicolor; TRES
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Osprey; Pandion haliaetus; OSPR, yes

Bird (Common or Scientific Name):	Osprey; Pandion haliaetus; OSPR
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

American Coot; Fulica americana; AMCO, no

Bird (Common or Scientific Name):	American Coot; Fulica americana; AMCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Gadwall; Mareca strepera; GADW, yes

Bird (Common or Scientific Name):	Gadwall; Mareca strepera; GADW
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	2
Behavior (check all that apply):	Resting on pond
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult

Ruddy Duck; Oxyura jamaicensis; RUDU, no

Bird (Common or Scientific Name):	Ruddy Duck; Oxyura jamaicensis; RUDU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Black-throated Gray Warbler; Setophaga nigrescens; BTYW, no

Bird (Common or Scientific Name):	Black-throated Gray Warbler; Setophaga nigrescens; BTYW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Long-billed Curlew; Numenius americanus; LBCU, yes

Bird (Common or Scientific Name):	Long-billed Curlew; Numenius americanus; LBCU
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Northern Harrier; Circus hudsonius; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	2
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Female, Male
Bird Age (check all that apply):	Adult
Additional Notes:	Female carrying nest material. Territory NE of ball field

Turkey Vulture; Cathartes aura; TUVU, yes

Bird (Common or Scientific Name):	Turkey Vulture; Cathartes aura; TUVU
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Horned Lark; Eremophila alpestris; HOLA, no

Bird (Common or Scientific Name):	Horned Lark; Eremophila alpestris; HOLA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Sensitive Bird Observation

Number of individuals observed:	1
---------------------------------	---

Northern Harrier; Circus hudsonius; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
-------------------	--------

Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Another male

Yellow Warbler; *Setophaga petechia*; YEWA, yes

Bird (Common or Scientific Name):	Yellow Warbler; <i>Setophaga petechia</i> ; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Western Kingbird; *Tyrannus verticalis*; WEKI, no

Bird (Common or Scientific Name):	Western Kingbird; <i>Tyrannus verticalis</i> ; WEKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Coastal California Gnatcatcher; *Polioptila californica californica*; CAGN, yes

Bird (Common or Scientific Name):	Coastal California Gnatcatcher; <i>Polioptila californica californica</i> ; CAGN
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Northern Harrier; *Circus hudsonius*; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; <i>Circus hudsonius</i> ; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Northern Harrier; Circus hudsonius; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	3
Behavior (check all that apply):	Territorial display
Bird Sex (check all that apply):	Male, Unknown
Bird Age (check all that apply):	Adult, Unknown
Additional Notes:	1 male, 2 unknown. Swooping on RTHA. All birds flew N.

Northern Harrier; Circus hudsonius; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Female
Bird Age (check all that apply):	Adult
Additional Notes:	Likely same NOHA swooping on RTHA

Mammal

Audubons Cottontail; Sylvilagus audubonii

Mammal (Common or Scientific Name):	Audubons Cottontail; Sylvilagus audubonii
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

California Ground Squirrel; Ostospermophilus beecheyi

Mammal (Common or Scientific Name):	California Ground Squirrel; Ostospermophilus beecheyi
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Reptile

Western Fence Lizard; Sceloporus occidentalis

Reptile (Common or Scientific Name):	Western Fence Lizard; Sceloporus occidentalis
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

Sensitive Reptile Observation

Number of individuals observed:	1
---------------------------------	---

Common Side-blotched Lizard; *Uta stansburiana*

Reptile (Common or Scientific Name):	Common Side-blotched Lizard; <i>Uta stansburiana</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

TMP Monitoring, Northern Harrier

Created	2022-05-17 13:17:39 UTC by SC Fulcrum05
Updated	2022-05-18 14:43:54 UTC by SC Fulcrum05
Location	32.55382615798367, -117.08468612283467

Parent Form

Project Name:	TMP Monitoring, Northern Harrier
Preserve/Park Name	Tijuana River Valley Regional Park
General Survey Type	TMP Monitoring
Specific Survey Type	TMP Northern Harrier
Observer/Surveyor:	Jaclyn Catino-Davenport
Assistant Observer/Surveyor:	Pablo Corcoran
Date:	2022-05-17

START Weather Details:

Start - Time:	06:17
Wind Direction	N/A
Air Temp Current (F)	58
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	100
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	10:45
End - Temperature:	63
End - Wind Direction From (select one):	SW
End - Average Wind Speed:	10
End - Cloud Cover (%):	10
End - Precipitation (select one):	None
End - Visibility (select one):	Good
End - Notes (if applicable):	Wind picked up around 8am
Notes	Started north of monument rd/east of hollister st. Moved to area south of sunset Ave. next stop was ballpark area. Moved to campground. Last stop at Sunset/Saturn boulevard. RTHA seen with CGS.
Observation Type:	Bird, Mammal, Invertebrate, Reptile

Bird

Song Sparrow; *Melospiza melodia*; SOSP, no

Bird (Common or Scientific Name):	Song Sparrow; <i>Melospiza melodia</i> ; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Common Yellowthroat; *Geothlypis trichas*; COYE, no

Bird (Common or Scientific Name):	Common Yellowthroat; <i>Geothlypis trichas</i> ; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Spotted Towhee; *Pipilo maculatus*; SPTO, no

Bird (Common or Scientific Name):	Spotted Towhee; <i>Pipilo maculatus</i> ; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Pacific-slope Flycatcher; *Empidonax difficilis*; PSFL, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; <i>Empidonax difficilis</i> ; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Brown-headed Cowbird; *Molothrus ater*; BHCO, no

Bird (Common or Scientific Name):	Brown-headed Cowbird; <i>Molothrus ater</i> ; BHCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Common Raven; *Corvus corax*; CORA, no

Bird (Common or Scientific Name):	Common Raven; <i>Corvus corax</i> ; CORA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Crow; *Corvus brachyrhynchos*; AMCR, no

Bird (Common or Scientific Name):	American Crow; <i>Corvus brachyrhynchos</i> ; AMCR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown

Orange-crowned Warbler; *Oreothlypis celata*; OCWA, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; <i>Oreothlypis celata</i> ; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Black Phoebe; *Sayornis nigricans*; BLPH, no

Bird (Common or Scientific Name): Black Phoebe; Sayornis nigricans; BLPH
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Yellow Warbler; Setophaga petechia; YEWA, yes

Bird (Common or Scientific Name): Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ? yes
Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Auditory
Number of individuals observed: 1
Behavior (check all that apply): Singing/calling
Bird Sex (check all that apply): Male
Bird Age (check all that apply): Adult

Bewick's Wren; Thryomanes bewickii; BEWR, no

Bird (Common or Scientific Name): Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ? yes
Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Auditory
Number of individuals observed: 1
Behavior (check all that apply): Singing/calling
Bird Sex (check all that apply): Male
Bird Age (check all that apply): Adult

Northern Cardinal; Cardinalis cardinalis; NOCA, no

Bird (Common or Scientific Name): Northern Cardinal; Cardinalis cardinalis; NOCA
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Wrentit; Chamaea fasciata; WREN, no

Bird (Common or Scientific Name): Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Yellow-breasted Chat; Icteria virens; YBCH, yes

Bird (Common or Scientific Name): Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ? yes
Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Western Gull; *Larus occidentalis*; WEGU, no

Bird (Common or Scientific Name):	Western Gull; <i>Larus occidentalis</i> ; WEGU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

House Finch; *Haemorhous mexicanus*; HOFI, no

Bird (Common or Scientific Name):	House Finch; <i>Haemorhous mexicanus</i> ; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

White-tailed Kite; *Elanus leucurus*; WTKI, yes

Bird (Common or Scientific Name):	White-tailed Kite; <i>Elanus leucurus</i> ; WTKI
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

California Thrasher; *Toxostoma redivivum*; CATH, no

Bird (Common or Scientific Name):	California Thrasher; <i>Toxostoma redivivum</i> ; CATH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Eurasian Collared-Dove; *Streptopelia decaocto*; ECDO, no

Bird (Common or Scientific Name):	Eurasian Collared-Dove; <i>Streptopelia decaocto</i> ; ECDO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Black-crowned Night-Heron; *Nycticorax nycticorax*; BCNH, no

Bird (Common or Scientific Name):	Black-crowned Night-Heron; <i>Nycticorax nycticorax</i> ; BCNH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Snowy Egret; *Egretta thula*; SNEG, no

Bird (Common or Scientific Name):	Snowy Egret; <i>Egretta thula</i> ; SNEG
Is the Bird Sensitive ?	no

Sub-Species Info: N/A

Black-throated Magpie-Jay; Calocitta colliei, no

Bird (Common or Scientific Name): Black-throated Magpie-Jay; Calocitta colliei

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Red-shouldered Hawk; Buteo lineatus; RSHA, yes

Bird (Common or Scientific Name): Red-shouldered Hawk; Buteo lineatus; RSHA

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Visual

Number of individuals observed: 1

Behavior (check all that apply): Perched (not singing)

Bird Sex (check all that apply): Unknown

Bird Age (check all that apply): Adult

Hooded Oriole; Icterus cucullatus; HOOR, no

Bird (Common or Scientific Name): Hooded Oriole; Icterus cucullatus; HOOR

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Mourning Dove; Zenaida macroura; MODO, no

Bird (Common or Scientific Name): Mourning Dove; Zenaida macroura; MODO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Allen's Hummingbird; Selasphorus sasin; ALHU, no

Bird (Common or Scientific Name): Allen's Hummingbird; Selasphorus sasin; ALHU

Is the Bird Sensitive ? no

Sub-Species Info: N/A

European Starling; Sturnus vulgaris; EUST, no

Bird (Common or Scientific Name): European Starling; Sturnus vulgaris; EUST

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Cliff Swallow; Petrochelidon pyrrhonota; CLSW, no

Bird (Common or Scientific Name): Cliff Swallow; Petrochelidon pyrrhonota; CLSW

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; Vireo bellii pusillus; LBVI

Is the Bird Sensitive ? yes

Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

House Sparrow; *Passer domesticus*; HOSP, no

Bird (Common or Scientific Name): House Sparrow; *Passer domesticus*; HOSP

Is the Bird Sensitive? no

Sub-Species Info: N/A

Bushtit; *Psaltriparus minimus*; BUSH, no

Bird (Common or Scientific Name): Bushtit; *Psaltriparus minimus*; BUSH

Is the Bird Sensitive? no

Sub-Species Info: N/A

California Towhee; *Melospiza crissalis*; CALT, no

Bird (Common or Scientific Name): California Towhee; *Melospiza crissalis*; CALT

Is the Bird Sensitive? no

Sub-Species Info: N/A

Northern Harrier; *Circus hudsonius*; NOHA, yes

Bird (Common or Scientific Name): Northern Harrier; *Circus hudsonius*; NOHA

Is the Bird Sensitive? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 1

Behavior (check all that apply): In flight, Foraging

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Additional Notes: Seen actively foraging. Meandering with face down, zigzagging over shrub habitat. Hovered over shrubs near trail, potential nest location.

Rock Pigeon; *Columba livia*; ROPI, no

Bird (Common or Scientific Name): Rock Pigeon; *Columba livia*; ROPI

Is the Bird Sensitive? no

Sub-Species Info: N/A

Mallard; *Anas platyrhynchos*; MALL, no

Bird (Common or Scientific Name): Mallard; *Anas platyrhynchos*; MALL

Is the Bird Sensitive? no

Sub-Species Info: N/A

Northern Rough-winged Swallow; *Stelgidopteryx serripennis*; NRWS, no

Bird (Common or Scientific Name):	Northern Rough-winged Swallow; <i>Stelgidopteryx serripennis</i> ; NRWS
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Black-headed Grosbeak; *Pheucticus melanocephalus*; BHGR, no

Bird (Common or Scientific Name):	Black-headed Grosbeak; <i>Pheucticus melanocephalus</i> ; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Lesser Goldfinch; *Spinus psaltria*; LEGO, no

Bird (Common or Scientific Name):	Lesser Goldfinch; <i>Spinus psaltria</i> ; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

House Wren; *Troglodytes aedon*; HOWR, no

Bird (Common or Scientific Name):	House Wren; <i>Troglodytes aedon</i> ; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Warbling Vireo; *Vireo gilvus*; WAVI, no

Bird (Common or Scientific Name):	Warbling Vireo; <i>Vireo gilvus</i> ; WAVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Yellow Warbler; *Setophaga petechia*; YEWA, yes

Bird (Common or Scientific Name):	Yellow Warbler; <i>Setophaga petechia</i> ; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown

Nuttall's Woodpecker; *Dryobates nuttallii*; NUWO, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; <i>Dryobates nuttallii</i> ; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Red-winged Blackbird; *Agelaius phoeniceus*; RWBL, no

Bird (Common or Scientific Name):	Red-winged Blackbird; <i>Agelaius phoeniceus</i> ; RWBL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Blue Grosbeak; *Passerina caerulea*; BLGR, no

Bird (Common or Scientific Name):	Blue Grosbeak; <i>Passerina caerulea</i> ; BLGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Tree Swallow; *Tachycineta bicolor*; TRES, no

Bird (Common or Scientific Name):	Tree Swallow; <i>Tachycineta bicolor</i> ; TRES
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Western Kingbird; *Tyrannus verticalis*; WEKI, no

Bird (Common or Scientific Name):	Western Kingbird; <i>Tyrannus verticalis</i> ; WEKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1

Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Great Blue Heron; *Ardea herodias*; GBHE, yes

Bird (Common or Scientific Name):	Great Blue Heron; <i>Ardea herodias</i> ; GBHE
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

American Goldfinch; *Spinus tristis*; AMGO, no

Bird (Common or Scientific Name):	American Goldfinch; <i>Spinus tristis</i> ; AMGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Coot; *Fulica americana*; AMCO, no

Bird (Common or Scientific Name):	American Coot; <i>Fulica americana</i> ; AMCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Bullock's Oriole; *Icterus bullockii*; BUOR, no

Bird (Common or Scientific Name):	Bullock's Oriole; <i>Icterus bullockii</i> ; BUOR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Northern Mockingbird; *Mimus polyglottos*; NOMO, no

Bird (Common or Scientific Name):	Northern Mockingbird; <i>Mimus polyglottos</i> ; NOMO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Northern Harrier; *Circus hudsonius*; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; <i>Circus hudsonius</i> ; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Additional Notes:

Initially seen low, likely foraging before gaining elevation then swooping down to perch on wooden pole.

Photo(s) of Bird:



Long-billed Curlew; Numenius americanus; LBCU, yes

Bird (Common or Scientific Name): Long-billed Curlew; Numenius americanus; LBCU

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Both

Number of individuals observed: 2

Behavior (check all that apply): In flight

Bird Sex (check all that apply): Unknown

Bird Age (check all that apply): Unknown

White-throated Swift; Aeronautes saxatalis; WTSW, no

Bird (Common or Scientific Name): White-throated Swift; Aeronautes saxatalis; WTSW

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Turkey Vulture; Cathartes aura; TUVU, yes

Bird (Common or Scientific Name): Turkey Vulture; Cathartes aura; TUVU

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Visual

Number of individuals observed: 1

Behavior (check all that apply): In flight

Bird Sex (check all that apply): Unknown

Bird Age (check all that apply): Unknown

Anna's Hummingbird; Calypte anna; ANHU, no

Bird (Common or Scientific Name): Anna's Hummingbird; Calypte anna; ANHU

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Northern Harrier; Circus hudsonius; NOHA, yes

Bird (Common or Scientific Name): Northern Harrier; Circus hudsonius; NOHA

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Visual

Number of individuals observed: 2

Behavior (check all that apply): In flight

Bird Sex (check all that apply): Male, Female

Bird Age (check all that apply): Adult

Additional Notes: Female seen dinking male. Male likely with unknown prey item

Greater Roadrunner; Geococcyx californianus; GRRO, no

Bird (Common or Scientific Name): Greater Roadrunner; Geococcyx californianus; GRRO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Northern Harrier; Circus hudsonius; NOHA, yes

Bird (Common or Scientific Name): Northern Harrier; Circus hudsonius; NOHA

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Visual

Number of individuals observed: 2

Behavior (check all that apply): In flight

Bird Sex (check all that apply): Female, Male

Bird Age (check all that apply): Adult

Additional Notes: Seen in separate area from pair. Male seen swooping to perch location adjacent to trail

Red-tailed Hawk; Buteo jamaicensis; RTHA, no

Bird (Common or Scientific Name): Red-tailed Hawk; Buteo jamaicensis; RTHA

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Invertebrate

Other Invertebrate Species Dasymutilla sp.

Is the Invertebrate Sensitive ? No

Mammal

California Ground Squirrel; *Ostospermophilus beecheyi*

Mammal (Common or Scientific Name):	California Ground Squirrel; <i>Ostospermophilus beecheyi</i>
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Audubons Cottontail; *Sylvilagus audubonii*

Mammal (Common or Scientific Name):	Audubons Cottontail; <i>Sylvilagus audubonii</i>
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Reptile

Orange-throated Whiptail; *Aspidoscelis hyperythrus*

Reptile (Common or Scientific Name):	Orange-throated Whiptail; <i>Aspidoscelis hyperythrus</i>
Is the Reptile Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Reptile Observation

Observation Type (check all that apply):	Visual sighting
Number of individuals observed:	1
Behavior (check all that apply):	Moving (flushed)
Reptile Sex (check all that apply):	Unknown
Reptile Age (check all that apply):	Unknown

TMP Monitoring, Northern Harrier

Created	2022-06-29 13:21:36 UTC by SC Fulcrum03
Updated	2022-06-30 00:20:39 UTC by SC Fulcrum03
Location	32.55822400099843, -117.07576249737018

Parent Form

Project Name:	TMP Monitoring, Northern Harrier
Preserve/Park Name	Tijuana River Valley Regional Park
General Survey Type	TMP Monitoring
Specific Survey Type	TMP Northern Harrier
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Rachel Le
Date:	2022-06-29

START Weather Details:

Start - Time:	06:21
Wind Direction	NA
Air Temp Current (F)	66
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	100
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	11:24
End - Temperature:	79
End - Wind Direction From (select one):	SW
End - Low Wind Speed:	1
End - High Wind Speed:	5
End - Average Wind Speed:	3
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
Observation Type:	Bird, Butterfly/Moth

Photos



Illegal trail use. South facing

Bird

Mourning Dove; *Zenaida macroura*; MODO, no

Bird (Common or Scientific Name): Mourning Dove; *Zenaida macroura*; MODO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

American Crow; *Corvus brachyrhynchos*; AMCR, no

Bird (Common or Scientific Name): American Crow; *Corvus brachyrhynchos*; AMCR

Is the Bird Sensitive ? no

Sub-Species Info: N/A

House Finch; *Haemorhous mexicanus*; HOFI, no

Bird (Common or Scientific Name): House Finch; *Haemorhous mexicanus*; HOFI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

House Wren; *Troglodytes aedon*; HOWR, no

Bird (Common or Scientific Name): House Wren; *Troglodytes aedon*; HOWR

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Common Yellowthroat; *Geothlypis trichas*; COYE, no

Bird (Common or Scientific Name): Common Yellowthroat; *Geothlypis trichas*; COYE

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Allen's Hummingbird; *Selasphorus sasin*; ALHU, no

Bird (Common or Scientific Name): Allen's Hummingbird; Selasphorus sasin; ALHU

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Black-chinned Hummingbird; Archilochus alexandri; BCHU, no

Bird (Common or Scientific Name): Black-chinned Hummingbird; Archilochus alexandri; BCHU

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Gadwall; Mareca strepera; GADW, yes

Bird (Common or Scientific Name): Gadwall; Mareca strepera; GADW

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Visual

Number of individuals observed: 1

Behavior (check all that apply): In flight

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Yellow-breasted Chat; Icteria virens; YBCH, yes

Bird (Common or Scientific Name): Yellow-breasted Chat; Icteria virens; YBCH

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Downy Woodpecker; Dryobates pubescens; DOWO, no

Bird (Common or Scientific Name): Downy Woodpecker; Dryobates pubescens; DOWO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Song Sparrow; Melospiza melodia; SOSP, no

Bird (Common or Scientific Name): Song Sparrow; Melospiza melodia; SOSP

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Turkey Vulture; Cathartes aura; TUVU, yes

Bird (Common or Scientific Name): Turkey Vulture; Cathartes aura; TUVU

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Black Phoebe; Sayornis nigricans; BLPH, no

Bird (Common or Scientific Name):	Black Phoebe; Sayornis nigricans; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Cliff Swallow; Petrochelidon pyrrhonota; CLSW, no

Bird (Common or Scientific Name):	Cliff Swallow; Petrochelidon pyrrhonota; CLSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Blue Grosbeak; Passerina caerulea; BLGR, no

Bird (Common or Scientific Name):	Blue Grosbeak; Passerina caerulea; BLGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Cassin's Kingbird; Tyrannus vociferans; CAKI, no

Bird (Common or Scientific Name):	Cassin's Kingbird; Tyrannus vociferans; CAKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Red-shouldered Hawk; Buteo lineatus; RSHA, yes

Bird (Common or Scientific Name):	Red-shouldered Hawk; Buteo lineatus; RSHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1

Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Great-tailed Grackle; Quiscalus mexicanus; GTGR, no

Bird (Common or Scientific Name):	Great-tailed Grackle; Quiscalus mexicanus; GTGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Wrentit; Chamaea fasciata; WREN, no

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Northern Harrier; Circus hudsonius; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	5
Behavior (check all that apply):	Perched (not singing), Foraging, In flight
Bird Sex (check all that apply):	Unknown, Female
Bird Age (check all that apply):	Juvenile, Adult
Additional Notes:	4 juvs begging and one adult female foraging

Photo(s) of Bird:



White-tailed Kite; Elanus leucurus; WTKI, yes

Bird (Common or Scientific Name):	White-tailed Kite; Elanus leucurus; WTKI
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Juvenile

Cooper's Hawk; *Accipiter cooperii*; COHA, yes

Bird (Common or Scientific Name):	Cooper's Hawk; <i>Accipiter cooperii</i> ; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Coastal California Gnatcatcher; *Polioptila californica californica*; CAGN, yes

Bird (Common or Scientific Name):	Coastal California Gnatcatcher; <i>Polioptila californica californica</i> ; CAGN
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Photo(s) of Bird:



Northern Harrier; *Circus hudsonius*; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	2
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Female, Male
Bird Age (check all that apply):	Adult
Additional Notes:	Female flew into trees west of Hollister, about 20 min later, male flew out.

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Nuttall's Woodpecker; Dryobates nuttallii; NUWO, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Red-tailed Hawk; Buteo jamaicensis; RTHA, no

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Yellow Warbler; Setophaga petechia; YEWA, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

California Towhee; Melozone crissalis; CALT, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Western Gull; Larus occidentalis; WEGU, no

Bird (Common or Scientific Name):	Western Gull; Larus occidentalis; WEGU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male, Unknown
Bird Age (check all that apply):	Adult, Juvenile
Additional Notes:	Singing male, begging juv

Northern Harrier; Circus hudsonius; NOHA, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	2
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult

Photo(s) of Bird:



Ruddy Duck; *Oxyura jamaicensis*; RUDU, no

Bird (Common or Scientific Name):	Ruddy Duck; <i>Oxyura jamaicensis</i> ; RUDU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Coot; *Fulica americana*; AMCO, no

Bird (Common or Scientific Name):	American Coot; <i>Fulica americana</i> ; AMCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Red-winged Blackbird; *Agelaius phoeniceus*; RWBL, no

Bird (Common or Scientific Name):	Red-winged Blackbird; <i>Agelaius phoeniceus</i> ; RWBL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Common Gallinule; *Gallinula galeata*; COGA, no

Bird (Common or Scientific Name):	Common Gallinule; <i>Gallinula galeata</i> ; COGA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Mallard; *Anas platyrhynchos*; MALL, no

Bird (Common or Scientific Name):	Mallard; <i>Anas platyrhynchos</i> ; MALL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Butterfly/Moth

Mourning Cloak; *Nymphalis antiopa*

Butterfly/Moth (Common or Scientific Name):	Mourning Cloak; <i>Nymphalis antiopa</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Anise Swallowtail; *Papilio zelicaon*

Butterfly/Moth (Common or Scientific Name):	Anise Swallowtail; <i>Papilio zelicaon</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Lorquin's Admiral; *Limenitis lorquini*

Butterfly/Moth (Common or Scientific Name):	Lorquin's Admiral; <i>Limenitis lorquini</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Checkered White; *Pontia protodice*

Butterfly/Moth (Common or Scientific Name):	Checkered White; <i>Pontia protodice</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Marine Blue; *Leptotes marina*

Butterfly/Moth (Common or Scientific Name):	Marine Blue; <i>Leptotes marina</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

H-3 Threat Assessment Form

Scientific Name: Northern Harrier	MSP Occurrence ID: N/A	
Preserve: Tijuana River Valley Regional Park	Occurrence Name: N/A	
Date: June 29, 2022	Surveyors & Affiliation/Agency: Brennan Mulrooney (ESA), Rachel Le (ESA)	
V. CURRENT MAPPED EXTENT INFORMATION. Count or estimate number of plants in mapped extent. Area can be calculated based on GIS perimeter mapping or visual mapping on aerial photo in the office.		
# Plants/Current Mapped Extent: _____, Exact Count: _____, Estimate (1000s, 10k): _____, Uncertainty? _____		
For both exact counts and estimates, indicate: Counted/estimated individual plants: _____ OR Counted/estimated clusters of plants: _____		
For geophytes: are counts of flowering or vegetative individuals? Flowering: _____ Vegetative: _____		
Area of Current Mapped Extent: _____ Units: _____ Exact (GPS mapping): _____ Estimate: _____		
Perimeter of current extent determined by walking it or estimated by other means (mapped on aerials)? Walked: _____ Other (describe p. 3): _____		
Species in Maximum Extent? Yes: _____ No: _____ If not, why _____		
VI. THREATS ASSESSMENT IN MAXIMUM EXTENT - Assess threats within the <i>occurrence's maximum extent</i> (cumulative extent over years of monitoring) plus 10-m surrounding buffer . Record notes on p. 3.		
Surrounding Land Use/Activity at or Adjacent to Site: Open space (border field state park) to the West, urban/developed to the North & South, agriculture to the East.		
<i>Disturbance Classes (rank each threat as 1-7): 1 = no sign of disturbance, 2 = disturbance in 10m surrounding buffer but not within maximum extent, 3 = disturbance occurs in >0 % to <10% of area within maximum extent, 4 = disturbance in 10% to <25% of maximum extent, 5 = disturbance in 25 to <50% of maximum extent, 6 = disturbance occurs within 50 to <75% of maximum extent, and 7 = disturbance occurs within ≥75% of maximum extent.</i>		
Non-Native Forbs <u>5</u>	Feral Pig Activity <u>1</u>	Erosion <u>3</u>
Non-Native Grasses <u>4</u>	Trampling <u>3</u>	Urban Runoff <u>3</u>
Non-Native Woody Plants <u>3</u>	Vandalism <u>3</u>	Slope Movement <u>1</u>
Competitive Native Plants <u>3</u>	Grazing (Y/N/UNK) <u>No</u>	Soil Compaction <u>3</u>
Dumping/Trash <u>3</u>	Historic Agriculture (Y/N/Unk) <u>Unknown</u>	
Encampments <u>2</u>	Altered Hydrology <u>3</u>	
Fuel Modification Zone/Fire Break <u>1</u>		
Road Construction/Maintenance: <u>1</u> If Observed, Briefly Describe: _____		
Vegetation Clearing: <u>1</u> If Observed, Briefly Describe: _____		
Restoration Project (Impacts): <u>1</u> If Observed, Briefly Describe: _____		
ORV Activity <u>4</u> If Observed, List Type(s) of ORV Activity: <u>Border patrol on ATV</u>		
Evidence of Recent Fire <u>1</u> If Sign of Recent Fire: Year Burned? _____ OR Unknown Burn Year? _____		
Disturbance from Trails (authorized & unauthorized) <u>5</u> If Trails are Present, are they Authorized (circle one)? <input type="checkbox"/> Yes / <input type="checkbox"/> No / <input checked="" type="checkbox"/> Both / <input type="checkbox"/> Unknown		
Type of Trail Use (Yes/No)? Hiking: <u>Yes</u> Biking: <u>Yes</u> Equestrian: <u>Yes</u> Dog: <u>Yes</u> Service Vehicles: <u>Yes</u>		
Other (Describe): _____		
Illegal Trail Use? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown Describe: <u>mainly through riparian areas</u>		
Other Disturbance? List & Rank: _____		
Collection? Yes: _____ No: _____ Collector: _____		
Collection #: _____ Herbarium: _____ Species Collected: _____		
Collection 2, Collector: _____ (enter additional collections on p. 3)		
Collection #: _____ Herbarium: _____ Species Collected: _____		

Occurrence ID: N/A Species: Northern Harrier Date: June 29, 2022

VI. MANAGEMENT RECOMMENDATIONS

Reducing non-native vegetation to improve foraging habitat as well as reducing off-trail disturbance to protect nesting sites.

VII. MANAGEMENT ACTIONS IN LAST YEAR

unknown

VIII. CNDDDB SPECIES DETECTED & NOTES

List any sensitive plant or animal species to add to the CNDDDB:

Least bell's Vireo, Yellow-breasted chat, red-shouldered hawk, cooper's hawk, northern harrier, yellow warbler, white-tailed kite, coastal CA gnatcatcher

Time Finish: 11:14

Categories of % Individuals in Sample Plot for Phenological Stages (Vegetative, Flowering, Fruiting & Dead) and for Evidence of Herbivory, Disease and Stunted Growth.

- 1 = 0% (not detected)
- 2 = >0% to <10%
- 3 = 10% to <25%
- 4 = 25% to <50%
- 5 = 50% to <75%
- 6 = \geq 75%

% Cover Class Definitions within Sample Plot for Cryptogamic Crust and Thatch.

See page 5 for illustrations of different cover classes.

- 1 = 0% cover (not detected)
- 2 = >0% to <10% cover
- 3 = 10% to <25% cover
- 4 = 25% to <50% cover
- 5 = 50% to <75% cover
- 6 = \geq 75% cover

Feral Pig Activity within Sample Plot:

- 1 = No feral pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pig) detected.
- 2 = Signs of pig activity (rooting, wallowing, vegetation destruction) in sample plot appear months old.
- 3 = Signs of recent pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pig) in adjacent area but not within sample plot.
- 4 = Recent signs of pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pigs) within sample plot.

Ground Squirrel Activity within Sample Plot:

- 1 = No ground squirrel burrows detected.
- 2 = Burrows and/or ground squirrels observed in adjacent area but not within sample plot.
- 3 = Single squirrel or burrow seen within sample plot.
- 4 = Multiple burrows and/or squirrels seen within sample plot.

Botta's Pocket Gopher Activity within Sample Plot:

- 1 = No pocket gopher mounds detected.
- 2 = Mounds or gophers observed in adjacent area but not within sample plot.
- 3 = <10 mounds observed within sample plot.
- 4 = \geq 10 mounds or one or more gophers seen within sample plot.

Disturbance Categories within the Maximum Extent:

- 1 = No sign of disturbance within maximum extent or in adjacent 10 m buffer.
- 2 = Disturbance does not occur within maximum extent but is detected within the surrounding 10 m buffer area.
- 3 = Disturbance present in >0% to <10% of area within maximum extent.
- 4 = Disturbance occurs in 10% to <25% of area within maximum extent.
- 5 = Disturbance occurs in 25% to <50% of area within maximum extent.
- 6 = Disturbance occurs 50% to <75% of area within maximum extent.
- 7 = Disturbance occurs \geq 75% of area within maximum extent.

Cover Diagrams from CNPS

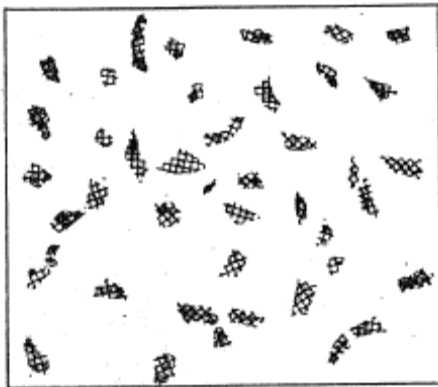
1%



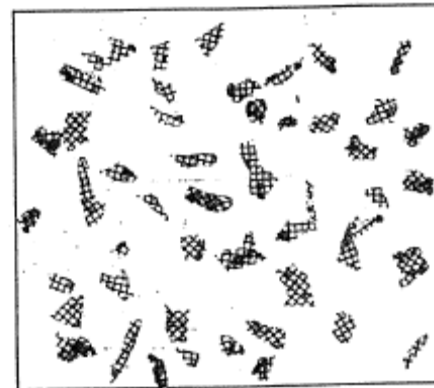
5%



10%



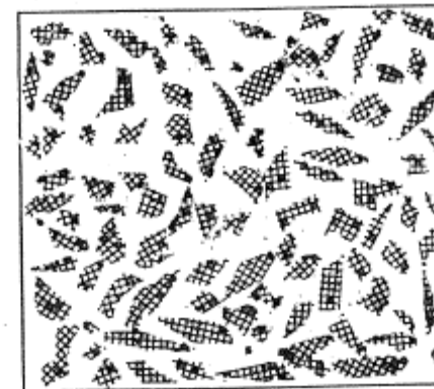
15%



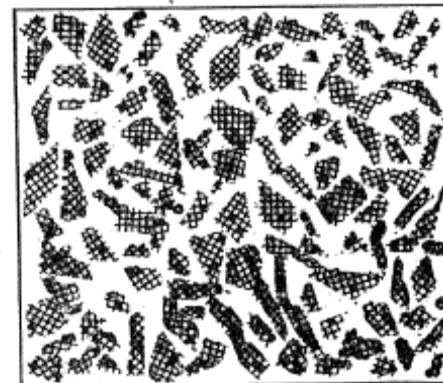
25%



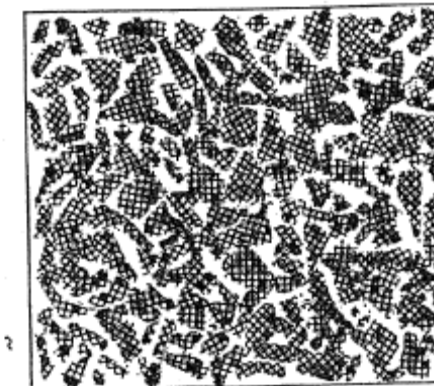
35%



50%



75%



Appendix I
**Least Bell's Vireo 45-Day
Report**





550 West C Street
Suite 750
San Diego, CA 92101
619.719.4200 phone
619.719.4201 fax

www.esassoc.com

August 24, 2022

Stacey Love
Carlsbad Fish and Wildlife Service Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: Results of 2022 Focused Least Bell's Vireo Surveys for the Santa Margarita County Preserve
Implementation of Targeted Monitoring Plan (TMP), Unincorporated San Diego County, California

Dear Ms. Love:

This letter report presents the methodology and results of focused surveys conducted for least Bell's vireo (*Vireo bellii pusillus*; LBVI) at the Santa Margarita County Preserve (Preserve) located in unincorporated San Diego County, California. Environmental Science Associates (ESA) biologists Florence Chan and Brennan Mulrooney conducted the surveys to determine the presence or absence of the species within the approximately 211-acre survey area (survey area) as directed by County of San Diego (County) Department of Parks and Recreation (DPR) Targeted Monitoring Plan.

Project Description and Location

The Preserve is an approximately 211-acre open space preserve located in northern San Diego County, west of Interstate 15 and north of State Route 76 (**Figure 1**; see **Attachment A** for figures). The Preserve is located just east of the northeastern portion of Camp Pendleton Marine Corps Base; it is directly west of Sandia Creek Drive and the southern portion of the Preserve is bisected by De Luz Road. It is within the Temecula and Fallbrook U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles (**Figure 2**).

Site Description

The survey area encompasses a portion of the Santa Margarita River and adjacent upland areas, recreational trails and access roads, and the Preserve staging area on the north side of De Luz Road. The Preserve contains a total of 20 vegetation communities and land cover types: Diegan coastal sage scrub, Diegan coastal sage scrub: inland form, southern mixed chaparral, chamise chaparral, scrub oak chaparral, coastal sage-chaparral transition, non-native grassland, wildflower field, southern riparian forest, southern coast live oak riparian forest, southern cottonwood-willow riparian forest, southern sycamore-alder riparian woodland, southern riparian woodland, southern riparian scrub, southern willow scrub, coast live oak woodland, open coast live oak woodland, coast live oak forest, open water, and disturbed habitat (**Figure 3**).

For the purposes of the LBVI survey, all vegetation communities within the Santa Margarita channel were surveyed. Potentially suitable nesting habitat for LBVI occurs only in southern riparian woodland (20.41 acres), southern riparian forest (13.41 acres), southern willow scrub (4.94 acres), southern cottonwood-willow riparian forest (2.71 acres), southern riparian scrub (0.67 acres), southern sycamore-alder riparian woodland (0.47 acres), and southern coast live oak riparian forest (0.43 acres), all together totaling 43.04 acres.

August 24, 2022
Page 2

A brief description of suitable LBVI vegetation communities within the Santa Margarita River are presented below (San Diego Association of Governments 2011).

Southern Riparian Woodland (20.41 acres)

Within this community, red willow (*Salix laevigata*), western sycamore (*Platanus racemosa*), Fremont's cottonwood (*Populus fremontii*), coast live oak (*Quercus agrifolia*), and arroyo willow (*Salix lasiolepis*) are dominant in an open tree canopy. Shrub species in the understory include mulefat (*Baccharis salicifolia*), coyote brush (*Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), desert wild grape (*Vitis girdiana*), and blue elderberry (*Sambucus nigra* ssp. *caerulea*).

Southern Riparian Forest (13.41 acres)

Southern riparian forest consists of stands that are dominated or codominated by western sycamore, and coast live oak. Additional tree species within this community include white alder (*Alnus rhombifolia*), Fremont's cottonwood, Goodding's black willow (*Salix gooddingii*), red willow, and arroyo willow. Associated sub-dominant shrubs in this community include mulefat, poison oak, blue elderberry, desert wild grape, and California rose (*Rosa californica*). Herbaceous diversity is moderate and cover is continuous to open, including mugwort (*Artemisia douglasiana*), western ragweed (*Ambrosia psilostachya*), and many ruderal species.

Southern Willow Scrub (4.94 acres)

Several willow species (*Salix laevigata*, *Salix lasiolepis*, *Salix exigua*, *Salix lasiandra*, and *Salix gooddingii*) dominate this dense, broad-leafed, winter-deciduous riparian thicket community. Scattered emergent Fremont's cottonwood and western sycamore also occur within this community. Shrub species that make up the understory include mulefat, coyote brush, or poison oak.

Southern Cottonwood-Willow Riparian Forest (2.71 acres)

The habitat is characterized by stands dominated or codominated by Fremont's cottonwood, Goodding's black willow, arroyo willow, and western sycamore, forming an open to intermittent tree canopy. The understory is composed of mulefat, desert wild grape, California rose, and poison oak. Herbaceous vegetation occurs in openings, often in flood scour or depositional areas.

Southern Riparian Scrub (0.67 acres)

Within this vegetation community, western sycamore is dominant or codominant in an open tree canopy with mulefat dominant in an open shrub canopy. Associated subdominant riparian shrubs include poison oak, blue elderberry, broom baccharis (*Baccharis sarothroides*), desert wild grape, and California rose. The herbaceous diversity is low and cover is sparse; characteristic species include mugwort and western ragweed.

Southern Sycamore-Alder Riparian Woodland (0.47 acres)

In general, western sycamore and white alder are dominant or codominant in the tree canopy; additional tree species may include coast live oak, southern California black walnut (*Juglans californica*), Fremont's cottonwood coast

August 24, 2022
Page 3

live oak, Goodding's black willow, red willow, and arroyo willow. Trees are generally < 35 meters tall with open canopy. The shrub and herb canopies are open with sparse cover.

Southern Coast Live Oak Riparian Forest (0.43 acres)

In this vegetation community, western sycamore and coast live oak together are codominant in an open to closed tree canopy. Scattered within this community are western sycamore, red willow, Goodding's black willow, and Fremont's cottonwood trees. Associated understory plant species include blue elderberry, mugwort, poison oak, desert wild grape, and California rose.

Non-native Vegetation Species

Non-native vegetation species currently occur throughout the Preserve in small, isolated locations within established native vegetation communities. Some of the more prevalent invasive non-native plant species found on-site are described below.

Ripgut brome (*Bromus diandrus*) is a grass species native to Europe and has displaced native grasslands throughout California. This species typically colonizes open disturbed sites, roadsides/trails, grasslands, agricultural land, and many natural plant communities. Within the Preserve, ripgut brome was documented along roadways, trails, and disturbed areas.

Bigleaf periwinkle (*Vinca major*) is a perennial, deep-rooted vine native to Mediterranean Europe, Asia Minor, and northern Africa. This species can grow quickly, forming dense mats in the understory, excluding and outcompeting native plants in riparian, forest, grassland, disturbed, and roadside habitats. Periwinkle was documented in riparian vegetation communities within the Preserve.

Tamarisk (*Tamarisk* sp.) is a Eurasian native that was introduced into Southern California and Arizona in the early 1880s as a stream bank stabilizer and ornamental shrub. Tamarisk can outcompete native riparian vegetation such as cottonwoods and willows, while providing a significantly inferior resource for wildlife (Larmer 1998). As the native plants disappear, so do the animals that depend on them, such as the grosbeak and least Bell's vireo. Mature plants and seedlings were documented within the Preserve in riparian communities.

Tree tobacco (*Nicotiana glauca*) is a naturalized exotic member of the nightshade family from South America. It can be very aggressive and is poisonous if ingested in large quantities. It is typically scattered through the Preserve in disturbed areas at higher elevations than the tamarisk.

Spanish false fleabane (*Pulicaria paludosa*) is an annual or perennial herb native to Spain and Portugal and naturalized in southern California. This invasive weed is often found in watercourses, moist soils, roadside ditches, and disturbed habitats. Within the Preserve, small patches were documented in the northern and central portion of the site.

Methodology

Surveys for LBVI were conducted and led by ESA biologists Florence Chan and Brennan Mulrooney, assisted by Jack Quinzon and Pablo Corcoran. Survey methodology followed the U.S. Fish and Wildlife Service (USFWS) *Least Bell's Vireo Survey Guidelines* issued January 19, 2001 (USFWS 2001). Eight surveys were conducted between April 14 and July 20, 2022, within all portions of the survey area containing potentially suitable habitat. All vegetation communities within the Santa Margarita River channel were surveyed to encompass all potentially suitable nesting habitat and adjacent habitat potentially used for foraging. Surveys were conducted no less than 10 days apart between dawn and 11:00 a.m. Weather conditions were suitable for all surveys, with overcast to clear skies, winds of 6 miles per hour or less, and temperatures between 38°F and 80°F. Completed field forms are provided in **Appendix D**.

Results

Survey results are summarized in **Table 1** and depicted in **Figure 4**. LBVI were detected during all 2022 focused surveys. Brown-headed cowbirds (*Molothrus ater*; BHCO), which are brood parasites, were also detected within the survey area during protocol LBVI surveys as summarized in **Table 2** below. Brown-headed cowbird trapping occurred within the Preserve from April 1 to June 30, 2022.

TABLE 1
LBVI SURVEY RESULTS

Date	Time (start/end)	Wind (mph) (start/end)	Temperature (F) (start/end)	Cloud Cover (start/end)	Results	Surveyors
04/14/22	0612–1005	0/0	38°–67°	0–0	8 adult LBVI Detected	Brennan Mulrooney, Florence Chan
04/28/22	0605–1005	0/0	58°–60°	100–100	9 adult LBVI Detected	Brennan Mulrooney, Pablo Corcoran
05/13/22	0605–0957	0/0	47°–69°	0–0	9 adult LBVI Detected	Brennan Mulrooney, Pablo Corcoran
05/24/22	0606–1004	0–2/0–3	58°–66°	50–0	8 adult LBVI Detected	Florence Chan, Pablo Corcoran
06/07/22	0612–1044	0–2/0–3	61°–76°	100–0	8 adult and 1 juvenile LBVI Detected	Florence Chan, Pablo Corcoran
06/21/22	0600–1030	0/1–3	58°–72°	0–0	12 adult and 4 juvenile LBVI Detected	Brennan Mulrooney, Pablo Corcoran
07/07/22	0558–1019	0–2/0–3	61°–75°	100–0	7 adult and 3 juvenile LBVI Detected	Florence Chan, Jack Quinzon
07/20/22	0601–1033	0/2–6	64°–80°	50–20	5 adult and 3 unknown age LBVI Detected	Brennan Mulrooney, Pablo Corcoran

TABLE 2
BROWN-HEADED COWBIRD DETECTIONS

Date	Count	Latitude (Y) ¹	Longitude (X) ¹
4/14/2022	1	33.4008544	-117.250390
4/28/2022	1	33.408107	-117.249930
4/28/2022	1	33.402438	-117.252210
6/21/2022	1	33.407340	-117.250134

¹ Coordinates are in WGS 84

Incidental Observations

A complete list of all wildlife observed during the surveys are included in **Attachment B**. Incidentally observed special-status species included the Belding’s orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), Vaux’s swift (*Chaetura vauxi*), great blue heron (*Ardea herodias*), turkey vulture (*Cathartes aura*), red-shouldered hawk (*Buteo lineatus*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), yellow-breasted chat (*Icteria virens*), and yellow warbler (*Setophaga petechia*). Belding’s orange-throated whiptail is a California Department of Fish and Wildlife (CDFW) watch list species and a County Group 2 species. Vaux’s swift is a CDFW species of special concern. Great blue heron is a County Group 2 species. Turkey vulture and red-shouldered hawk are County Group 1 species. Southern California rufous-crowned sparrow is a CDFW watch list species and a County Group 1 species. Yellow-breasted chat is a CDFW species of special concern and a County Group 1 species. Yellow warbler is a CDFW species of special concern and a County Group 2 species.

Conclusion

Based on the results of the protocol-level LBVI surveys, the survey area contains LBVI habitat that was occupied by up to nine LBVI territories. At least three of those territories produced young. Nest searching was not part of this survey protocol and no nests were discovered. Brown-headed cowbirds were observed during only three surveys and no juvenile brown-headed cowbirds were observed during any survey.



August 24, 2022
Page 6

If there are any questions regarding this report or the results, please feel free to reach out to Brennan Mulrooney at (305) 849-2762 or Florence Chan at (949) 491-2528 or fchan@esassoc.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Brennan Mulrooney". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Brennan Mulrooney
Senior Biologist

A handwritten signature in blue ink, appearing to read "Florence Chan". The signature is cursive and elegant, with a prominent loop at the end.

Florence Chan
Senior Biologist

Attachments:

Attachment A: Figures

- Figure 1: Regional Location
- Figure 2: Vicinity Map
- Figure 3: Santa Margarita County Preserve Vegetation Communities – Holland-Oberbauer Classification
- Figure 4: Least Bell's Vireo Survey Results Map

Attachment B: Wildlife Compendium

Attachment C: California Natural Diversity Database (CNDDB) Forms

Attachment D: Field Forms



August 24, 2022
Page 7

Certification Statement

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

A handwritten signature in black ink, appearing to read 'Brennan Mulrooney', written in a cursive style.

Brennan Mulrooney
Senior Biologist

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

A handwritten signature in blue ink, appearing to read 'Florence Chan', written in a cursive style.

Florence Chan
Senior Biologist



August 24, 2022
Page 8

References

Larmer, P. 1998. "Tackling Tamarisk." High Country News, Vol. 30 No. 10. May 25, 1998. [Web Page]: <http://www.hcn.org>. Accessed: February 2004.

San Diego Association of Governments. 2011. Vegetation Classification Manual for Western San Diego County. First ed. February 2011.

U.S. Fish and Wildlife Service (USFWS). 2001. Least Bell's Vireo Survey Guidelines. January 19, 2001.

Attachment A

Figures



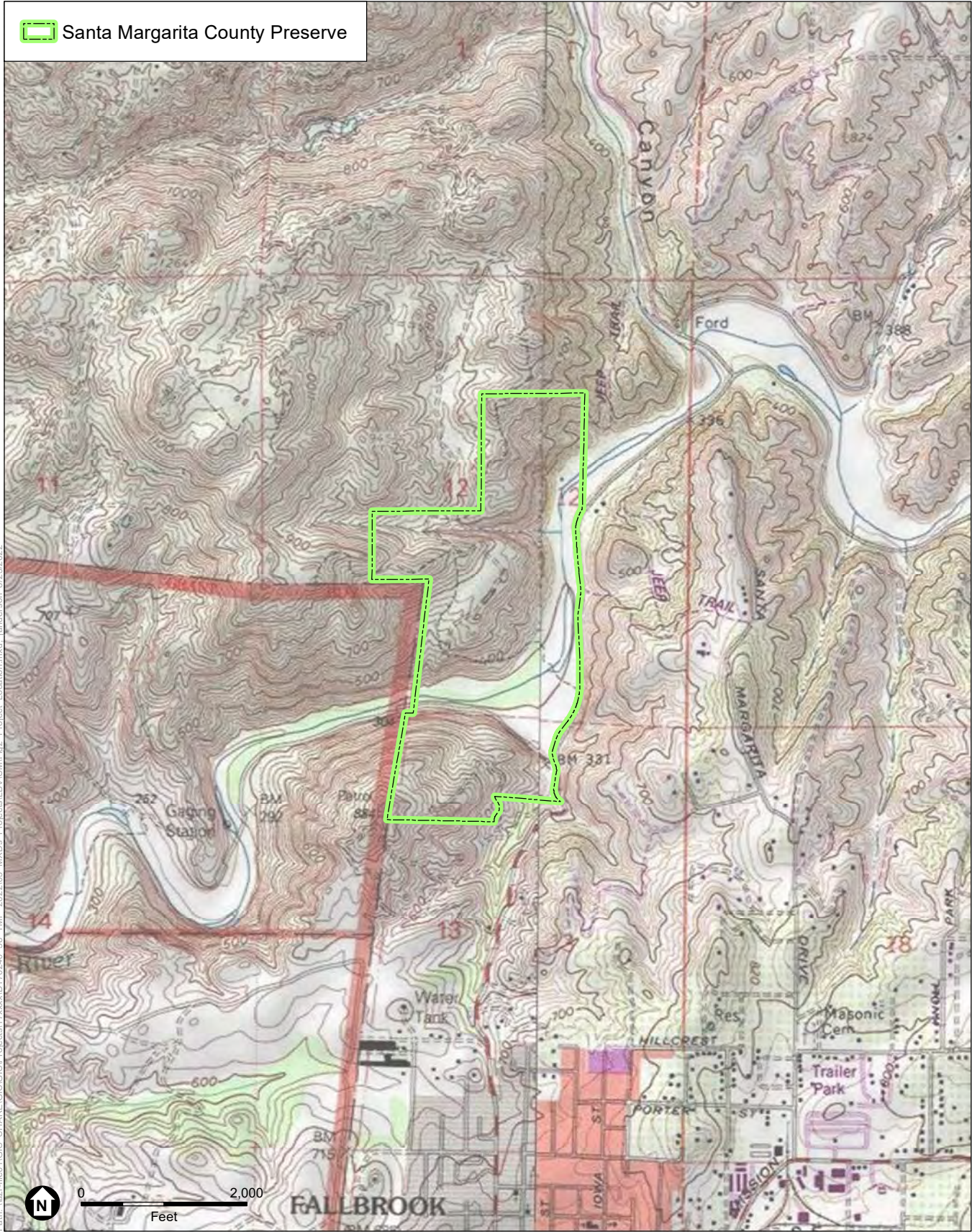


SOURCE: SanGIS

COSD DPR 557744 TO 58 – Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
2022 Focused Least Bell's Vireo Surveys for the Santa Margarita County Preserve



Figure 1
Regional Location

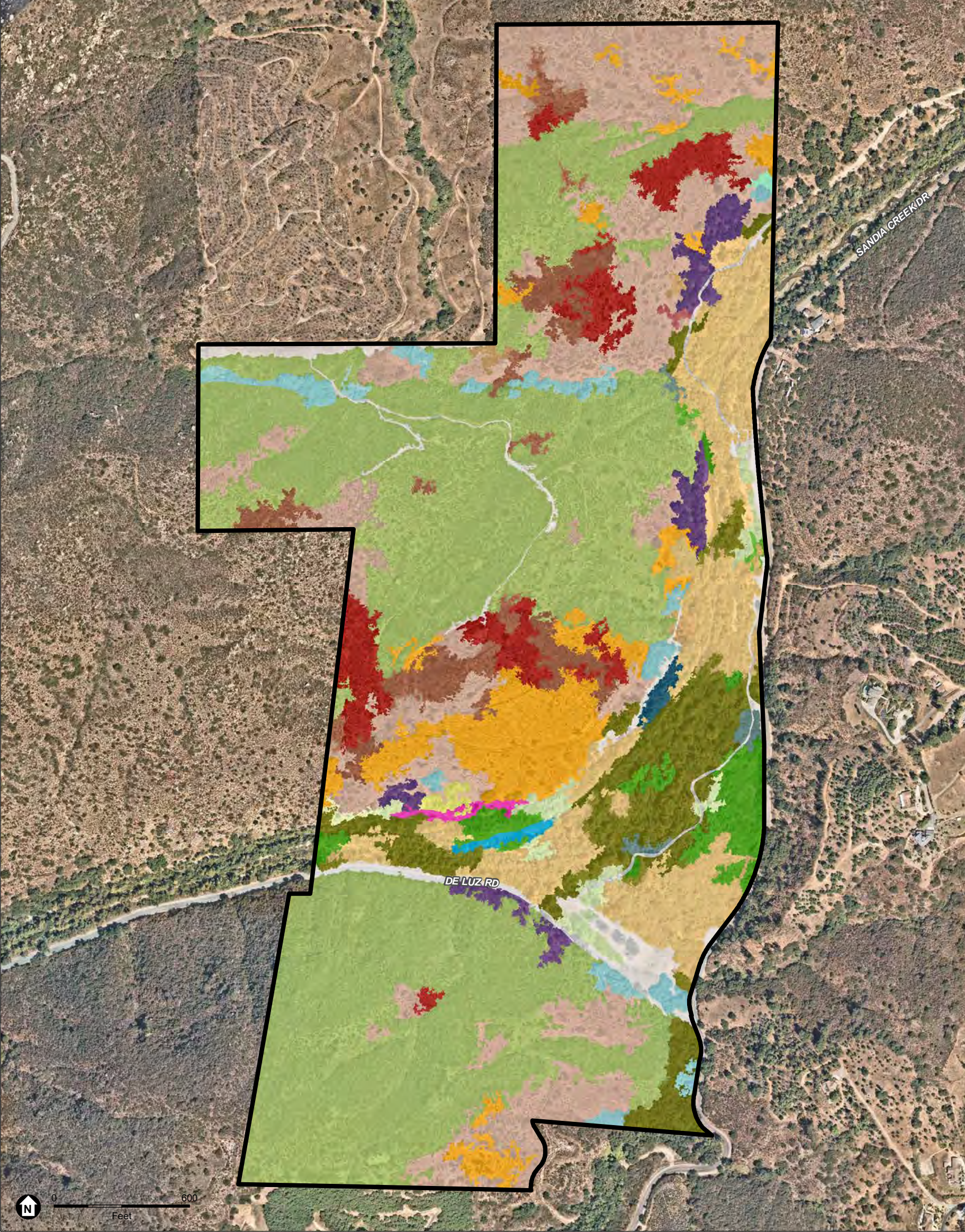
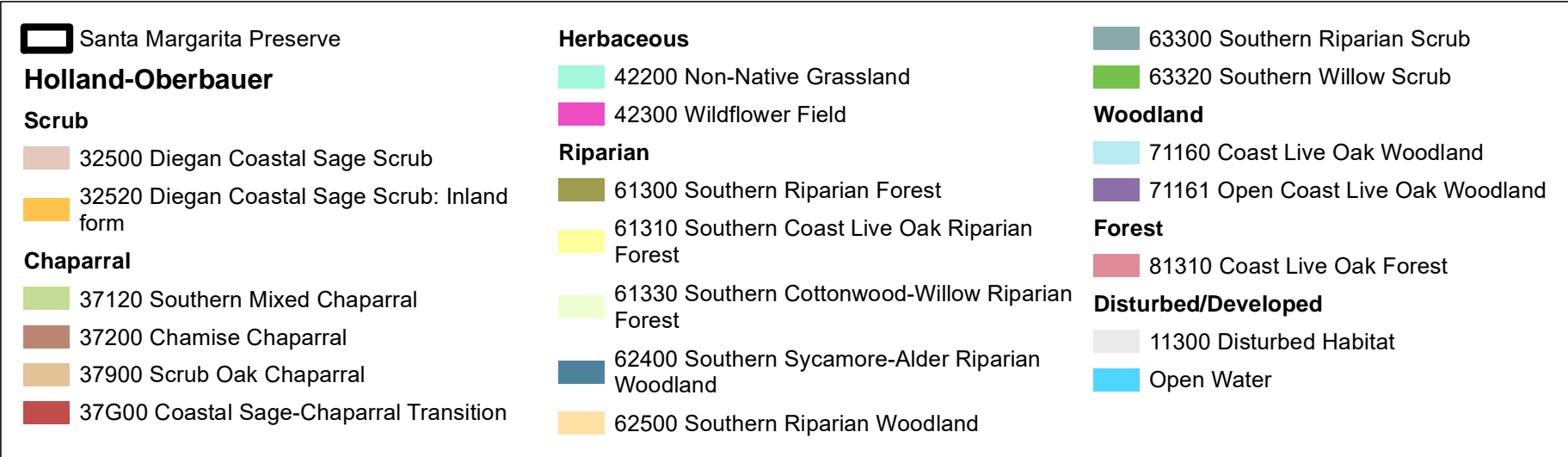


SOURCE: USGS Topoquads
Fallbrook and Temecula

COSD DPR 557744 TO 58 – Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
2022 Focused Least Bell's Vireo Surveys for the Santa Margarita County Preserve

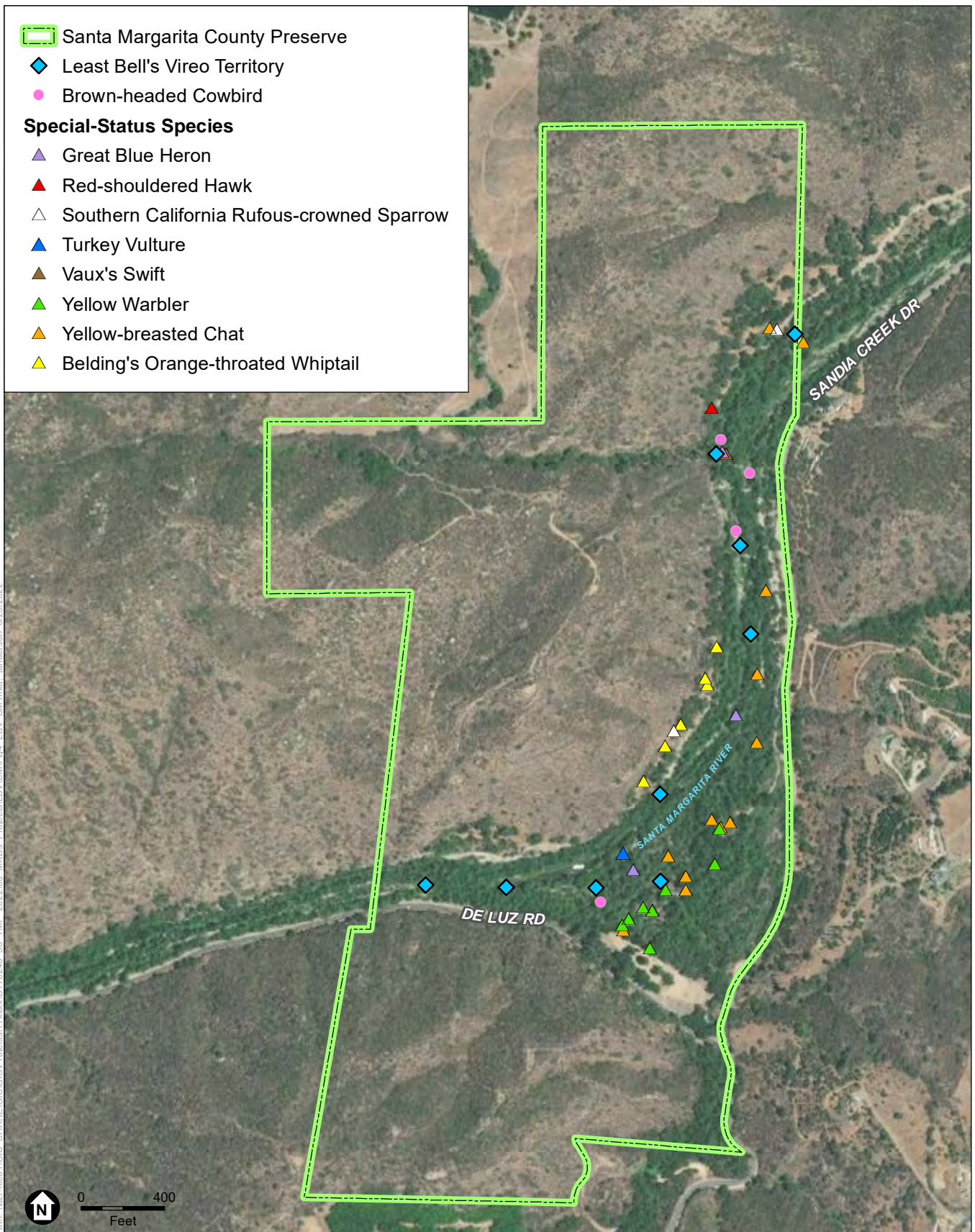
Figure 2
Vicinity Map





SOURCE: Nearmap, 9/5/2020; ESA, 2022.

COSD DPR 557744 TO 58 – Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring 2022 Focused Least Bell's Vireo Surveys for the Santa Margarita County Preserve



SOURCE: ESRI, 2021; ESA, 2022 COSD DPR 557744 TO 58 – Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring 2022 Focused Least Bell's Vireo Surveys for the Santa Margarita County Preserve



Figure 4
Least Bell's Vireo Survey Results Map

Attachment B

Wildlife Compendium



ATTACHMENT B

Wildlife Compendium

Scientific Name	Common Name	Status (Federal/State/Local) ¹
INSECTS		
Lepidoptera	Moths and Butterflies	
Papilionidae	Swallowtails	
<i>Limenitis lorquini</i>	Western Tiger Swallowtail	None/None/None
Pieridae	Whites, Yellows and Sulphurs	
* <i>Pieris rapae</i>	Cabbage White	None/None/None
Nymphalidae	True Brushfoots	
<i>Limenitis lorquini</i>	Lorquin's Admiral	None/None/None
<i>Junonia coenia</i>	Common Buckeye	None/None/None
RAY-FINNED FISHES		
Centrarchiformes	Perch-Like Fishes	
Centrarchidae	Freshwater Sunfishes	
<i>Micropterus salmoides</i>	Largemouth Bass	None/None/None
Cyprinodontiformes	Rivulines, Killifishes, and Livebearers	
Poeciliidae	Freshwater Sunfishes	
<i>Gambusia affinis</i>	Western Mosquitofish	None/None/None
AMPHIBIANS		
Anura	Frogs	
Ranidae	True Frogs	
<i>Lithobates catesbeianus</i>	American Bullfrog	None/None/None
REPTILES		
Squamata	Lizards	
Phrynosomatidae	Phrynosomatid Lizards	
<i>Sceloporus occidentalis</i>	Western Fence Lizard	None/None/None
Teiidae	Whiptails and Racerunners	
<i>Aspidoscelis hyperythrus beldingi</i>	Belding's Orange-throated Whiptail	None/WL/Group 2

Scientific Name	Common Name	Status (Federal/State/Local) ¹
BIRDS		
Anseriformes		
Anatidae	Waterfowl	
<i>Anas platyrhynchos</i>	Mallard	None/None/None
Columbiformes		
Columbidae	Pigeons and Doves	
<i>Patagioenas fasciata</i>	Band-tailed Pigeon	None/None/None
* <i>Streptopelia decaocto</i>	Eurasian Collared-Dove	None/None/None
<i>Zenaida macroura</i>	Mourning Dove	None/None/None
Apodiformes		
Apodidae	Swifts	
<i>Chaetura vauxi</i>	Vaux's Swift	None/SSC/None
Trochilidae	Hummingbirds	
<i>Archilochus alexandri</i>	Black-chinned Hummingbird	None/None/None
<i>Calypte anna</i>	Anna's Hummingbird	None/None/None
<i>Selasphorus sasin</i>	Allen's Hummingbird	None/None/None
Ardeidae	Hérons, Bitterns, and Allies	
<i>Ardea herodias</i>	Great Blue Heron	None/None/Group 2
<i>Ardea alba</i>	Great Egret	None/None/None
Cathartiformes		
Cathartidae	New World Vultures	
<i>Cathartes aura</i>	Turkey Vulture	None/None/Group 1
Accipitriformes		
Accipitridae	Hawks	
<i>Buteo lineatus</i>	Red-shouldered Hawk	None/None/Group 1
<i>Buteo jamaicensis</i>	Red-tailed Hawk	None/None/None
Strigiformes		
Strigidae	Typical Owls	
<i>Bubo virginianus</i>	Great Horned Owl	None/None/None
Piciformes		
Picidae	Woodpeckers	
<i>Melanerpes formicivorus</i>	Acorn Woodpecker	None/None/None

Scientific Name	Common Name	Status (Federal/State/Local)¹
<i>Dryobates pubescens</i>	Downy Woodpecker	None/None/None
<i>Dryobates nuttallii</i>	Nuttall's Woodpecker	None/None/None
Passeriformes		
Tyrannidae	Tyrant Flycatchers	
<i>Myiarchus cinerascens</i>	Ash-throated Flycatcher	None/None/None
<i>Contopus sordidulus</i>	Western Wood-Pewee	None/None/None
<i>Empidonax difficilis</i>	Pacific-slope Flycatcher	None/None/None
<i>Sayornis nigricans</i>	Black Phoebe	None/None/None
Virionidae	Vireos	
<i>Vireo bellii pusillus</i>	Least Bell's Vireo	FE/SE/MSCP, Group 1
<i>Vireo huttoni</i>	Hutton's Vireo	None/None/None
<i>Vireo gilvus</i>	Warbling Vireo	None/None/None
Corvidae	Jays and Crows	
<i>Aphelocoma californica</i>	California Scrub-Jay	None/None/None
<i>Corvus brachyrhynchos</i>	American Crow	None/None/None
<i>Corvus corax</i>	Common Raven	None/None/None
Paridae	Chickadees and Tits	
<i>Baeolophus inornatus</i>	Oak Titmouse	None/None/None
Hirundinidae	Swallows and Martins	
<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow	None/None/None
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	None/None/None
Aegithalidae	Bushtits	
<i>Psaltriparus minimus</i>	Bushtit	None/None/None
Sylviidae	Sylviid Warblers	
<i>Chamaea fasciata</i>	Wrentit	None/None/None
Ptiliognatidae	Silky-flycatchers	
<i>Phainopepla nitens</i>	Phainopepla	None/None/None
Sittidae	Nuthatches	
<i>Sitta carolinensis</i>	White-breasted Nuthatch	None/None/None
Poliopitilidae	Gnatcatchers	
<i>Poliopitila caerulea</i>	Blue-gray Gnatcatcher	None/None/None
Troglodytidae	Wrens	
<i>Troglodytes aedon</i>	House Wren	None/None/None

Scientific Name	Common Name	Status (Federal/State/Local) ¹
<i>Thryomanes bewickii</i>	Bewick's Wren	None/None/None
Mimidae	Thrashers	
<i>Toxostoma redivivum</i>	California Thrasher	None/None/None
<i>Mimus polyglottos</i>	Northern Mockingbird	None/None/None
Sturnidae	Starlings and Mynas	
* <i>Sturnus vulgaris</i>	European Starling	None/None/None
Turdidae	Thrushes	
<i>Catharus ustulatus</i>	Swainson's Thrush	None/None/None
<i>Turdus migratorius</i>	American Robin	None/None/None
Estrildidae	Waxbills and Allies	
* <i>Lonchura punctulata</i>	Scaly-breasted Munia	None/None/None
Fringillidae	Finches	
<i>Haemorhous mexicanus</i>	House Finch	None/None/None
<i>Spinus psaltria</i>	Lesser Goldfinch	None/None/None
Passerellidae	New World Sparrows	
<i>Melospiza melodia</i>	Song Sparrow	None/None/None
<i>Melospiza crissalis</i>	California Towhee	None/None/None
<i>Aimophila ruficeps canescens</i>	Southern California Rufous-crowned Sparrow	None/WL/Group 1
<i>Pipilo maculatus</i>	Spotted Towhee	None/None/None
Icteriidae	Yellow-breasted Chats	
<i>Icteria virens</i>	Yellow-breasted Chat	None/SSC/Group 1
Icteridae	Orioles, Grackles, and Cowbirds	
<i>Icterus cucullatus</i>	Hooded Oriole	None/None/None
<i>Molothrus ater</i>	Brown-headed Cowbird	None/None/None
Parulidae	Wood Warblers	
<i>Leiothlypis celata</i>	Orange-crowned Warbler	None/None/None
<i>Geothlypis trichas</i>	Common Yellowthroat	None/None/None
<i>Setophaga petechia</i>	Yellow Warbler	None/SSC/Group 2
<i>Setophaga nigrescens</i>	Black-throated Gray Warbler	None/None/None
<i>Setophaga townsendi</i>	Townsend's Warbler	None/None/None
<i>Cardellina pusilla</i>	Wilson's Warbler	None/None/None

Scientific Name	Common Name	Status (Federal/State/Local) ¹
Cardinalidae	Cardinals and Allies	
<i>Piranga ludoviciana</i>	Western Tanager	None/None/None
<i>Pheucticus melanocephalus</i>	Black-headed Grosbeak	None/None/None
<i>Passerina amoena</i>	Lazuli Bunting	None/None/None

MAMMALS

Canidae	Foxes, Wolves, and Coyotes	
<i>Canis latrans</i>	Coyote	None/None/None

¹ FE: Federally Endangered

SE: State Endangered

WL: California Department of Fish and Wildlife Watch List

SSC: California Department of Fish and Wildlife Species of Special Concern

MSCP: Covered under 2017 Draft North County MSCP

Group 1: Animals of high sensitivity (listed or specific natural history requirements) (County)

Group 2: Animals declining but not in immediate threat of extinction or extirpation (County)

* Non-native species

Attachment C
**California Natural Diversity
Database (CNDDDB) Forms**



Attachment C. California Natural Diversity Database (CNDDDB) Forms

ObserverName*	ObserverContact*	SciName*	ComName	SpFound(Y/N)	SpDetermine	ID_Confidence	ObservationDate*	NumberObserved*	Phenology	Collection	AnimalAgeClass	AnimalSiteUse*	AnimalBehavior*
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	2022-04-14	8			8 adults	foraging, nesting and or migrating	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	2022-04-28	9			9 adults	foraging, nesting and or migrating	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	2022-05-13	9			9 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	2022-05-24	9			9 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	2022-06-07	9			8 adults, 1 juvenile	foraging, nesting	singing, foraging, feeding fledgling
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	2022-06-21	15			9 adults at least 3 juveniles, 3 unknown age	foraging, nesting	singing, foraging, feeding fledgling
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	2022-07-07	9			6 adults, 3 juveniles	foraging, nesting	singing, foraging, feeding fledgling
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	2022-07-20	8			7 adults, 1 juvenile	foraging, nesting	singing, foraging, feeding fledgling
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	2022-04-14	8			8 adults	foraging, nesting and or migrating	
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	2022-04-28	8			8 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	2022-05-13	8			8 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	2022-05-24	8			8 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	2022-06-07	8			8 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	2022-06-21	8			8 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	2022-07-07	8			8 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	2022-07-20	8			8 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	2022-04-14	4			4 adults	foraging, nesting and or migrating	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	2022-04-28	4			4 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	2022-05-13	4			4 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	2022-05-24	4			4 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	2022-06-07	4			4 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	2022-06-21	4			4 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	2022-07-07	4			4 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	2022-07-20	4			4 adults	foraging, nesting	singing, foraging
Florence Chan	fchan@esassoc.com	Aspidoscelis hyperythra	Orange-throated Whiptail	y		very confident	2022-06-07	5			5 adults	foraging	
Florence Chan	fchan@esassoc.com	Aspidoscelis hyperythra	Orange-throated Whiptail	y		very confident	2022-07-07	3			3 adults	foraging	

Attachment C. California Natural Diversity Database (CNDDDB) Forms

ObserverName*	ObserverContact*	SciName*	ComName	AnimalDetectionMethod*	LocationDescription	X_Coordinate*	Y_Coordinate*	Datum*	UTM_zone*	CoordSource*	CoordAccuracy	SurveyEffort*	Habitat	SiteQuality	LandUse	Disturbances	Threats	Landowner	Comments	Other
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard		33.40353	-117.25075			GoogleEarth		LBVI Protocol Survey								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard		33.40353	-117.25075			GoogleEarth		LBVI Protocol Survey								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard		33.40353	-117.25075			GoogleEarth		LBVI Protocol Survey								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard		33.40353	-117.25075			GoogleEarth		LBVI Protocol Survey								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard		33.40353	-117.25075			GoogleEarth		LBVI Protocol Survey								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard		33.40353	-117.25075			GoogleEarth		LBVI Protocol Survey								
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	seen and heard		33.40353	-117.25075			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Aspidoscelis hyperythra	Orange-throated Whiptail	seen		33.40404	-117.25156			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Aspidoscelis hyperythra	Orange-throated Whiptail	seen		33.40531	-117.25056			GoogleEarth		Incidental								

Attachment D

Field Forms



TMP Monitoring, LBV

Created	2022-04-14 13:12:17 UTC by SC Fulcrum03
Updated	2022-06-22 22:59:20 UTC by SC Fulcrum03
Location	33.40139501265567, -117.25085240799677

Parent Form

Project Name:	TMP Monitoring, LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Florence Chan
Date:	2022-04-14

START Weather Details:

Start - Time:	06:12
Wind Direction	NA
Air Temp Current (F)	38
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	0
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	10:05
End - Temperature:	67
End - Wind Direction From (select one):	N/A
End - Low Wind Speed:	0
End - High Wind Speed:	0
End - Average Wind Speed:	0
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
Observation Type:	Bird

Photos



Bird

Acorn Woodpecker; *Melanerpes formicivorus*; ACWO, no

Bird (Common or Scientific Name): Acorn Woodpecker; *Melanerpes formicivorus*; ACWO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Black Phoebe; *Sayornis nigricans*; BLPH, no

Bird (Common or Scientific Name): Black Phoebe; *Sayornis nigricans*; BLPH

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Great Horned Owl; *Bubo virginianus*; GHOW, no

Bird (Common or Scientific Name): Great Horned Owl; *Bubo virginianus*; GHOW
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Orange-crowned Warbler; *Oreothlypis celata*; OCWA, no

Bird (Common or Scientific Name): Orange-crowned Warbler; *Oreothlypis celata*; OCWA
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Bushtit; *Psaltriparus minimus*; BUSH, no

Bird (Common or Scientific Name): Bushtit; *Psaltriparus minimus*; BUSH
Is the Bird Sensitive ? no
Sub-Species Info: N/A

California Towhee; *Melospiza crissalis*; CALT, no

Bird (Common or Scientific Name): California Towhee; *Melospiza crissalis*; CALT
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Bewick's Wren; *Thryomanes bewickii*; BEWR, no

Bird (Common or Scientific Name): Bewick's Wren; *Thryomanes bewickii*; BEWR
Is the Bird Sensitive ? no
Sub-Species Info: N/A

House Wren; *Troglodytes aedon*; HOWR, no

Bird (Common or Scientific Name): House Wren; *Troglodytes aedon*; HOWR
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Yellow Warbler; *Setophaga petechia*; YEWA, yes

Bird (Common or Scientific Name): Yellow Warbler; *Setophaga petechia*; YEWA
Is the Bird Sensitive ? yes
Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Both
Number of individuals observed: 8
Behavior (check all that apply): Singing/calling
Bird Sex (check all that apply): Male
Bird Age (check all that apply): Adult

Black-headed Grosbeak; *Pheucticus melanocephalus*; BHGR, no

Bird (Common or Scientific Name): Black-headed Grosbeak; *Pheucticus melanocephalus*; BHGR
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Pacific-slope Flycatcher; *Empidonax difficilis*; PSFL, no

Bird (Common or Scientific Name): Pacific-slope Flycatcher; Empidonax difficilis; PSFL

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Yellow-breasted Chat; Icteria virens; YBCH, yes

Bird (Common or Scientific Name): Yellow-breasted Chat; Icteria virens; YBCH

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 4

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Nuttall's Woodpecker; Dryobates nuttallii; NUWO, no

Bird (Common or Scientific Name): Nuttall's Woodpecker; Dryobates nuttallii; NUWO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Sensitive Bird Observation

Number of individuals observed: 1

Wrentit; Chamaea fasciata; WREN, no

Bird (Common or Scientific Name): Wrentit; Chamaea fasciata; WREN

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Lesser Goldfinch; Spinus psaltria; LEGO, no

Bird (Common or Scientific Name): Lesser Goldfinch; Spinus psaltria; LEGO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Northern Rough-winged Swallow; Stelgidopteryx serripennis; NRWS, no

Bird (Common or Scientific Name): Northern Rough-winged Swallow; Stelgidopteryx serripennis; NRWS

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Northern Flicker; Colaptes auratus; NOFL, no

Bird (Common or Scientific Name): Northern Flicker; Colaptes auratus; NOFL

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Spotted Towhee; Pipilo maculatus; SPTO, no

Bird (Common or Scientific Name): Spotted Towhee; Pipilo maculatus; SPTO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Ash-throated Flycatcher; *Myiarchus cinerascens*; ATFL, no

Bird (Common or Scientific Name): Ash-throated Flycatcher; *Myiarchus cinerascens*; ATFL

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Lazuli Bunting; *Passerina amoena*; LAZB, no

Bird (Common or Scientific Name): Lazuli Bunting; *Passerina amoena*; LAZB

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; *Vireo bellii pusillus*; LBVI

Is the Bird Sensitive ? yes

Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Both

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling, Foraging

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Common Yellowthroat; *Geothlypis trichas*; COYE, no

Bird (Common or Scientific Name): Common Yellowthroat; *Geothlypis trichas*; COYE

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Song Sparrow; *Melospiza melodia*; SOSP, no

Bird (Common or Scientific Name): Song Sparrow; *Melospiza melodia*; SOSP

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Common Raven; *Corvus corax*; CORA, no

Bird (Common or Scientific Name): Common Raven; *Corvus corax*; CORA

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Downy Woodpecker; *Dryobates pubescens*; DOWO, no

Bird (Common or Scientific Name): Downy Woodpecker; *Dryobates pubescens*; DOWO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Lesser Goldfinch; *Spinus psaltria*; LEGO, no

Bird (Common or Scientific Name): Lesser Goldfinch; *Spinus psaltria*; LEGO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Mallard; *Anas platyrhynchos*; MALL, no

Bird (Common or Scientific Name): Mallard; *Anas platyrhynchos*; MALL

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Hooded Oriole; *Icterus cucullatus*; HOOR, no

Bird (Common or Scientific Name): Hooded Oriole; *Icterus cucullatus*; HOOR

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Brown-headed Cowbird; *Molothrus ater*; BHCO, no

Bird (Common or Scientific Name): Brown-headed Cowbird; *Molothrus ater*; BHCO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Number of Individuals: 1

Eurasian Collared-Dove; *Streptopelia decaocto*; ECDO, no

Bird (Common or Scientific Name): Eurasian Collared-Dove; *Streptopelia decaocto*; ECDO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Band-tailed Pigeon; *Patagioenas fasciata*; BTPI, no

Bird (Common or Scientific Name): Band-tailed Pigeon; *Patagioenas fasciata*; BTPI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; *Vireo bellii pusillus*; LBVI

Is the Bird Sensitive ? yes

Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Both

Number of individuals observed: 2

Behavior (check all that apply): Foraging, Singing/calling

Bird Sex (check all that apply): Male, Female

Bird Age (check all that apply): Adult

Additional Notes: In live oak!

Rufous-crowned Sparrow; *Aimophila ruficeps*; RCSP, no

Bird (Common or Scientific Name): Rufous-crowned Sparrow; *Aimophila ruficeps*; RCSP

Is the Bird Sensitive ? no

Sub-Species Info: N/A

California Thrasher; *Toxostoma redivivum*; CATH, no

Bird (Common or Scientific Name): California Thrasher; *Toxostoma redivivum*; CATH
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Hutton's Vireo; *Vireo huttoni*; HUVI, no

Bird (Common or Scientific Name): Hutton's Vireo; *Vireo huttoni*; HUVI
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; *Vireo bellii pusillus*; LBVI
Is the Bird Sensitive ? yes
Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Both
Number of individuals observed: 2
Behavior (check all that apply): Foraging, Singing/calling
Bird Sex (check all that apply): Female, Male
Bird Age (check all that apply): Adult
Additional Notes: In oak and sumac

Mourning Dove; *Zenaida macroura*; MODO, no

Bird (Common or Scientific Name): Mourning Dove; *Zenaida macroura*; MODO
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Wilson's Warbler; *Cardellina pusilla*; WIWA, no

Bird (Common or Scientific Name): Wilson's Warbler; *Cardellina pusilla*; WIWA
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Black-throated Gray Warbler; *Setophaga nigrescens*; BTYW, no

Bird (Common or Scientific Name): Black-throated Gray Warbler; *Setophaga nigrescens*; BTYW
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Black-chinned Hummingbird; *Archilochus alexandri*; BCHU, no

Bird (Common or Scientific Name): Black-chinned Hummingbird; *Archilochus alexandri*; BCHU
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Anna's Hummingbird; *Calypte anna*; ANHU, no

Bird (Common or Scientific Name): Anna's Hummingbird; *Calypte anna*; ANHU
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Visual, Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling, Nest building
Bird Sex (check all that apply):	Female, Male
Bird Age (check all that apply):	Adult

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

TMP Monitoring, LBV

Created	2022-04-28 13:05:18 UTC by SC Fulcrum03
Updated	2022-06-22 23:08:44 UTC by SC Fulcrum03
Location	33.401232822829385, -117.25081904802214

Parent Form

Project Name:	TMP Monitoring, LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Pablo
Date:	2022-04-28

START Weather Details:

Start - Time:	06:05
Wind Direction	NA
Air Temp Current (F)	58
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	100
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	10:05
End - Temperature:	60
End - Wind Direction From (select one):	N/A
End - Low Wind Speed:	0
End - High Wind Speed:	0
End - Average Wind Speed:	0
End - Cloud Cover (%):	100
End - Precipitation (select one):	None
Notes	Detected LBV 02,05,06,07,08,09,10,11. No nests. Only saw one pair.
Observation Type:	Bird, Fish

Bird

Orange-crowned Warbler; Oreothlypis celata; OCWA, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; Oreothlypis celata; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Western Wood-Pewee; Contopus sordidulus; WEWP, no

Bird (Common or Scientific Name):	Western Wood-Pewee; Contopus sordidulus; WEWP
-----------------------------------	---

Is the Bird Sensitive ? no

Sub-Species Info: N/A

White-breasted Nuthatch; *Sitta carolinensis*; WBNU, no

Bird (Common or Scientific Name): White-breasted Nuthatch; *Sitta carolinensis*; WBNU

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Acorn Woodpecker; *Melanerpes formicivorus*; ACWO, no

Bird (Common or Scientific Name): Acorn Woodpecker; *Melanerpes formicivorus*; ACWO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Bewick's Wren; *Thryomanes bewickii*; BEWR, no

Bird (Common or Scientific Name): Bewick's Wren; *Thryomanes bewickii*; BEWR

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Pacific-slope Flycatcher; *Empidonax difficilis*; PSFL, no

Bird (Common or Scientific Name): Pacific-slope Flycatcher; *Empidonax difficilis*; PSFL

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Mourning Dove; *Zenaida macroura*; MODO, no

Bird (Common or Scientific Name): Mourning Dove; *Zenaida macroura*; MODO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Northern Flicker; *Colaptes auratus*; NOFL, no

Bird (Common or Scientific Name): Northern Flicker; *Colaptes auratus*; NOFL

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Great Horned Owl; *Bubo virginianus*; GHOW, no

Bird (Common or Scientific Name): Great Horned Owl; *Bubo virginianus*; GHOW

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Song Sparrow; *Melospiza melodia*; SOSP, no

Bird (Common or Scientific Name): Song Sparrow; *Melospiza melodia*; SOSP

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Black-headed Grosbeak; *Pheucticus melanocephalus*; BHGR, no

Bird (Common or Scientific Name): Black-headed Grosbeak; *Pheucticus melanocephalus*; BHGR

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Common Yellowthroat; *Geothlypis trichas*; COYE, no

Bird (Common or Scientific Name):	Common Yellowthroat; <i>Geothlypis trichas</i> ; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Spotted Towhee; *Pipilo maculatus*; SPTO, no

Bird (Common or Scientific Name):	Spotted Towhee; <i>Pipilo maculatus</i> ; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Yellow Warbler; *Setophaga petechia*; YEWA, yes

Bird (Common or Scientific Name):	Yellow Warbler; <i>Setophaga petechia</i> ; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Yellow-breasted Chat; *Icteria virens*; YBCH, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; <i>Icteria virens</i> ; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Great Blue Heron; *Ardea herodias*; GBHE, yes

Bird (Common or Scientific Name):	Great Blue Heron; <i>Ardea herodias</i> ; GBHE
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown

House Wren; *Troglodytes aedon*; HOWR, no

Bird (Common or Scientific Name): House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Wilson's Warbler; Cardellina pusilla; WIWA, no

Bird (Common or Scientific Name): Wilson's Warbler; Cardellina pusilla; WIWA
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ? yes
Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Auditory
Number of individuals observed: 1
Behavior (check all that apply): Singing/calling
Bird Sex (check all that apply): Male
Bird Age (check all that apply): Adult
Additional Notes: LBV 8

Downy Woodpecker; Dryobates pubescens; DOWO, no

Bird (Common or Scientific Name): Downy Woodpecker; Dryobates pubescens; DOWO
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Lesser Goldfinch; Spinus psaltria; LEGO, no

Bird (Common or Scientific Name): Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Yellow-breasted Chat; Icteria virens; YBCH, yes

Bird (Common or Scientific Name): Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ? yes
Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Auditory
Number of individuals observed: 1
Behavior (check all that apply): Singing/calling
Bird Sex (check all that apply): Male
Bird Age (check all that apply): Adult

Scaly-breasted Munia; Lonchura punctulata; SBMU, no

Bird (Common or Scientific Name): Scaly-breasted Munia; Lonchura punctulata; SBMU
Is the Bird Sensitive ? no

Sub-Species Info: N/A

Warbling Vireo; *Vireo gilvus*; WAVI, no

Bird (Common or Scientific Name): Warbling Vireo; *Vireo gilvus*; WAVI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Nuttall's Woodpecker; *Dryobates nuttallii*; NUWO, no

Bird (Common or Scientific Name): Nuttall's Woodpecker; *Dryobates nuttallii*; NUWO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Yellow-breasted Chat; *Icteria virens*; YBCH, yes

Bird (Common or Scientific Name): Yellow-breasted Chat; *Icteria virens*; YBCH

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Wrentit; *Chamaea fasciata*; WREN, no

Bird (Common or Scientific Name): Wrentit; *Chamaea fasciata*; WREN

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Yellow-breasted Chat; *Icteria virens*; YBCH, yes

Bird (Common or Scientific Name): Yellow-breasted Chat; *Icteria virens*; YBCH

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Both

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Mallard; *Anas platyrhynchos*; MALL, no

Bird (Common or Scientific Name): Mallard; *Anas platyrhynchos*; MALL

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Ash-throated Flycatcher; *Myiarchus cinerascens*; ATFL, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; Myiarchus cinerascens; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Brown-headed Cowbird; Molothrus ater; BHCO, no

Bird (Common or Scientific Name):	Brown-headed Cowbird; Molothrus ater; BHCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1

Sensitive Bird Observation

Number of individuals observed:	1
---------------------------------	---

Band-tailed Pigeon; Patagioenas fasciata; BTPI, no

Bird (Common or Scientific Name):	Band-tailed Pigeon; Patagioenas fasciata; BTPI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Hutton's Vireo; Vireo huttoni; HUVI, no

Bird (Common or Scientific Name):	Hutton's Vireo; Vireo huttoni; HUVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Bushtit; Psaltriparus minimus; BUSH, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Vaux's Swift; Chaetura vauxi; VASW, yes

Bird (Common or Scientific Name):	Vaux's Swift; Chaetura vauxi; VASW
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	4
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	Migrants

Cliff Swallow; Petrochelidon pyrrhonota; CLSW, no

Bird (Common or Scientific Name):	Cliff Swallow; Petrochelidon pyrrhonota; CLSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Oak Titmouse; Baeolophus inornatus; OATI, no

Bird (Common or Scientific Name):	Oak Titmouse; Baeolophus inornatus; OATI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Brown-headed Cowbird; Molothrus ater; BHCO, no

Bird (Common or Scientific Name):	Brown-headed Cowbird; Molothrus ater; BHCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1

Sensitive Bird Observation

Number of individuals observed:	1
---------------------------------	---

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Visual, Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling, Foraging
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory, Visual
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male

Bird Age (check all that apply): Adult

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; Vireo bellii pusillus; LBVI

Is the Bird Sensitive ? yes

Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; Vireo bellii pusillus; LBVI

Is the Bird Sensitive ? yes

Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; Vireo bellii pusillus; LBVI

Is the Bird Sensitive ? yes

Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; Vireo bellii pusillus; LBVI

Is the Bird Sensitive ? yes

Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male
Bird Age (check all that apply): Adult

Fish

Largemouth Bass; *Micropterus salmoides*

Fish (Common or Scientific Name): Largemouth Bass; *Micropterus salmoides*
Is the Fish Sensitive? no
Sub-Species Info: N/A

TMP Monitoring, LBV

Created	2022-05-13 13:31:33 UTC by SC Fulcrum03
Updated	2022-06-23 01:06:59 UTC by SC Fulcrum03
Location	33.401355701529795, -117.2509618756522

Parent Form

Project Name:	TMP Monitoring, LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Pablo
Date:	2022-05-13

START Weather Details:

Start - Time:	06:05
Air Temp Current (F)	47
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Precipitation (select one):	None

END Weather Details:

Time Out:	09:57
End - Temperature:	69
End - Wind Direction From (select one):	N/A
End - Low Wind Speed:	0
End - High Wind Speed:	0
End - Average Wind Speed:	0
End - Cloud Cover (%):	0
End - Precipitation (select one):	None

Notes	Detected LBVI 02,03, 04, 06,07, 08, 10,11
Observation Type:	Bird, Mammal, Reptile, Butterfly/Moth

Bird

Acorn Woodpecker; *Melanerpes formicivorus*; ACWO, no

Bird (Common or Scientific Name):	Acorn Woodpecker; <i>Melanerpes formicivorus</i> ; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Black Phoebe; *Sayornis nigricans*; BLPH, no

Bird (Common or Scientific Name):	Black Phoebe; <i>Sayornis nigricans</i> ; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Orange-crowned Warbler; *Oreothlypis celata*; OCWA, no

Bird (Common or Scientific Name): Orange-crowned Warbler; Oreothlypis celata; OCWA
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Yellow Warbler; *Setophaga petechia*; YEWA, yes

Bird (Common or Scientific Name): Yellow Warbler; *Setophaga petechia*; YEWA
Is the Bird Sensitive ? yes
Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Both
Number of individuals observed: 1
Behavior (check all that apply): Singing/calling
Bird Sex (check all that apply): Male
Bird Age (check all that apply): Adult

Pacific-slope Flycatcher; *Empidonax difficilis*; PSFL, no

Bird (Common or Scientific Name): Pacific-slope Flycatcher; *Empidonax difficilis*; PSFL
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Anna's Hummingbird; *Calypte anna*; ANHU, no

Bird (Common or Scientific Name): Anna's Hummingbird; *Calypte anna*; ANHU
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Band-tailed Pigeon; *Patagioenas fasciata*; BTPI, no

Bird (Common or Scientific Name): Band-tailed Pigeon; *Patagioenas fasciata*; BTPI
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Mourning Dove; *Zenaida macroura*; MODO, no

Bird (Common or Scientific Name): Mourning Dove; *Zenaida macroura*; MODO
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Black-headed Grosbeak; *Pheucticus melanocephalus*; BHGR, no

Bird (Common or Scientific Name): Black-headed Grosbeak; *Pheucticus melanocephalus*; BHGR
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Bushtit; *Psaltriparus minimus*; BUSH, no

Bird (Common or Scientific Name): Bushtit; *Psaltriparus minimus*; BUSH
Is the Bird Sensitive ? no
Sub-Species Info: N/A

House Wren; *Troglodytes aedon*; HOWR, no

Bird (Common or Scientific Name):	House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Hutton's Vireo; Vireo huttoni; HUVI, no

Bird (Common or Scientific Name):	Hutton's Vireo; Vireo huttoni; HUVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Great Blue Heron; Ardea herodias; GBHE, yes

Bird (Common or Scientific Name):	Great Blue Heron; Ardea herodias; GBHE
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Yellow-breasted Chat; Icteria virens; YBCH, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Warbling Vireo; Vireo gilvus; WAVI, no

Bird (Common or Scientific Name):	Warbling Vireo; Vireo gilvus; WAVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Townsend's Warbler; Setophaga townsendi; TOWA, no

Bird (Common or Scientific Name):	Townsend's Warbler; Setophaga townsendi; TOWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Wilson's Warbler; Cardellina pusilla; WIWA, no

Bird (Common or Scientific Name):	Wilson's Warbler; Cardellina pusilla; WIWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Ash-throated Flycatcher; *Myiarchus cinerascens*; ATFL, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; <i>Myiarchus cinerascens</i> ; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

California Thrasher; *Toxostoma redivivum*; CATH, no

Bird (Common or Scientific Name):	California Thrasher; <i>Toxostoma redivivum</i> ; CATH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Song Sparrow; *Melospiza melodia*; SOSP, no

Bird (Common or Scientific Name):	Song Sparrow; <i>Melospiza melodia</i> ; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Yellow-breasted Chat; *Icteria virens*; YBCH, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; <i>Icteria virens</i> ; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Yellow-breasted Chat; *Icteria virens*; YBCH, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; <i>Icteria virens</i> ; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2

Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	Pair LBV 4

Common Yellowthroat; *Geothlypis trichas*; COYE, no

Bird (Common or Scientific Name):	Common Yellowthroat; <i>Geothlypis trichas</i> ; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Black-chinned Hummingbird; *Archilochus alexandri*; BCHU, no

Bird (Common or Scientific Name):	Black-chinned Hummingbird; <i>Archilochus alexandri</i> ; BCHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Phainopepla; *Phainopepla nitens*; PHAI, no

Bird (Common or Scientific Name):	Phainopepla; <i>Phainopepla nitens</i> ; PHAI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

California Scrub-Jay; *Aphelocoma californica*; CASJ, no

Bird (Common or Scientific Name):	California Scrub-Jay; <i>Aphelocoma californica</i> ; CASJ
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Crow; *Corvus brachyrhynchos*; AMCR, no

Bird (Common or Scientific Name):	American Crow; <i>Corvus brachyrhynchos</i> ; AMCR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Allen's Hummingbird; *Selasphorus sasin*; ALHU, no

Bird (Common or Scientific Name):	Allen's Hummingbird; <i>Selasphorus sasin</i> ; ALHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Scaly-breasted Munia; *Lonchura punctulata*; SBMU, no

Bird (Common or Scientific Name):	Scaly-breasted Munia; <i>Lonchura punctulata</i> ; SBMU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Bewick's Wren; *Thryomanes bewickii*; BEWR, no

Bird (Common or Scientific Name):	Bewick's Wren; <i>Thryomanes bewickii</i> ; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Blue-gray Gnatcatcher; *Polioptila caerulea*; BGGN, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; <i>Polioptila caerulea</i> ; BGGN
-----------------------------------	--

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Nuttall's Woodpecker; Dryobates nuttallii; NUWO, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

White-breasted Nuthatch; Sitta carolinensis; WBNU, no

Bird (Common or Scientific Name):	White-breasted Nuthatch; Sitta carolinensis; WBNU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Northern Rough-winged Swallow; Stelgidopteryx serripennis; NRWS, no

Bird (Common or Scientific Name):	Northern Rough-winged Swallow; Stelgidopteryx serripennis; NRWS
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Western Wood-Pewee; Contopus sordidulus; WEWP, no

Bird (Common or Scientific Name):	Western Wood-Pewee; Contopus sordidulus; WEWP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Butterfly/Moth

Cabbage White; *Pieris rapae*

Butterfly/Moth (Common or Scientific Name):	Cabbage White; <i>Pieris rapae</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Western Tiger Swallowtail; *Papilio rutulus*

Butterfly/Moth (Common or Scientific Name):	Western Tiger Swallowtail; <i>Papilio rutulus</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Mammal

Coyote; *Canis latrans*

Mammal (Common or Scientific Name):	Coyote; <i>Canis latrans</i>
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Reptile

Western Fence Lizard; *Sceloporus occidentalis*

Reptile (Common or Scientific Name):	Western Fence Lizard; <i>Sceloporus occidentalis</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

TMP Monitoring, LBV

Created	2022-05-24 13:06:47 UTC by SC Fulcrum14
Updated	2022-05-26 22:22:10 UTC by SC Fulcrum14
Location	33.40207929349927, -117.25193088269128

Parent Form

Project Name:	TMP Monitoring, LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Florence Chan
Assistant Observer/Surveyor:	Pablo Corcoran
Date:	2022-05-24

START Weather Details:

Start - Time:	06:06
Wind Direction	N
Air Temp Current (F)	58
Start - Low Wind Speed:	0
Start - High Wind Speed:	2
Start - Cloud Cover (%):	50
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	10:04
End - Temperature:	66
End - Wind Direction From (select one):	SW
End - Low Wind Speed:	0
End - High Wind Speed:	3
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	Good
Observation Type:	Bird

Bird

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling

Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Male singing alone and wandering. Quieted when a scrub jay sang nearby.

Yellow Warbler; *Setophaga petechia*; YEWA, yes

Bird (Common or Scientific Name):	Yellow Warbler; <i>Setophaga petechia</i> ; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	10
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	Heard throughout the preserve. Estimated number.

Black Phoebe; *Sayornis nigricans*; BLPH, no

Bird (Common or Scientific Name):	Black Phoebe; <i>Sayornis nigricans</i> ; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

House Wren; *Troglodytes aedon*; HOWR, no

Bird (Common or Scientific Name):	House Wren; <i>Troglodytes aedon</i> ; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Spotted Towhee; *Pipilo maculatus*; SPTO, no

Bird (Common or Scientific Name):	Spotted Towhee; <i>Pipilo maculatus</i> ; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Pacific-slope Flycatcher; *Empidonax difficilis*; PSFL, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; <i>Empidonax difficilis</i> ; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

California Scrub-Jay; *Aphelocoma californica*; CASJ, no

Bird (Common or Scientific Name):	California Scrub-Jay; <i>Aphelocoma californica</i> ; CASJ
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Bewick's Wren; *Thryomanes bewickii*; BEWR, no

Bird (Common or Scientific Name):	Bewick's Wren; <i>Thryomanes bewickii</i> ; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Yellow-breasted Chat; *Icteria virens*; YBCH, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; <i>Icteria virens</i> ; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	Heard in several locations in the preserve.

Bushtit; *Psaltriparus minimus*; BUSH, no

Bird (Common or Scientific Name):	Bushtit; <i>Psaltriparus minimus</i> ; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Song Sparrow; *Melospiza melodia*; SOSP, no

Bird (Common or Scientific Name):	Song Sparrow; <i>Melospiza melodia</i> ; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Sang briefly.

Swainson's Thrush; *Catharus ustulatus*; SWTH, no

Bird (Common or Scientific Name):	Swainson's Thrush; <i>Catharus ustulatus</i> ; SWTH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Nuttall's Woodpecker; *Dryobates nuttallii*; NUWO, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; <i>Dryobates nuttallii</i> ; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

House Finch; *Haemorhous mexicanus*; HOFI, no

Bird (Common or Scientific Name):	House Finch; Haemorhous mexicanus; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Anna's Hummingbird; Calypte anna; ANHU, no

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Mourning Dove; Zenaida macroura; MODO, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Hutton's Vireo; Vireo huttoni; HUVI, no

Bird (Common or Scientific Name):	Hutton's Vireo; Vireo huttoni; HUVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Common Yellowthroat; Geothlypis trichas; COYE, no

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Black-headed Grosbeak; Pheucticus melanocephalus; BHGR, no

Bird (Common or Scientific Name):	Black-headed Grosbeak; Pheucticus melanocephalus; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

California Towhee; Melozone crissalis; CALT, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Male singing in the distance.

Acorn Woodpecker; *Melanerpes formicivorus*; ACWO, no

Bird (Common or Scientific Name):	Acorn Woodpecker; <i>Melanerpes formicivorus</i> ; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV3 Male in the distance. Countered with male upstream briefly. Pair scolding in the territory.

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV2. Male counter singing with male downstream.

Northern Flicker; *Colaptes auratus*; NOFL, no

Bird (Common or Scientific Name):	Northern Flicker; <i>Colaptes auratus</i> ; NOFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Orange-crowned Warbler; *Oreothlypis celata*; OCWA, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; <i>Oreothlypis celata</i> ; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Acorn Woodpecker; *Melanerpes formicivorus*; ACWO, no

Bird (Common or Scientific Name):	Acorn Woodpecker; <i>Melanerpes formicivorus</i> ; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Black-chinned Hummingbird; *Archilochus alexandri*; BCHU, no

Bird (Common or Scientific Name):	Black-chinned Hummingbird; <i>Archilochus alexandri</i> ; BCHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Wrentit; *Chamaea fasciata*; WREN, no

Bird (Common or Scientific Name):	Wrentit; <i>Chamaea fasciata</i> ; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Blue-gray Gnatcatcher; *Polioptila caerulea*; BGGN, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; <i>Polioptila caerulea</i> ; BGGN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Phainopepla; *Phainopepla nitens*; PHAI, no

Bird (Common or Scientific Name):	Phainopepla; <i>Phainopepla nitens</i> ; PHAI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Red-tailed Hawk; *Buteo jamaicensis*; RTHA, no

Bird (Common or Scientific Name):	Red-tailed Hawk; <i>Buteo jamaicensis</i> ; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV8. Paired. Male in territory.

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling

Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Lbv11. Singing in distance.

TMP Monitoring, LBV

Created	2022-06-07 13:12:00 UTC by SC Fulcrum15
Updated	2022-06-08 21:26:40 UTC by SC Fulcrum14
Location	33.4013909589, -117.2508554

Parent Form

Project Name:	TMP Monitoring, LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Florence Chan
Assistant Observer/Surveyor:	Pablo Corcoran
Date:	2022-06-07

START Weather Details:

Start - Time:	06:12
Weather Conditions	Cloudy
Wind Direction	NW
Air Temp Current (F)	61
Start - Low Wind Speed:	0
Start - High Wind Speed:	2
Start - Cloud Cover (%):	100
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	10:44
End - Temperature:	76
End - Wind Direction From (select one):	SW
End - Low Wind Speed:	0
End - High Wind Speed:	3
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	Good
Project Location (description):	Santa Margarita Preserve.
Observation Type:	Bird, Reptile

Bird

Black Phoebe; Sayornis nigricans; BLPH, no

Bird (Common or Scientific Name):	Black Phoebe; Sayornis nigricans; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

California Towhee; Melozone crissalis; CALT, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
-----------------------------------	---

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Pacific-slope Flycatcher; Empidonax difficilis; PSFL, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; Empidonax difficilis; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV 8. Later in the survey, male was observed foraging with one fledgling.

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV 12 first day observed

Spotted Towhee; Pipilo maculatus; SPTO, no

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Wrentit; Chamaea fasciata; WREN, no

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Lesser Goldfinch; Spinus psaltria; LEGO, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no

Sub-Species Info: N/A

Yellow Warbler; *Setophaga petechia*; YEWA, yes

Bird (Common or Scientific Name): Yellow Warbler; *Setophaga petechia*; YEWA

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Unknown

Bird Age (check all that apply): Adult

Additional Notes: Heard throughout riparian habitat.

Yellow-breasted Chat; *Icteria virens*; YBCH, yes

Bird (Common or Scientific Name): Yellow-breasted Chat; *Icteria virens*; YBCH

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 5

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Unknown

Bird Age (check all that apply): Unknown

Nuttall's Woodpecker; *Dryobates nuttallii*; NUWO, no

Bird (Common or Scientific Name): Nuttall's Woodpecker; *Dryobates nuttallii*; NUWO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Common Yellowthroat; *Geothlypis trichas*; COYE, no

Bird (Common or Scientific Name): Common Yellowthroat; *Geothlypis trichas*; COYE

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Song Sparrow; *Melospiza melodia*; SOSP, no

Bird (Common or Scientific Name): Song Sparrow; *Melospiza melodia*; SOSP

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Black-headed Grosbeak; *Pheucticus melanocephalus*; BHGR, no

Bird (Common or Scientific Name): Black-headed Grosbeak; *Pheucticus melanocephalus*; BHGR

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Acorn Woodpecker; *Melanerpes formicivorus*; ACWO, no

Bird (Common or Scientific Name):	Acorn Woodpecker; <i>Melanerpes formicivorus</i> ; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

California Scrub-Jay; *Aphelocoma californica*; CASJ, no

Bird (Common or Scientific Name):	California Scrub-Jay; <i>Aphelocoma californica</i> ; CASJ
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV 5 in the distance.

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV 3

Mourning Dove; *Zenaida macroura*; MODO, no

Bird (Common or Scientific Name):	Mourning Dove; <i>Zenaida macroura</i> ; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV 2

Orange-crowned Warbler; Oreothlypis celata; OCWA, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; Oreothlypis celata; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Hooded Oriole; Icterus cucullatus; HOOR, no

Bird (Common or Scientific Name):	Hooded Oriole; Icterus cucullatus; HOOR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV 4

Black-chinned Hummingbird; Archilochus alexandri; BCHU, no

Bird (Common or Scientific Name):	Black-chinned Hummingbird; Archilochus alexandri; BCHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV1

Phainopepla; Phainopepla nitens; PHAI, no

Bird (Common or Scientific Name):	Phainopepla; Phainopepla nitens; PHAI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Blue-gray Gnatcatcher; Polioptila caerulea; BGGN, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; Polioptila caerulea; BGGN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Red-tailed Hawk; Buteo jamaicensis; RTHA, no

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Sensitive Bird Observation

Number of individuals observed:	1
---------------------------------	---

Bewick's Wren; Thryomanes bewickii; BEWR, no

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Turkey Vulture; Cathartes aura; TUVU, yes

Bird (Common or Scientific Name):	Turkey Vulture; Cathartes aura; TUVU
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV 9

Reptile

Orange-throated Whiptail; *Aspidoscelis hyperythrus*

Reptile (Common or Scientific Name): Orange-throated Whiptail; *Aspidoscelis hyperythrus*

Is the Reptile Sensitive ? yes

Sub-Species Info: N/A

Sensitive Reptile Observation

Observation Type (check all that apply): Visual sighting

Number of individuals observed: 1

Behavior (check all that apply): Foraging

Reptile Sex (check all that apply): Unknown

Reptile Age (check all that apply): Adult

Orange-throated Whiptail; *Aspidoscelis hyperythrus*

Reptile (Common or Scientific Name): Orange-throated Whiptail; *Aspidoscelis hyperythrus*

Is the Reptile Sensitive ? yes

Sub-Species Info: N/A

Sensitive Reptile Observation

Observation Type (check all that apply): Visual sighting

Number of individuals observed: 1

Behavior (check all that apply): Foraging

Reptile Sex (check all that apply): Unknown

Reptile Age (check all that apply): Adult

Orange-throated Whiptail; *Aspidoscelis hyperythrus*

Reptile (Common or Scientific Name): Orange-throated Whiptail; *Aspidoscelis hyperythrus*

Is the Reptile Sensitive ? yes

Sub-Species Info: N/A

Sensitive Reptile Observation

Observation Type (check all that apply): Visual sighting

Number of individuals observed: 1

Behavior (check all that apply): Foraging

Reptile Sex (check all that apply): Unknown

Reptile Age (check all that apply): Adult

Orange-throated Whiptail; *Aspidoscelis hyperythrus*

Reptile (Common or Scientific Name): Orange-throated Whiptail; *Aspidoscelis hyperythrus*

Is the Reptile Sensitive ? yes

Sub-Species Info: N/A

Sensitive Reptile Observation

Observation Type (check all that apply): Visual sighting

Number of individuals observed: 1

Behavior (check all that apply):	Foraging
Reptile Sex (check all that apply):	Unknown
Reptile Age (check all that apply):	Adult

Orange-throated Whiptail; *Aspidoscelis hyperythrus*

Reptile (Common or Scientific Name):	Orange-throated Whiptail; <i>Aspidoscelis hyperythrus</i>
Is the Reptile Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Reptile Observation

Observation Type (check all that apply):	Visual sighting
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Reptile Sex (check all that apply):	Unknown
Reptile Age (check all that apply):	Adult

Western Fence Lizard; *Sceloporus occidentalis*

Reptile (Common or Scientific Name):	Western Fence Lizard; <i>Sceloporus occidentalis</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

TMP Monitoring, LBV

Created	2022-06-21 13:00:26 UTC by SC Fulcrum03
Updated	2022-06-21 18:56:30 UTC by SC Fulcrum03
Location	33.40123525358122, -117.25092801276338

Parent Form

Project Name:	TMP Monitoring, LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Pablo
Date:	2022-06-21

START Weather Details:

Start - Time:	06:00
Air Temp Current (F)	58
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	0
Start - Precipitation (select one):	None

END Weather Details:

Time Out:	10:30
End - Temperature:	72
End - Wind Direction From (select one):	W
End - Low Wind Speed:	1
End - High Wind Speed:	3
End - Average Wind Speed:	2
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
Notes	LBVI 2,3,4,5,6,7,8,9,10. One flyover BHCO
Observation Type:	Bird, Amphibian, Reptile, Butterfly/Moth

Amphibian

American Bullfrog; *Lithobates catesbeianus*

Amphibian (Common or Scientific Name):	American Bullfrog; <i>Lithobates catesbeianus</i>
Is the Amphibian Sensitive ?	no
Sub-Species Info:	N/A

Bird

Pacific-slope Flycatcher; *Empidonax difficilis*; PSFL, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; <i>Empidonax difficilis</i> ; PSFL
Is the Bird Sensitive ?	no

Sub-Species Info: N/A

Band-tailed Pigeon; Patagioenas fasciata; BTPI, no

Bird (Common or Scientific Name): Band-tailed Pigeon; Patagioenas fasciata; BTPI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Acorn Woodpecker; Melanerpes formicivorus; ACWO, no

Bird (Common or Scientific Name): Acorn Woodpecker; Melanerpes formicivorus; ACWO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

California Scrub-Jay; Aphelocoma californica; CASJ, no

Bird (Common or Scientific Name): California Scrub-Jay; Aphelocoma californica; CASJ

Is the Bird Sensitive ? no

Sub-Species Info: N/A

House Finch; Haemorhous mexicanus; HOFI, no

Bird (Common or Scientific Name): House Finch; Haemorhous mexicanus; HOFI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Wrentit; Chamaea fasciata; WREN, no

Bird (Common or Scientific Name): Wrentit; Chamaea fasciata; WREN

Is the Bird Sensitive ? no

Sub-Species Info: N/A

White-breasted Nuthatch; Sitta carolinensis; WBNU, no

Bird (Common or Scientific Name): White-breasted Nuthatch; Sitta carolinensis; WBNU

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Hooded Oriole; Icterus cucullatus; HOOR, no

Bird (Common or Scientific Name): Hooded Oriole; Icterus cucullatus; HOOR

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Oak Titmouse; Baeolophus inornatus; OATI, no

Bird (Common or Scientific Name): Oak Titmouse; Baeolophus inornatus; OATI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; Vireo bellii pusillus; LBVI

Is the Bird Sensitive ? yes

Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	3
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Male, Unknown
Bird Age (check all that apply):	Adult, Juvenile
Additional Notes:	Male with at least one fledgling. Probably LBV 8

Common Yellowthroat; *Geothlypis trichas*; COYE, no

Bird (Common or Scientific Name):	Common Yellowthroat; <i>Geothlypis trichas</i> ; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Yellow Warbler; *Setophaga petechia*; YEWA, yes

Bird (Common or Scientific Name):	Yellow Warbler; <i>Setophaga petechia</i> ; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown

Yellow-breasted Chat; *Icteria virens*; YBCH, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; <i>Icteria virens</i> ; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Black-headed Grosbeak; *Pheucticus melanocephalus*; BHGR, no

Bird (Common or Scientific Name):	Black-headed Grosbeak; <i>Pheucticus melanocephalus</i> ; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV 3, heard female or juv begging, Counter singing with LBV 2

Northern Flicker; Colaptes auratus; NOFL, no

Bird (Common or Scientific Name):	Northern Flicker; Colaptes auratus; NOFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male, Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	LBV 4, no fem or juvs detected

Nuttall's Woodpecker; Dryobates nuttallii; NUWO, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Sensitive Bird Observation

Number of individuals observed:	1
---------------------------------	---

Song Sparrow; Melospiza melodia; SOSP, no

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Spotted Towhee; Pipilo maculatus; SPTO, no

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Mourning Dove; Zenaida macroura; MODO, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

California Towhee; *Melospiza crissalis*; CALT, no

Bird (Common or Scientific Name):	California Towhee; <i>Melospiza crissalis</i> ; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Hutton's Vireo; *Vireo huttoni*; HUVI, no

Bird (Common or Scientific Name):	Hutton's Vireo; <i>Vireo huttoni</i> ; HUVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 2, pair

Great Blue Heron; *Ardea herodias*; GBHE, yes

Bird (Common or Scientific Name):	Great Blue Heron; <i>Ardea herodias</i> ; GBHE
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown

Ash-throated Flycatcher; *Myiarchus cinerascens*; ATFL, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; <i>Myiarchus cinerascens</i> ; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Brown-headed Cowbird; *Molothrus ater*; BHCO, no

Bird (Common or Scientific Name):	Brown-headed Cowbird; <i>Molothrus ater</i> ; BHCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1

Bewick's Wren; *Thryomanes bewickii*; BEWR, no

Bird (Common or Scientific Name):	Bewick's Wren; <i>Thryomanes bewickii</i> ; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Phainopepla; *Phainopepla nitens*; PHAI, no

Bird (Common or Scientific Name):	Phainopepla; <i>Phainopepla nitens</i> ; PHAI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	3
Behavior (check all that apply):	Foraging, Singing/calling
Bird Sex (check all that apply):	Female, Male
Bird Age (check all that apply):	Adult, Juvenile
Additional Notes:	LBV 5. Pair with at least one juv

Black Phoebe; *Sayornis nigricans*; BLPH, no

Bird (Common or Scientific Name):	Black Phoebe; <i>Sayornis nigricans</i> ; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Rufous-crowned Sparrow; *Aimophila ruficeps*; RCSP, no

Bird (Common or Scientific Name):	Rufous-crowned Sparrow; <i>Aimophila ruficeps</i> ; RCSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Black-chinned Hummingbird; *Archilochus alexandri*; BCHU, no

Bird (Common or Scientific Name):	Black-chinned Hummingbird; <i>Archilochus alexandri</i> ; BCHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling, Foraging
Bird Sex (check all that apply):	Male, Unknown

Bird Age (check all that apply): Juvenile, Adult
Additional Notes: LBVI 6, male and begging juv

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive? yes
Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Auditory
Number of individuals observed: 1
Behavior (check all that apply): Singing/calling
Bird Sex (check all that apply): Male
Bird Age (check all that apply): Adult
Additional Notes: LBV 7. Singing solo

Western Wood-Pewee; Contopus sordidulus; WEWP, no

Bird (Common or Scientific Name): Western Wood-Pewee; Contopus sordidulus; WEWP
Is the Bird Sensitive? no
Sub-Species Info: N/A

Bushtit; Psaltriparus minimus; BUSH, no

Bird (Common or Scientific Name): Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive? no
Sub-Species Info: N/A

Orange-crowned Warbler; Oreothlypis celata; OCWA, no

Bird (Common or Scientific Name): Orange-crowned Warbler; Oreothlypis celata; OCWA
Is the Bird Sensitive? no
Sub-Species Info: N/A

House Wren; Troglodytes aedon; HOWR, no

Bird (Common or Scientific Name): House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive? no
Sub-Species Info: N/A

Downy Woodpecker; Dryobates pubescens; DOWO, no

Bird (Common or Scientific Name): Downy Woodpecker; Dryobates pubescens; DOWO
Is the Bird Sensitive? no
Sub-Species Info: N/A

Common Raven; Corvus corax; CORA, no

Bird (Common or Scientific Name): Common Raven; Corvus corax; CORA
Is the Bird Sensitive? no
Sub-Species Info: N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV 10. Singing solo

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV 9, singing solo

Red-tailed Hawk; Buteo jamaicensis; RTHA, no

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Lesser Goldfinch; Spinus psaltria; LEGO, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Butterfly/Moth

Common Buckeye; Junonia coenia

Butterfly/Moth (Common or Scientific Name):	Common Buckeye; Junonia coenia
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Lorquin's Admiral; Limenitis lorquini

Butterfly/Moth (Common or Scientific Name):	Lorquin's Admiral; Limenitis lorquini
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Cabbage White; *Pieris rapae*

Butterfly/Moth (Common or Scientific Name):	Cabbage White; <i>Pieris rapae</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Reptile

Western Fence Lizard; *Sceloporus occidentalis*

Reptile (Common or Scientific Name):	Western Fence Lizard; <i>Sceloporus occidentalis</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

TMP Monitoring, LBV

Created	2022-07-07 12:58:42 UTC by SC Fulcrum14
Updated	2022-07-07 20:53:42 UTC by SC Fulcrum14
Location	33.4013394387, -117.250813324

Parent Form

Project Name:	TMP Monitoring, LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Florence Chan, Jack Quinzon
Date:	2022-07-07

START Weather Details:

Start - Time:	05:58
Wind Direction	E
Air Temp Current (F)	61
Start - Low Wind Speed:	0
Start - High Wind Speed:	2
Start - Cloud Cover (%):	100
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	10:19
End - Temperature:	75
End - Wind Direction From (select one):	W
End - Low Wind Speed:	0
End - High Wind Speed:	3
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	Good

Project Location (description):	Santa Margarita Preserve.
Notes	Observed LBV8, LBV5 (family group consisting of pair with 3 fledglings), LBV3, LBV2, LBV4, and LBV7.
Observation Type:	Bird, Reptile

Bird

Acorn Woodpecker; *Melanerpes formicivorus*; ACWO, no

Bird (Common or Scientific Name):	Acorn Woodpecker; <i>Melanerpes formicivorus</i> ; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Mourning Dove; *Zenaida macroura*; MODO, no

Bird (Common or Scientific Name):	Mourning Dove; <i>Zenaida macroura</i> ; MODO
Is the Bird Sensitive ?	no

Sub-Species Info: N/A

California Towhee; *Melospiza crissalis*; CALT, no

Bird (Common or Scientific Name): California Towhee; *Melospiza crissalis*; CALT

Is the Bird Sensitive? no

Sub-Species Info: N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; *Vireo bellii pusillus*; LBVI

Is the Bird Sensitive? yes

Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Additional Notes: LBV8. Singing in the distance.

Anna's Hummingbird; *Calypte anna*; ANHU, no

Bird (Common or Scientific Name): Anna's Hummingbird; *Calypte anna*; ANHU

Is the Bird Sensitive? no

Sub-Species Info: N/A

Lesser Goldfinch; *Spinus psaltria*; LEGO, no

Bird (Common or Scientific Name): Lesser Goldfinch; *Spinus psaltria*; LEGO

Is the Bird Sensitive? no

Sub-Species Info: N/A

American Crow; *Corvus brachyrhynchos*; AMCR, no

Bird (Common or Scientific Name): American Crow; *Corvus brachyrhynchos*; AMCR

Is the Bird Sensitive? no

Sub-Species Info: N/A

Bushtit; *Psaltriparus minimus*; BUSH, no

Bird (Common or Scientific Name): Bushtit; *Psaltriparus minimus*; BUSH

Is the Bird Sensitive? no

Sub-Species Info: N/A

Wrentit; *Chamaea fasciata*; WREN, no

Bird (Common or Scientific Name): Wrentit; *Chamaea fasciata*; WREN

Is the Bird Sensitive? no

Sub-Species Info: N/A

California Scrub-Jay; *Aphelocoma californica*; CASJ, no

Bird (Common or Scientific Name): California Scrub-Jay; *Aphelocoma californica*; CASJ

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Yellow-breasted Chat; *Icteria virens*; YBCH, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; <i>Icteria virens</i> ; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	8
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult

Yellow Warbler; *Setophaga petechia*; YEWA, yes

Bird (Common or Scientific Name):	Yellow Warbler; <i>Setophaga petechia</i> ; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Heard throughout the preserve.

Spotted Towhee; *Pipilo maculatus*; SPTO, no

Bird (Common or Scientific Name):	Spotted Towhee; <i>Pipilo maculatus</i> ; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV5. Family group was observed foraging together upstream between this territory and LBV3 territory.

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV3. Singing and foraging. Counter singing with upstream LBV2 in the distance. Later observed a quiet vireo within the territory near singing male.

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV2. Counter sang with LBV3.

Blue-gray Gnatcatcher; Polioptila caerulea; BGGN, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; Polioptila caerulea; BGGN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV4. Singing in the distance briefly

Red-tailed Hawk; Buteo jamaicensis; RTHA, no

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
-----------------------------------	--

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Black-chinned Hummingbird; *Archilochus alexandri*; BCHU, no

Bird (Common or Scientific Name):	Black-chinned Hummingbird; <i>Archilochus alexandri</i> ; BCHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Oak Titmouse; *Baeolophus inornatus*; OATI, no

Bird (Common or Scientific Name):	Oak Titmouse; <i>Baeolophus inornatus</i> ; OATI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Great Egret; *Ardea alba*; GREG, no

Bird (Common or Scientific Name):	Great Egret; <i>Ardea alba</i> ; GREG
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Black Phoebe; *Sayornis nigricans*; BLPH, no

Bird (Common or Scientific Name):	Black Phoebe; <i>Sayornis nigricans</i> ; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV7. Heard in the habitat. Very briefly sang.

Common Yellowthroat; *Geothlypis trichas*; COYE, no

Bird (Common or Scientific Name):	Common Yellowthroat; <i>Geothlypis trichas</i> ; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Song Sparrow; *Melospiza melodia*; SOSP, no

Bird (Common or Scientific Name):	Song Sparrow; <i>Melospiza melodia</i> ; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Robin; *Turdus migratorius*; AMRO, no

Bird (Common or Scientific Name):	American Robin; Turdus migratorius; AMRO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Nuttall's Woodpecker; Dryobates nuttallii; NUWO, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Reptile

Orange-throated Whiptail; Aspidoscelis hyperythrus

Reptile (Common or Scientific Name):	Orange-throated Whiptail; Aspidoscelis hyperythrus
Is the Reptile Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Reptile Observation

Observation Type (check all that apply):	Visual sighting
Number of individuals observed:	3
Behavior (check all that apply):	Moving (flushed)
Reptile Sex (check all that apply):	Unknown
Reptile Age (check all that apply):	Adult
Additional Notes:	Along access road. Multiple individuals.

Western Fence Lizard; Sceloporus occidentalis

Reptile (Common or Scientific Name):	Western Fence Lizard; Sceloporus occidentalis
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

TMP Monitoring, LBV

Created	2022-07-20 13:33:58 UTC by SC Fulcrum03
Updated	2022-07-20 17:38:23 UTC by SC Fulcrum03
Location	33.4013404681141, -117.25088706003328

Parent Form

Project Name:	TMP Monitoring, LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Pablo
Date:	2022-07-20

START Weather Details:

Start - Time:	06:01
Start - Temperature:	64
Start - Wind Direction From (select one):	N/A
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	50
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	10:33
End - Temperature:	80
End - Wind Direction From (select one):	SE
End - Low Wind Speed:	2
End - High Wind Speed:	6
End - Average Wind Speed:	4
End - Cloud Cover (%):	20
End - Precipitation (select one):	None

Notes	Observed 7 LBV territories. At least one juv.
Observation Type:	Bird, Fish, Amphibian, Reptile, Butterfly/Moth

Amphibian

American Bullfrog; *Lithobates catesbeianus*

Amphibian (Common or Scientific Name):	American Bullfrog; <i>Lithobates catesbeianus</i>
Is the Amphibian Sensitive ?	no
Sub-Species Info:	N/A

Bird

Phainopepla; *Phainopepla nitens*; PHAI, no

Bird (Common or Scientific Name): Phainopepla; Phainopepla nitens; PHAI
Is the Bird Sensitive ? no
Sub-Species Info: N/A

California Scrub-Jay; Aphelocoma californica; CASJ, no

Bird (Common or Scientific Name): California Scrub-Jay; Aphelocoma californica; CASJ
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Western Tanager; Piranga ludoviciana; WETA, no

Bird (Common or Scientific Name): Western Tanager; Piranga ludoviciana; WETA
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Yellow-breasted Chat; Icteria virens; YBCH, yes

Bird (Common or Scientific Name): Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ? yes
Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Auditory
Number of individuals observed: 1
Behavior (check all that apply): Singing/calling
Bird Sex (check all that apply): Unknown
Bird Age (check all that apply): Unknown

Pacific-slope Flycatcher; Empidonax difficilis; PSFL, no

Bird (Common or Scientific Name): Pacific-slope Flycatcher; Empidonax difficilis; PSFL
Is the Bird Sensitive ? no
Sub-Species Info: N/A

House Finch; Haemorhous mexicanus; HOFI, no

Bird (Common or Scientific Name): House Finch; Haemorhous mexicanus; HOFI
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Lesser Goldfinch; Spinus psaltria; LEGO, no

Bird (Common or Scientific Name): Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Wrentit; Chamaea fasciata; WREN, no

Bird (Common or Scientific Name): Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Acorn Woodpecker; Melanerpes formicivorus; ACWO, no

Bird (Common or Scientific Name):	Acorn Woodpecker; Melanerpes formicivorus; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Anna's Hummingbird; Calypte anna; ANHU, no

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Nuttall's Woodpecker; Dryobates nuttallii; NUWO, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Bewick's Wren; Thryomanes bewickii; BEWR, no

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Scaly-breasted Munia; Lonchura punctulata; SBMU, no

Bird (Common or Scientific Name):	Scaly-breasted Munia; Lonchura punctulata; SBMU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Northern Flicker; Colaptes auratus; NOFL, no

Bird (Common or Scientific Name):	Northern Flicker; Colaptes auratus; NOFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Hooded Oriole; Icterus cucullatus; HOOR, no

Bird (Common or Scientific Name):	Hooded Oriole; Icterus cucullatus; HOOR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

California Thrasher; Toxostoma redivivum; CATH, no

Bird (Common or Scientific Name):	California Thrasher; Toxostoma redivivum; CATH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Swainson's Thrush; Catharus ustulatus; SWTH, no

Bird (Common or Scientific Name):	Swainson's Thrush; Catharus ustulatus; SWTH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Downy Woodpecker; Dryobates pubescens; DOWO, no

Bird (Common or Scientific Name):	Downy Woodpecker; Dryobates pubescens; DOWO
Is the Bird Sensitive ?	no

Sub-Species Info: N/A

House Wren; Troglodytes aedon; HOWR, no

Bird (Common or Scientific Name): House Wren; Troglodytes aedon; HOWR

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Spotted Towhee; Pipilo maculatus; SPTO, no

Bird (Common or Scientific Name): Spotted Towhee; Pipilo maculatus; SPTO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Song Sparrow; Melospiza melodia; SOSP, no

Bird (Common or Scientific Name): Song Sparrow; Melospiza melodia; SOSP

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Ash-throated Flycatcher; Myiarchus cinerascens; ATFL, no

Bird (Common or Scientific Name): Ash-throated Flycatcher; Myiarchus cinerascens; ATFL

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; Vireo bellii pusillus; LBVI

Is the Bird Sensitive ? yes

Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Auditory

Number of individuals observed: 1

Behavior (check all that apply): Singing/calling

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Additional Notes: LBV 4

Mourning Dove; Zenaida macroura; MODO, no

Bird (Common or Scientific Name): Mourning Dove; Zenaida macroura; MODO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Red-shouldered Hawk; Buteo lineatus; RSHA, yes

Bird (Common or Scientific Name): Red-shouldered Hawk; Buteo lineatus; RSHA

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Visual

Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown

Common Yellowthroat; *Geothlypis trichas*; COYE, no

Bird (Common or Scientific Name):	Common Yellowthroat; <i>Geothlypis trichas</i> ; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Black-chinned Hummingbird; *Archilochus alexandri*; BCHU, no

Bird (Common or Scientific Name):	Black-chinned Hummingbird; <i>Archilochus alexandri</i> ; BCHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Black-headed Grosbeak; *Pheucticus melanocephalus*; BHGR, no

Bird (Common or Scientific Name):	Black-headed Grosbeak; <i>Pheucticus melanocephalus</i> ; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Hutton's Vireo; *Vireo huttoni*; HUVI, no

Bird (Common or Scientific Name):	Hutton's Vireo; <i>Vireo huttoni</i> ; HUVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Blue-gray Gnatcatcher; *Polioptila caerulea*; BGGN, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; <i>Polioptila caerulea</i> ; BGGN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	In sumac way upslope

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; <i>Vireo bellii pusillus</i> ; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Juvenile
Additional Notes:	Foraging at river crossing, doing begging calls

Oak Titmouse; Baeolophus inornatus; OATI, no

Bird (Common or Scientific Name):	Oak Titmouse; Baeolophus inornatus; OATI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV 5? Only heard male, singing infrequently

American Crow; Corvus brachyrhynchos; AMCR, no

Bird (Common or Scientific Name):	American Crow; Corvus brachyrhynchos; AMCR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Least Bell's Vireo; Vireo bellii pusillus; LBVI, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV 7? Singing very infrequently

Common Raven; Corvus corax; CORA, no

Bird (Common or Scientific Name):	Common Raven; Corvus corax; CORA
Is the Bird Sensitive ?	no

Sub-Species Info: N/A

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; *Vireo bellii pusillus*; LBVI
Is the Bird Sensitive ? yes
Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Auditory
Number of individuals observed: 1
Behavior (check all that apply): Singing/calling
Bird Sex (check all that apply): Male
Bird Age (check all that apply): Adult

Least Bell's Vireo; *Vireo bellii pusillus*; LBVI, yes

Bird (Common or Scientific Name): Least Bell's Vireo; *Vireo bellii pusillus*; LBVI
Is the Bird Sensitive ? yes
Sub-Species Info: Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type: Auditory
Number of individuals observed: 2
Behavior (check all that apply): Foraging, Singing/calling
Bird Sex (check all that apply): Male, Unknown
Bird Age (check all that apply): Adult, Unknown
Additional Notes: LBV 8? Male singing and associated unknown raspy calls

Yellow Warbler; *Setophaga petechia*; YEWA, yes

Bird (Common or Scientific Name): Yellow Warbler; *Setophaga petechia*; YEWA
Is the Bird Sensitive ? yes
Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Auditory
Number of individuals observed: 1
Behavior (check all that apply): Singing/calling
Bird Sex (check all that apply): Male
Bird Age (check all that apply): Adult

White-breasted Nuthatch; *Sitta carolinensis*; WBNU, no

Bird (Common or Scientific Name): White-breasted Nuthatch; *Sitta carolinensis*; WBNU
Is the Bird Sensitive ? no
Sub-Species Info: N/A

Western Wood-Pewee; *Contopus sordidulus*; WEWP, no

Bird (Common or Scientific Name): Western Wood-Pewee; *Contopus sordidulus*; WEWP
Is the Bird Sensitive ? no

Sub-Species Info: N/A

Black Phoebe; Sayornis nigricans; BLPH, no

Bird (Common or Scientific Name): Black Phoebe; Sayornis nigricans; BLPH

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Northern Mockingbird; Mimus polyglottos; NOMO, no

Bird (Common or Scientific Name): Northern Mockingbird; Mimus polyglottos; NOMO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Butterfly/Moth

Lorquin's Admiral; Limenitis lorquini

Butterfly/Moth (Common or Scientific Name): Lorquin's Admiral; Limenitis lorquini

Is the Butterfly/Moth Sensitive ? no

Sub-Species Info: N/A

Western Tiger Swallowtail; Papilio rutulus

Butterfly/Moth (Common or Scientific Name): Western Tiger Swallowtail; Papilio rutulus

Is the Butterfly/Moth Sensitive ? no

Sub-Species Info: N/A

Fish

Largemouth Bass; Micropterus salmoides

Fish (Common or Scientific Name): Largemouth Bass; Micropterus salmoides

Is the Fish Sensitive ? no

Sub-Species Info: N/A

Western mosquitofish; Gambusia affinis

Fish (Common or Scientific Name): Western mosquitofish; Gambusia affinis

Is the Fish Sensitive ? no

Sub-Species Info: N/A

Reptile

Western Fence Lizard; Sceloporus occidentalis

Reptile (Common or Scientific Name): Western Fence Lizard; Sceloporus occidentalis

Is the Reptile Sensitive ? no

Sub-Species Info: N/A

Appendix J
**Brown-Headed Cowbird
Trapping Annual Report**



SANTA MARGARITA COUNTY PRESERVE BROWN-HEADED COWBIRD TRAPPING PROGRAM 2022

PREPARED FOR

**COUNTY OF SAN DIEGO DEPARTMENT OF PARKS AND RECREATION
5500 OVERLAND AVENUE, SUITE 410
SAN DIEGO, CA 92123**



SEPTEMBER 2022

**SANTA MARGARITA COUNTY PRESERVE
BROWN-HEADED COWBIRD TRAPPING PROGRAM 2022**

PREPARED FOR

**COUNTY OF SAN DIEGO DEPARTMENT OF PARKS AND RECREATION
5500 OVERLAND AVENUE, SUITE 410
SAN DIEGO, CA 92123**

PREPARED BY

**Jennifer Sexton
TW Biological Services
1717 Meander Drive
Simi Valley, California 93065**

UNDER SUBCONTRACT TO

**Environmental Science Associates
550 West C Street, Suite 750
San Diego, CA 92103**

SEPTEMBER 2022

**SANTA MARGARITA COUNTY PRESERVE
BROWN-HEADED COWBIRD TRAPPING PROGRAM 2022**

TABLE OF CONTENTS

EXECUTIVE SUMMARY II

1. INTRODUCTION..... 1

2. BACKGROUND 1

 2.1 LEAST BELL’S VIREO 1

 2.2 BROWN-HEADED COWBIRD 2

 2.3 COWBIRD CONTROL 3

3. PROJECT SITE..... 3

4. TRAP LOCATIONS..... 3

5. METHODS 4

6. RESULTS..... 4

 6.1 COWBIRD CAPTURES 4

 6.2 NON-TARGET SPECIES 5

 6.3 TRAP VANDALISM..... 5

7. DISCUSSION AND RECOMMENDATIONS 5

8. REFERENCES 6

FIGURES

1. Brown-Headed Cowbirds Captured Per Week in 2022..... 5

TABLES

1. Brown-Headed Cowbirds Captured Per Trap in 2022..... 4

APPENDICES

- A. Figures
- B. Raw Data Tables
- C. Cowbird Trap Information/Do Not Disturb Sign Attached to Each Trap

EXECUTIVE SUMMARY

A brown-headed cowbird (*Molothrus ater*) trapping program was implemented on Santa Margarita County Preserve (Preserve), San Diego County, California, to reduce the threat and impact of brown-headed cowbird brood parasitism on the least Bell's vireo (*Vireo bellii pusillus*). Least Bell's vireo is a federally endangered migratory songbird species that nests in riparian habitat in the Preserve. The trapping program was implemented in response to detections of least Bell's vireo nest parasitism incidentally observed during 2021 Targeted Monitoring Plan surveys (ESA 2022) and consist with the Targeted Monitoring Plan management goals, objectives, and methods (ESA and ICF 2022).

A total of two cowbird traps were operated along the Santa Margarita River within the Santa Margarita County Preserve. Traps were placed within riparian habitat that provides suitable nesting habitat for the vireo.

A total of 20 cowbirds were removed from the project area between 1 April and 30 June 2022. Captures included 12 adult males, seven adult females, and one juvenile. Newly captured cowbirds not utilized as decoys were removed daily and humanely euthanized. There was one capture event of a non-target species in 2022. A California towhee (*Pipilo crissalis*) was captured in Trap #2 and released the same day at the trap site.

1. INTRODUCTION

A brown-headed cowbird (*Molothrus ater*) trapping program was implemented on the County of San Diego Department of Parks and Recreation owned and managed Santa Margarita County Preserve (Preserve), San Diego County, California. The purpose of the trapping program was to reduce the threat and impact of brown-headed cowbird (*Molothrus ater*) brood parasitism on the Preserve's least Bell's vireo (*Vireo bellii pusillus*) population. The least Bell's vireo is a federally endangered migratory songbird species that nests in riparian habitat within the Preserve. The trapping program was implemented in response to detections of least Bell's vireo nest parasitism incidentally observed during 2021 Targeted Monitoring Plan surveys (ESA 2022). The trapping program goals and objectives are set by the Targeted Monitoring Plan and are as follows (ESA and ICF 2022):

- **Management Goal:** Maintain suitable breeding habitat for least Bell's vireo and maintain vireo breeding pairs within the [...] Preserve.
- **Management Objective:** Control brown-headed cowbird parasitism through trapping and removal program, as necessary based on monitoring results.

2. BACKGROUND

The least Bell's vireo is a songbird native to California listed as federal and state endangered. The least Bell's vireo is subject to reproductive pressure through nest parasitism by the cowbird. Studies have shown that a program of cowbird trapping effectively reduces this reproductive pressure (Kus and Whitfield 2005).

During 2021 Targeted Management Plan surveys, observations of adult, fledgling, and a cowbird egg in a least Bell's vireo nest was indicative of parasitism within the Preserve. Also, a pair of cowbirds was observed copulating during the first survey and cowbirds were observed five out of the eight protocol surveys. While the number of observations of cowbirds was relatively low, at least two of 11 least Bell's vireo territories suffered direct impacts to productivity during the 2021 season.

- **Territory failure #1.** A least Bell's vireo male feeding a cowbird fledgling on consecutive surveys indicates that the least Bell's vireo pair likely did not produce any fledglings of their own during the 2021 season.
- **Territory failure #2.** In an incidentally found least Bell's vireo nest, a cowbird egg was observed along with two vireo eggs. This nest was on the ground the following survey and it is unknown if the failure was due to nest abandonment or instability of the host plant. Regardless, that least Bell's vireo pair also likely did not produce any vireo fledglings during the 2021 season.

Over time, as cowbirds become more abundant in the Preserve, reproductive rates for local least Bell's vireo and native songbird populations may decline as a result. To prevent a decline in native bird populations a brown-headed cowbird trapping program was initiated for the Preserve 2022 breeding season consistent with the Targeted Monitoring Plan goals, objectives, and methods (ESA and ICF 2022).

2.1 Least Bell's Vireo

The least Bell's vireo is a small migratory songbird and an obligate summer resident of riparian habitat within southern California and northwestern Baja California, Mexico. Historically the least Bell's vireo

was considered a common breeding resident within lowland riparian habitat areas throughout California from the northern Sacramento Valley south into northwestern Baja California, Mexico (Franzreb 1989). Beginning in the mid-1900's, the least Bell's vireo experienced widespread declines due to extensive habitat destruction and brood parasitism by the brown-headed cowbird (Kus and Whitfield 2005; Goldwasser et al. 1980). With the loss of over 90 percent of the riparian habitat within the state of California and persistent pressure from cowbird parasitism, the least Bell's vireo was found in only small, localized populations within seven California counties during survey efforts conducted in 1978 (Goldwasser et al. 1980). First listed as an endangered species by the State of California in 1980, the least Bell's vireo was listed as federally endangered in 1986 with a statewide population of 291 known territories (USFWS 1998). After receiving endangered species status, intensive management efforts including cowbird control, habitat restoration, and nest monitoring programs were instituted to reverse the decline of the least Bell's vireo population within California. A five-year study conducted in 2006 by the U.S. Fish and Wildlife Service reported a statewide least Bell's vireo population of 2,968 known territories (USFWS 2006; USGS [unpublished data] 2006). This represents a ten-fold population increase from the number that existed at the time of listing.

2.2 Brown-headed Cowbird

The cowbird is an obligate brood parasite that lays its eggs in the nests of other songbird species and is dependent upon the host to incubate its eggs and rear its young. The cowbird is a medium-sized songbird averaging 6–7 inches in length with sexually dimorphic plumage. Adult males are glossy black with a brown head and neck. Females are slightly smaller than males and are dull tan to light brown with indistinct streaking on the breast. The cowbird was historically restricted to the central regions of North America and expanded in both range and abundance following the alteration of natural habitats particularly associated with the increase in agriculture and livestock production (Mayfield 1977). This species reached California in the late 1800s. Specimens (adult female and eggs) collected in 1915 represent the first documented evidence of breeding in San Diego County (Unitt 1984). The species was well established within southern California by the 1930s (Willett 1933; Rothstein 1994). The cowbird egg laying period is generally considered to extend from mid-April to mid-July (Robinson et al. 1993); however, cowbird parasitism of local least Bell's vireo populations has been noted as early as the first week of April (B. Kus pers. comm. 2009). Regional observations during vireo surveys and monitoring conducted by TW Biological Services over the last two decades are consistent with this earlier timing (Sexton, pers. obs.).

Songbird species or populations that have not evolved with the cowbird may be subject to significantly reduced reproductive success due to brood parasitism (Mayfield 1977). Female cowbirds can lay an average of at least 30 to 40 eggs per season, allowing a small number of cowbirds to parasitize a large number of nests (Robinson et al. 1995). When female cowbirds locate a host's nest during or shortly after egg laying, they will typically remove a host egg and replace it with one of their own. Cowbird egg incubation is shorter than that of most host species (Robinson et al. 1993) and the cowbird egg will usually hatch days before the host's eggs. Cowbird nestlings do not typically directly cause the death of host nestlings by kicking them from the nests like some other brood parasites (USFWS 2002). More commonly, nestling cowbirds divert the attention of the adults and out-compete host nestlings for food because of their earlier hatch date, faster growth rate, louder begging calls, and larger gapes compared to host nestlings (Robinson et al. 1993). Brood parasitism combined with other impacts, such as habitat loss and fragmentation, can lead to declines and potential extirpation of host species, particularly those with an already limited population and distribution (Kus and Whitfield 2005; Mayfield 1977, Rothstein et al. 1987).

The cowbird is migratory and somewhat nomadic throughout most of its range. In areas where it is considered a year-round resident, the cowbird exhibits significant dispersal movements between breeding and wintering areas (Ortega 1998). Two subspecies of brown-headed cowbird occur in California, including the dwarf cowbird (*M. a. obscurus*) and Great Basin cowbird (*M. a. artemisiae*) (Rothstein 1994; Ortega 1998). While both subspecies occur in southern California as winter residents and spring/fall migrants, only *M. a. obscurus* breeds in southern California (Fleischer and Rothstein 1988; Unitt 2004). In San Diego County, cowbird populations are at the highest levels during spring and fall migration, with peak numbers generally occurring between 1 April and 15 May, and again from early August through September (TW Biological Services unpubl. data). During these periods there is considerable overlap of both migrant and breeding residents, as well as subspecies. During the breeding season cowbirds also exhibit a wide range of movement and have been shown to commute up to 7 kilometers between foraging and breeding sites (Robinson et al. 1993; Rothstein et al. 1984).

2.3 Cowbird Control

Cowbird control through breeding-season trapping is proven to be an effective method in controlling cowbirds and reducing brood parasitism of sensitive songbird populations throughout the United States and was initially utilized in the recovery efforts of the Kirtland's Warbler (*Dendroica kirtlandii*) in Michigan (Mayfield 1977). Subsequently, cowbird trapping has become an important tool in the conservation of several sensitive songbird species, including the black-capped vireo (*Vireo atricapillus*) (Eckrich et al. 1999), least Bell's vireo (Kus 1999; Kus and Whitfield 2005), and southwestern willow flycatcher (Whitfield et al. 1999). A study was conducted in 2005 to evaluate the effectiveness of cowbird trapping on least Bell's vireo populations. The study evaluated data from three California sites over a 20-year period and concluded that cowbird control reduces the incidence of parasitism and consequently increases least Bell's vireo productivity (Kus and Whitfield 2005).

3. PROJECT SITE

Trapping was conducted along a 1.25 km section of the Santa Margarita River where it passes through the Preserve. The Preserve includes about 211 acres of open space located easterly of Camp Pendleton and north of the City of Fallbrook (Appendix A: Figure A-1). The southerly edge of the river is bordered by De Luz Road and Sandia Creek Drive; the northerly edge of the river is bordered by undeveloped hilly terrain that rises to the north and northwest.

4. TRAP LOCATIONS

In 2022 two traps were placed along the Santa Margarita River within the Preserve (Appendix A: Figure A-2). The primary goal of this trapping program is to maintain suitable breeding habitat for least Bell's vireo and maintain vireo breeding pairs within the Preserve. A primary consideration is to locate traps in those habitats most suitable for nesting, and to do so in a manner that provides acceptable coverage of the project area. Traps were placed within the riparian habitat, approximately 0.7 km from each other, in locations that were easily accessible by vehicle. Trap #1 was located approximately 0.2 km northwest of the intersection of De Luz Road and Sandia Creek Drive. This trap was placed adjacent to a trail at the north end of the Preserve staging area. Trap #2 was placed approximately 0.8 km north of the De Luz Road/Sandia Creek Drive intersection a short distance west of the road. Both traps were placed within riparian habitat, behind brush, to obscure view by the public.

5. METHODS

TW Biological Services personnel performed trapping operations from 1 April through 30 June, 2022. Two traps were delivered to the project area and assembled on 27 March, 2022 and were activated on 1 April, 2022. On activation, the traps were furnished with fresh water, seed, perches, shade, and live decoy cowbirds. The right primary wing feathers of both male and female decoy cowbirds were clipped for identification and prevention of accidental escape or release back into the wild. This practice also greatly diminishes their likelihood of survival in the wild should they escape. A sign was placed on each trap providing trap information and contact phone numbers (Appendix C). GPS coordinates for trap locations were recorded with a Garmin 276C handheld GPS unit (Appendix B: Table B-1). Coordinates were recorded in World Geographic System 1984 (WGS 84).

Traps were checked daily, during daylight hours, from 1 April through 30 June, 2022. This was done to record trap capture events, release non-target species incidentally captured, add or remove cowbirds to maintain the 2:3 (male:female) decoy ratio, provide fresh seed and water, and repair trap damage if needed. Information recorded for all newly captured cowbirds included capture location, date, sex, and age. Newly captured cowbirds not utilized as decoys, were removed daily and humanely euthanized off-site. All other non-target birds captured were released unharmed at the trap sites. On 30 June, 2022 all traps were de-activated and on 14 July, 2022, traps were dismantled and removed from the project area.

6. RESULTS

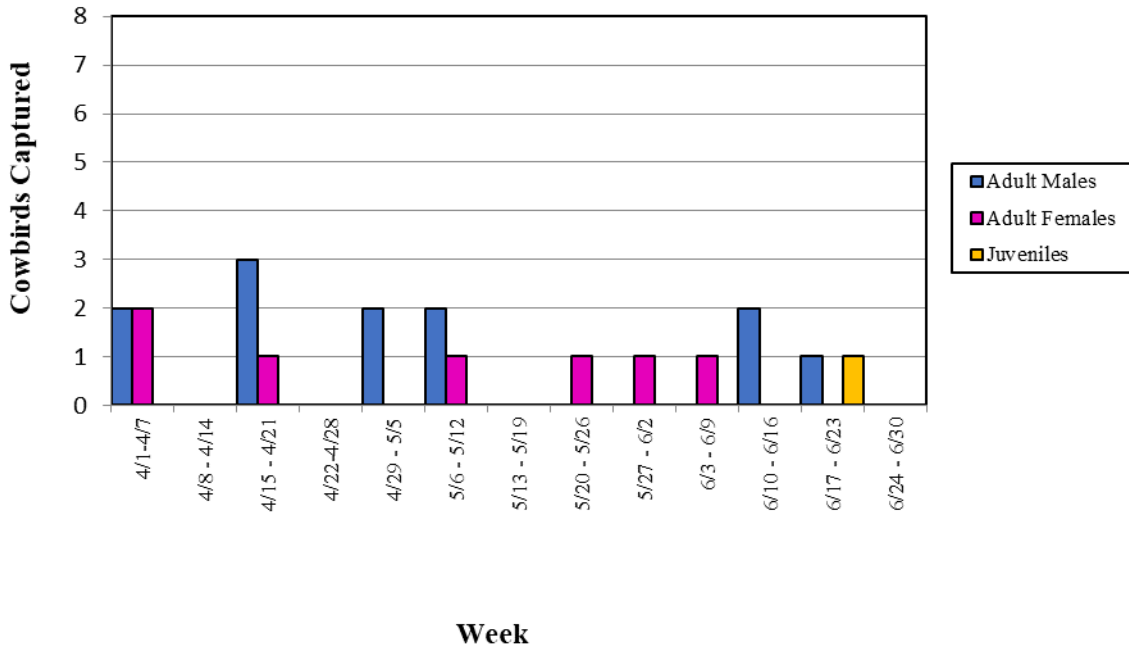
6.1 Cowbird Captures

A total of 20 cowbirds were captured within the Preserve between 1 April and 30 June, 2022 (Table 1; Figure 1, and Appendix B: Table B-2). These included 12 adult males, seven adult females, and one juvenile. The first adult male cowbird capture occurred on 6 April, 2022, the first adult female cowbird capture occurred on 7 April, 2022, and the first juvenile cowbird capture occurred on 17 June, 2022. There were 182 actual trap days out of a potential of 182. Total trap days are calculated by multiplying the number of traps by the number of days they are in operation, then subtracting the number of days individual traps are inactive for various reasons such as vandalism. There were 0.11 cowbirds captured per trap day during the 2022 project period. The ratio of male to female captures was 1:0.6.

TABLE 1
BROWN-HEADED COWBIRDS CAPTURED PER TRAP IN 2022

Trap Number	Cowbirds Captured			
	Adult Male	Adult Female	Juvenile	Total
1	8	5	0	13
2	4	2	1	7
Total	12	7	1	20

**FIGURE 1.
BROWN-HEADED COWBIRDS CAPTURED PER WEEK IN 2022**



6.2 Non-Target Species

There was one non-target species capture event in the project area in 2022 (Table 3). A California towhee (*Pipilo crissalis*) was captured in Trap # 2 on 17 June, 2022 and was released from the trap site unharmed the same day.

6.3 Trap Vandalism

No incidences of vandalism occurred during the 2022 trapping period.

7. DISCUSSION AND RECOMMENDATIONS

A total of 20 brown-headed cowbirds were removed from the project area in 2022, including 12 adult males, seven adult females, and one juvenile. The majority of captures occurred between April 1 and mid-May, 2022, with fewer captures scattered throughout the remainder of the trapping period. There were 0.11 cowbirds captured per trap day; the ratio of male to female captures was 1:0.6. This capture pattern is consistent with that typically observed in other trapping programs.

Evaluating trap placement requires consideration of several elements, including the number of available traps and their effective trapping radius, locations of suitable nesting habitat, the total target area to be protected, the locations of travel corridors and foraging areas, access and physical limitations to trap placement, proximity of any nearby trapping programs, and historic locations of least Bell's vireo nest sites.

Based on the existing site conditions, TW Biological Services considers that the current trap placement on the Preserve generally suitable with respect to overall trap distribution, and proximity to least Bell's vireo nesting habitat.

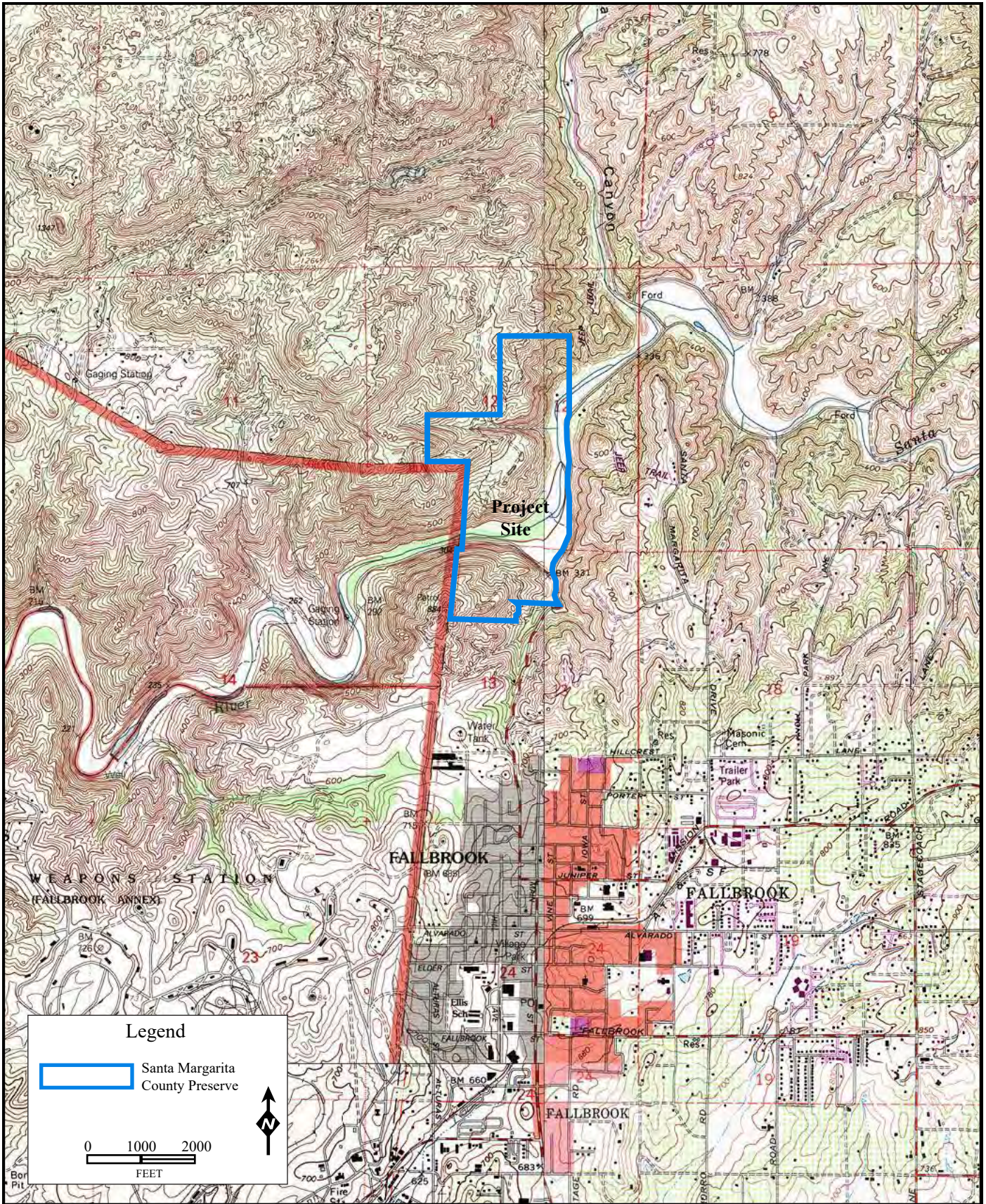
8. REFERENCES

- Eckrich, G. H., T. E. Kolozar and M. D. Goering. 1999. Effective Landscape Management of Brown-headed Cowbirds at Fort Hood Texas, pp. 267-274. In Research and Management of the Brown-headed Cowbird in Western Landscapes, edited by M. L. Morrison, L. S. Hall, S. K. Robinson, S. I. Rothstein, D. C. Hahn and T. Rich), Studies in Avian Biology No. 18.
- Environmental Science Associates (ESA). 2022. Targeted Monitoring Plan Resource-Specific Monitoring 2021 Annual Report. Prepared for the County of San Diego Department of Parks and Recreation. May 2022.
- ESA and ICF. 2022. Targeted Monitoring Plan. Prepared for the County of San Diego Department of Parks and Recreation. July 2022.
- Fleischer, R. C., and S. I. Rothstein. 1988. Known Secondary Contact and Rapid Gene Flow Among Subspecies and Dialects in the Brown-headed Cowbird. *Evolution* 42:1146-1158.
- Franzreb, K.E. 1989. Ecology and Conservation of the Endangered Least Bell's Vireo. Biological Report 89(1). Fish and Wildlife Service, U.S. Department of Interior. March 1989.
- Goldwasser, S., D. Gaines, and S.R. Wilbur 1980. The Least Bell's Vireo in California: a defacto endangered race. *American Birds*. 34: 742-745.
- Kus, B. E. 1999. Impacts of Brown-headed Cowbird Parasitism on Productivity of the Endangered Least Bell's Vireo, pp 160-166. In Research and Management of the Brown-headed Cowbird in Western Landscapes, edited by M. L. Morrison, L. S. Hall, S. K. Robinson, S. I. Rothstein, D. C. Hahn and T. Rich), Studies in Avian Biology No. 18.
- Kus, B. E., and M. J. Whitfield. 2005. Parasitism, Productivity, and Population Growth: Response of the Least Bell's Vireos (*Vireo bellii pusillus*) and Southwestern Willow Flycatchers (*Empidonax traillii extimus*) to Cowbird (*Molothrus* spp.) Control. *Ornithological Monographs* 57:16-27.
- Mayfield, H. F. 1977. Brown-headed Cowbird: Agent of Extermination? *North American Birds* 31:107-113.
- Ortega, C. P. 1998. Cowbirds and Other Brood Parasites. University of Arizona Press, Tucson, AZ. 371 pp.
- Robinson, S.K., J.A. Grzybowski, S.I. Rothstein, M.C. Brittingham, L.J. Petit, and F.R. Thompson. 1993. Management implications of cowbird parasitism on neotropical migrant songbirds. In: Finch, Deborah M.; Stangel, Peter W. (eds.). Status and management of neotropical migratory birds: September 21-25, 1992, Estes Park, Colorado. Gen. Tech. Rep. RM-229. Fort Collins, Colo.: Rocky Mountain Forest and Range Experiment Station, U.S. Dept. of Agriculture, Forest Service: 93-102.

-
- Robinson, S.K., S.I. Rothstein, M.C. Brittingham, L.J. Petit, and J.A. Grzybowski. 1995. Ecology and behavior of cowbirds and their impact on host populations. Pages 428-460 in T.E. Martin and D.M. Finch (eds.). Ecology and management of neotropical migratory birds: a synthesis and review of critical issues. Oxford University Press, New York, NY.
- Rothstein, S.I., J. Verner, and E. Stevens. 1984. Radio-tracking confirms a unique diurnal pattern of spatial occurrence in the parasitic Brown-headed Cowbird. *Ecology* 65:77-88
- Rothstein, R.I., J. Verner, E. Stevens and L. Ritter. 1987. Behavioral Differences Among Sex and Age Classes of the Brown-headed Cowbird and Their Relationship to the Efficacy of a Control Program. *Wilson Bulletin* 99(3):322-337.
- Rothstein, R. I. 1994. The Cowbirds Invasion of the Far West: History, Causes and Consequences Experienced by Host Species. *Studies in Avian Biology*:301-314.
- U.S. Fish and Wildlife Service (USFWS). 1998. Draft Recovery Plan for the Least Bell's Vireo. U.S. Fish and Wildlife Service, Portland, Oregon.
- USFWS. 2002. Southwestern Willow Flycatcher Recovery Plan. Albuquerque, New Mexico. i-ix + 210 pp., Appendices A-O.
- USFWS. 2006. Least Bell's vireo (*Vireo pusillus bellii*) 5 year review, summary and evaluation. U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, Carlsbad, California. September 2006.
- U.S. Geological Survey (USGS). 2006. Least Bell's vireo distribution and abundance: Summary Tables for 2000 through 2004. Unpublished data compiled by and available from the USGS Western Ecological Research Center, San Diego Field Station, San Diego, California.
- Unitt, P. 1984. The Birds of San Diego County. Memoir 13. San Diego Society of Natural History, San Diego, CA. 231 pp.
- Unitt, P. 2004. San Diego County Bird Atlas. No. 39, Proceedings of the San Diego Society of Natural History. San Diego, CA. 645 pp.
- Whitfield, M. J., K. M. Enos, and S. P. Rowe. 1999. Is Brown-headed Cowbird Trapping Effective for Managing Populations of the Endangered Southwestern Willow Flycatcher? pp. 260-266. In *Research and Management of the Brown-headed Cowbird in Western Landscapes*, edited by M. L. Morrison, L. S. Hall, S. K. Robinson, S. I. Rothstein, D. C. Hahn and T. Rich, *Studies in Avian Biology* No. 18.
- Willett, G. 1933. A Revised List of the Birds of Southwestern California. *Pacific Coast Avifauna* No. 2.

APPENDIX A

FIGURES



TW Biological Services

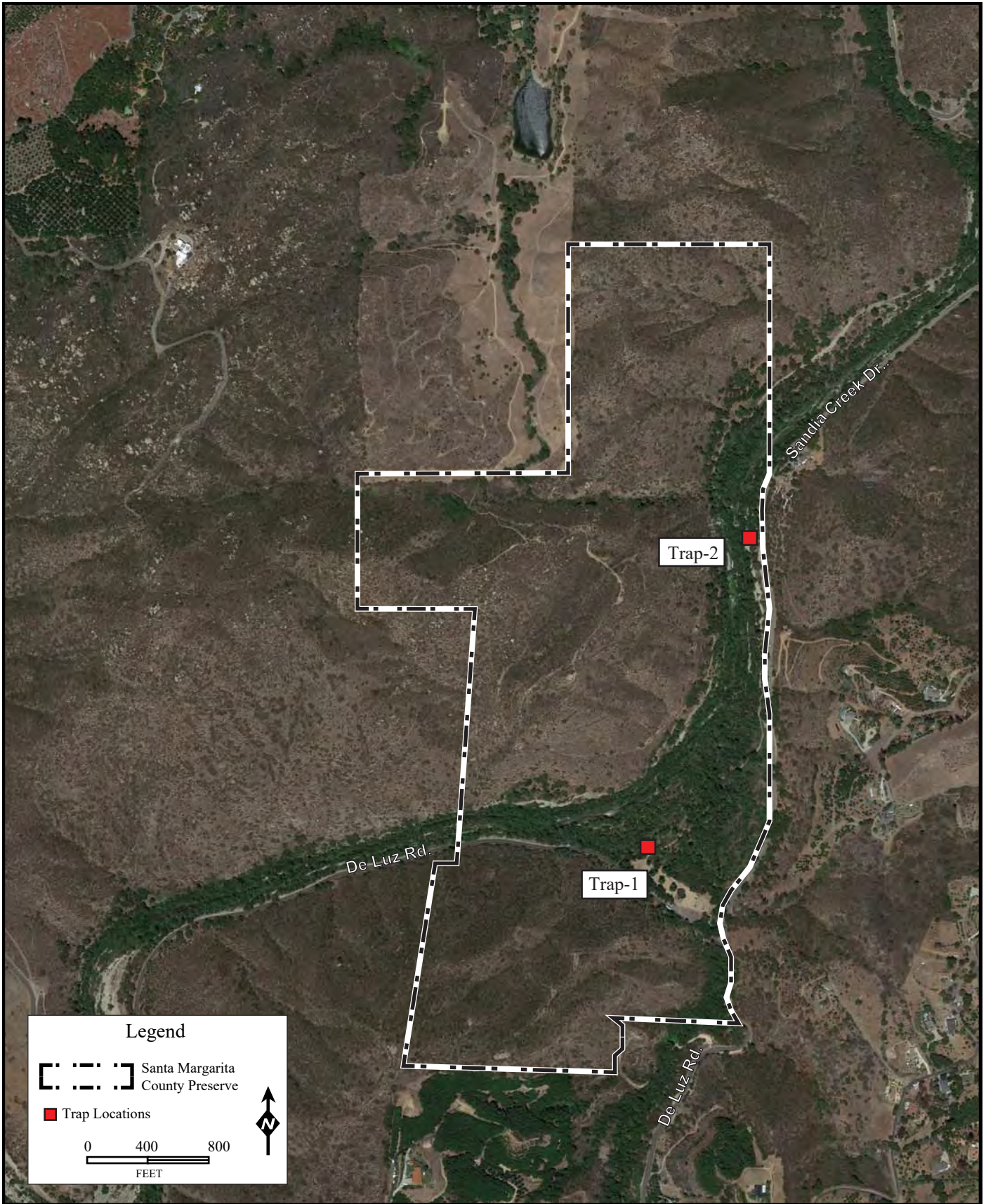
**2022 SANTA MARGARITA COUNTY PRESERVE
BROWN-HEADED COWBIRD
TRAPPING PROJECT**

Project No: SMCP-01-22

Project Site

Map Source: Fallbrook and Temecula
7.5' USGS Quadrangle Maps

**FIGURE
A-1**



2022 SANTA MARGARITA COUNTY PRESERVE
 BROWN-HEADED COWBIRD
 TRAPPING PROJECT

Project No: SMCP-01-22

Trap Locations

Aerial Source: Google Earth Pro.
 August 2021

FIGURE
A-2

APPENDIX B
RAW DATA TABLES

**TABLE B-1
BROWN-HEADED COWBIRD TRAP GPS COORDINATES IN 2022**

Trap Number	Trap GPS Coordinates (Decimal Degrees WGS84)		
	Y-North	X-West	Elevation (feet)
1	33.402263	-117.251844	326
2	33.407742	-117.249581	317

**TABLE B-2
BROWN-HEADED COWBIRDS CAPTURED PER TRAP PER WEEK IN 2022**

Week No.	Date	Trap 1			Trap 2			Total		
		M	F	J	M	F	J	M	F	J
1	1-7 April	0	0	0	2	2	0	2	2	0
2	8-14 April	0	0	0	0	0	0	0	0	0
3	15-21 April	3	1	0	0	0	0	3	1	0
4	22-28 April	0	0	0	0	0	0	0	0	0
5	29 April-5 May	2	0	0	0	0	0	2	0	0
6	6-12 May	2	1	0	0	0	0	2	1	0
7	13-19 May	0	0	0	0	0	0	0	0	0
8	20-26 May	0	1	0	0	0	0	0	1	0
9	27 May-2 June	0	1	0	0	0	0	0	1	0
10	3-9 June	0	1	0	0	0	0	0	1	0
11	10-16 June	0	0	0	2	0	0	2	0	0
12	17-23 June	1	0	0	0	0	1	1	0	1
13	24-30 June	0	0	0	0	0	0	0	0	0
Total		8	5	0	4	2	1	12	7	1

M= Adult Male, F= Adult Female, J= Juvenile

APPENDIX C
COWBIRD TRAP INFORMATION/DO NOT DISTURB
SIGN ATTACHED TO EACH TRAP

PLEASE DO NOT DISTURB

**THIS TRAP IS OPERATED IN COOPERATION WITH THE
U.S. FISH AND WILDLIFE SERVICE
AND
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE**

**THE OPERATION OF THIS TRAP IS PART OF A
MANAGEMENT PROGRAM FOR THE ENDANGERED
LEAST BELL'S VIREO**

**ALL TRAPPED BIRDS ARE TREATED HUMANELY IN ACCORDANCE
WITH ESTABLISHED FEDERAL AND STATE PROTOCOL.**

**FOR ADDITIONAL INFORMATION ON THE OPERATION OF THIS
TRAP PLEASE CONTACT:**

*Jennifer Sexton, TW Biological Services
(949) 463-3497*

Appendix K
**Stephens' Kangaroo Rat
Monitoring and Maintenance
Memorandums and
Representative Photographs**



**K-1 Stephens' Kangaroo
Rat Habitat Assessment
Memorandum: Ramona
Grasslands County
Preserve**

FALL 2022 STEPHENS' KANGAROO RAT MONITORING

RAMONA GRASSLANDS COUNTY PRESERVE

RAMONA, SAN DIEGO COUNTY, CALIFORNIA

Prepared for:

Jennifer Price

County of San Diego Department of Parks and Recreation
Resource Management Division
5500 Overland Avenue, Suite 410
San Diego, California 92123

Prepared by:

Blackhawk Environmental, Inc.
1720 Midvale Drive
San Diego, CA 92105
Contact: Kris Alberts
Principal Biologist
Telephone: 619.972.8714
E-mail: kris@blackhawkenv.com

On Behalf of:

Environmental Science Associates
550 West C Street, Suite 750
San Diego, CA 92103
Contact: Adrienne Lee
Senior Biologist
Telephone: 619.719.4222
E-mail: alee@esassoc.com

December 22, 2022

TABLE OF CONTENTS

EXECUTIVE SUMMARY	2
1.0 INTRODUCTION	3
Purpose and Regulatory Background	3
Project Location and Description.....	3
2.0 METHODS	5
SKR Monitoring Area Determination.....	5
Monitoring Plots	5
3.0 RESULTS	7
4.0 DISCUSSION	9
5.0 SURVEYOR CERTIFICATION	10
6.0 REFERENCES	11

LIST OF ATTACHMENTS

- A: FIGURES
- B: SITE PHOTOGRAPHS
- C: FIELD FORMS

EXECUTIVE SUMMARY

Environmental Science Associates (ESA) was contracted by the County of San Diego (County) Department of Parks and Recreation (DPR) with Blackhawk Environmental, Inc. (Blackhawk) as a sub-consultant to conduct Resource-Specific Monitoring for the Federal-and State-Threatened Stephens' kangaroo rat (*Dipodomys stephensi*; SKR) within the Ramona Grasslands County Preserve (Preserve) during the fall of 2022. Survey methodology followed the Draft Targeted Monitoring Plan (TMP) (ESA and ICF 2015, Updated 2022). The monitoring was a habitat assessment of (1) the 16 permanent plots, established during the 2016 SKR monitoring effort (ICF 2017), and (2) 12 randomly selected plots, including six within the SKR monitoring area and six within the SKR discovery area.

This report summarizes results of the SKR habitat assessment within the Preserve for the fall of 2022. Overall, weather and site conditions during the fall 2022 monitoring were similar to those observed during the fall 2021 monitoring. For a historical perspective, several monitoring efforts have occurred since 2016. The winter 2019 monitoring occurred during a period when abundant, green, and freshly-growing annual vegetation was present following recent, above-average rainfall. In comparison, the 2017–2018, fall 2021, and fall 2022 monitoring occurred when the annual vegetation was generally dry and senesced, following some of the worst drought years in recorded California history. As a result, monitoring plots in fall 2022 were similar to fall 2021 in that they contained similar percentages of dead plant litter, obstruction factors, and living herb density. Since both the fall 2021 and fall 2022 monitoring occurred during periods of sustained annual plant senescence, SKR runways, tracks, scat, dust-bathing sites and other surface SKR sign were equally evident in the fall 2021 and 2022 monitoring. As was the case in fall 2021, much of the herbaceous layer in 2022 generally consisted of low-growing annual plants, resulting in generally low obstruction factors during the monitoring. However, some plots, especially those situated along low-lying swales, did exhibit denser, taller stands of grassy and/or ruderal vegetation that generally prohibit SKR occupancy.

The fall 2022 monitoring results demonstrated comparable SKR habitat suitability when compared to the fall 2021 monitoring. A slight increase in SKR-occupied plots and a slight decrease in high potential to occur plots was documented in 2022 compared to 2021's results, indicating that conditions were more or less equally favorable for SKR from 2021 to 2022. This result is likely due to a combination of factors, such as annual fluctuations in habitat characteristics, SKR population dynamics, different timings of the monitoring, variations in rainfall, and other variables that may affect SKR occupancy/suitability of a given monitoring plot at a given time; however, long-term SKR population viability on a landscape level within the Preserve is not expected to have decreased, and SKR is not anticipated to be in any danger of extirpation as currently managed.

1.0 INTRODUCTION

Purpose and Regulatory Background

As a participant in the Multiple Species Conservation Program (MSCP) and the adopted South County MSCP Subarea Plan, the County of San Diego (County) is obligated to conduct biological monitoring of habitats and species covered under the MSCP to ensure that the MSCP biological conservation goals and conditions for species coverage are being met. County Department of Parks and Recreation (DPR) prepared the Targeted Monitoring Plan (TMP) to provide detailed specifications for implementation of adaptive management and monitoring within 10 County-owned and managed conserved lands (open space parks and preserves) overseen by DPR (ESA and ICF 2015). The TMP was revised in July 2019 (ESA and ICF 2019a) and subsequently in December 2019, September 2021, December 2021, and December 2022 (ESA and ICF 2019b, ESA and ICF 2021a, ESA and ICF 2021b, and ESA and ICF 2022) to incorporate 10 additional open space parks and preserves (Preserve Group 2) and to confirm monitoring and management goals and objectives for TMP-covered species at the newly added open space parks and preserves. The TMP is an adaptive management plan that includes both focused goals and objectives for target resources and detailed monitoring protocols and is intended to achieve the management directives for species per the adopted South County MSCP Framework Management Plan (FMP) (County of San Diego 2001). The regional framework that guides monitoring at the preserve level has been refined over time and is still evolving through a collaborative effort among wildlife agencies, MSCP jurisdictions, and outside experts. Stakeholders (e.g., state and federal resource agencies, municipal and county agencies, land managers) understand that adaptive management is an iterative process in which lessons are learned and used to further refine priorities, goals, objectives, and monitoring methods. The TMP addresses monitoring within the following 20 open space parks and preserves: Barnett Ranch County Preserve, Boulder Oaks County Preserve, Del Dios Highlands County Preserve, El Capitan County Preserve, El Monte Regional Park, Furby-North Property, Hellhole Canyon County Preserve, Lakeside Linkage County Preserve, Lawrence and Barbara Daley County Preserve, Louis A. Stelzer County Park, Lusardi Creek County Preserve, Mount Olympus County Preserve, Oakoasis County Preserve, Ramona Grasslands County Preserve, Santa Margarita County Preserve, Simon County Preserve, Stoneridge County Preserve, Sycamore Canyon/Goodan Ranch County Preserve, Tijuana River Valley Regional Park, and Wilderness Gardens County Preserve.

Ramona Grasslands County Preserve is located within both the South County Plan Area and the draft North County Plan Area. The Preserve consists of approximately 3,637 acres located in the Santa Maria Valley west of the unincorporated community of Ramona, San Diego County, California.

Project Location and Description

Ramona Grasslands County Preserve is within part of the historic Santa Maria Rancho in the western portion of the Santa Maria Valley, approximately two miles west of downtown Ramona, California, and six miles east of Interstate 15 (Attachment A, Figure 1). The Preserve is in Township 13 South, Range 1 East, and Range 1 West as depicted on the United States Geological Survey (USGS) 7.5-minute San Pasqual, California quadrangle (Attachment A, Figure 2). The Preserve is within the Santa Maria Valley, consisting of a broad basin surrounded by gentle hills and steep, rocky slopes ranging in elevation from approximately 410 meters (1,350 feet) above mean sea level along the valley floor to over 518 meters (1,700 feet) above mean sea level in the rocky hills of the northern sections of the Preserve.

Historic use of the Preserve has consisted of cattle grazing and other anthropogenic uses. The site contains a network of dirt roads and trails used primarily for ranch access as well as DPR maintenance purposes. Cattle grazing is generally confined to lowland areas within the Preserve and consists year-round without formalized rotation or rest periods. Stocking rates are established on an annual basis, primarily based on weather and forage conditions.

The northwest portion of the Preserve, west of Rangeland Road and generally north of the Ramona Municipal Water District (RMWD) property, is characterized by rocky hills bisected by Bandy Canyon, through which the Santa Maria Creek flows. The southwest portion of the Preserve consists of rolling hills with rocky outcrops and areas of oak woodland that transition into the lower topography grasslands to the south. The northeast portion of the Preserve, east of Rangeland Road and north of Ramona Airport, is characterized by rocky chaparral-covered hillsides in the north and lower-lying valley grasslands in the south. The southeast portion of the Preserve, east of Rangeland Road and south of the Ramona Airport, consists of low, rolling hills supporting grasslands and rocky outcrops.

RMWD utilizes land west of Rangeland Road for storage and infiltration of treated sewage effluent. Treated effluent is piped from a treatment facility to two storage reservoirs that exist on its property. Treated effluent is disposed of on RMWD property and on ranchland east of Rangeland Road through infiltration in a series of spray fields. The irrigated spray fields are an important year-round source of green forage for cattle grazing. The RMWD property is located west and east of Rangeland Road and is bordered by the Preserve to the north, south, and west.

The Ramona Airport is east of Rangeland Road and borders the Preserve to the north and south. Low-density residential areas are present to the north of the Preserve (accessible by Rangeland Road), adjacent to the Preserve's southern boundary, and along much of the Preserve's western and boundary. Other areas around the periphery of the Preserve are used for dry farming and small citrus and avocado orchards.

2.0 METHODS

SKR Monitoring Area Determination

SKR Monitoring Areas were originally determined based on potentially suitable SKR habitat. Within the Preserve, specific management areas have been developed by DPR and are referred to as Grazing Management Units (i.e., 1A, 1B, 1C, 2A, 2B, 3A, 3B, 3C, 3D, 3E, 4A, 4B, 4C, and 5) and SKR Management Areas (i.e., 1, 2, and 3). Grazing Management Units that provide potentially suitable SKR habitat (i.e., flat terrain and/or gentle slopes that support open, low-growing grasslands) were included within the SKR monitoring area; however, only portions of the associated Grazing Management Units are within SKR Management Areas. The current SKR monitoring areas are focused on Grazing Management Units 1A, 1C, 2A (portions of SKR Management Area 1), 2B (portions of SKR Management Area 1 and 2), 3A, 3B (SKR Management Area 3), 3C, 3D, 3E, and 4A, as these areas provide suitable SKR habitat (Attachment A, Figure 3). Additional SKR discovery areas are located within Grazing Management Units 3B and 4C. It is important to note that Grazing Management Unit 3A is not located within an SKR Management Area, but is included in the monitoring based on previously determined SKR suitability.

Monitoring Plots

Monitoring plots were initially established within SKR core habitat areas on the Preserve in 2016, following an adapted methodology used by USGS for SKR monitoring at Camp Pendleton (Brehme et al. 2016). A 50 x 50-meter grid pattern was overlain onto a georeferenced aerial map over each of the core SKR Monitoring Areas, and 28 plots were established. Of these 28 plots, 16 were determined to be permanent sampling plots that have been monitored since 2016: A1-1 to A1-6, A2-1, A2-6, A2-7, 3A-1, 3A-6, 3A-7, 3A-8, A3-1, A3-2, and A3-3. Per the TMP (ESA and ICF 2022), the 2022 SKR monitoring sampled these 16 permanent sampling plots for consistency with previous monitoring, and 12 randomly selected plots – six within the SKR monitoring area and six within the SKR discovery area – for a total of 28 sampling plots.

All monitoring plots were located in the field using the cellular ArcGIS Collector application. Representative photographs were taken from the southeast corner of each plot, facing northwest (Attachment B). The biologists then walked systematic transects through each plot searching for kangaroo rat sign (e.g., burrows, scat, tracks, trails through vegetation, dust-bathing sites) until 100% coverage of the plot was achieved. All kangaroo rat sign was recorded on the Survey123 application. Presence or absence of SKR within a given plot was determined solely on whether or not kangaroo rat sign was observed within the plot.

Habitat assessment forms on the Survey123 application were also completed for each plot specifically noting habitat characteristics critical to SKR habitat suitability, including percent bare ground, living herb density, shrub/tree density, percentage of dead plant litter, gopher or ground squirrel density, obstruction factor, types of disturbance and land use (Attachment C). These assessment variables were modeled after field forms used by Brehme et al. (2016) (adapted from a field form in Montgomery et al. 2008). Based on the quality of potentially suitable SKR habitat and the density of apparent kangaroo rat sign, each plot was assigned a SKR-potential rating using primarily the following criteria:

- High Potential
 - o Readily apparent potential SKR sign (particularly scat and burrows)
 - o Relatively flat to gently sloping topography
 - o Presence of bare ground common

-
- Relatively low living herb density
 - Extremely low to no shrub cover
 - Relatively low obstruction factor (O.F.)¹
- Moderate Potential
 - Some potential SKR sign (particularly scat and burrows) observed, but infrequent and/or appearing dated or inactive
 - Gently to moderately sloping topography
 - Presence of bare ground moderate
 - Low shrub percent cover
 - Relatively low herb cover
 - Low to moderate O.F.
 - Low Potential
 - Trace to no apparent potential SKR sign
 - Moderately sloping topography
 - Minimal bare ground
 - Moderate to high shrub percent cover
 - Moderate to very high living herb density
 - Moderate to high O.F.
 - No Potential
 - No apparent potential SKR sign
 - Moderate to steep sloping topography
 - No bare ground
 - High shrub percent cover
 - High living herb density
 - High O.F.

¹Obstruction factor (O.F.) is the observable ground level conditions of herbaceous vegetation or dead litter that has the potential to obstruct movement of kangaroo rats across the landscape. High O.F. would consist of a very high density of herb and/or dead litter at the ground level. Low O.F. would consist of a low density of herb or dead litter at the ground level, with a high proportion of patches of bare ground.

3.0 RESULTS

Table 1. Survey Conditions

Biologist(s)	Date	Start/End Time	Start/End Air Temperature (°F)	Start/End Wind Speed (mph)	Start/End Cloud Cover (%)	Precipitation
Kris Alberts Jack Quinzon	10-10-22	0815–1630	57–82	0–1 / 2–6	80 / 20	None
Kris Alberts Jack Quinzon	10-11-22	0820–1450	59–79	0 / 1–5	100 / 10	None

A comparison between the overall rating of SKR potential at each plot from the winter of 2017–2018 (ICF 2018) to the winter 2019 (ESA and Blackhawk Environmental, Inc. 2019) to the fall of 2022 is included in Table 2; increased or decreased changes for the analyzed elements are provided in the final column of Table 2 comparing the fall 2021 and fall 2022 results only (ESA and Blackhawk Environmental, Inc. 2021). Results of the 2022 SKR habitat assessment for each sample plot are provided in Table 3. In 2022, habitat assessments were conducted at 28 sample plots; 15 were determined to be potentially or likely occupied by SKR, and 13 were determined to be unoccupied. Each plot was rated for SKR potential, and in total, 15 sample plots were characterized as having a high potential, seven were characterized as having a medium potential, five were characterized as having low potential, and one was characterized as having no potential (Attachment A, Figure 4).

Table 2. SKR Habitat Assessment Comparison

		Winter 2017–2018	Winter 2019	Fall 2021	Fall 2022	2021–2022 Change
SKR Occupancy	Occupied	14	19	14	15	+1
	Unoccupied	14	9	14	13	-1
SKR Potential	High	11	21	17	15	-2
	Medium	5	1	5	7	+2
	Low	7	6	6	5	-1
	No	5	0	0	1	+1



Table 3. SKR Habitat Assessment Summary

Fall 2022										Fall 2021
Plot ID	% Bare Ground	Living Herb Density	Shrub/Tree Density (%)	Plant Litter (Dead) (%)	Gopher/ Ground Squirrel Density	Obstruction Factor	*Potential K-Rat Sign	SKR Occupancy Determination	Rating†	Rating†
A1-1	0-5	Low	0-5	75-95	Low/High	Low	B, S, T	Occupied	High**	High**
A1-2	0-5	Low	0-5	75-95	Medium/Low	High	None	Not Occupied	None	Low
A1-3	5-25	Low	0-5	75-95	Medium/Medium	Low	B, S	Occupied	High**	High**
A1-4	0-5	Low	0-5	75-95	Medium/Low	High	None	Not Occupied	Low	Low
A1-5	5-25	Low	0-5	75-95	High/Medium	Medium	None	Not Occupied	Medium	High**
A1-6	5-25	Medium	0-5	75-95	Low/Low	Low	B, S, TV, TD	Occupied	High**	High**
A2-1	25-50	Low	0-5	50-75	High/High	Low	B, S, T, TD	Occupied	High**	High**
A2-6	5-25	Low	0-5	50-75	Medium/Medium	Medium	B, S, T, TD	Occupied	High**	High**
A2-7	0-5	Low	0-5	75-95	Medium/Medium	Low	B, S, T, TD	Occupied	High**	High**
A3-1	5-25	Medium	0-5	75-95	Medium/High	Low	B, S	Occupied	High**	High**
A3-2	5-25	Medium	0-5	75-95	Medium/High	Low	None	Not Occupied	High	High**
A3-3	5-25	Medium	0-5	75-95	Medium/High	Low	B, S	Occupied	High**	High**
2A-1	0-5	Medium	0-5	75-95	High/Low	Medium	None	Not Occupied	Low	High**
2B-1	0-5	Low	0-5	75-95	Medium/Medium	Low	None	Not Occupied	Low	Medium
2B-2	5-25	Medium	0-5	75-95	High/Low	High	None	Not Occupied	Low	Low
2B-3	50-75	Low	0-5	75-95	Low/High	Low	B, S	Occupied	High**	N/A
2B-4	5-25	Low	0-5	75-95	High/Medium	Medium	S	Occupied	Medium**	N/A
3A-1	0-5	Medium	0-5	75-95	High/Low	High	None	Not Occupied	Low	Low
3A-6	0-5	Medium	0-5	75-95	High/Medium	Low	None	Not Occupied	High	High
3A-7	0-5	Low	0-5	75-95	Low/Low	Medium	B, S	Occupied	High**	Low
3A-8	0-5	Low	0-5	75-95	Medium/Medium	Medium	B, S	Occupied	High**	High**
3A-9	5-25	Low	0-5	75-95	Medium/High	Low	B, S	Occupied	High**	Low
3B-1	0-5	Low	0-5	75-95	Medium/High	Medium	None	Not Occupied	Medium	Medium
3B-2	5-25	Low	0-5	75-95	Medium/Medium	Low	None	Not Occupied	Medium	Medium
3B-3	5-25	Low	5-25	75-95	Medium/Medium	Medium	None	Not Occupied	Medium	Medium
3B-4	0-5	Low	0-5	75-95	Medium/Medium	Low	None	Not Occupied	Medium	High
3B-5	5-25	Low	5-25	75-95	Medium/Medium	Medium	S, T, TD	Occupied	Medium**	Medium
3B-6	5-25	Low	0-5	75-95	Medium/High	Low	B, S	Occupied	High**	High

* = Potential Kangaroo Rat Sign: B=Burrow(s); S=Scat; T=Tracks; TD=Tail Drag; TV=Trails in Vegetation; O=Other
 ** = Exhibited habitat conditions and observed sign indicates plot is likely occupied by SKR.
 † = Estimated potential for SKR occupancy based on habitat community condition and observed kangaroo rat sign.

4.0 DISCUSSION

While some permanent sample plots changed between low, medium, and high SKR suitability, overall SKR habitat suitability remained generally equivalent within SKR Monitoring Areas between the winter 2019 and fall 2022 monitoring years (Table 3). Over the longer term, the number of SKR-occupied plots was 14 in 2017–2018, but increased to 19 in 2019, decreased to 14 again in 2021, and increased to 15 in 2022. High potential ratings decreased by two plots between the fall 2021 and fall 2022 surveys; medium potential ratings increased by two plots between the fall 2021 and fall 2022 surveys; low potential ratings decreased by one plot between fall 2021 and fall 2022 surveys; and no potential ratings increased by one plot between fall 2021 and fall 2022 surveys. The results, when considered collectively, indicate slight shifts in overall SKR suitability that can increase or decrease at given sites between monitoring years due to a number of variables that may include, but not necessarily be limited to: randomized assignment of non-permanent sampling plots that varies between survey years, annual grazing practices, precipitation, survey timing, predation, weather, food availability, competition among sympatric species, microtopographic differences, proximity of groundwater, and/or availability of natural or artificial water sources that could affect localized plant phenologies, which in turn can affect vegetative density and food availability, etc.

These findings may be partly attributed to many of the monitoring periods having occurred during extended droughts in the greater San Diego region. Although drought can artificially appear beneficial for SKR suitability because it is likely to decrease vegetation density and height, it ultimately reduces food availability over time and can increase dead plant litter that may increase obstruction factors. Extended droughts have the potential to significantly reduce food availability for SKR. The fall of 2022 was marked by below average rainfall and occurred before the general onset of the rainy season after the hot, dry summer months. In an ecological regime that is free of anthropogenic influences such as cattle grazing, consistently higher rainfall could serve to reduce habitat suitability for SKR by promoting vegetation cover that excludes SKR. However, all SKR monitoring areas are actively grazed, thereby reducing significant vegetative growth during years of above-average rainfall. In addition, the majority of the annual vegetation present in most of the SKR monitoring plots consisted of broadleaf filaree (*Erodium botrys*), a low-growing annual plant that facilitates SKR movement and is a potential food source. Taller growths of annual vegetation that may preclude or reduce SKR movement were generally not observed, though several plots did feature dense annual grasses that were not suitable for SKR.

To enable more consistent data comparisons on a year-to-year basis, it is recommended that future monitoring be conducted during the dry season (June through November). Annual weather patterns in the greater San Diego region are known to have significant variability in rainfall quantities, while generally dry conditions prevail for the majority of the year. This rainfall variability can cause significant, albeit, temporary changes in herb density, dead plant litter, bare ground, and obstruction factors that tend to be most dramatic when comparing site conditions during the wet season. Dry season monitoring is likely to yield a more consistent comparison of the assessment areas.

5.0 SURVEYOR CERTIFICATION

All data, statements, analyses, findings, and attachments within this report are accurate and truthful in terms of describing the existing conditions and the Project as proposed to Blackhawk Environmental.

Kris Alberts
Principal Biologist



6.0 REFERENCES

Brehme, C. S., D. R. Clark, and R. N. Fisher

- 2016 *Stephens' Kangaroo Rat Monitoring on MCB Camp Pendleton, Results and Trends Analyses for Fall-Winter 2014*. Prepared for Wildlife Management Branch, AC/S Environmental Security, Marine Corps Base Camp Pendleton. 52pp.

ESA and Blackhawk Environmental, Inc.

- 2019 *Winter 2019 Stephens' Kangaroo Rat Monitoring, Ramona Grasslands Preserve, Ramona, San Diego County, California*. Report dated April 16, 2019.

- 2021 *Fall 2021 Stephens' Kangaroo Rat Monitoring, Ramona Grasslands County Preserve, Ramona, San Diego County, California*. Prepared for the County of San Diego Department of Parks and Recreation. November 1, 2021.

ESA and ICF

- 2015 *Comprehensive Monitoring Plan (now referred to as the "Targeted Monitoring Plan."* Prepared for the County of San Diego Department of Parks and Recreation. July 2015.
- 2019a *Draft Targeted Monitoring Plan*. Prepared for the County of San Diego Department of Parks and Recreation. July 2019.
- 2019b *Draft Targeted Monitoring Plan Update*. Prepared for the County of San Diego Department of Parks and Recreation. December 2019.
- 2021a *Draft Targeted Monitoring Plan Update*. Prepared for the County of San Diego Department of Parks and Recreation. September 2021.
- 2021b *Draft Targeted Monitoring Plan Update*. Prepared for the County of San Diego Department of Parks and Recreation. December 2021.
- 2022 *Draft Targeted Monitoring Plan Update*. Prepared for the County of San Diego Department of Parks and Recreation. December 2022.

ICF

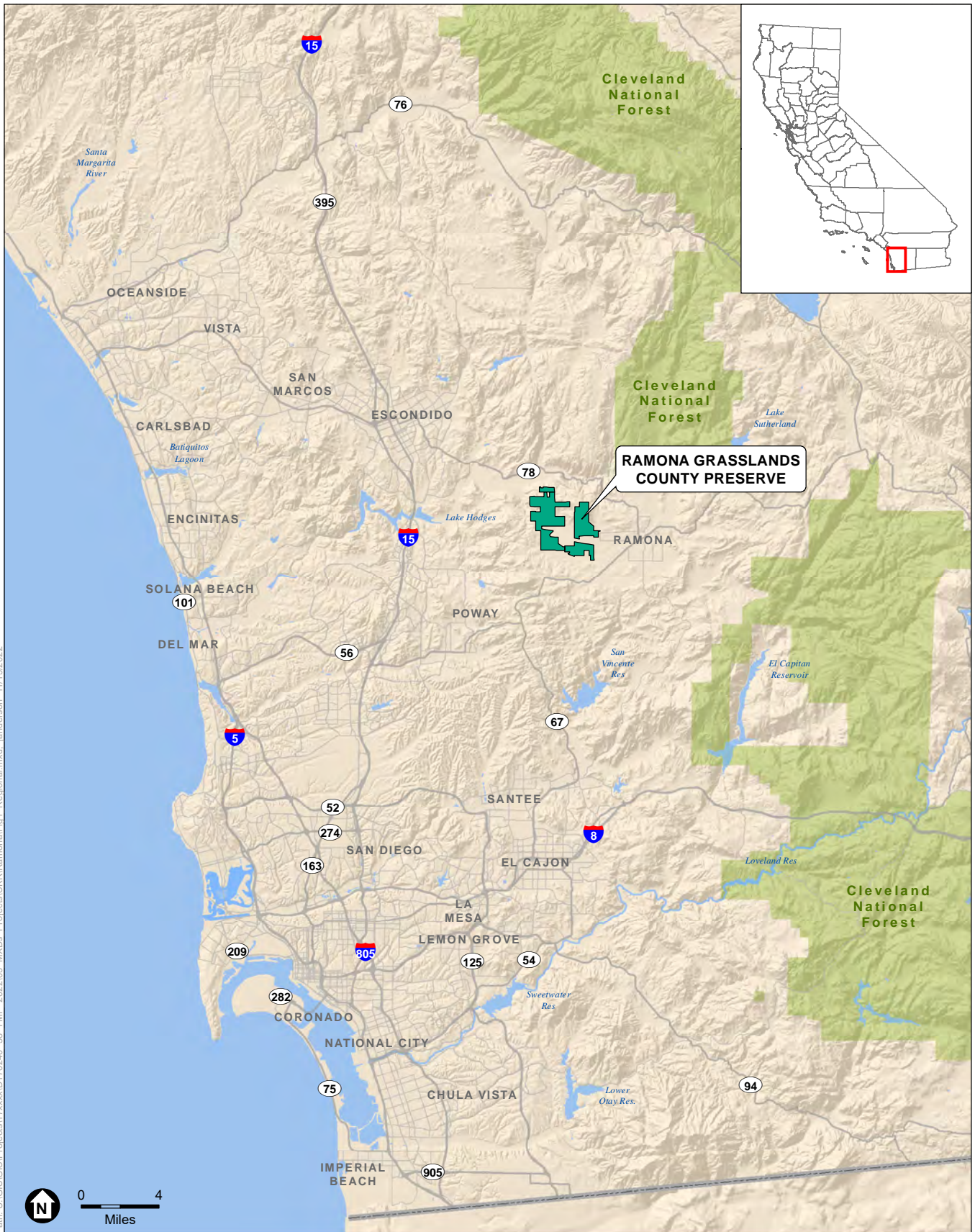
- 2017 *2016 Stephens' Kangaroo Rat Monitoring at the Ramona Grasslands Preserve, Ramona, San Diego County, California*. Prepared for the County of San Diego Department of Parks and Recreation.
- 2018 *Winter 2017–2018 Stephens' Kangaroo Rat Monitoring at the Ramona Grasslands Preserve, Ramona San Diego County, California*. Prepared for the County of San Diego Department of Parks and Recreation.

Montgomery, S. J., D. J. Grout, C. M. Wolf, V. M. Shoblock, A. Davenport, and R. N. Knight
2008 *Stephens' kangaroo rat monitoring program, and results of annual monitoring sessions between spring 2002 and fall 2004, at Naval Weapons Station Seal Beach Detachment Fallbrook.* Unpublished report submitted by SJM Biological Consultants to the Environmental Programs and Services Office, Naval Weapons Station Seal Beach Detachment Fallbrook, Fallbrook, CA.

United States Geological Survey (USGS)
2022 7.5-minute topographic quadrangle map for *San Pasqual* California.

Attachment A

Figures

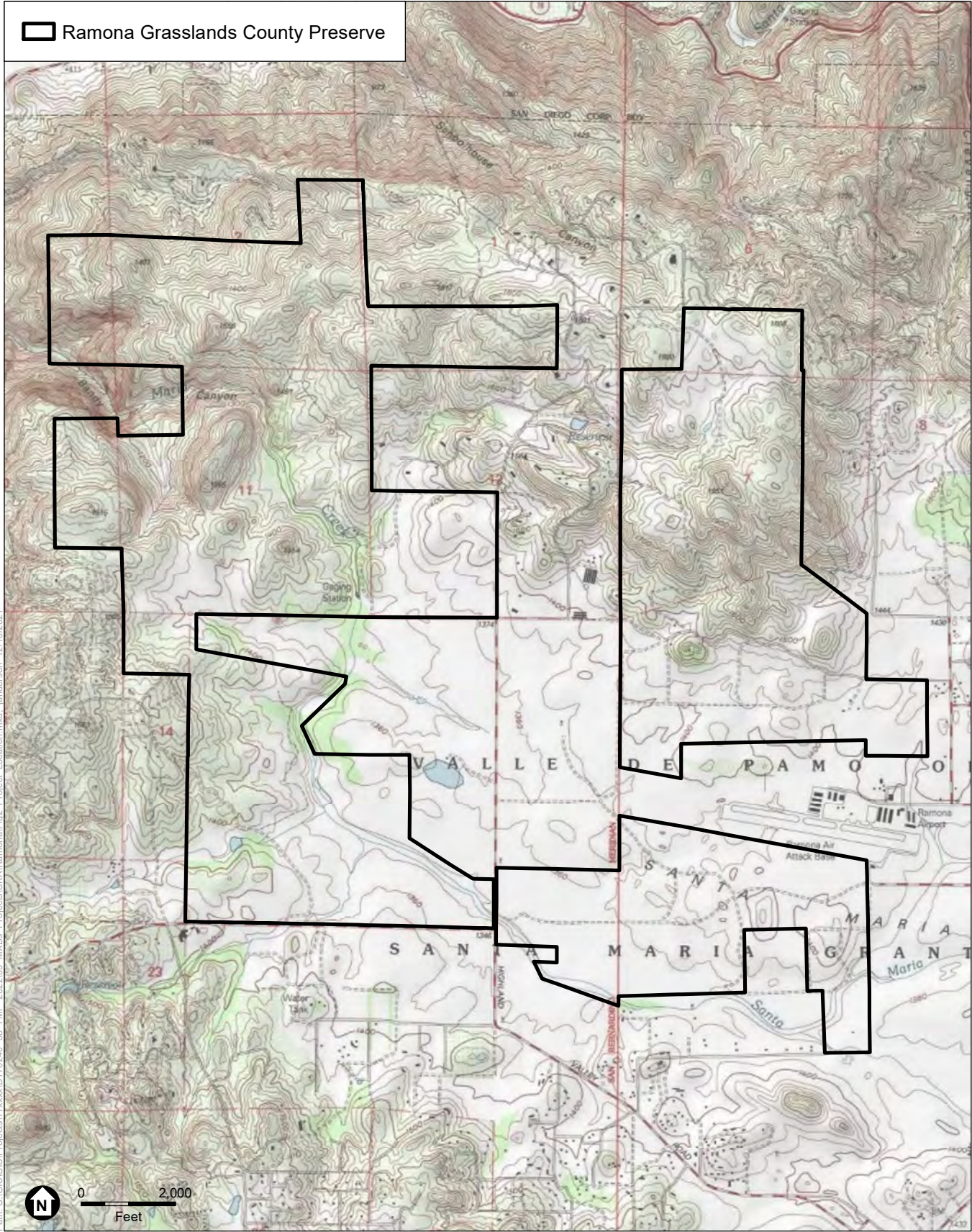


Path: U:\GIS\GIS\Projects\17xxxx\170240_58_TMP_2022\03_MXD\Projects\SKR\Ramona\Fig1_Regional.mxd, lamjerson, 11/15/2022

SOURCE: ESRI; SanGIS, 2022. COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring Fall 2022 SKR Habitat Monitoring Memorandum – Ramona Grasslands County Preserve



Figure 1
Regional Location

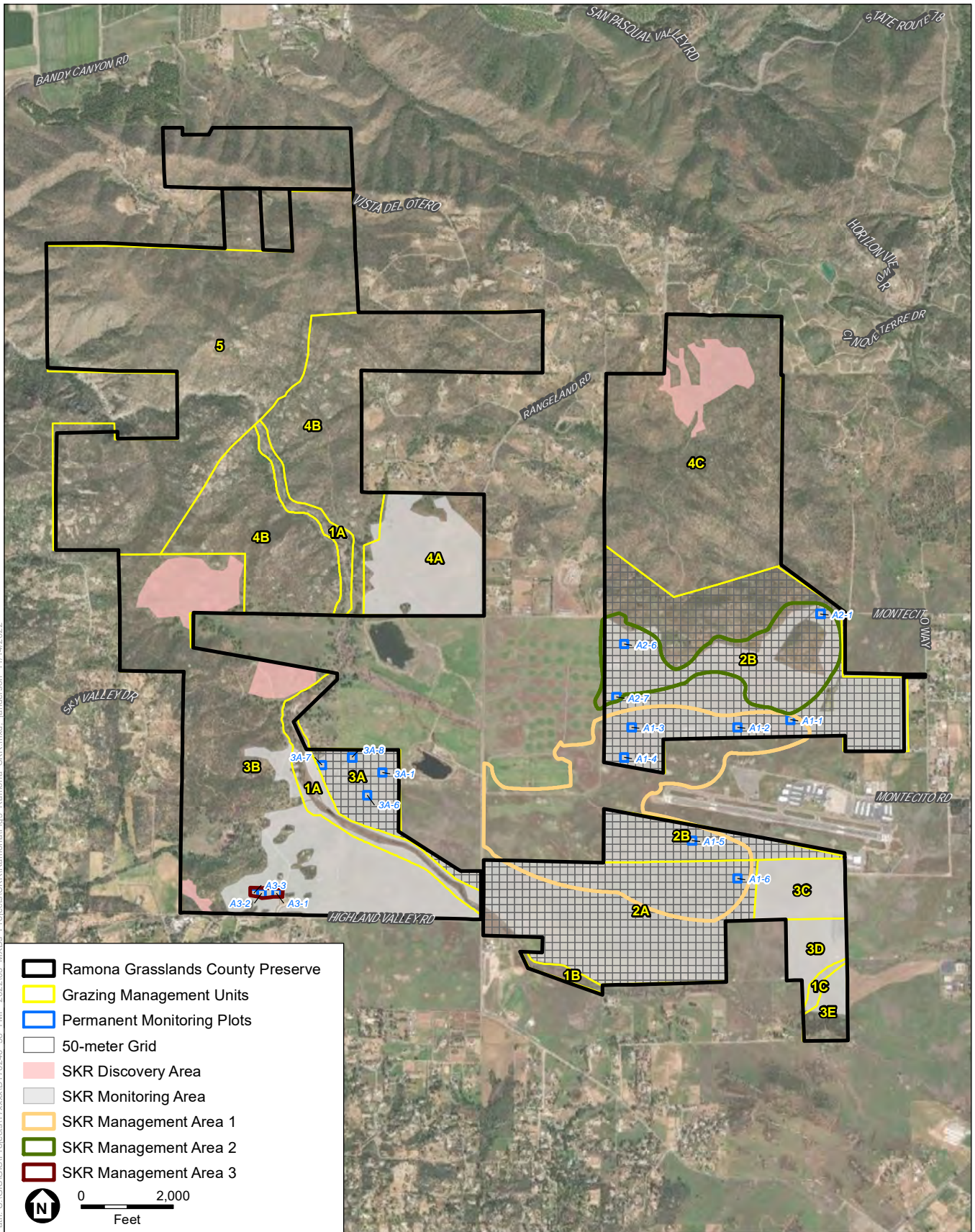


SOURCE: USGS 7.5 minute, San Pasqual quadrangle

COSD DPR 557744 TO 58 – Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
 Fall 2022 SKR Habitat Monitoring Memorandum – Ramona Grasslands County Preserve



Figure 2
 Project Location

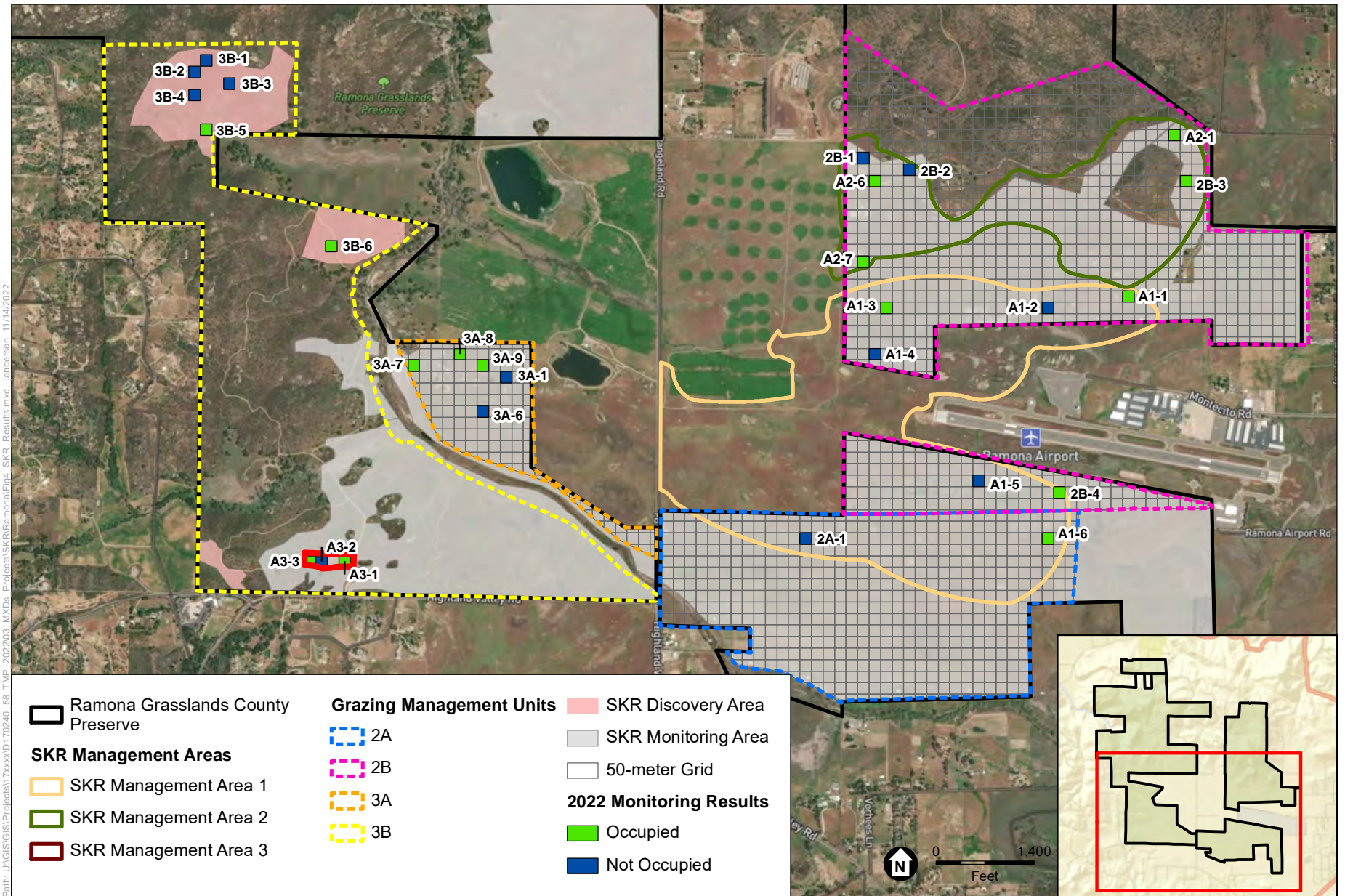


SOURCE: ESRI, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring Fall 2022 SKR Habitat Monitoring Memorandum – Ramona Grasslands County Preserve



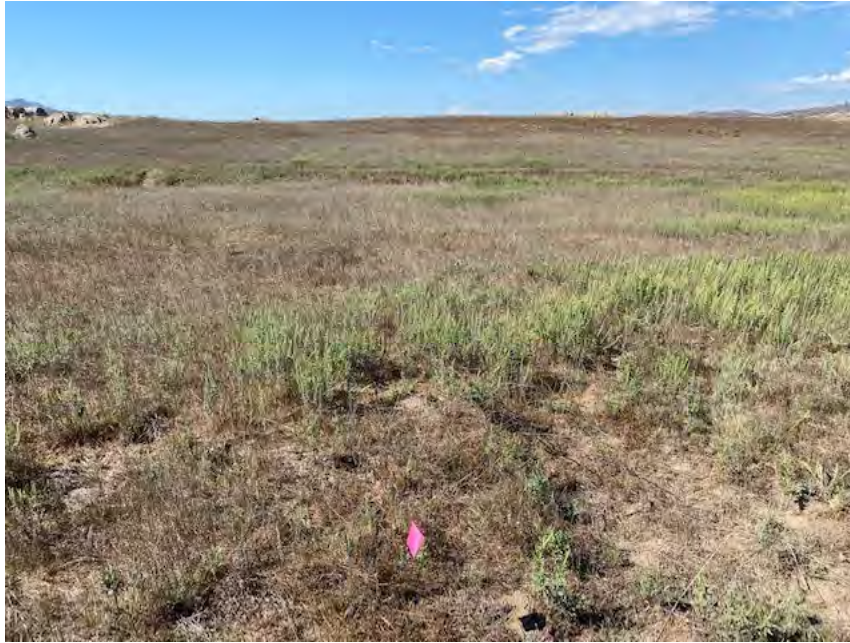
Figure 3
SKR Monitoring and Management Areas



SOURCE: Mapbox; ESA, 2022.

COSD DPR 557744 TO 58 - Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
Fall 2022 SKR Habitat Monitoring Memorandum – Ramona Grasslands County Preserve

Attachment B
Site Photographs



2A-1



2B-1



2B-2



2B-3



2B-4



3A-1



3A-6



3A-7



3A-8



3A-9



3B-1



3B-2



3B-3



3B-4



3B-5



3B-6



A1-1



A1-2



A1-3



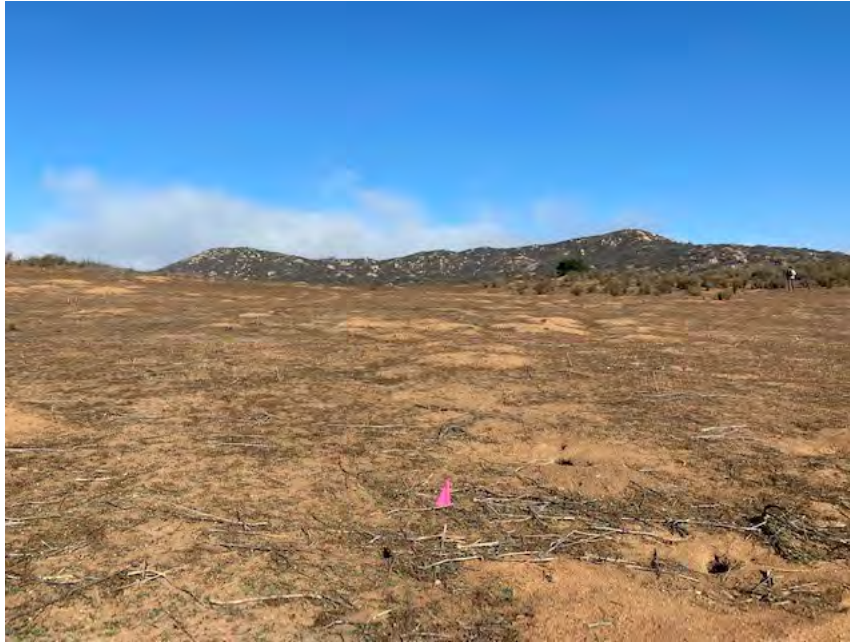
A1-4



A1-5



A1-6



A2-1



A2-6



A2-7



A3-1



A3-2



A3-3



Stephens' kangaroo rat burrow at 3A-8



Stephens' kangaroo rat burrow with scat and tail drag marks at A2-1



Stephens' kangaroo rat burrow tail drag marks at a dust bath site at 2B-2

Attachment C

Field Forms

SKR Monitoring – Habitat Assessment Form

Plot Number: 2A-1

Date/ Time: 10/10/2022 14:32

Grazing Management Unit: 2B

SKR Management Area: 1

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Medium obstruction factor. No evidence of SKR.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Avena sp., Distichlis spicata, Bromus spp.

Shrubs - List 3 Dominant Species:

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months

Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe): None observed,

Date: October 10, 2022 2:32 PM	Preserve: Ramona Grasslands Preserve
Plot: 2A-1	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: 2B-1

Date/ Time: 10/10/2022 10:49

Grazing Management Unit: 2B

SKR Management Area: 2

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: No SKR signs observed. Low obstruction factor.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Hirschfeldia incana

Grasses - List 3 Dominant Species: Hordeum murinum, Bromus spp.

Shrubs - List 3 Dominant Species: Isocoma menziesii

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe): None observed.

Date: October 10, 2022 10:49 AM	Preserve: Ramona Grasslands Preserve
Plot: 2B-1	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: 2B-2

Date/ Time: 10/10/2022 10:05

Grazing Management Unit: 2B

SKR Management Area: 2

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: No SKR suitable habitat. High obstruction factor.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Hirschfeldia incana

Grasses - List 3 Dominant Species: Bromus rubens, Hordeum murinum

Shrubs - List 3 Dominant Species: Isocoma menziesii, Eriogonum fasciculatum, Artemisia californica

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe): None observed.

Date: October 10, 2022 10:05 AM	Preserve: Ramona Grasslands Preserve
Plot: 2B-2	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: 2B-3

Date/ Time: 10/10/2022 09:15

Grazing Management Unit: 2B

SKR Management Area: 2

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Found evidence of SKR. Low obstruction factor. California gnatcatcher heard and observed.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Hirschfeldia incana

Grasses - List 3 Dominant Species: Bromus sp.

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

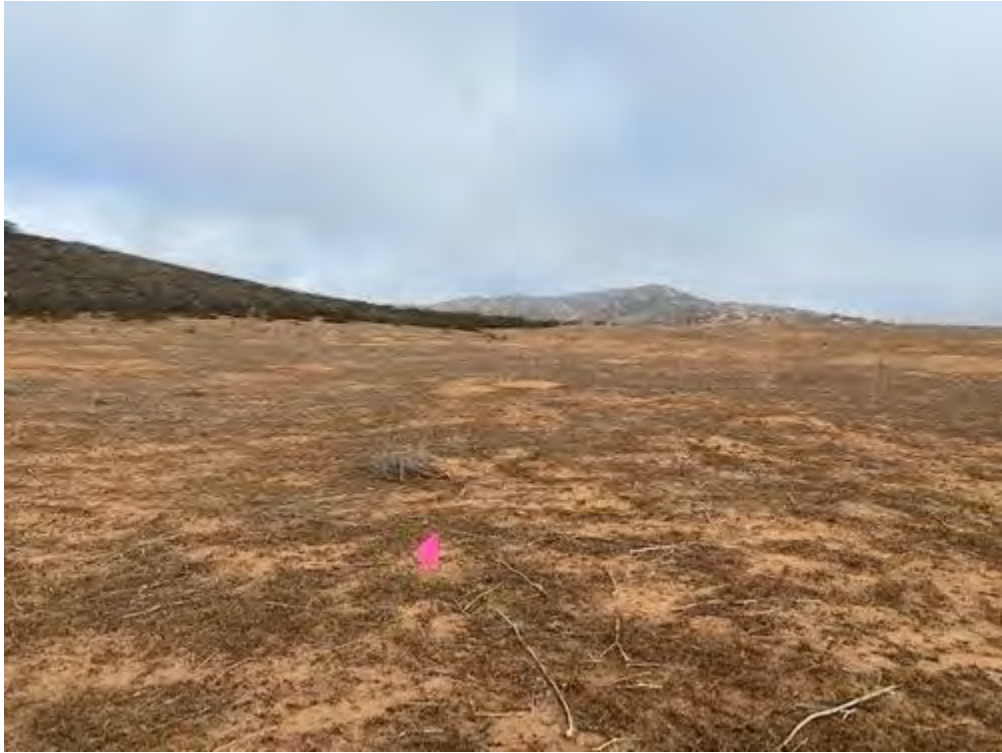
Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 10, 2022 9:15 AM	Preserve: Ramona Grasslands Preserve
Plot: 2B-3	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: 2B-4

Date/ Time: 10/10/2022 13:39

Grazing Management Unit: 2B

SKR Management Area: 1

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Medium obstruction factor. Not much evidence of SKR

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Hirschfeldia incana

Grasses - List 3 Dominant Species: Avena sp., Bromus spp., Deinandra fasciculata

Shrubs - List 3 Dominant Species: Isocoma menziesii

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months

Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 10, 2022 1:39 PM	Preserve: Ramona Grasslands Preserve
Plot: 2B-4	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: 3A-1

Date/ Time: 10/11/2022 13:03

Grazing Management Unit: 3A

SKR Management Area: None

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Obstruction factor: high

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Hirschfeldia incana, Ambrosia psilostachya, Juncus sp.

Grasses - List 3 Dominant Species: Bromus sp., Bromus diandrus, Distichlis spicata

Shrubs - List 3 Dominant Species:

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months

Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe): N/A

Date: October 11, 2022 1:03 PM	Preserve: Ramona Grasslands Preserve
Plot: 3A-1	Observers: Kris Alberts, Jack Quinon



SKR Monitoring – Habitat Assessment Form

Plot Number: 3A-6

Date/ Time: 10/11/2022 13:19

Grazing Management Unit: 3A

SKR Management Area: None

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Obstruction factor: low

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Hirschfeldia incana, Erigeron setiger, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Bromus sp., Bromus diandrus, Distichlis spicata, Avena sp.

Shrubs - List 3 Dominant Species:

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing – Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road – Estimate When? past 3 months past 6 months past 12 months Older

Paved Road – Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe): N/A

Date: October 11, 2022 1:19 PM	Preserve: Ramona Grasslands Preserve
Plot: 3A-6	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: 3A-7

Date/ Time: 10/11/2022 00:12

Grazing Management Unit: 3A

SKR Management Area: None

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Obstruction factor: medium.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Erigeron setiger, Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Bromus sp., Avena sp., Distichlis spicata

Shrubs - List 3 Dominant Species:

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing – Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road – Estimate When? past 3 months past 6 months past 12 months Older

Paved Road – Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 11, 2022 12:12 AM	Preserve: Ramona Grasslands Preserve
Plot: 3A-7	Observers: Kris Alberts, Jack Quinzon





SKR Monitoring – Habitat Assessment Form

Plot Number: 3A-8

Date/ Time: 10/11/2022 12:26

Grazing Management Unit: 3A

SKR Management Area: None

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Obstruction factor: medium.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: *Erodium sp.*, *Erigeron setiger*, *Hirschfeldia incana*, *Ambrosia psilostachya*

Grasses - List 3 Dominant Species: *Bromus sp.*, *Avena sp.*, *Distichlis spicata*

Shrubs - List 3 Dominant Species:

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing – Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road – Estimate When? past 3 months past 6 months past 12 months Older

Paved Road – Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 11, 2022 12:26 PM	Preserve: Ramona Grasslands Preserve
Plot: 3A-8	Observers: Kris Alberts, Jack Quinzon





SKR Monitoring – Habitat Assessment Form

Plot Number: 3A-9

Date/ Time: 10/11/2022 12:45

Grazing Management Unit: 3A

SKR Management Area: None

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Obstruction factor: low.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Erigeron setiger, Hirschfeldia incana

Grasses - List 3 Dominant Species: Bromus sp.

Shrubs - List 3 Dominant Species:

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 11, 2022 12:45 PM	Preserve: Ramona Grasslands Preserve
Plot: 3A-9	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: 3B-1

Date/ Time: 10/11/2022 09:45

Grazing Management Unit: NA

SKR Management Area: None

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Obstruction factor, medium.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Trichostemma lanceolatum

Grasses - List 3 Dominant Species: Bromus sp.

Shrubs - List 3 Dominant Species: Corethrogyne filaginifolia, Artemisia californica

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months

Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe): N/A

Date: October 11, 2022 9:45 AM	Preserve: Ramona Grasslands Preserve
Plot: 3B-1	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: 3B-2

Date/ Time: 10/11/2022 10:05

Grazing Management Unit: NA

SKR Management Area: None

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Obstruction factor: low.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Trichostemma lanceolatum, Hirschfeldia incana

Grasses - List 3 Dominant Species: Bromus sp., Stipa sp.

Shrubs - List 3 Dominant Species: Corethrogyne filaginifolia, Artemisia californica

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing – Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road – Estimate When? past 3 months past 6 months past 12 months Older

Paved Road – Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months

Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe): N/A

Date: October 11, 2022 10:05 AM	Preserve: Ramona Grasslands Preserve
Plot: 3B-2	Observers: Kris Alberts, Jack Quinzon





SKR Monitoring – Habitat Assessment Form

Plot Number: 3B-3

Date/ Time: 10/11/2022 10:30

Grazing Management Unit: NA

SKR Management Area: None

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Obstruction factor: medium, found scat and dust bath site outside SW boundary of plot point

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Trichostemma lanceolatum, Hirschfeldia incana

Grasses - List 3 Dominant Species: Bromus sp.

Shrubs - List 3 Dominant Species: Corethrogyne filaginifolia

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing – Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road – Estimate When? past 3 months past 6 months past 12 months Older

Paved Road – Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe): N/A in plot

Date: October 11, 2022 10:30 AM	Preserve: Ramona Grasslands Preserve
Plot: 3B-3	Observers: Kris Alberts, Jack Quinzon





SKR Monitoring – Habitat Assessment Form

Plot Number: 3B-4

Date/ Time: 10/11/2022 10:47

Grazing Management Unit: NA

SKR Management Area: None

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Obstruction factor: low

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Trichostemma lanceolatum, Hirschfeldia incana

Grasses - List 3 Dominant Species: Bromus sp.

Shrubs - List 3 Dominant Species: Corethrogyne filaginifolia

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing – Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road – Estimate When? past 3 months past 6 months past 12 months Older

Paved Road – Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe): N/A

Date: October 11, 2022 10:47 AM	Preserve: Ramona Grasslands Preserve
Plot: 3B-4	Observers: Kris Alberts, Jack Quinzon





SKR Monitoring – Habitat Assessment Form

Plot Number: 3B-5

Date/ Time: 10/11/2022 11:14

Grazing Management Unit: NA

SKR Management Area: None

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Obstruction factor: medium.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Trichostemma lanceolatum, Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Bromus sp., Avena sp.

Shrubs - List 3 Dominant Species: Corethrogyne filaginifolia, Isocoma menziesii

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing – Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road – Estimate When? past 3 months past 6 months past 12 months Older

Paved Road – Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 11, 2022 11:14 AM	Preserve: Ramona Grasslands Preserve
Plot: 3B-5	Observers: Kris Alberts, Jack Quinzon





SKR Monitoring – Habitat Assessment Form

Plot Number: 3B-6

Date/ Time: 10/11/2022 11:45

Grazing Management Unit: NA

SKR Management Area: None

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Obstruction factor: low.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: *Erodium* sp., *Trichostemma lanceolatum*, *Hirschfeldia incana*

Grasses - List 3 Dominant Species: *Bromus* sp.

Shrubs - List 3 Dominant Species: *Isocoma menziesii*

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 11, 2022 11:45 AM	Preserve: Ramona Grasslands Preserve
Plot: 3B-6	Observers: Kris Alberts, Jack Quinzon







SKR Monitoring – Habitat Assessment Form

Plot Number: A1-1

Date/ Time: 10/10/2022 08:31

Grazing Management Unit: 2B

SKR Management Area: 1

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Found evidence of SKR. Low obstruction factor.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium botrys, Bromus sp., Erigeron setiger

Grasses - List 3 Dominant Species:

Shrubs - List 3 Dominant Species:

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing – Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road – Estimate When? past 3 months past 6 months past 12 months Older

Paved Road – Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 10, 2022 8:31 AM	Preserve: Ramona Grasslands Preserve
Plot: A1-1	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: A1-2

Date/ Time: 10/10/2022 12:13

Grazing Management Unit: 2B

SKR Management Area: 1

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: High obstruction factor.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Hirshfeldia incana

Grasses - List 3 Dominant Species: Avena sp., Bromus sp., Hordeum murinum

Shrubs - List 3 Dominant Species:

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months

Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe): None observed

Date: October 10, 2022 12:13 PM	Preserve: Ramona Grasslands Preserve
Plot: A1-2	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: A1-3

Date/ Time: 10/10/2022 11:30

Grazing Management Unit: 2B

SKR Management Area: 1

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: SKR suitable habitat. Low obstruction factor.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Avena sp., Bromus sp.

Shrubs - List 3 Dominant Species: Isocoma menziesii

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months

Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 10, 2022 11:30 AM	Preserve: Ramona Grasslands Preserve
Plot: A1-3	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: A1-4

Date/ Time: 10/10/2022 11:46

Grazing Management Unit: 2B

SKR Management Area: 1

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: High obstruction factor.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Avena sp., Bromus sp., Distichlis spicata

Shrubs - List 3 Dominant Species: Isocoma menziesii

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months

Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe): None observed

Date: October 10, 2022 11:46 AM	Preserve: Ramona Grasslands Preserve
Plot: A1-4	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: A1-5

Date/ Time: 10/10/2022 14:00

Grazing Management Unit: 2B

SKR Management Area: 1

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Medium obstruction factor. No evidence of SKR

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Avena sp., Distichlis spicata

Shrubs - List 3 Dominant Species: Isocoma menziesii

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months

Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe): None observed

Date: October 10, 2022 2:00 PM	Preserve: Ramona Grasslands Preserve
Plot: A1-5	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: A1-6

Date/ Time: 10/10/2022 15:05

Grazing Management Unit: 2A

SKR Management Area: 1

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Low obstruction factor. Evidence of SKR.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Hirschfeldia incana

Grasses - List 3 Dominant Species: Avena sp., Distichlis spicata

Shrubs - List 3 Dominant Species: Isocoma menziesii

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months

Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 10, 2022 3:05 PM	Preserve: Ramona Grasslands Preserve
Plot: A1-6	Observers: Kris Alberts, Jack Quinzon





SKR Monitoring – Habitat Assessment Form

Plot Number: A2-1

Date/ Time: 10/10/2022 09:30

Grazing Management Unit: 2B

SKR Management Area: 2

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Trapping recommended due to proximity of bushes. Low obstruction factor.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Hirschfeldia incana

Grasses - List 3 Dominant Species:

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Artemisia californica

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months

Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 10, 2022 9:30 AM	Preserve: Ramona Grasslands Preserve
Plot: A2-1	Observers: Kris Alberts, Jack Quinzon





SKR Monitoring – Habitat Assessment Form

Plot Number: A2-6

Date/ Time: 10/10/2022 10:15

Grazing Management Unit: 2B

SKR Management Area: 2

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: SKR signs observed. Medium obstruction factor.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: *Erodium* sp., *Hirschfeldia incana*, *Erigeron setiger*

Grasses - List 3 Dominant Species: *Bromus rubens*, *Hordeum murinum*, *Bromus* sp.

Shrubs - List 3 Dominant Species: *Isocoma menziesii*, *Eriogonum fasciculatum*

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months

Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 10, 2022 10:15 AM	Preserve: Ramona Grasslands Preserve
Plot: A2-6	Observers: Kris Alberts, Jack Quinzon





SKR Monitoring – Habitat Assessment Form

Plot Number: A2-7

Date/ Time: 10/10/2022 10:49

Grazing Management Unit: 2B

SKR Management Area: 2

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: SKR suitable habitat. Low obstruction factor.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: *Erodium* sp., *Hirschfeldia incana*, *Deinandra fasciculata*

Grasses - List 3 Dominant Species: *Hordeum* sp., *Bromus* sp.

Shrubs - List 3 Dominant Species: *Isocoma menziesii*

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months

Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 10, 2022 10:49 AM	Preserve: Ramona Grasslands Preserve
Plot: A2-7	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: A3-1

Date/ Time: 10/10/2022 15:47

Grazing Management Unit: NA

SKR Management Area: 3

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Low obstruction factor. Evidence of SKR.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: *Erodium* sp., *Hirschfeldia incana*, *Erigeron setiger*

Grasses - List 3 Dominant Species: *Bromus* sp.

Shrubs - List 3 Dominant Species: *Isocoma menziesii*

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing – Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road – Estimate When? past 3 months past 6 months past 12 months Older

Paved Road – Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months

Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 10, 2022 3:47 PM	Preserve: Ramona Grasslands Preserve
Plot: A3-1	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: A3-2

Date/ Time: 10/10/2022 16:02

Grazing Management Unit: NA

SKR Management Area: 3

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Low obstruction factor. No evidence of SKR.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: *Erodium* sp., *Hirschfeldia incana*, *Erigeron setiger*

Grasses - List 3 Dominant Species: *Bromus* sp.

Shrubs - List 3 Dominant Species: *Isocoma menziesii*

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months

Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe): None observed

Date: October 10, 2022 4:02 PM	Preserve: Ramona Grasslands Preserve
Plot: A3-2	Observers: Kris Alberts, Jack Quinzon



SKR Monitoring – Habitat Assessment Form

Plot Number: A3-3

Date/ Time: 10/10/2022 16:09

Grazing Management Unit: NA

SKR Management Area: 3

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Jack Quinzon

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Low obstruction factor. Evidence of SKR.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: *Erodium* sp., *Hirschfeldia incana*, *Erigeron setiger*

Grasses - List 3 Dominant Species: *Bromus* sp., *Festuca myuros*

Shrubs - List 3 Dominant Species: *Isocoma menziesii*

Trees - Dominant Species:

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing – Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road – Estimate When? past 3 months past 6 months past 12 months Older

Paved Road – Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 10, 2022 4:09 PM	Preserve: Ramona Grasslands Preserve
Plot: A3-3	Observers: Kris Alberts, Jack Quinzon



**K-2 Stephens' Kangaroo
Rat Habitat Assessment
Memorandum: Hellhole
Canyon County
Preserve**

FALL 2022 STEPHENS' KANGAROO RAT MONITORING

HELLHOLE CANYON COUNTY PRESERVE VALLEY CENTER, SAN DIEGO COUNTY, CALIFORNIA

Prepared for:

Jennifer Price
County of San Diego Department of Parks and Recreation
Resource Management Division
5500 Overland Avenue, Suite 410
San Diego, California 92123

Prepared by:

Blackhawk Environmental, Inc.
1720 Midvale Drive
San Diego, CA 92105
Contact: Kris Alberts
Principal Biologist
Telephone: 619.972.8714
E-mail: kris@blackhawkenv.com

On Behalf of:

Environmental Science Associates
550 West C Street, Suite 750
San Diego, CA 92103
Contact: Adrienne Lee
Senior Biologist
Telephone: 619.719.4222
E-mail: alee@esassoc.com

December 22, 2022

TABLE OF CONTENTS

EXECUTIVE SUMMARY	2
1.0 INTRODUCTION.....	3
Purpose and Regulatory Background	3
Project Location and Description.....	3
2.0 METHODS	5
SKR Monitoring Area Determination.....	5
Monitoring Plots	5
3.0 RESULTS	7
4.0 DISCUSSION	9
5.0 SURVEYOR CERTIFICATION.....	10
6.0 REFERENCES	11

LIST OF ATTACHMENTS

- A: FIGURES
- B: SITE PHOTOGRAPHS
- C: FIELD FORMS

EXECUTIVE SUMMARY

Environmental Science Associates (ESA) was contracted by the County of San Diego (County) Department of Parks and Recreation (DPR) with Blackhawk Environmental, Inc. (Blackhawk) as a sub-consultant to conduct Resource-Specific Monitoring for the Federal- and State-Threatened Stephens' kangaroo rat (*Dipodomys stephensi*; SKR) within the Hellhole Canyon County Preserve (Preserve) during the fall of 2022. Survey methodology followed the Draft Targeted Monitoring Plan (TMP) (ESA and ICF 2015, Updated 2022). The monitoring was a habitat assessment of the three plots established during the 2020 live-trapping conducted by ESA and sub-consultant Aardvark Environmental (ESA 2021) and monitored during the fall 2021 SKR habitat assessment (ESA and Blackhawk Environmental 2021) associated with 2021 TMP Resource-Specific Monitoring (ESA 2022).

This report summarizes results of the SKR habitat assessment within the Preserve for the fall of 2022. The fall 2022 monitoring was conducted while the annual vegetation was dry and largely senesced, similar to the conditions during the 2020 trapping surveys and the fall 2021 monitoring. As a result, monitoring plots in fall 2022 were anticipated to yield similar SKR presence/absence results. As was the case in fall 2020 and fall 2021, much of the herbaceous layer in 2022 consisted of low-growing annual plants interspersed among open coastal sage scrub habitat, resulting in generally low SKR obstruction factors during the monitoring.

The fall 2022 monitoring results demonstrated comparable SKR habitat suitability between the fall 2020 trapping survey and fall 2021 monitoring. The fall 2020 live trapping survey yielded one SKR in plot 2 and 17 *Dipodomys simulans* spread among all three plots. The three plots are all within 150 feet of one another, and there are no factors that could preclude SKR movement between the three plots. Kangaroo rat sign was detected at all three monitoring plots in fall 2022; therefore, all three plots were assumed potentially occupied by SKR due to the positive detection of SKR in plot 2 in fall 2020, kangaroo rat sign in all three plots in fall 2021 and fall 2022, and the lack of obstruction factors that would preclude SKR potential between the three proximal plots. Given that anthropogenic influence is minimal within the monitoring area, long-term SKR population viability on a landscape level within the Preserve is not anticipated to be in any danger of extirpation as currently managed.

1.0 INTRODUCTION

Purpose and Regulatory Background

As a participant in the Multiple Species Conservation Program (MSCP) and the adopted South County MSCP Subarea Plan, the County of San Diego (County) is obligated to conduct biological monitoring of habitats and species covered under the MSCP to ensure that the MSCP biological conservation goals and conditions for species coverage are being met. County Department of Parks and Recreation (DPR) prepared the Targeted Monitoring Plan (TMP) to provide detailed specifications for implementation of adaptive management and monitoring within 10 County-owned and managed conserved lands (open space parks and preserves) overseen by DPR (ESA and ICF 2015). The TMP was revised in July 2019 (ESA and ICF 2019a) and subsequently in December 2019, September 2021, December 2021, and December 2022 (ESA and ICF 2019b, ESA and ICF 2021a, ESA and ICF 2021b, and ESA and ICF 2022) to incorporate 10 additional open space parks and preserves (Preserve Group 2) and to confirm monitoring and management goals and objectives for TMP-covered species at the newly added open space parks and preserves, including SKR at Hellhole Canyon County Preserve. The TMP is an adaptive management plan that includes both focused goals and objectives for target resources and detailed monitoring protocols and is intended to achieve the management directives for species per the adopted South County MSCP Framework Management Plan (FMP) (County of San Diego 2001). The regional framework that guides monitoring at the preserve level has been refined over time and is still evolving through a collaborative effort among wildlife agencies, MSCP jurisdictions, and outside experts. Stakeholders (e.g., state and federal resource agencies, municipal and county agencies, land managers) understand that adaptive management is an iterative process in which lessons are learned and used to further refine priorities, goals, objectives, and monitoring methods. The TMP addresses monitoring within the following 20 open space parks and preserves: Barnett Ranch County Preserve, Boulder Oaks County Preserve, Del Dios Highlands County Preserve, El Capitan County Preserve, El Monte Regional Park, Furby-North Property, Hellhole Canyon County Preserve, Lakeside Linkage County Preserve, Lawrence and Barbara Daley County Preserve, Louis A. Stelzer County Park, Lusardi Creek County Preserve, Mount Olympus County Preserve, Oakoasis County Preserve, Ramona Grasslands County Preserve, Santa Margarita County Preserve, Simon County Preserve, Stoneridge County Preserve, Sycamore Canyon/Goodan Ranch County Preserve, Tijuana River Valley Regional Park, and Wilderness Gardens County Preserve.

Hellhole Canyon County Preserve is located within the draft North County Plan Area. The Preserve consists of approximately 2,578 acres located northeast of Escondido within Valley Center, an unincorporated community of San Diego County.

Project Location and Description

Hellhole Canyon County Preserve is in the eastern portion of the unincorporated area of Valley Center (Attachment A, Figure 1). The Preserve is in Township 11 South, Range 1 West, and Range 1 East as depicted on the United States Geological Survey (USGS) 7.5-minute Rodriguez Mountain quadrangle (Attachment A, Figure 2). The Preserve is in northeastern San Diego County in the Peninsular Geomorphic Range and consists of mountain and peak faces of Rodriguez Mountain, rocky hills, unnamed streams, drainages, Hell Creek, and valleys north and east of Paradise Mountain. Elevations range from approximately 457 meters (1,500 feet) above mean sea level within Hell Creek to approximately 1,143 meters (3,750 feet) above mean sea level on the western face of Rodriguez Mountain in the eastern section of the Preserve. SKR were historically observed within the Sierra Verde

Addition of the Preserve. Suitable annual and perennial grassland and open coastal sage scrub habitat for SKR is present within the northeast corner of the Sierra Verde Addition of the Preserve, and SKR and Dulzura kangaroo rat (*Dipodomys simulans*) presence were confirmed during baseline trapping surveys conducted in 2020.

2.0 METHODS

SKR Monitoring Area Determination

The SKR Monitoring Area was originally determined based on the 2020 baseline visual habitat assessment and live-trapping results. Within the Preserve, suitable SKR habitat is confined to the northeastern corner of the Sierra Verde Addition. Potentially suitable SKR habitat (i.e., flat terrain and/or gentle slopes that support low-growing, open habitat) were included within the SKR Monitoring Area. The current SKR Monitoring Area focused on open coastal sage scrub and annual and perennial grassland habitats as the only area in the larger Hellhole Canyon County Preserve that provides suitable SKR habitat with connectivity to the high-quality expansive grassland habitat within the adjacent Rancho Guejito (Attachment A, Figure 3).

Monitoring Plots

Baseline SKR trapping surveys were conducted in 2020 within the northeastern corner of the Sierra Verde Addition and confirmed SKR presence in one of the three trapping plots (plot 2). Per the updated TMP (ESA and ICF 2022), the 2022 SKR monitoring effort sampled the same three sampling plots established during 2020 baseline trapping surveys due to the limited size of suitable SKR habitat within the Preserve. In accordance with the TMP, specific monitoring protocols followed an adapted methodology used by USGS for SKR monitoring at Camp Pendleton (Brehme et al. 2016).

All monitoring plots were located in the field using the cellular ArcGIS Collector application. Representative photographs were taken from the southeast corner of each plot, facing northwest (Attachment B). The biologists then walked systematic transects through each plot searching for kangaroo rat sign (e.g., burrows, scat, tracks, trails through vegetation, dust-bathing sites) until 100% coverage of the plot was achieved. All kangaroo rat sign was recorded on the Survey123 application. Potential presence or absence of SKR within a given plot was determined solely on whether or not kangaroo rat sign was observed within the plot.

Habitat assessment forms on the Survey123 application were also completed for each plot specifically noting habitat characteristics critical to SKR habitat suitability, including percent bare ground, living herb density, shrub/tree density, percentage of dead plant litter, gopher or ground squirrel density, obstruction factor, types of disturbance and land use (Attachment C). These assessment variables were modeled after field forms used by Brehme et al. (2016) (adapted from a field form in Montgomery et al. 2008). Based on the quality of potentially suitable SKR habitat and the density of apparent kangaroo rat sign, each plot was assigned a SKR-potential rating using primarily the following criteria:

- High Potential
 - o Readily apparent potential SKR sign (particularly scat and burrows)
 - o Relatively flat to gently sloping topography
 - o Presence of bare ground common
 - o Relatively low living herb density
 - o Extremely low to no shrub cover
 - o Relatively low obstruction factor (O.F.)¹
- Moderate Potential
 - o Some potential SKR sign (particularly scat and burrows) observed, but infrequent and/or appearing dated or inactive
 - o Gently to moderately sloping topography
 - o Presence of bare ground moderate

-
- Low shrub percent cover
 - Relatively low herb cover
 - Low to moderate O.F.

 - Low Potential
 - Trace to no apparent potential SKR sign
 - Moderately sloping topography
 - Minimal bare ground
 - Moderate to high shrub percent cover
 - Moderate to very high living herb density
 - Moderate to high O.F.

 - No Potential
 - No apparent potential SKR sign
 - Moderate to steep sloping topography
 - No bare ground
 - High shrub percent cover
 - High living herb density
 - High O.F.

¹Obstruction factor (O.F.) is the observable ground level conditions of herbaceous vegetation or dead litter that has the potential to obstruct movement of kangaroo rats across the landscape. High O.F. would consist of a very high density of herb and/or dead litter at the ground level. Low O.F. would consist of a low density of herb or dead litter at the ground level, with a high proportion of patches of bare ground.

3.0 RESULTS

Table 1. Survey Conditions

Biologist(s)	Date	Start/End Time	Start/End Air Temperature (°F)	Start/End Wind Speed (mph)	Start/End Cloud Cover (%)	Precipitation
Kris Alberts Mary Cozy	10-13-21	0910–1135	64–66	0–2 / 1–3	0 / 0	None

A comparison between the overall rating of SKR potential at each plot from the fall 2020 trapping survey to the fall 2021 and fall 2022 monitoring is included in Table 2; increased or decreased changes for the analyzed elements are provided in the final column of Table 2 comparing the two latter periods (ESA 2021; ESA and Blackhawk Environmental, Inc. 2021). Results of the 2022 SKR habitat assessment for each sample plot are provided in Table 3. In 2022, habitat assessments were conducted at three monitoring plots, all of which were determined to be occupied or potentially occupied by SKR. Each plot was rated for SKR potential, and in total, three sample plots were characterized as having high potential. None of the sample plots were found to have no potential for SKR (Attachment A, Figure 4).

Table 2. SKR Habitat Assessment Comparison

		Fall 2020	Fall 2021	Fall 2022	2021–2022 Change
SKR Occupancy	Occupied	1	3*	3*	0
	Unoccupied	2	0	0	0
SKR Potential	High	3	3	3	0
	Medium	0	0	0	0
	Low	0	0	0	0
	No	0	0	0	0

*Occupancy status in fall 2022 was determined as “potentially occupied” based on the positive detection of one SKR in plot 2 in fall 2020 live-trapping surveys, positive kangaroo rat sign during fall 2022 monitoring, the proximity of all three plots (within 150 feet of one another), and no factors that could reasonably be expected to entirely preclude SKR movement between the three plots.



Table 3. SKR Habitat Assessment Summary

Fall 2022										Fall 2020
Plot ID	% Bare Ground	Living Herb Density	Shrub/Tree Density (%)	Plant Litter (Dead) (%)	Gopher/ Ground Squirrel Density	Obstruction Factor	*Potential K-Rat Sign	SKR Occupancy Determination+	Rating†	Rating†
1	5-25	Low	5-25	50-75	High/Low	Low	B, S	Occupied	High**	High**
2	5-25	Low	5-25	50-75	High/Low	Low	B, S, TV	Occupied	High**	High**
3	5-25	Low	25-50	50-75	High/Low	Medium	B, S	Occupied	High**	High**
* = Potential Kangaroo Rat Sign: B=Burrow(s); S=Scat; T=Tracks; TD=Tail Drag; TV=Trails in Vegetation; O=Other ** = Exhibited habitat conditions and observed sign indicates plot is likely or potentially occupied by SKR. † = Estimated potential for SKR occupancy based on habitat community condition and observed kangaroo rat sign. + = Occupancy status in fall 2022 was determined as "potentially occupied" as described in the footnote on Table 2.										

4.0 DISCUSSION

SKR occupancy potentially remained the same across the three monitoring plots between the fall 2021 and fall 2022 monitoring. SKR was only found present at one of the three monitoring plots during the fall 2020 trapping survey but was potentially detected at all three monitoring plots during the fall 2021 and fall 2022 monitoring (Table 3). Differentiating between SKR and DKR sign is not conclusive in and of itself; however, there are no obstruction factors that could preclude the possibility of SKR from any of the three sites, especially considering the proximity of the three sites (within 150 feet of one another). Therefore, SKR was considered to be potentially present at all three monitoring plots as a result of the fall 2022 monitoring. The results indicate seasonal SKR occupancy can increase or decrease at given sites between monitoring years due to a number of variables that may include, but not necessarily be limited to: precipitation, survey timing, predation, weather, food availability, competition among sympatric species, microtopographic differences, proximity of groundwater, and/or availability of natural or artificial water sources that could affect localized plant phenologies, which in turn can affect vegetative density and food availability, etc.

Although drought can artificially appear beneficial for SKR suitability because it is likely to decrease vegetation density and height, it ultimately reduces food availability over time and can increase dead plant litter that may increase obstruction factors. Extended droughts have the potential to significantly reduce food availability for SKR. The period between the fall 2021 and fall 2022 monitoring efforts was marked by below-average rainfall, and the fall 2022 effort occurred before the general onset of the rainy season after the hot, dry summer months. In an ecological regime that is free of anthropogenic influences such as cattle grazing, consistently higher rainfall could serve to reduce habitat suitability for SKR by promoting vegetation cover that excludes SKR. However, the open areas within the SKR monitoring area are primarily vegetated with low-growing filarees (*Erodium spp.*), with lesser percentages of taller-growing ruderal species (i.e., tocalote [*Centaurea melitensis*] and short-pod mustard [*Hirschfeldia incana*]) that provide low obstruction factors without grazing practices. Most of the annual vegetation present in the SKR monitoring plots consisted of broadleaf filaree (*Erodium botrys*), a low-growing annual plant that facilitates SKR movement and is a potential food source. Taller growths of annual vegetation that may preclude or reduce SKR movement were generally not observed. Additionally, obstruction factors were approximately equivalent between 2020, 2021, and 2022, due to dead but generally downed plant litter in conjunction with an abundance of broadleaf filaree, neither of which obstructs SKR movement.

To enable consistent data comparisons on a year-to-year basis, it is recommended that future monitoring be conducted during the dry season (July through November), following the precedent set by the fall 2020, fall 2021, and fall 2022 efforts. Annual weather patterns in the greater San Diego region are known to have significant variability in rainfall quantities, while generally dry conditions prevail for the majority of the year. This rainfall variability can cause significant, albeit temporary, changes in herb density, dead plant litter, bare ground and obstruction factors that tend to be most dramatic when comparing site conditions during the wet season. Dry season monitoring is likely to yield a more consistent comparison of the assessment areas.

5.0 SURVEYOR CERTIFICATION

All data, statements, analyses, findings, and attachments within this report are accurate and truthful in terms of describing the existing conditions and the Project as proposed to Blackhawk Environmental.

Kris Alberts
Principal Biologist



6.0 REFERENCES

Brehme, C. S., D. R. Clark, and R. N. Fisher

- 2016 *Stephens' Kangaroo Rat Monitoring on MCB Camp Pendleton, Results and Trends Analyses for Fall-Winter 2014*. Prepared for Wildlife Management Branch, AC/S Environmental Security, Marine Corps Base Camp Pendleton. 52pp.

ESA

- 2021 Baseline Biodiversity Survey Report for the Hellhole Canyon Preserve Additions. Prepared for the County of San Diego Department of Parks and Recreation. January 2021.
- 2022 Targeted Monitoring Plan Resource-Specific Monitoring 2021 Annual Report. Prepared for the County of San Diego Department of Parks and Recreation. May 2022.

ESA and Blackhawk Environmental, Inc.

- 2021 Fall 2021 Stephens' Kangaroo Rat Monitoring, Hellhole Canyon County Preserve, Valley Center, San Diego County, California. Prepared for the County of San Diego Department of Parks and Recreation. November 1, 2021.

ESA and ICF

- 2015 Comprehensive Monitoring Plan (now referred to as the "Targeted Monitoring Plan." Prepared for the County of San Diego Department of Parks and Recreation. July 2015.
- 2019a Draft Targeted Monitoring Plan. Prepared for the County of San Diego Department of Parks and Recreation. July 2019.
- 2019b Draft Targeted Monitoring Plan Update. Prepared for the County of San Diego Department of Parks and Recreation. December 2019.
- 2021a Draft Targeted Monitoring Plan Update. Prepared for the County of San Diego Department of Parks and Recreation. September 2021.
- 2021b Draft Targeted Monitoring Plan Update. Prepared for the County of San Diego Department of Parks and Recreation. December 2021.
- 2022 Draft Targeted Monitoring Plan Update. Prepared for the County of San Diego Department of Parks and Recreation. December 2022.

Montgomery, S. J., D. J. Grout, C. M. Wolf, V. M. Shoblock, A. Davenport, and R. N. Knight

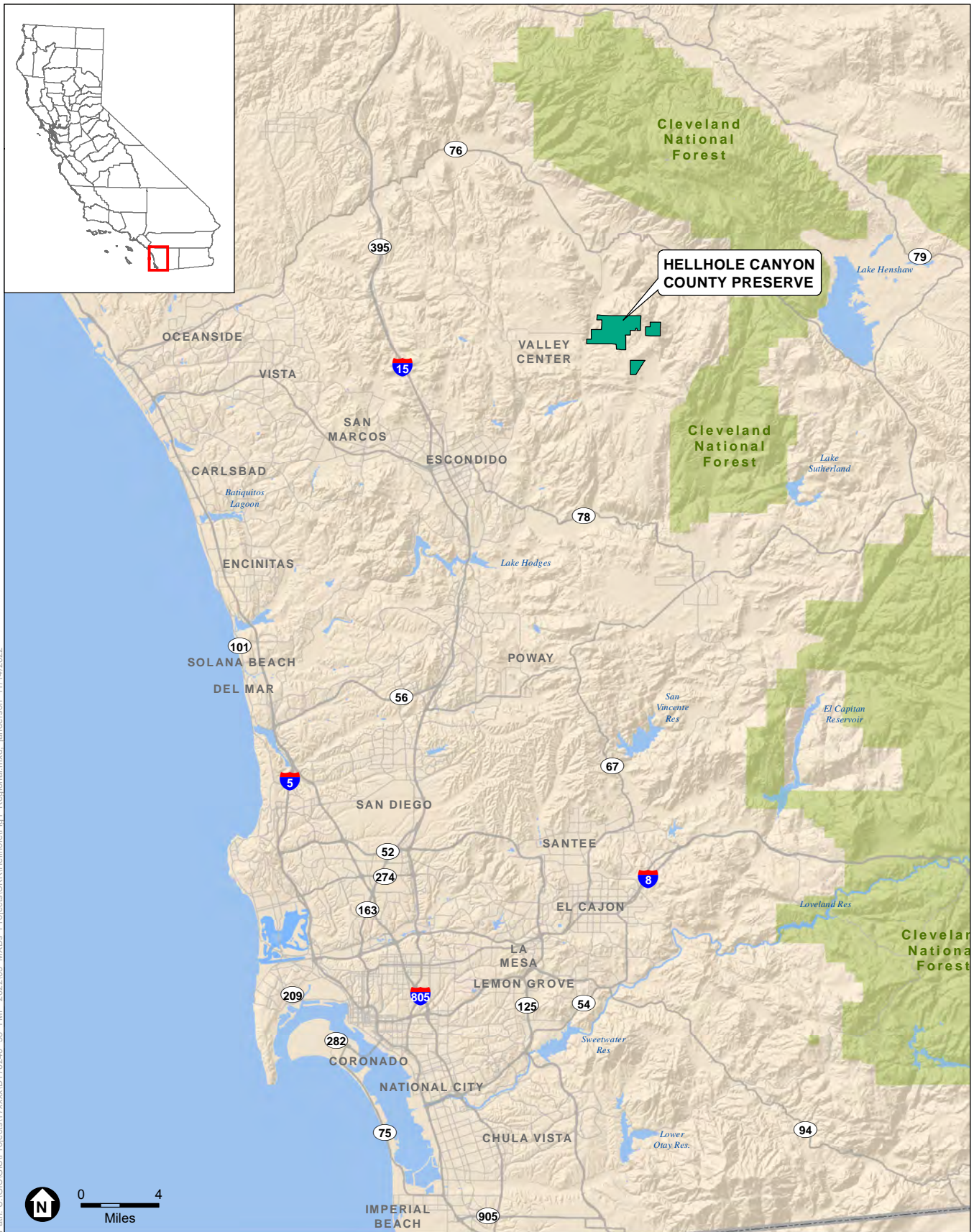
- 2008 *Stephens' kangaroo rat monitoring program, and results of annual monitoring sessions between spring 2002 and fall 2004, at Naval Weapons Station Seal Beach Detachment Fallbrook*. Unpublished report submitted by SJM Biological Consultants to the Environmental Programs and Services Office, Naval Weapons Station Seal Beach Detachment Fallbrook, Fallbrook, CA.

United States Geological Survey (USGS)

- 2022 7.5-minute topographic quadrangle map for Oceanside/Borrego Valley, Boucher Hill, and Rodriguez Mountain.

Attachment A

Figures



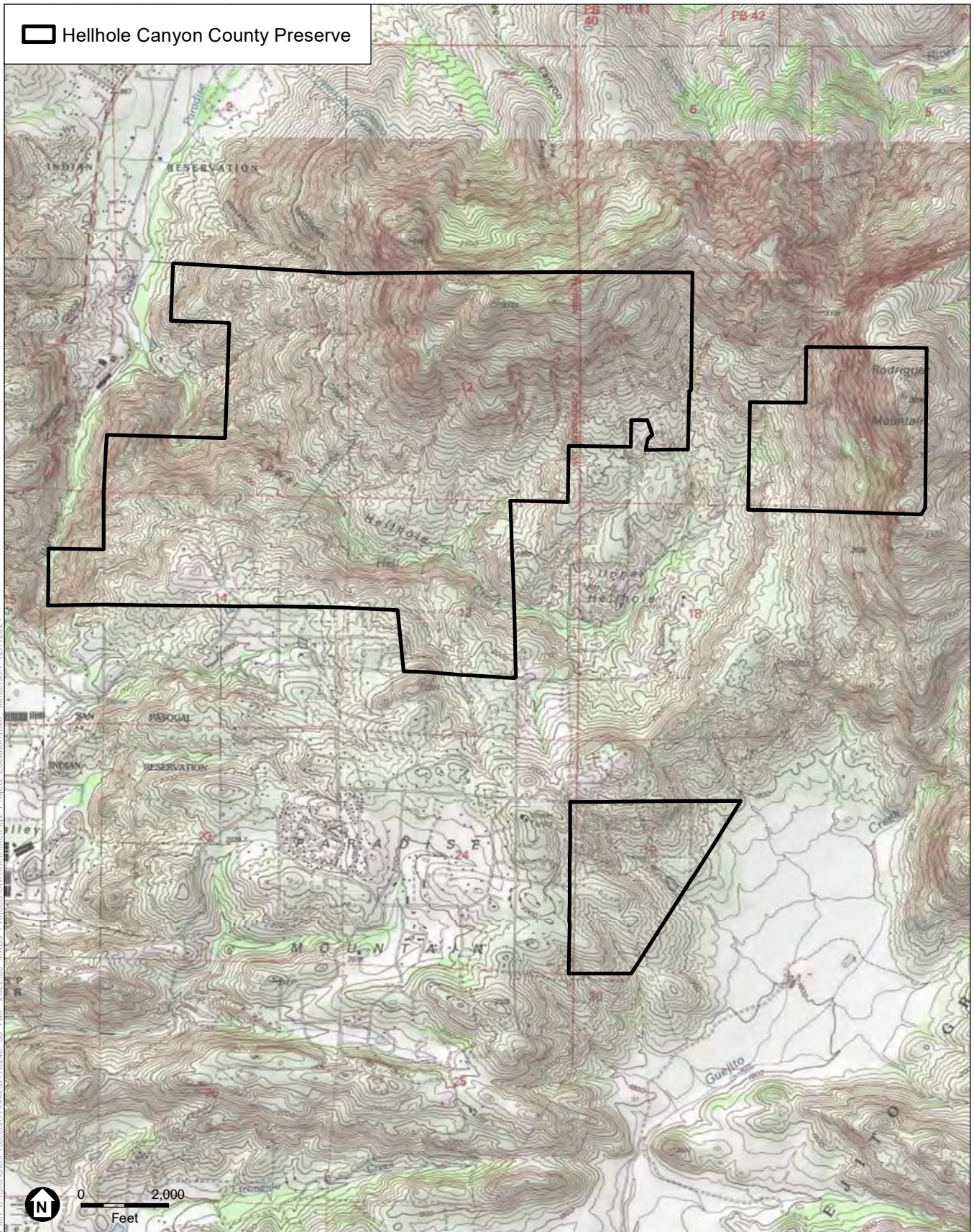
Path: U:\GIS\GIS\Projects\17xxxx\170240_58_TMP_2022\03_MXD\Projects\SKR\Hellhole\Fig1_Regional.mxd, landerson 11/14/2022

SOURCE: ESRI; SanGIS, 2022.

COSD DPR 557744 TO 58 – Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
Fall 2022 SKR Habitat Monitoring Memorandum – Hellhole Canyon County Preserve



Figure 1
Regional Location

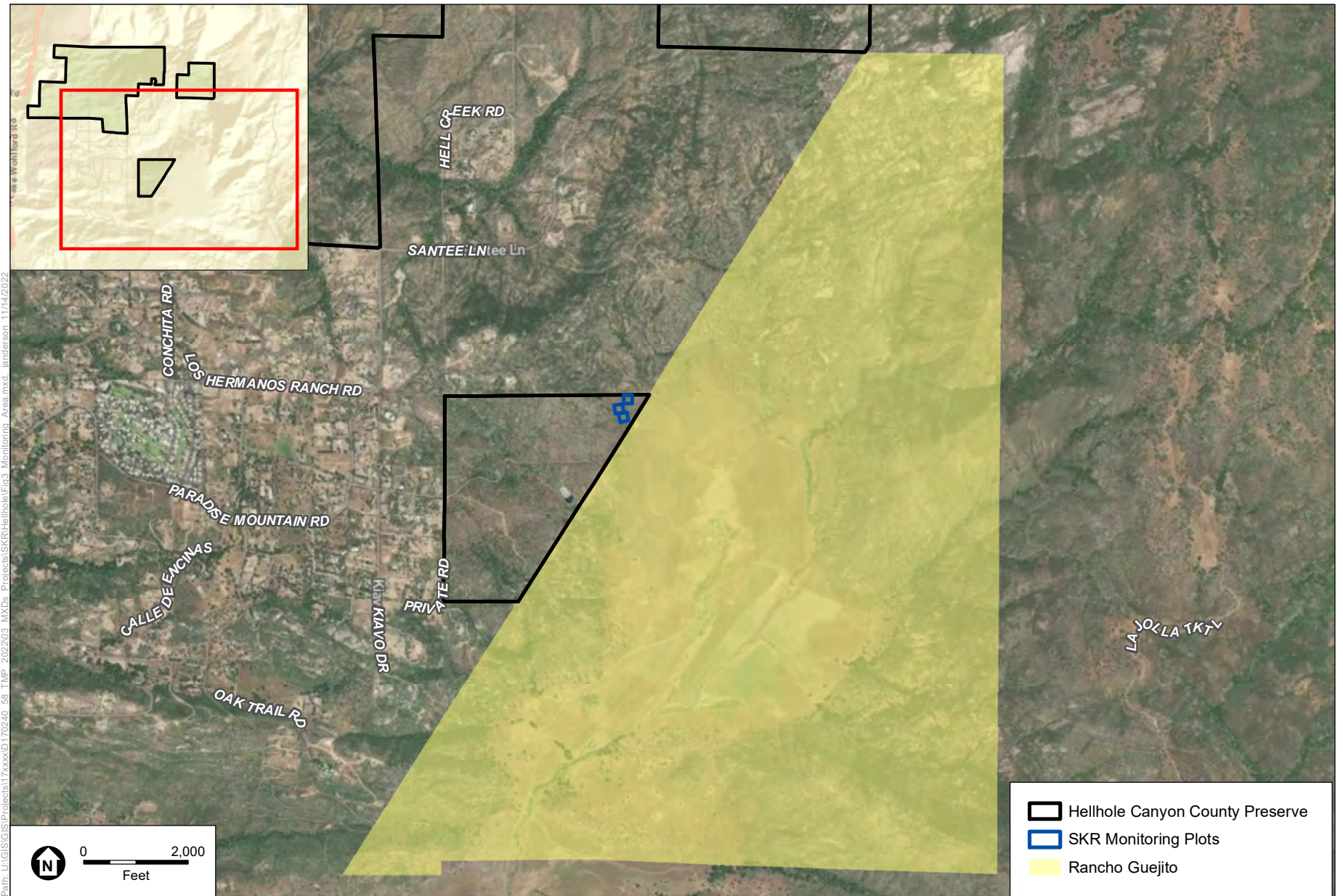


SOURCE: USGS 7.5 minute,
Rodriguez Mountain quadrangle

COSD DPR 55744 TO 58 – Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
Fall 2022 SKR Habitat Monitoring Memorandum – Hellhole Canyon County Preserve



Figure 2
Project Location



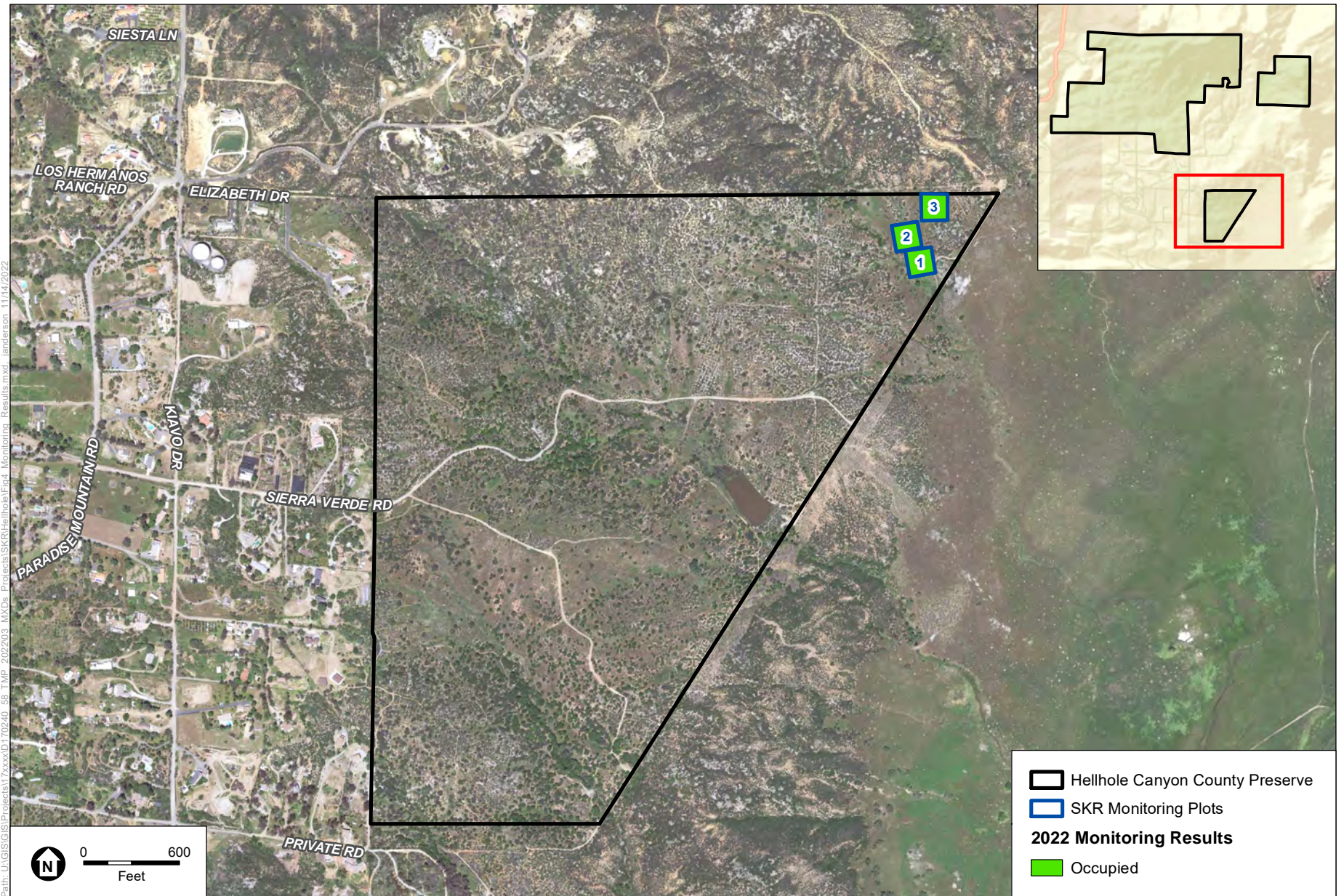
Path: U:\GIS\GIS\Projects\17xxxx\170240_58_TMP_202203_MXD\Protects\SKR\Hellhole\Fig3_Monitoring_Area.mxd, Anderson, 11/14/2022

SOURCE: ESRI, 2020; SanGIS, 2022.

COSD DPR 557744 TO 58 – Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
 Fall 2022 SKR Habitat Monitoring Memorandum – Hellhole Canyon County Preserve



Figure 3
 SKR Monitoring Area



SOURCE: NAIP, 2020; SanGIS, 2022; ESA, 2022.

COSD DPR 557744 TO 58 – Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
 Fall 2022 SKR Habitat Monitoring Memorandum – Hellhole Canyon County Preserve



Figure 4
 2022 SKR Monitoring Results

Attachment B
Site Photographs



Plot 1



Plot 2



Plot 3



Kangaroo rat burrow with scat in Plot 1



Kangaroo rat burrow with scat in Plot 2



Kangaroo rat burrow with scat in Plot 3

Attachment C

Field Forms

SKR Monitoring – Habitat Assessment Form

Plot Number: 3

Date/ Time: 10/14/2022 10:45

Grazing Management Unit: NA

SKR Management Area: None

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Mary Cozy

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Much shrubbier than plots 1 & 2. Medium obstruction factor.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Centaurea melitensis, Cryptantha sp.

Grasses - List 3 Dominant Species: Bromus sp.

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Gutierrezia californica, Hesperoyucca whipplei

Trees - Dominant Species: Citrus sp., Quercus engelmannii

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing – Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road – Estimate When? past 3 months past 6 months past 12 months Older

Paved Road – Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 14, 2022 10:45 AM	Preserve: Hellhole Canyon Preserve
Plot: 3	Observers: Kris Alberts, Mary Cozy





SKR Monitoring – Habitat Assessment Form

Plot Number: 2

Date/ Time: 10/14/2022 10:20

Grazing Management Unit: NA

SKR Management Area: 2

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Mary Cozy

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: Numerous burrows in plot, both new and old. Low obstruction factor.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp, Hirschfeldia incana, Trichostemma lanceolatum

Grasses - List 3 Dominant Species: Bromus sp.

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Acemispion glaber, Gutierrezia californica

Trees - Dominant Species: N/A

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing - Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road - Estimate When? past 3 months past 6 months past 12 months Older

Paved Road - Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe): Trails/runways through vegetation.

Date: October 14, 2022 10:20 AM	Preserve: Hellhole Canyon Preserve
Plot: 2	Observers: Kris Alberts, Mary Cozy





SKR Monitoring – Habitat Assessment Form

Plot Number: 1

Date/ Time: 10/14/2022 09:35

Grazing Management Unit: NA

SKR Management Area: 1

Digital Photographs taken @ SE Corner of Plot? Yes No

Observer(s): Kris Alberts, Mary Cozy

Trapping needed to confirm SKR vs DKR? Yes No

Overall SKR Potential: High Medium Low None

Comments: SKR present in trapping in plot 2 during 2020 trapping surveys - makes potential high in all 3 plots with SKR ingress/egress possible through all 3. Scat found around burrows. Low obstruction factor.

Plot Habitat Descriptors

Describe current land use: Grazing Open Space Other

Soil Surface Hardness: Hard Medium Soft

Living/Standing Herb Density: High Medium Low

Bare Ground: 0 0-5% 5-25% 25-50% 50-75%

Plant Litter (dead): 0 0-5% 5-25% 25-50% 50-75%

Forb Cover: 0 0-5% 5-25% 25-50% 50-75%

Grass Cover: 0 0-5% 5-25% 25-50% 50-75%

Shrub Cover: 0 0-5% 5-25% 25-50% 50-75%

Forbs - List 3 Dominant Species: Erodium sp., Hirschfeldia incana, Centaurea melitensis

Grasses - List 3 Dominant Species: Bromus sp.

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Baccharis salicifolia, Artemisia californica

Trees - Dominant Species: Quercus engelmannii, Quercus berberidifolia, Baccharis salicifolia

Abundance of ACTIVE Gopher Excavations: High Medium Low

Abundance of INACTIVE Gopher Excavations: High Medium Low

Abundance of ground squirrel burrows: High Medium Low

Substrate Disturbance: None Grazing Grading Discing Furrows

Grazing - Estimate When? past 3 months past 6 months past 12 months Older

Grading - Estimate When? past 3 months past 6 months past 12 months Older

Discing - Estimate When? past 3 months past 6 months past 12 months Older

Furrows - Estimate When? past 3 months past 6 months past 12 months Older

Mowing – Estimate When? past 3 months past 6 months past 12 months Older

Dirt Road – Estimate When? past 3 months past 6 months past 12 months Older

Paved Road – Estimate When? past 3 months past 6 months past 12 months Older

Other? Describe: Estimate When? past 3 months past 6 months past 12 months Older

Potential Kangaroo Rat Sign? Scat Burrow(s) Tracks Tail Drag Caching/foraging craters

Other(Describe):

Date: October 14, 2022 9:35 AM	Preserve: Hellhole Canyon Preserve
Plot: 1	Observers: Kris Alberts, Mary Cozy





**K-3 Stephens' Kangaroo
Rat Live-Trapping
Memorandum: Ramona
Grasslands County
Preserve**

TMP RESOURCE-SPECIFIC MONITORING

STEPHENS' KANGAROO RAT SURVEYS AT RAMONA GRASSLANDS

COUNTY PRESERVE SKR MANAGEMENT AREA 3

Date:
May 10, 2022

Prepared for:
Department of Parks and Recreation
County of San Diego
5500 Overland Avenue, Suite 410
San Diego, CA 92123

Prepared by:
Aardvark Biological Services LLC
1382 Oceanaire Dr
San Luis Obispo, CA 93405
(650) 224-9375
stvnentor@gmail.com

Table of Contents

EXECUTIVE SUMMARY	3
INTRODUCTION	3
STUDY AREA DESCRIPTION	3
METHODS	3
RESULTS	3
CONCLUSION	4
FIGURES	
FIGURE 1	5
FIGURE 2	6
FIGURE 3	7
FIGURE 4	8
FIGURE 5	9
FIGURE 6	10

Executive Summary

Permitted biologist Steven Chen (10[a][1][A] recovery permit TE-95006A) completed trapping surveys for the presence of the federal and state threatened Stephens' kangaroo rat (*Dipodomys stephensi*, SKR) from May 6 to 8, 2022 at SKR Management Area 3 within Ramona Grasslands County Preserve. Surveys were conducted in accordance with the County of San Diego's (County) Targeted Monitoring Plan (TMP) to ensure that the goals and objectives for the species are being met. No SKR individuals, burrows, or diagnostics signs were detected during the surveys. Botta's pocket gopher (*Thomomys bottae*) and California ground squirrel (*Otospermophilus beecheyi*) burrows were identified within SKR Management Area 3.

Introduction

At the request of Environmental Science Associates (ESA) under the direction of the County, Aardvark Biological Services LLC permitted biologist Steven Chen (10[a][1][A] recovery permit TE-95006A) was asked to complete trapping surveys for the federal and state threatened SKR at SKR Management Area 3 within Ramona Grasslands County Preserve in accordance with the County's TMP to ensure that the biological conservation goals and objectives for the species are being met and inform adaptive management.

Study Area Description

The Study Area is an approximately 3-acre area designated as SKR Management Area 3 in Ramona Grasslands County Preserve in Ramona, San Diego County, California (Figures 1 to 3). The 3-acre SKR Management Area was created just to the northwest of the staging area as mitigation for construction of the staging area in the southwest portion of the Ramona Grasslands County Preserve. The approximate center of the Study Area is located at latitude 33.034567°N and longitude 116.950928 °W (WGS84). The site is depicted on the *San Pasqual* United States Geological Survey (USGS) 7.5-minute topographic quadrangle. The Study Area is not part of the Public Land Survey.

SKR Management Area 3 was subdivided into three monitoring plots (A3-3, A3-2, A3-1) during the 2021 habitat assessment (Blackhawk 2021; Figure 4) and marked as high potential for SKR due to the presence of bare ground, relatively low to gently sloping topography, relative low living herb density, extremely low to no shrub cover, and relatively low obstruction factor. Vegetation and land cover within the Study Area consists of maintained annual grassland (Figure 5). Flora identified include brome (*Bromus* sp.), short-pod mustard (*Hirschfeldia incana*), redstem filaree (*Erodium cicutarium*), and doveweed (*Croton setiger*).

Methods

Trapping methods were conducted in accordance with the U.S. Fish and Wildlife Service's *Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats* (USFWS 2013). All three monitoring plots in SKR Management Area 3 were trapped, as well as additional areas within SKR Management Area 3 to maximize capture success for SKR (Figure 6). A total of 100 Sherman XL Live Traps were set from May 6 to 8, 2022 spaced approximately 8 meters apart. Traps were baited with proso millet (*Panicum miliaceum*), set approximately 1 hour before sunset, checked prior to midnight, and closed no later than 1 hour after sunrise each morning. Trapping activities were assisted by Corey Chan, Jonathan Gunther, Will Molland-Simms, and Thomas Nhu.

Results

No SKR individuals, burrows, or diagnostics signs (tracks, scat, or tail drag) were detected during the surveys. Botta's pocket gopher and California ground squirrel burrows were identified within SKR Management Area 3. Survey results are outlined below in Table 1:

Table 1. Trapping Results

Date	Set Time	Check Time	End Time	Temperature *Fahrenheit	Wind miles per hour	Weather Condition	Moon Phase	Individuals Captured	Comments
05/06/22	1900	-	-	72	1-3	Clear	Waxing Crescent	-	-
05/06/22	-	2330	-	54	<1	Clear	Waxing Crescent	-	-
05/07/22	-	0530	0655	53	1-3	Clear	Waxing Crescent	-	-
05/07/22	1900	-	-	64	1-3	Clear	Waxing Crescent	-	-
05/07/22	-	2330	-	57	4-6	Clear	Waxing Crescent	-	-
05/08/22	-	0600	0630	54	4-6	Partly Cloudy	Waxing Crescent	-	-

Conclusion

Based on the results from the survey, SKR are not currently occupying SKR Management Area 3.

References

Blackhawk Environmental, Inc. (Blackhawk). 2021. Fall 2021 Stephens' Kangaroo Rat Monitoring, Ramona Grasslands Preserve. County of San Diego Department Parks and Recreation.

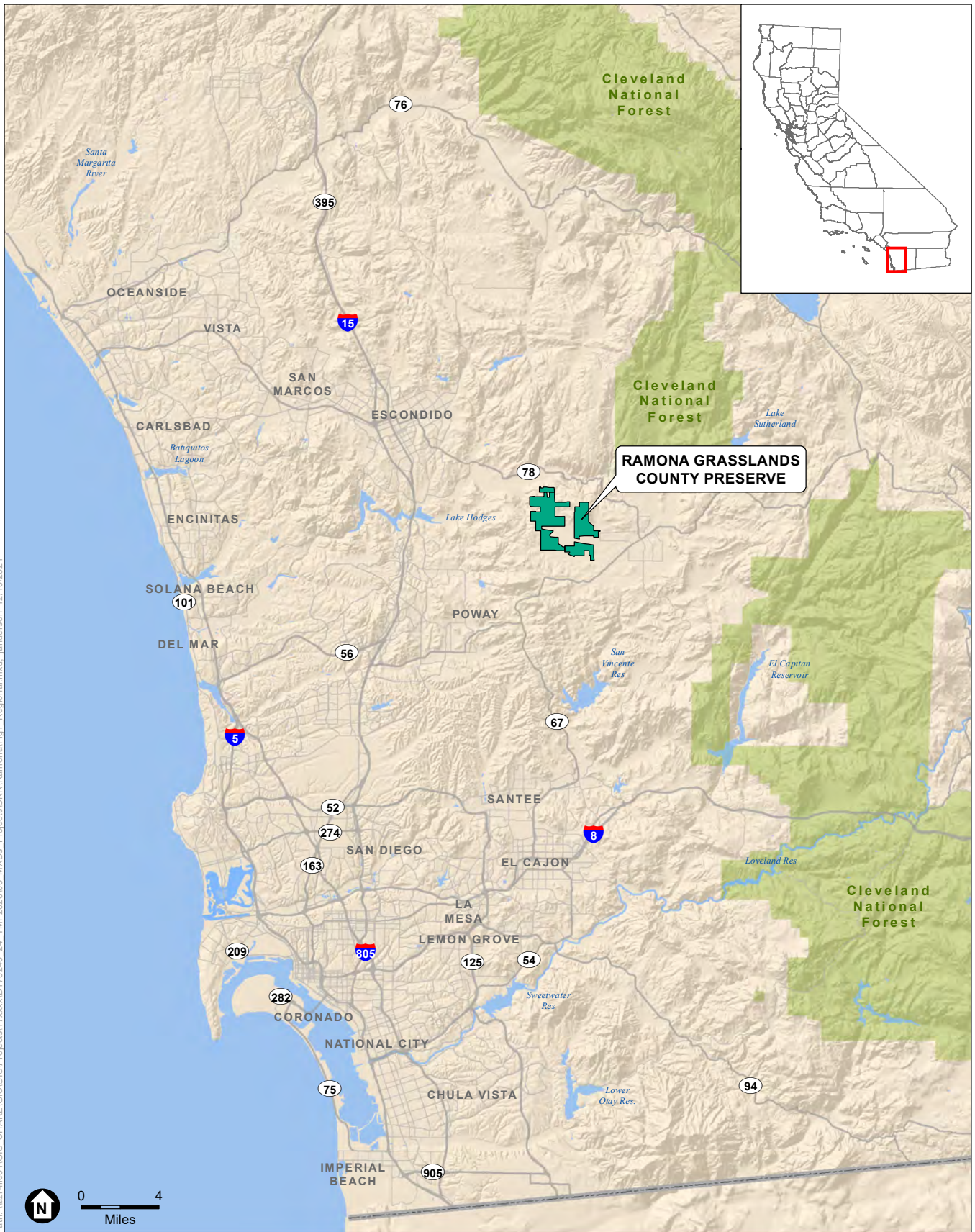
TMP RESOURCE-SPECIFIC MONITORING

STEPHENS' KANGAROO RAT SURVEYS AT RAMONA GRASSLANDS COUNTY PRESERVE SKR MANAGEMENT AREA 3

Environmental Science Associates (ESA). 2019. Draft Targeted Monitoring Plan. County of San Diego Department Parks and Recreation.

ICF International (ICF). 2017. CMP Resource-Specific Monitoring, 2016 Annual Report. County of San Diego Department Parks and Recreation.

I, Steven Chen, certify that the information in this survey report and attached exhibits fully and accurately represents my work.



Path: \\azr-fle01\GIS-SHARE\GIS\GIS\Projects\17xxxx\170240_24_TMP\2020\03_MXD\03_Protects\SKR\Ramona\Fig1_Regional.mxd, janderson, 12/10/2021

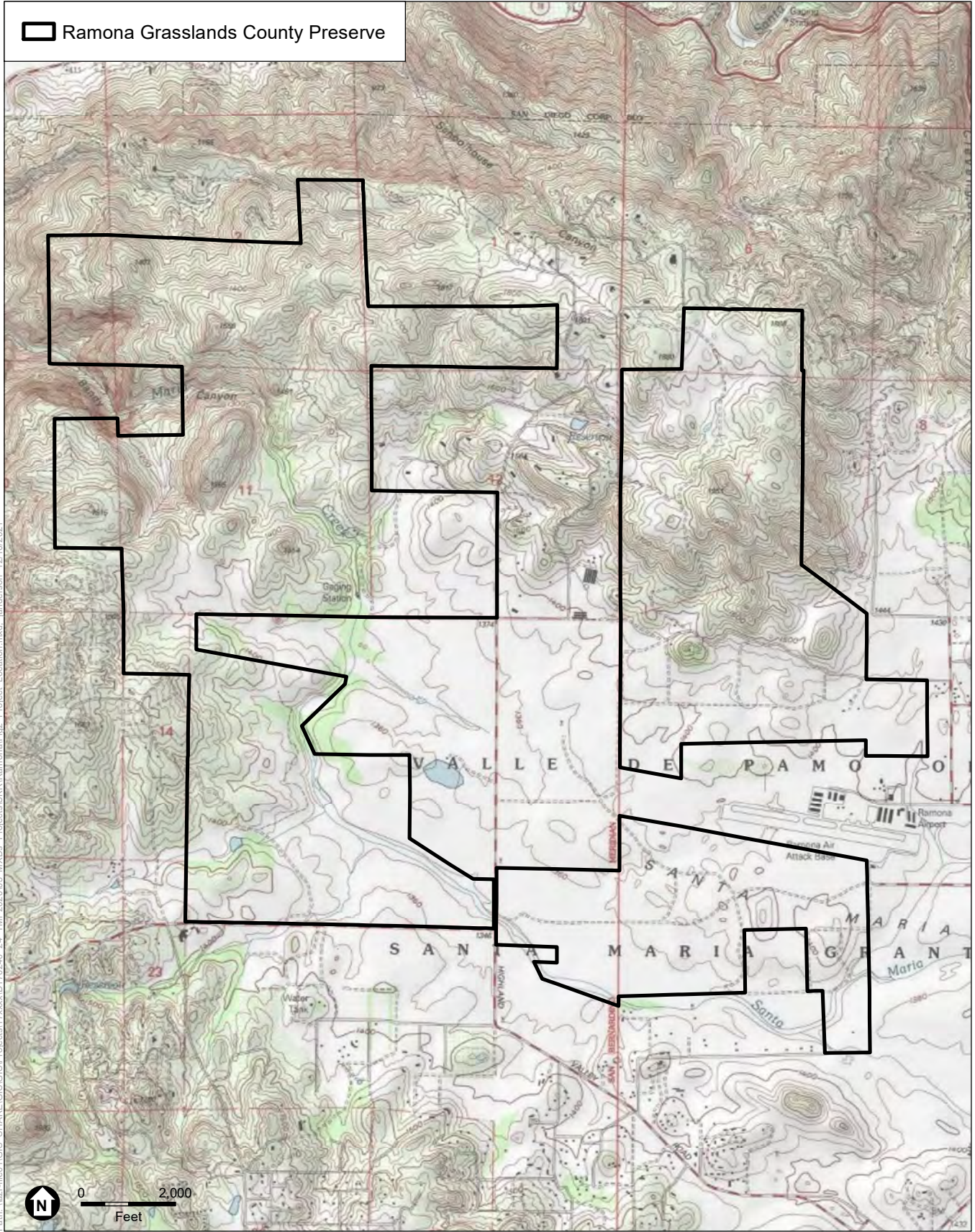
SOURCE: ESRI; SanGIS, 2021.

COSD DPR 557744_TO 24 TMP Implementation

Figure 1
Regional Vicinity
SKR Monitoring – Ramona Grasslands County Preserve



 Ramona Grasslands County Preserve

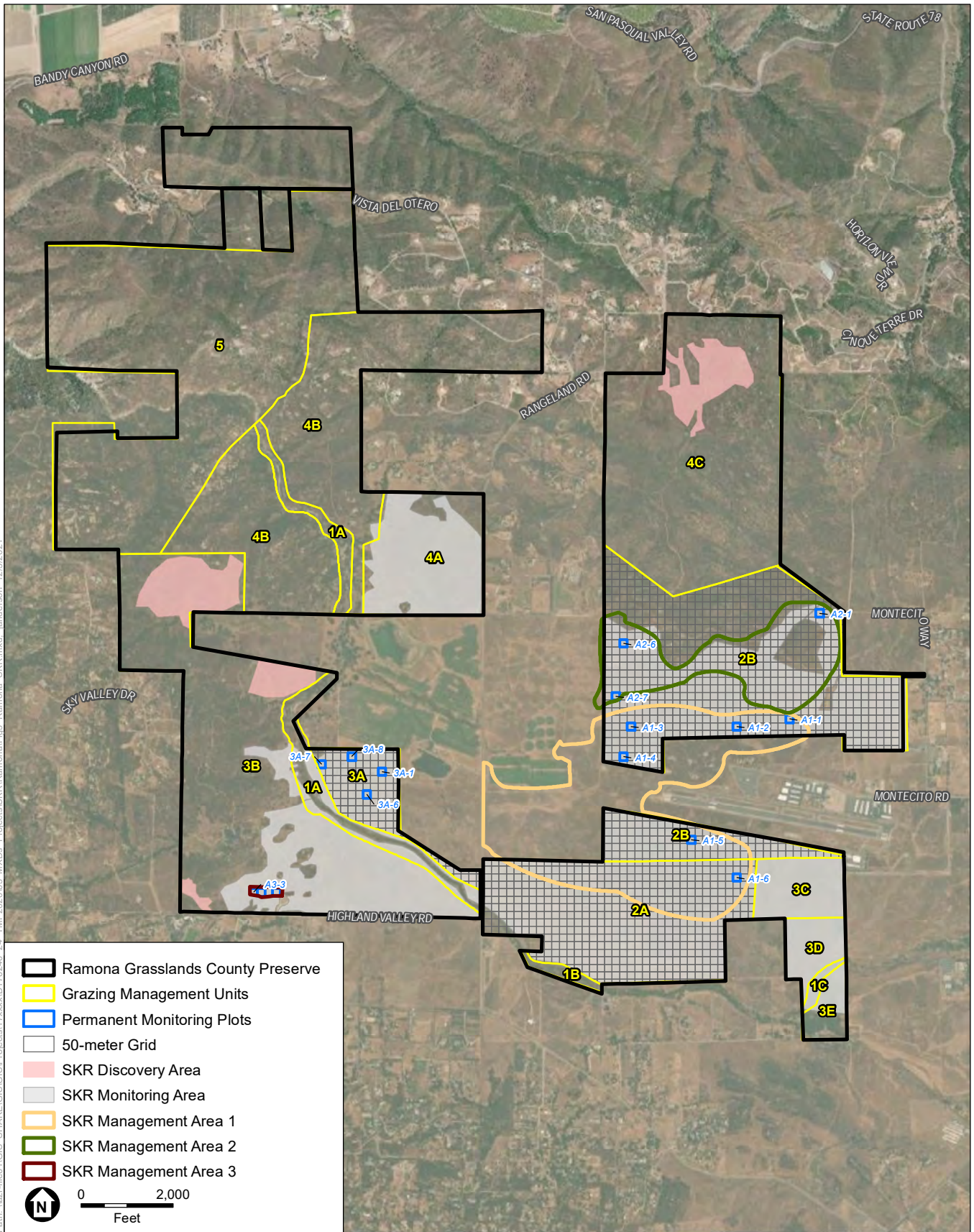


SOURCE: USGS 7.5 minute, San Pasqual quadrangle

COSD DPR 557744_TO 24 TMP Implementation



Figure 2
Project Location
SKR Monitoring – Ramona Grasslands County Preserve

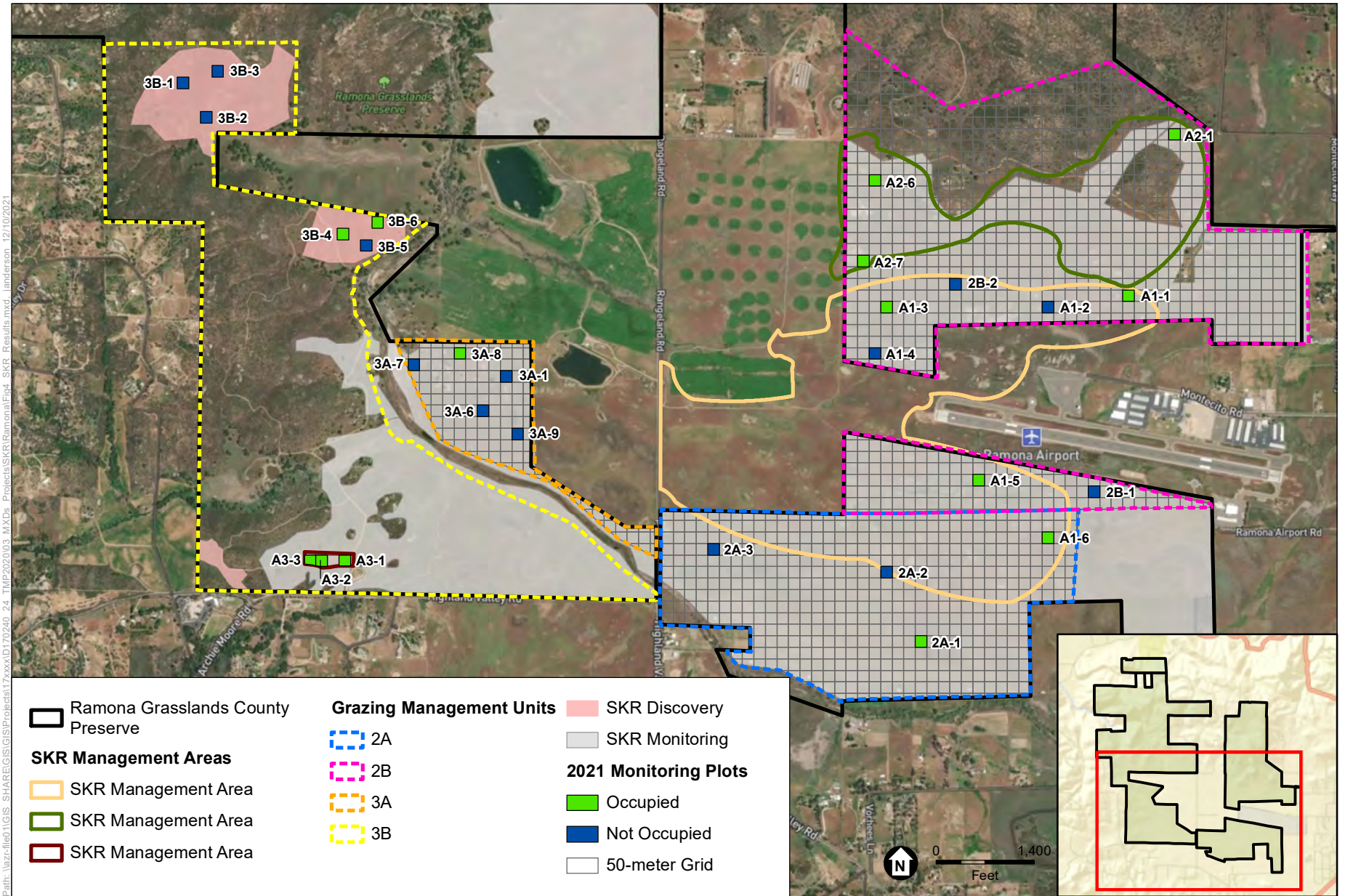


SOURCE: ESRI, 2020.

COSD DPR 557744_TO 24 TMP Implementation

Figure 3
Preserve Management Areas
SKR Monitoring – Ramona Grasslands County Preserve





SOURCE: Digital Globe; ESA, 2021.

COSD DPR 557744_TO 24 TMP Implementation

Figure 4
2021 SKR Monitoring Results
SKR Monitoring – Ramona Grasslands County Preserve

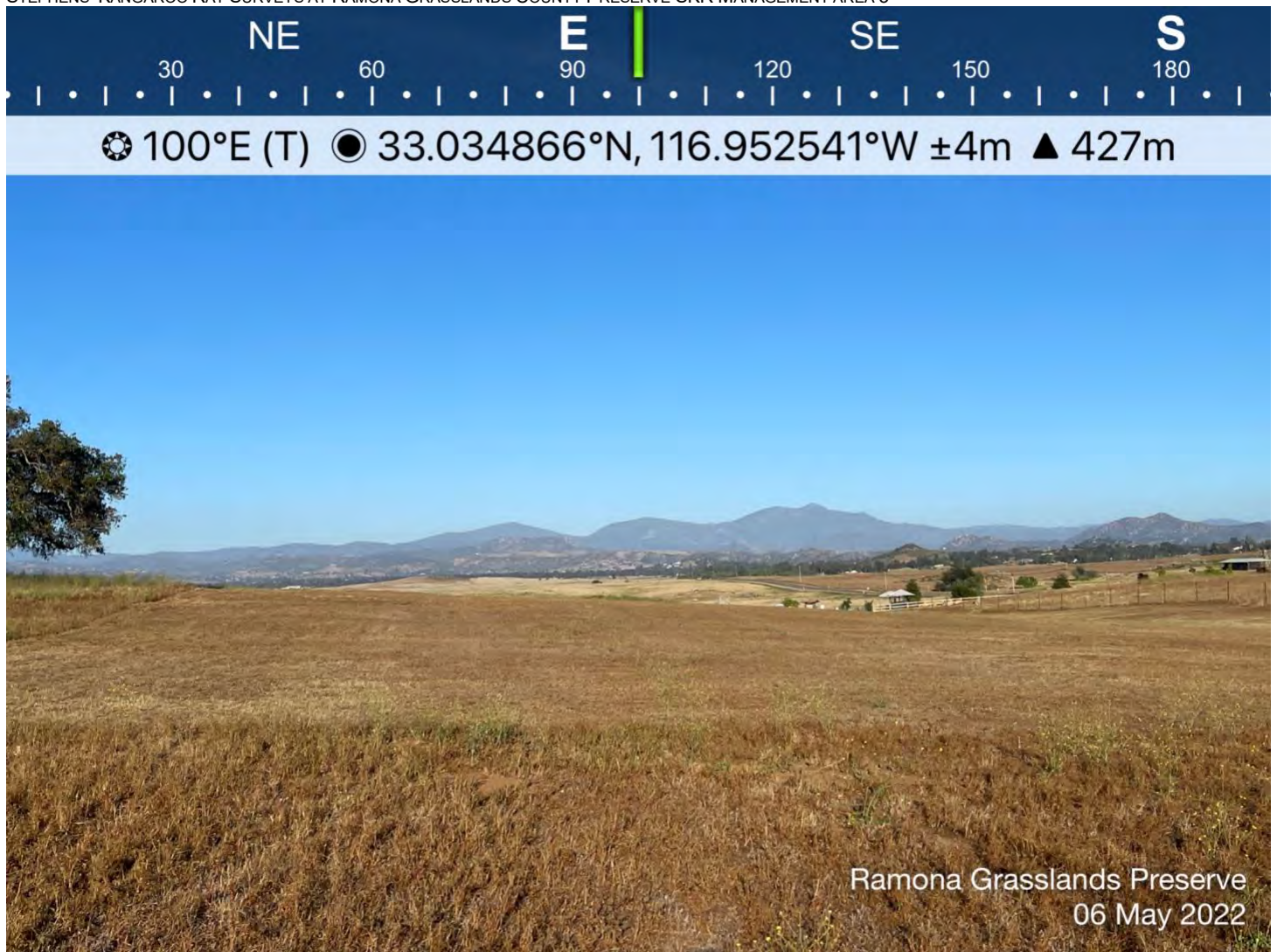


Figure 5. Vegetation and land cover within the Study Area consists of maintained annual grassland



Figure 6. A total of 100 Sherman XL Live Traps were set from May 6 to 8, 2022 spaced approximately 8 meters apart.

**K-4 Cultural Monitoring
Memorandum for
Stephens' Kangaroo
Rat Focused
Management: Hellhole
Canyon County
Preserve
(Confidential)**

This document contains confidential information concerning sensitive cultural resources. It is not subject to public distribution.

**K-5 Stephens' Kangaroo
Rat Focused
Management
Representative
Photographs: Hellhole
Canyon County
Preserve**



Representative photograph of the SKR management area prior to management activities.



Representative photograph of the SKR management area prior to management activities.



Representative photograph of management activities at the SKR management area (line trimming non-native grasses and herbs).



Representative photograph of management activities at the SKR management area (raking of non-native grass and herb biomass).



Representative photograph of management activities at the SKR management area (biomass removal).



Representative photograph of the SKR management area after management activities.



Representative photograph of the SKR management area after management activities.

Appendix L

Bat Habitat Assessment Field Forms



L-1 Field Forms

TMP Monitoring, Pallid/Townsend's Bat

Created	2022-06-09 22:28:39 UTC by SC Fulcrum05
Updated	2022-06-10 04:03:45 UTC by SC Fulcrum05
Location	33.4235685, -117.090343

Parent Form

Project Name:	TMP Monitoring, Pallid/Townsend's Bat
Preserve/Park Name	Mt. Olympus
General Survey Type	TMP Monitoring
Specific Survey Type	TMP Bats
Observer/Surveyor:	Jaclyn Catino-Davenport
Assistant Observer/Surveyor:	Karla Alcaraz
Date:	2022-06-09

START Weather Details:

Start - Time:	15:28
Wind Direction	S
Air Temp Current (F)	89.6
Start - Low Wind Speed:	0
Start - High Wind Speed:	8.2
Start - Average Wind Speed:	3.3
Start - Cloud Cover (%):	2
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	21:03
End - Temperature:	71.3
End - Wind Direction From (select one):	W
End - Low Wind Speed:	0.3
End - High Wind Speed:	1.3
End - Average Wind Speed:	0.8
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	Good

Notes
Three separate structures which can be used for Pallid bat for roosting. One was chicken coop (eastern most building). Only building easily accessible without going thru poison oak.

Start of active survey: temp 71.1, calm (0 winds).

Visual Bat: 808, 827, 0831 (two bat passes), 0834 (checked out detector),

Observation Type: Bird, Butterfly/Moth, Reptile

Bird

Phainopepla; Phainopepla nitens; PHAI, no

Bird (Common or Scientific Name): Phainopepla; Phainopepla nitens; PHAI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Red-tailed Hawk; Buteo jamaicensis; RTHA, no

Bird (Common or Scientific Name): Red-tailed Hawk; Buteo jamaicensis; RTHA

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Wrentit; Chamaea fasciata; WREN, no

Bird (Common or Scientific Name): Wrentit; Chamaea fasciata; WREN

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Blue-gray Gnatcatcher; Polioptila caerulea; BGGN, no

Bird (Common or Scientific Name): Blue-gray Gnatcatcher; Polioptila caerulea; BGGN

Is the Bird Sensitive ? no

Sub-Species Info: N/A

California Thrasher; Toxostoma redivivum; CATH, no

Bird (Common or Scientific Name): California Thrasher; Toxostoma redivivum; CATH

Is the Bird Sensitive ? no

Sub-Species Info: N/A

California Towhee; Melozone crissalis; CALT, no

Bird (Common or Scientific Name): California Towhee; Melozone crissalis; CALT

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Hutton's Vireo; Vireo huttoni; HUVI, no

Bird (Common or Scientific Name): Hutton's Vireo; Vireo huttoni; HUVI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

California Scrub-Jay; Aphelocoma californica; CASJ, no

Bird (Common or Scientific Name): California Scrub-Jay; Aphelocoma californica; CASJ

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Bushtit; Psaltriparus minimus; BUSH, no

Bird (Common or Scientific Name): Bushtit; Psaltriparus minimus; BUSH

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Lesser Goldfinch; Spinus psaltria; LEGO, no

Bird (Common or Scientific Name): Lesser Goldfinch; Spinus psaltria; LEGO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Canyon Wren; *Catherpes mexicanus*; CANW, no

Bird (Common or Scientific Name):	Canyon Wren; <i>Catherpes mexicanus</i> ; CANW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Northern Flicker; *Colaptes auratus*; NOFL, no

Bird (Common or Scientific Name):	Northern Flicker; <i>Colaptes auratus</i> ; NOFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Ash-throated Flycatcher; *Myiarchus cinerascens*; ATFL, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; <i>Myiarchus cinerascens</i> ; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Allen's Hummingbird; *Selasphorus sasin*; ALHU, no

Bird (Common or Scientific Name):	Allen's Hummingbird; <i>Selasphorus sasin</i> ; ALHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Anna's Hummingbird; *Calypte anna*; ANHU, no

Bird (Common or Scientific Name):	Anna's Hummingbird; <i>Calypte anna</i> ; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Spotted Towhee; *Pipilo maculatus*; SPTO, no

Bird (Common or Scientific Name):	Spotted Towhee; <i>Pipilo maculatus</i> ; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Violet-green Swallow; *Tachycineta thalassina*; VGSW, no

Bird (Common or Scientific Name):	Violet-green Swallow; <i>Tachycineta thalassina</i> ; VGSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Oak Titmouse; *Baeolophus inornatus*; OATI, no

Bird (Common or Scientific Name):	Oak Titmouse; <i>Baeolophus inornatus</i> ; OATI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Butterfly/Moth

Papilio sp.

Butterfly/Moth (Common or Scientific Name):	Papilio sp.
Is the Butterfly/Moth Sensitive ?	no

Other Butterfly/Moth Species	Erynnis sp.
Is the Butterfly/Moth Sensitive ?	No

Reptile

Granite Spiny Lizard; *Sceloporus orcutti*

Reptile (Common or Scientific Name): Granite Spiny Lizard; *Sceloporus orcutti*

Is the Reptile Sensitive ? no

Sub-Species Info: N/A

TMP Monitoring, Pallid/Townsend's Bat

Created	2022-06-10 23:28:47 UTC by SC Fulcrum05
Updated	2022-06-11 04:19:59 UTC by SC Fulcrum05
Location	33.3480775, -117.026836

Parent Form

Project Name:	TMP Monitoring, Pallid/Townsend's Bat
Preserve/Park Name	Wilderness Gardens
General Survey Type	TMP Monitoring
Specific Survey Type	TMP Bats
Observer/Surveyor:	Jaclyn Catino-Davenport
Assistant Observer/Surveyor:	Pablo Corcoran
Date:	2022-06-10

START Weather Details:

Start - Time:	16:28
Wind Direction	W
Air Temp Current (F)	89.3
Start - Low Wind Speed:	1
Start - High Wind Speed:	7.8
Start - Average Wind Speed:	4.4
Start - Cloud Cover (%):	5
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good

END Weather Details:

Time Out:	21:15
End - Temperature:	69.3
End - Wind Direction From (select one):	W
End - Low Wind Speed:	1
End - High Wind Speed:	2.2
End - Average Wind Speed:	1.6
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	Good

Notes Bats: Habitat is good. Not much cliff face or rocky outcrop openings but plenty of large trees with cavities. Also, existing infrastructure on site for roosting Pallid bats.

Bat acoustic start weather: temp 72.3, wind 3.4 max, 2 avg out of W.

Observation Type: Amphibian, Bird, Mammal, Reptile

Photos



Amphibian

American Bullfrog; *Lithobates catesbeianus*

Amphibian (Common or Scientific Name): American Bullfrog; *Lithobates catesbeianus*

Is the Amphibian Sensitive ? no

Sub-Species Info: N/A

Bird

Bushtit; *Psaltriparus minimus*; BUSH, no

Bird (Common or Scientific Name): Bushtit; *Psaltriparus minimus*; BUSH

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Phainopepla; *Phainopepla nitens*; PHAI, no

Bird (Common or Scientific Name): Phainopepla; *Phainopepla nitens*; PHAI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Western Bluebird; *Sialia mexicana*; WEBL, yes

Bird (Common or Scientific Name): Western Bluebird; *Sialia mexicana*; WEBL

Is the Bird Sensitive ? yes

Sub-Species Info: N/A

Sensitive Bird Observation

Observation Type: Visual

Number of individuals observed: 1

Behavior (check all that apply): Perched (not singing)

Bird Sex (check all that apply): Male

Bird Age (check all that apply): Adult

Hooded Oriole; Icterus cucullatus; HOOR, no

Bird (Common or Scientific Name): Hooded Oriole; Icterus cucullatus; HOOR

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Nuttall's Woodpecker; Dryobates nuttallii; NUWO, no

Bird (Common or Scientific Name): Nuttall's Woodpecker; Dryobates nuttallii; NUWO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Spotted Towhee; Pipilo maculatus; SPTO, no

Bird (Common or Scientific Name): Spotted Towhee; Pipilo maculatus; SPTO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

California Towhee; Melozone crissalis; CALT, no

Bird (Common or Scientific Name): California Towhee; Melozone crissalis; CALT

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Northern Mockingbird; Mimus polyglottos; NOMO, no

Bird (Common or Scientific Name): Northern Mockingbird; Mimus polyglottos; NOMO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Western Kingbird; Tyrannus verticalis; WEKI, no

Bird (Common or Scientific Name): Western Kingbird; Tyrannus verticalis; WEKI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Wrentit; Chamaea fasciata; WREN, no

Bird (Common or Scientific Name): Wrentit; Chamaea fasciata; WREN

Is the Bird Sensitive ? no

Sub-Species Info: N/A

House Finch; Haemorhous mexicanus; HOFI, no

Bird (Common or Scientific Name): House Finch; Haemorhous mexicanus; HOFI

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Ash-throated Flycatcher; Myiarchus cinerascens; ATFL, no

Bird (Common or Scientific Name): Ash-throated Flycatcher; Myiarchus cinerascens; ATFL

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Mourning Dove; Zenaida macroura; MODO, no

Bird (Common or Scientific Name): Mourning Dove; Zenaida macroura; MODO

Is the Bird Sensitive ? no

Sub-Species Info: N/A

California Thrasher; *Toxostoma redivivum*; CATH, no

Bird (Common or Scientific Name): California Thrasher; *Toxostoma redivivum*; CATH

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Common Raven; *Corvus corax*; CORA, no

Bird (Common or Scientific Name): Common Raven; *Corvus corax*; CORA

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Common Yellowthroat; *Geothlypis trichas*; COYE, no

Bird (Common or Scientific Name): Common Yellowthroat; *Geothlypis trichas*; COYE

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Northern Flicker; *Colaptes auratus*; NOFL, no

Bird (Common or Scientific Name): Northern Flicker; *Colaptes auratus*; NOFL

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Blue-gray Gnatcatcher; *Polioptila caerulea*; BGGN, no

Bird (Common or Scientific Name): Blue-gray Gnatcatcher; *Polioptila caerulea*; BGGN

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Bewick's Wren; *Thryomanes bewickii*; BEWR, no

Bird (Common or Scientific Name): Bewick's Wren; *Thryomanes bewickii*; BEWR

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Red-tailed Hawk; *Buteo jamaicensis*; RTHA, no

Bird (Common or Scientific Name): Red-tailed Hawk; *Buteo jamaicensis*; RTHA

Is the Bird Sensitive ? no

Sub-Species Info: N/A

Mammal

Audubons Cottontail; *Sylvilagus audubonii*

Mammal (Common or Scientific Name): Audubons Cottontail; *Sylvilagus audubonii*

Is the Mammal Sensitive ? no

Sub-Species Info: N/A

Reptile

Red Diamond Rattlesnake; *Crotalus ruber*

Reptile (Common or Scientific Name):	Red Diamond Rattlesnake; <i>Crotalus ruber</i>
Is the Reptile Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Reptile Observation

Observation Type (check all that apply):	Visual sighting
Number of individuals observed:	1
Behavior (check all that apply):	Moving (flushed)
Reptile Sex (check all that apply):	Unknown
Reptile Age (check all that apply):	Adult

Granite Spiny Lizard; *Sceloporus orcutti*

Reptile (Common or Scientific Name):	Granite Spiny Lizard; <i>Sceloporus orcutti</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

Western Fence Lizard; *Sceloporus occidentalis*

Reptile (Common or Scientific Name):	Western Fence Lizard; <i>Sceloporus occidentalis</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

TMP Monitoring, Pallid/Townsend's Bat

Created	2022-07-07 22:52:56 UTC by SC Fulcrum15
Updated	2022-07-08 04:17:52 UTC by SC Fulcrum15
Location	33.22265062291073, -116.9536147964593

Parent Form

Project Name:	TMP Monitoring, Pallid/Townsend's Bat
Preserve/Park Name	Hellhole Canyon
General Survey Type	TMP Monitoring
Specific Survey Type	TMP Bats
Observer/Surveyor:	Jaclyn Catino-Davenport
Assistant Observer/Surveyor:	Pablo Corcoran
Date:	2022-07-07

START Weather Details:

Start - Time:	15:52
Wind Direction_old	Out of the west
Air Temp Current (F)_old	85.5
Start - Low Wind Speed:	0
Start - High Wind Speed:	5
Start - Average Wind Speed:	1.8
Start - Cloud Cover (%):	0
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Notes	Half moon cycle

END Weather Details:

Time Out:	21:17
End - Temperature:	73
End - Average Wind Speed:	0
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
Notes	Bat 8:19pm, bat 8:23pm, bat 8:52pm, 0 wind, 73 degrees at 8pm
Observation Type:	Reptile, Bird, Mammal, Butterfly/Moth

Bird

California Towhee; *Melospiza crissalis*; CALT, no

Bird (Common or Scientific Name):	California Towhee; <i>Melospiza crissalis</i> ; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Common Raven; *Corvus corax*; CORA, no

Bird (Common or Scientific Name):	Common Raven; <i>Corvus corax</i> ; CORA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Bushtit; *Psaltriparus minimus*; BUSH, no

Bird (Common or Scientific Name):	Bushtit; <i>Psaltriparus minimus</i> ; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Lesser Goldfinch; *Spinus psaltria*; LEGO, no

Bird (Common or Scientific Name):	Lesser Goldfinch; <i>Spinus psaltria</i> ; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Northern Flicker; *Colaptes auratus*; NOFL, no

Bird (Common or Scientific Name):	Northern Flicker; <i>Colaptes auratus</i> ; NOFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Bewick's Wren; *Thryomanes bewickii*; BEWR, no

Bird (Common or Scientific Name):	Bewick's Wren; <i>Thryomanes bewickii</i> ; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Wrentit; *Chamaea fasciata*; WREN, no

Bird (Common or Scientific Name):	Wrentit; <i>Chamaea fasciata</i> ; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Turkey Vulture; *Cathartes aura*; TUVU, yes

Bird (Common or Scientific Name):	Turkey Vulture; <i>Cathartes aura</i> ; TUVU
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	3
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown

Red-tailed Hawk; *Buteo jamaicensis*; RTHA, no

Bird (Common or Scientific Name):	Red-tailed Hawk; <i>Buteo jamaicensis</i> ; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1

California Scrub-Jay; *Aphelocoma californica*; CASJ, no

Bird (Common or Scientific Name):	California Scrub-Jay; <i>Aphelocoma californica</i> ; CASJ
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Acorn Woodpecker; *Melanerpes formicivorus*; ACWO, no

Bird (Common or Scientific Name):	Acorn Woodpecker; <i>Melanerpes formicivorus</i> ; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

White-breasted Nuthatch; *Sitta carolinensis*; WBNU, no

Bird (Common or Scientific Name):	White-breasted Nuthatch; <i>Sitta carolinensis</i> ; WBNU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Spotted Towhee; *Pipilo maculatus*; SPTO, no

Bird (Common or Scientific Name):	Spotted Towhee; <i>Pipilo maculatus</i> ; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Black-headed Grosbeak; *Pheucticus melanocephalus*; BHGR, no

Bird (Common or Scientific Name):	Black-headed Grosbeak; <i>Pheucticus melanocephalus</i> ; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Anna's Hummingbird; *Calypte anna*; ANHU, no

Bird (Common or Scientific Name):	Anna's Hummingbird; <i>Calypte anna</i> ; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

California Quail; *Callipepla californica*; CAQU, no

Bird (Common or Scientific Name):	California Quail; <i>Callipepla californica</i> ; CAQU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Ash-throated Flycatcher; *Myiarchus cinerascens*; ATFL, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; <i>Myiarchus cinerascens</i> ; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Rock Wren; *Salpinctes obsoletus*; ROWR, no

Bird (Common or Scientific Name):	Rock Wren; <i>Salpinctes obsoletus</i> ; ROWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

American Peregrine Falcon; *Falco peregrinus anatum*; PEFA, yes

Bird (Common or Scientific Name):	American Peregrine Falcon; <i>Falco peregrinus anatum</i> ; PEFA
Is the Bird Sensitive ?	yes
Sub-Species Info:	Found throughout North America (south of tundra) and northern Mexico

Sensitive Bird Observation

Observation Type:	Visual
-------------------	--------

Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown

California Thrasher; *Toxostoma redivivum*; CATH, no

Bird (Common or Scientific Name):	California Thrasher; <i>Toxostoma redivivum</i> ; CATH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Mourning Dove; *Zenaida macroura*; MODO, no

Bird (Common or Scientific Name):	Mourning Dove; <i>Zenaida macroura</i> ; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Cooper's Hawk; *Accipiter cooperii*; COHA, yes

Bird (Common or Scientific Name):	Cooper's Hawk; <i>Accipiter cooperii</i> ; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown

Common Poorwill; *Phalaenoptilus nuttallii*; COPO, no

Bird (Common or Scientific Name):	Common Poorwill; <i>Phalaenoptilus nuttallii</i> ; COPO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Butterfly/Moth

Behr's Metalmark; *Apodemia virgulti*

Butterfly/Moth (Common or Scientific Name):	Behr's Metalmark; <i>Apodemia virgulti</i>
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A

Mammal

Merriam's Chipmunk; *Tamias merriami*

Mammal (Common or Scientific Name):	Merriam's Chipmunk; <i>Tamias merriami</i>
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Reptile

Western Fence Lizard; *Sceloporus occidentalis*

Reptile (Common or Scientific Name):	Western Fence Lizard; <i>Sceloporus occidentalis</i>
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A

Orange-throated Whiptail; *Aspidoscelis hyperythrus*

Reptile (Common or Scientific Name):	Orange-throated Whiptail; <i>Aspidoscelis hyperythrus</i>
Is the Reptile Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Reptile Observation

Observation Type (check all that apply):	Visual sighting
Number of individuals observed:	1
Behavior (check all that apply):	Moving (flushed)
Reptile Sex (check all that apply):	Unknown
Reptile Age (check all that apply):	Unknown

L-2 Threat Assessment Forms

Scientific Name: Pallid Bat MSP Occurrence ID: _____

Preserve: Mount Olympus Occurrence Name: _____

Date: June 9, 2022 Surveyors & Affiliation/Agency: Jaclyn Catino-Davenport (ESA), Karla Alcaraz (ESA)

V. CURRENT MAPPED EXTENT INFORMATION. Count or estimate number of plants in mapped extent. Area can be calculated based on GIS perimeter mapping or visual mapping on aerial photo in the office.

Plants/Current Mapped Extent: _____, Exact Count: _____, Estimate (1000s, 10k): _____, Uncertainty? _____
 For both exact counts and estimates, indicate: Counted/estimated individual plants: _____ OR Counted/estimated clusters of plants: _____
 For geophytes: are counts of flowering or vegetative individuals? Flowering: _____ Vegetative: _____
 Area of Current Mapped Extent: _____ Units: _____ Exact (GPS mapping): _____ Estimate: _____
 Perimeter of current extent determined by walking it or estimated by other means (mapped on aerials)? Walked: _____ Other (describe p. 3): _____
 Species in Maximum Extent? Yes: _____ No: _____ If not, why _____

VI. THREATS ASSESSMENT IN MAXIMUM EXTENT - Assess threats within the occurrence's maximum extent (cumulative extent over years of monitoring) plus 10-m surrounding buffer. Record notes on p. 3.

Surrounding Land Use/Activity at or Adjacent to Site: Open space and rural development surrounds the Preserve. There is one heavily used paved road that borders the eastern boundary.

Disturbance Classes (rank each threat as 1-7): 1 = no sign of disturbance, 2 = disturbance in 10m surrounding buffer but not within maximum extent, 3 = disturbance occurs in >0 % to <10% of area within maximum extent, 4 = disturbance in 10% to <25% of maximum extent, 5 = disturbance in 25 to <50% of maximum extent, 6 = disturbance occurs within 50 to <75% of maximum extent, and 7 = disturbance occurs within ≥75% of maximum extent.

Non-Native Forbs	<u>3</u>	Feral Pig Activity	<u>1</u>	Erosion	<u>3</u>
Non-Native Grasses	<u>4</u>	Trampling	<u>1</u>	Urban Runoff	<u>1</u>
Non-Native Woody Plants	<u>3</u>	Vandalism	<u>1</u>	Slope Movement	<u>1</u>
Competitive Native Plants	<u>1</u>	Grazing (Y/N/UNK)	<u>No</u>	Soil Compaction	<u>3</u>
Dumping/Trash	<u>3</u>	Historic Agriculture (Y/N/Unk)	<u>Unknown</u>		
Encampments	<u>1</u>	Altered Hydrology	<u>1</u>		

Fuel Modification Zone/Fire Break 3
 Road Construction/Maintenance: 1 If Observed, Briefly Describe: _____
 Vegetation Clearing: 4 If Observed, Briefly Describe: Trail, access route/road, and staging area cleared of vegetation.
 Restoration Project (Impacts): 1 If Observed, Briefly Describe: _____
 ORV Activity 3 If Observed, List Type(s) of ORV Activity: Tracks seen near the top of the Preserve
 Evidence of Recent Fire 1 If Sign of Recent Fire: Year Burned? _____ OR Unknown Burn Year? _____
 Disturbance from Trails (authorized & unauthorized) 3 If Trails are Present, are they Authorized (circle one)? Yes / No / Both / Unknown
 Type of Trail Use (Yes/No)? Hiking: Yes Biking: Yes Equestrian: No Dog: No Service Vehicles: Yes Other (Describe): _____
 Illegal Trail Use? Yes No Unknown
 Describe: Tracks seen along trail Other Disturbance? List & Rank: _____

Collection? Yes: _____ No: _____ Collector: _____
 Collection #: _____ Herbarium: _____ Species Collected: _____
 Collection 2, Collector: _____ (enter additional collections on p. 3)
 Collection #: _____ Herbarium: _____ Species Collected: _____

Occurrence ID: _____ Species: Pallid Bat Date: June 9, 2022

VI. MANAGEMENT RECOMMENDATIONS

Continue to maintain clean-up around the abandoned house, add artificial roosts and drinking sources.

VII. MANAGEMENT ACTIONS IN LAST YEAR

Cleaned up staging area and area around the abandon house.

VIII. CNDDDB SPECIES DETECTED & NOTES

List any sensitive plant or animal species to add to the CNDDDB:

None

Time Finish: 21:03

Categories of % Individuals in Sample Plot for Phenological Stages (Vegetative, Flowering, Fruiting & Dead) and for Evidence of Herbivory, Disease and Stunted Growth.

- 1 = 0% (not detected)
- 2 = >0% to <10%
- 3 = 10% to <25%
- 4 = 25% to <50%
- 5 = 50% to <75%
- 6 = \geq 75%

% Cover Class Definitions within Sample Plot for Cryptogamic Crust and Thatch.

See page 5 for illustrations of different cover classes.

- 1 = 0% cover (not detected)
- 2 = >0% to <10% cover
- 3 = 10% to <25% cover
- 4 = 25% to <50% cover
- 5 = 50% to <75% cover
- 6 = \geq 75% cover

Feral Pig Activity within Sample Plot:

- 1 = No feral pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pig) detected.
- 2 = Signs of pig activity (rooting, wallowing, vegetation destruction) in sample plot appear months old.
- 3 = Signs of recent pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pig) in adjacent area but not within sample plot.
- 4 = Recent signs of pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pigs) within sample plot.

Ground Squirrel Activity within Sample Plot:

- 1 = No ground squirrel burrows detected.
- 2 = Burrows and/or ground squirrels observed in adjacent area but not within sample plot.
- 3 = Single squirrel or burrow seen within sample plot.
- 4 = Multiple burrows and/or squirrels seen within sample plot.

Botta's Pocket Gopher Activity within Sample Plot:

- 1 = No pocket gopher mounds detected.
- 2 = Mounds or gophers observed in adjacent area but not within sample plot.
- 3 = <10 mounds observed within sample plot.
- 4 = \geq 10 mounds or one or more gophers seen within sample plot.

Disturbance Categories within the Maximum Extent:

- 1 = No sign of disturbance within maximum extent or in adjacent 10 m buffer.
- 2 = Disturbance does not occur within maximum extent but is detected within the surrounding 10 m buffer area.
- 3 = Disturbance present in >0% to <10% of area within maximum extent.
- 4 = Disturbance occurs in 10% to <25% of area within maximum extent.
- 5 = Disturbance occurs in 25% to <50% of area within maximum extent.
- 6 = Disturbance occurs 50% to <75% of area within maximum extent.
- 7 = Disturbance occurs \geq 75% of area within maximum extent.

Cover Diagrams from CNPS

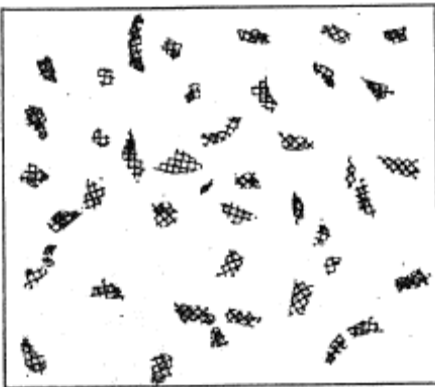
1%



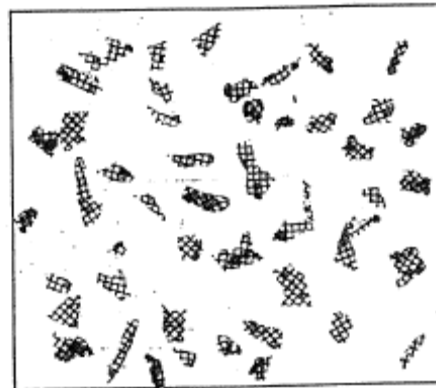
5%



10%



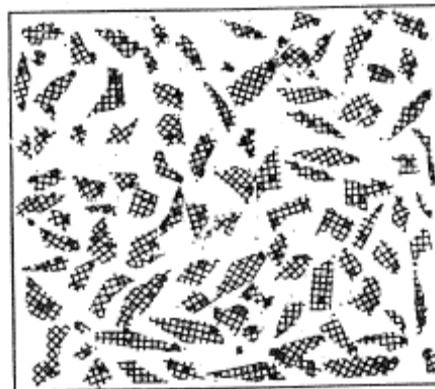
15%



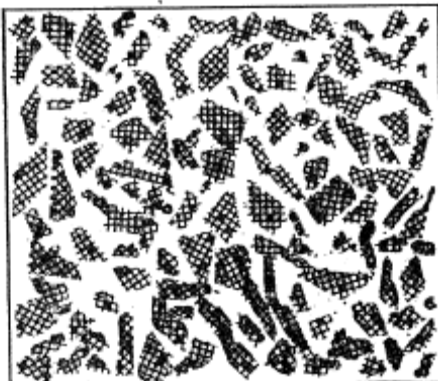
25%



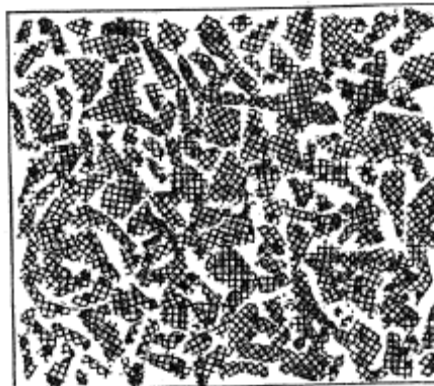
35%



50%



75%



Scientific Name: *Pallid Bat & Townsend's big-eared bat*

MSP Occurrence ID:

Preserve: *Wilderness Gardens*

Occurrence Name:

Date: *June 10, 2022*

Surveyors & Affiliation/Agency: *Jaclyn Catino-Davenport (ESA), Pablo Corcoran (ESA)*

V. CURRENT MAPPED EXTENT INFORMATION. *Count or estimate number of plants in mapped extent. Area can be calculated based on GIS perimeter mapping or visual mapping on aerial photo in the office.*

Plants/Current Mapped Extent: _____, Exact Count: _____, Estimate (1000s, 10k): _____, Uncertainty? _____

For both exact counts and estimates, indicate: Counted/estimated individual plants: _____ OR Counted/estimated clusters of plants: _____

For geophytes: are counts of flowering or vegetative individuals? Flowering: _____ Vegetative: _____

Area of Current Mapped Extent: _____ Units: _____ Exact (GPS mapping): _____ Estimate: _____

Perimeter of current extent determined by walking it or estimated by other means (mapped on aerials)? Walked: _____ Other (describe p. 3): _____

Species in Maximum Extent? Yes: _____ No: _____ If not, why _____

VI. THREATS ASSESSMENT IN MAXIMUM EXTENT - *Assess threats within the occurrence's maximum extent (cumulative extent over years of monitoring) plus 10-m surrounding buffer. Record notes on p. 3.*

Surrounding Land Use/Activity at or Adjacent to Site: Open space is to the west and south of the preserve. Agricultural and residential development is located east and north of the preserve.

Disturbance Classes (rank each threat as 1-7): 1 = no sign of disturbance, 2 = disturbance in 10m surrounding buffer but not within maximum extent, 3 = disturbance occurs in >0 % to <10% of area within maximum extent, 4 = disturbance in 10% to <25% of maximum extent, 5 = disturbance in 25 to <50% of maximum extent, 6 = disturbance occurs within 50 to <75% of maximum extent, and 7 = disturbance occurs within ≥75% of maximum extent.

Non-Native Forbs	<u>3</u>	Feral Pig Activity	<u>1</u>	Erosion	<u>3</u>
Non-Native Grasses	<u>4</u>	Trampling	<u>1</u>	Urban Runoff	<u>1</u>
Non-Native Woody Plants	<u>4</u>	Vandalism	<u>1</u>	Slope Movement	<u>1</u>
Competitive Native Plants	<u>1</u>	Grazing (Y/N/UNK)	<u>Unknown</u>	Soil Compaction	<u>3</u>
Dumping/Trash	<u>1</u>	Historic Agriculture (Y/N/Unk)	<u>Yes</u>		
Encampments	<u>1</u>	Altered Hydrology	<u>2</u>		

Fuel Modification Zone/Fire Break 3

Road Construction/Maintenance: 2 If Observed, Briefly Describe: _____

Vegetation Clearing: 2 If Observed, Briefly Describe: _____

Restoration Project (Impacts): 3 If Observed, Briefly Describe: Oak tree saplings planted throughout the preserve

ORV Activity 1 If Observed, List Type(s) of ORV Activity: _____

Evidence of Recent Fire 1 If Sign of Recent Fire: Year Burned? _____ OR Unknown Burn Year? _____

Disturbance from Trails (authorized & unauthorized) 3 If Trails are Present, are they Authorized (circle one)? Yes / No / Both / Unknown

Type of Trail Use (Yes/No)? Hiking: Yes Biking: Yes Equestrian: Yes Dog: Yes Service Vehicles: Yes Other (Describe): _____

Illegal Trail Use? Yes No Unknown

Describe: _____ Other Disturbance? List & Rank: _____

Collection? Yes: _____ No: _____ Collector: _____

Collection #: _____ Herbarium: _____ Species Collected: _____

Collection 2, Collector: _____ (enter additional collections on p. 3)

Collection #: _____ Herbarium: _____ Species Collected: _____

Occurrence ID: _____ Species: Pallid Bat & Townsend's big-eared Bat Date: June 10, 2022

VI. MANAGEMENT RECOMMENDATIONS

Create artificial roosts, reduce nonnative plants, and reduce vegetation in pond.

VII. MANAGEMENT ACTIONS IN LAST YEAR

Unknown

VIII. CNDDDB SPECIES DETECTED & NOTES

List any sensitive plant or animal species to add to the CNDDDB:

Red Diamond Rattlesnake

Time Finish: 21:15 _____

Categories of % Individuals in Sample Plot for Phenological Stages (Vegetative, Flowering, Fruiting & Dead) and for Evidence of Herbivory, Disease and Stunted Growth.

- 1 = 0% (not detected)
- 2 = >0% to <10%
- 3 = 10% to <25%
- 4 = 25% to <50%
- 5 = 50% to <75%
- 6 = \geq 75%

% Cover Class Definitions within Sample Plot for Cryptogamic Crust and Thatch.

See page 5 for illustrations of different cover classes.

- 1 = 0% cover (not detected)
- 2 = >0% to <10% cover
- 3 = 10% to <25% cover
- 4 = 25% to <50% cover
- 5 = 50% to <75% cover
- 6 = \geq 75% cover

Feral Pig Activity within Sample Plot:

- 1 = No feral pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pig) detected.
- 2 = Signs of pig activity (rooting, wallowing, vegetation destruction) in sample plot appear months old.
- 3 = Signs of recent pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pig) in adjacent area but not within sample plot.
- 4 = Recent signs of pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pigs) within sample plot.

Ground Squirrel Activity within Sample Plot:

- 1 = No ground squirrel burrows detected.
- 2 = Burrows and/or ground squirrels observed in adjacent area but not within sample plot.
- 3 = Single squirrel or burrow seen within sample plot.
- 4 = Multiple burrows and/or squirrels seen within sample plot.

Botta's Pocket Gopher Activity within Sample Plot:

- 1 = No pocket gopher mounds detected.
- 2 = Mounds or gophers observed in adjacent area but not within sample plot.
- 3 = <10 mounds observed within sample plot.
- 4 = \geq 10 mounds or one or more gophers seen within sample plot.

Disturbance Categories within the Maximum Extent:

- 1 = No sign of disturbance within maximum extent or in adjacent 10 m buffer.
- 2 = Disturbance does not occur within maximum extent but is detected within the surrounding 10 m buffer area.
- 3 = Disturbance present in >0% to <10% of area within maximum extent.
- 4 = Disturbance occurs in 10% to <25% of area within maximum extent.
- 5 = Disturbance occurs in 25% to <50% of area within maximum extent.
- 6 = Disturbance occurs 50% to <75% of area within maximum extent.
- 7 = Disturbance occurs \geq 75% of area within maximum extent.

Cover Diagrams from CNPS

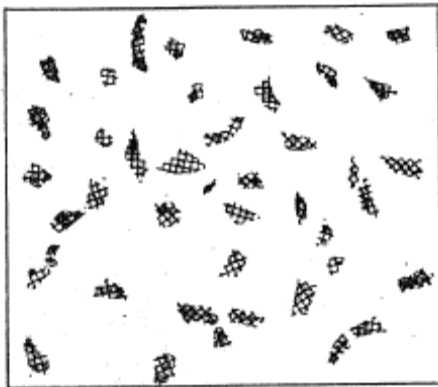
1%



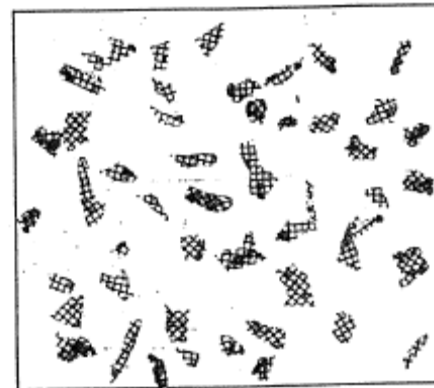
5%



10%



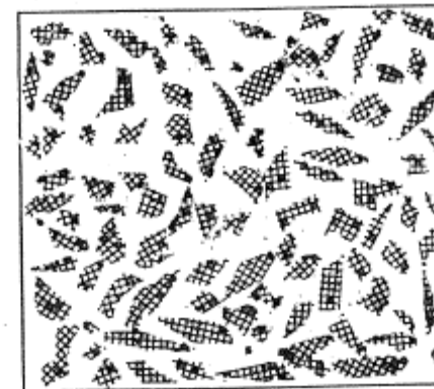
15%



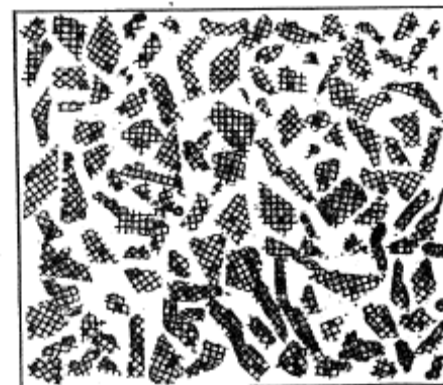
25%



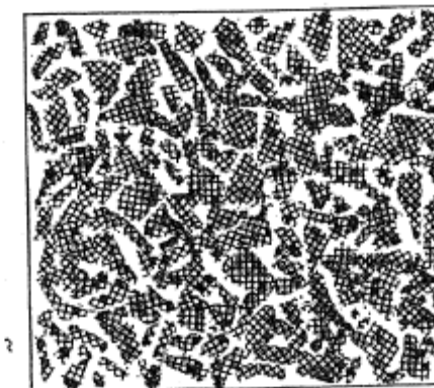
35%



50%



75%



Scientific Name: Pallid Bat & Townsend's big-eared bat

MSP Occurrence ID:

Preserve: Hellhole Canyon

Occurrence Name:

Date: July 7, 2022

Surveyors & Affiliation/Agency: Jaclyn Catino-Davenport (ESA), Pablo Corcoran (ESA)

V. CURRENT MAPPED EXTENT INFORMATION. Count or estimate number of plants in mapped extent. Area can be calculated based on GIS perimeter mapping or visual mapping on aerial photo in the office.

Plants/Current Mapped Extent: _____, Exact Count: _____, Estimate (1000s, 10k): _____, Uncertainty? _____

For both exact counts and estimates, indicate: Counted/estimated individual plants: _____ OR Counted/estimated clusters of plants: _____

For geophytes: are counts of flowering or vegetative individuals? Flowering: _____ Vegetative: _____

Area of Current Mapped Extent: _____ Units: _____ Exact (GPS mapping): _____ Estimate: _____

Perimeter of current extent determined by walking it or estimated by other means (mapped on aerials)? Walked: _____ Other (describe p. 3): _____

Species in Maximum Extent? Yes: _____ No: _____ If not, why _____

VI. THREATS ASSESSMENT IN MAXIMUM EXTENT - Assess threats within the *occurrence's maximum extent* (cumulative extent over years of monitoring) **plus 10-m surrounding buffer**. Record notes on p. 3.

Surrounding Land Use/Activity at or Adjacent to Site: Preserve is surrounded by open space to the north and east and rural developments to the south and west.

Disturbance Classes (rank each threat as 1-7): 1 = no sign of disturbance, 2 = disturbance in 10m surrounding buffer but not within maximum extent, 3 = disturbance occurs in >0 % to <10% of area within maximum extent, 4 = disturbance in 10% to <25% of maximum extent, 5 = disturbance in 25 to <50% of maximum extent, 6 = disturbance occurs within 50 to <75% of maximum extent, and 7 = disturbance occurs within ≥75% of maximum extent.

Non-Native Forbs	<u>3</u>	Feral Pig Activity	<u>1</u>	Erosion	<u>3</u>
Non-Native Grasses	<u>4</u>	Trampling	<u>1</u>	Urban Runoff	<u>1</u>
Non-Native Woody Plants	<u>3</u>	Vandalism	<u>1</u>	Slope Movement	<u>1</u>
Competitive Native Plants	<u>1</u>	Grazing (Y/N/UNK)	<u>Unknown</u>	Soil Compaction	<u>3</u>
Dumping/Trash	<u>3</u>	Historic Agriculture (Y/N/Unk)	<u>Unknown</u>		
Encampments	<u>1</u>	Altered Hydrology	<u>3</u>		

Fuel Modification Zone/Fire Break 1

Road Construction/Maintenance: 3 If Observed, Briefly Describe: _____

Vegetation Clearing: 3 If Observed, Briefly Describe: _____

Restoration Project (Impacts): 1 If Observed, Briefly Describe: _____

ORV Activity 3 If Observed, List Type(s) of ORV Activity: Tracks seen along transect monitoring route.

Evidence of Recent Fire 3 If Sign of Recent Fire: Year Burned? _____ OR Unknown Burn Year? Unknown

Disturbance from Trails (authorized & unauthorized) 3 If Trails are Present, are they Authorized (circle one)? Yes / No / Both / Unknown

Type of Trail Use (Yes/No)? Hiking: Yes Biking: Yes Equestrian: Yes Dog: Yes Service Vehicles: Yes Other (Describe): _____

Illegal Trail Use? Yes No Unknown

Describe: ORV use. Other Disturbance? List & Rank: _____

Collection? Yes: _____ No: _____ Collector: _____

Collection #: _____ Herbarium: _____ Species Collected: _____

Collection 2, Collector: _____ (enter additional collections on p. 3)

Collection #: _____ Herbarium: _____ Species Collected: _____

Occurrence ID: _____ Species: Pallid Bat & Townsend's big-eared bat Date: July 7, 2022

VI. MANAGEMENT RECOMMENDATIONS

Remove nonnative grass, add drinking source to the Preserve, and create artifical roosting structures.

VII. MANAGEMENT ACTIONS IN LAST YEAR

Unknown

VIII. CNDDDB SPECIES DETECTED & NOTES

List any sensitive plant or animal species to add to the CNDDDB:

Peregrine Falcon, Cooper's Hawk, Orange-throated whiptail

Time Finish: 21:17

Categories of % Individuals in Sample Plot for Phenological Stages (Vegetative, Flowering, Fruiting & Dead) and for Evidence of Herbivory, Disease and Stunted Growth.

- 1 = 0% (not detected)
- 2 = >0% to <10%
- 3 = 10% to <25%
- 4 = 25% to <50%
- 5 = 50% to <75%
- 6 = \geq 75%

% Cover Class Definitions within Sample Plot for Cryptogamic Crust and Thatch.

See page 5 for illustrations of different cover classes.

- 1 = 0% cover (not detected)
- 2 = >0% to <10% cover
- 3 = 10% to <25% cover
- 4 = 25% to <50% cover
- 5 = 50% to <75% cover
- 6 = \geq 75% cover

Feral Pig Activity within Sample Plot:

- 1 = No feral pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pig) detected.
- 2 = Signs of pig activity (rooting, wallowing, vegetation destruction) in sample plot appear months old.
- 3 = Signs of recent pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pig) in adjacent area but not within sample plot.
- 4 = Recent signs of pig activity (rooting, wallowing, vegetation destruction, tracks, scat, pigs) within sample plot.

Ground Squirrel Activity within Sample Plot:

- 1 = No ground squirrel burrows detected.
- 2 = Burrows and/or ground squirrels observed in adjacent area but not within sample plot.
- 3 = Single squirrel or burrow seen within sample plot.
- 4 = Multiple burrows and/or squirrels seen within sample plot.

Botta's Pocket Gopher Activity within Sample Plot:

- 1 = No pocket gopher mounds detected.
- 2 = Mounds or gophers observed in adjacent area but not within sample plot.
- 3 = <10 mounds observed within sample plot.
- 4 = \geq 10 mounds or one or more gophers seen within sample plot.

Disturbance Categories within the Maximum Extent:

- 1 = No sign of disturbance within maximum extent or in adjacent 10 m buffer.
- 2 = Disturbance does not occur within maximum extent but is detected within the surrounding 10 m buffer area.
- 3 = Disturbance present in >0% to <10% of area within maximum extent.
- 4 = Disturbance occurs in 10% to <25% of area within maximum extent.
- 5 = Disturbance occurs in 25% to <50% of area within maximum extent.
- 6 = Disturbance occurs 50% to <75% of area within maximum extent.
- 7 = Disturbance occurs \geq 75% of area within maximum extent.

Cover Diagrams from CNPS

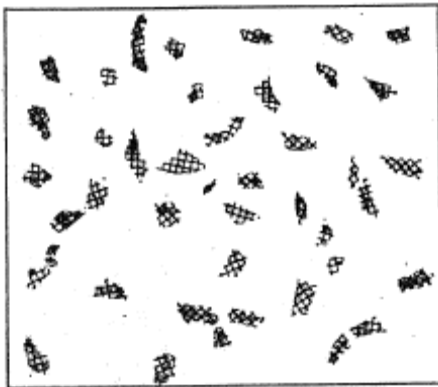
1%



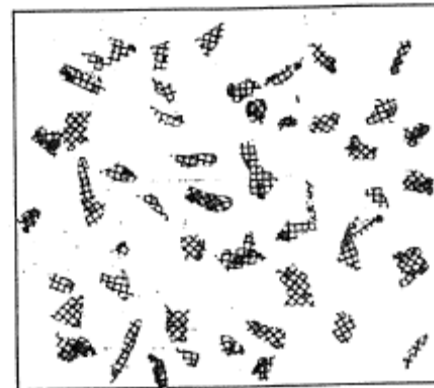
5%



10%



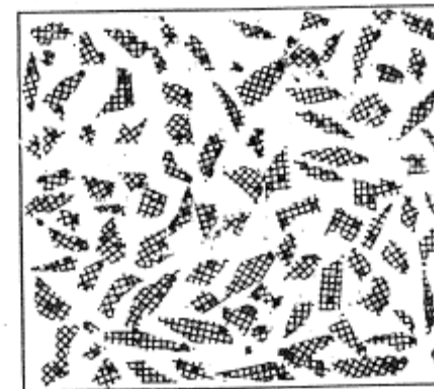
15%



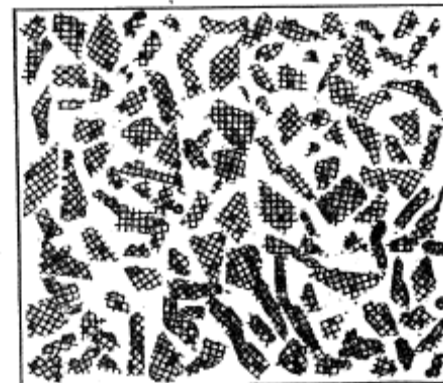
25%



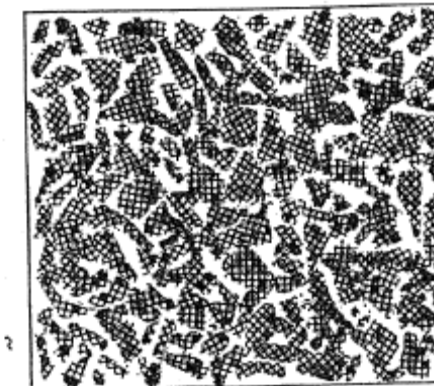
35%



50%



75%



Appendix M
**Peak Forage Production and
Residual Dry Matter Monitoring
Reports**



M-1 Peak Forage Production Monitoring Report



550 West C Street
Suite 750
San Diego, CA 92101
619.719.4200 phone
619.719.4201 fax

www.esassoc.com

June 14, 2022

Jennifer Price
County of San Diego
Department of Parks and Recreation
5500 Overland Avenue, Suite 410
San Diego, CA 92123

Subject: Ramona Grasslands County Preserve Peak Forage Production Monitoring

Dear Ms. Price:

At the request of the County of San Diego Department of Parks and Recreation (DPR), Environmental Science Associates (ESA) monitored peak forage production in April 2022 at 58 predetermined vegetation monitoring plots (monitoring plots) within the Ramona Grasslands County Preserve (Preserve). The Preserve is in the Santa Maria Valley, southwest of the unincorporated township of Ramona and northeast of the city of Poway in central San Diego County (**Figure 1**).

DPR's livestock grazing program includes goals for improving and maintaining biodiversity, reducing wildfire hazards, and maintaining soil health. Grazing on the Preserve is managed under the *Ramona Grasslands, Santa Ysabel, and Boulder Oaks Preserves Grazing Management Plan* (Grazing Management Plan) (ESA 2019). The Grazing Management Plan designates grazing management units within the Preserve and monitors the effects of cattle grazing on the land to support the following management goals and objectives:

- Goal 1: Maintain and improve biodiversity:
 - Objective 1.1. Reduce abundance of non-native annual grasses.
 - Objective 1.2. Maintain and improve habitat for raptors.
 - Objective 1.4. Maintain and improve habitat for arroyo toad (*Anaxyrus californicus*).
 - Objective 1.5. Maintain and improve habitat for Stephens' kangaroo rat (SKR; *Dipodomys stephensi*).
- Goal 2: Reduce wildfire hazard:
 - Objective 2.1. Reduce thatch buildup and continuity of fine fuels.
 - Objective 2.2. Reduce the abundance of non-native annual grasses.
- Goal 3: Maintain soil health:
 - Objective 3.1. Maintain minimum RDM standards to protect soil structure.

The Grazing Management Plan includes performance standards and a monitoring plan to monitor the effectiveness of management prescriptions in achieving the Plan's goals and objectives. Annual peak forage production monitoring measures annual forage production. It allows for detection of year-to-year fluctuations in forage production. The grazing lessee submits an annual report to DPR. The annual reports include livestock type,

class, numbers, and dates of use of each management unit used by the grazing lessee’s livestock. This data is field verified by DPR staff and is integrated with observations made from monitoring to help assess the extent to which grazing management may be related to changing conditions being observed. DPR uses peak forage production and residual dry matter (RDM) monitoring to determine whether stocking rate adjustments are necessary to meet RDM targets and the associated goals and objectives.

Peak forage production is determined by measuring the biomass (e.g., grass) in the rangeland at the end of rapid spring growth. Measuring peak forage production assesses the amount of forage available for grazing and informs stocking rates. California’s annual rangelands characteristically have large year-to-year fluctuations in forage production (UCANR 2016). Forage production is influenced by temperature and rainfall. The temperature and the amount of soil moisture available during the winter/spring growing season determine how much forage will be produced. Rapid spring growth occurs when weather begins warming in late winter or early spring and continues for a short time until soil moisture is exhausted. Peak forage production occurs at the end of rapid spring growth, when soil moisture levels limit vegetative growth and plants mature and set seed. At this point, the forage is at its peak and monitoring is conducted to determine annual forage production.

Samples were collected and peak production was measured following the University of California Agriculture and Natural Resources’ (UCANR’s) *Rangeland Management Series Annual Range Forage Production* recommendations (UCANR 2016) and *Guidelines for Residual Dry Matter Management on Coastal and Foothill Rangelands in California* (Bartolome et al. 2002). Peak forage production was monitored at 58 monitoring plots within management units 1A, 2A, 2B, 3A, 3B, 3C, 3D, 3E, 4A, and 4B. This year, 2022, was the first time peak forage production was monitored.

As of April 2022, the original grazing lessee, Tellam and Tellam Cattle, no longer has a grazing lease with DPR. A grazing report from January 2021 through July 2021 was submitted to DPR. The cattle remained on the Preserve through April 2022; however, they were no longer actively managed. The monthly AUM (animal unit months) reports from the grazing report are provided in **Table 1**. The livestock grazing program at the Preserve will be reinstated once a new grazing lessee is selected through a County Request for Proposals solicitation.

TABLE 1
SUMMARY OF MONTHLY AUM REPORTS¹

Management Unit	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021
1A	0	0	0	0	0	0	0
2A	75	75	75	75, 68, 0 ³	68	0	71
2B	75	75	75	75, 68, 0 ³	68	68	71
3A	0	0	0	0	0	0	0
3B	34	34	34, 0 ²	0, 26 ⁴	24, 0 ⁵	0	9
3C	0	0	0	0	0	0	0
3D	0	0	0	0	0	0	0

Management Unit	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021
3E	0	0	0	0	0	0	0
4A	0	0	2 bulls	2 bulls	2 bulls, 1 bull ⁶	1 bull	1 bull
4B	0	0	2 bulls	2 bulls	2 bulls, 1 bull ⁶	1 bull	1 bull
4C	Not grazed	Not grazed	Not grazed	Not grazed	Not grazed	Not grazed	Not grazed
5	Not grazed	Not grazed	Not grazed	Not grazed	Not grazed	Not grazed	Not grazed

NOTES:

- ¹ AUM = animal unit months
- ² 34 AUMs from 3/1/21–3/6/21 and 0 AUMs from 3/7/21–3/31/21.
- ³ 75 AUMs from 4/1/21–4/11/21; 68 AUMs from 4/12/21–4/23/21, and 0 AUMs from 4/24/21–4/30/21.
- ⁴ 0 AUMs from 4/1/21–4/23/21 and 26 AUMs from 4/24/21–4/30/21.
- ⁵ 24 AUMs from 5/1/21–5/7/21 and 0 AUMs from 5/8/21–5/31/21.
- ⁶ 2 bulls from 5/1/21–5/10/21 and 1 bull from 5/11/21–5/31/21.

SOURCE: Tellam and Tellam Cattle 2021.

Methods

Peak forage production was monitored at 58 monitoring plots within management units 1A, 2A, 2B, 3A, 3B, 3C, 3D, 3E, 4A, and 4B (**Figure 2**). Sampling was conducted on April 5 and 8, 2022, by ESA biologists Adrienne Lee, Sonya Vargas, Brenda McMillan, Rachel Le, and Carly Keen. A sampling hoop with a 13.25-inch interior diameter (hoop area is 0.96 square feet) was tossed randomly and sampled three times within each monitoring plot. All aboveground biomass, including vegetation and thatch, were collected (samples) within the hoop using gardening shears or by gathering manually. These samples were stored in paper bags. Samples did not include tree leaves (e.g., oaks [*Quercus* spp.]), as referenced in the RDM methodology (Bartolome et al. 2002). Woody shrubs (e.g., scrub oak [*Quercus berberidifolia*, *xacutidens*]), perennial species, and summer annuals were also excluded from collection. Dominant plant species observed within and in the vicinity of the monitoring plots were recorded, as were special-status species or invasive non-native species incidentally observed while traveling to and from monitoring plots.

ESA biologists processed the samples in the ESA office located at 550 West C Street, Suite 750, San Diego, California 92101. All samples were air-dried and weighed in grams using a digital scale. ESA biologists excluded the weight of the paper bags. The weights of the three samples from each monitoring plot were averaged and then converted to pounds per acre (lb/acre) by a multiplication of 100 (Bartolome et al. 2002). The average lb/acre for each management unit was calculated by averaging all monitoring plots within a management unit. The averaged value is the peak forage production for the management unit for the year.

The National Oceanic and Atmospheric Administration monitors annual precipitation levels at climate stations across California. Precipitation values are reported by water year (October–September). ESA documented the current water year precipitation data from the Ramona climate station. This allows for year-to-year fluctuations in forage production influenced by rainfall to be documented.

Results

Table 2 displays the plant species observed within or adjacent to the monitoring plots in spring 2022 in order of observed abundance. Plant species included in the sample are indicated as *collected*. Trees, woody shrubs, perennials, and summer annuals were not collected per the sampling protocol and are indicated as *not collected*.

TABLE 2
PLANT SPECIES OBSERVED WITHIN AND ADJACENT TO MONITORING PLOTS

Common Name	Scientific Name	Collected	Not Collected ¹
slender oat*	<i>Avena barbata</i>	✓	
foxtail barley*	<i>Hordeum murinum</i>	✓	
foothill filaree*	<i>Erodium brachycarpum</i>	✓	
ripgut brome*	<i>Bromus diandrus</i>	✓	
compact brome*	<i>Bromus madritensis</i>	✓	
redstem filaree*	<i>Erodium cicutarium</i>	✓	
soft chess brome*	<i>Bromus hordeaceus</i>	✓	
longbeak filaree*	<i>Erodium botrys</i>	✓	
short-pod mustard*	<i>Hirschfeldia incana</i>		✓
western ragweed	<i>Ambrosia psilostachya</i>		✓
rattail fescue*	<i>Festuca myuros</i>	✓	
saltgrass	<i>Distichlis spicata</i>		✓
black mustard*	<i>Brassica nigra</i>		✓
California buckwheat	<i>Eriogonum fasciculatum</i>		✓
whitestem filaree*	<i>Erodium moschatum</i>	✓	
Menzies' goldenbush	<i>Isocoma menziesii</i>		✓
coast live oak	<i>Quercus agrifolia</i>		✓
Russian thistle*	<i>Salsola tragus</i>		✓
spring vetch*	<i>Vicia sativa</i>	✓	
chamise	<i>Adenostema fasciculatum</i>		✓
California sagebrush	<i>Artemisia californica</i>		✓
common sandaster	<i>Corethrogyne filanginifolia</i>		✓
scrub oak	<i>Quercus berberidifolia, xacutidens</i>		✓
Menzies' fiddleneck	<i>Amsinckia menziesii</i>	✓	
wild oat*	<i>Avena fatua</i>	✓	
mule fat	<i>Baccharis salicifolia</i>		✓
red brome*	<i>Bromus rubens</i>	✓	
strigose sun cup	<i>Camissonia strigulosa</i>	✓	
lamb's quarters*	<i>Chenopodium album</i>		✓
bush rue	<i>Cneoridium dumosum</i>		✓

Common Name	Scientific Name	Collected	Not Collected ¹
popcorn flower	<i>Cryptantha</i> spp.	✓	
Bermuda grass*	<i>Cynodon dactylon</i>	✓	
fascicled tarweed	<i>Deinandra fasciculata</i>		✓
blue dicks	<i>Dipterostemon capitatus</i>		✓
smooth cat's ear	<i>Hypochaeris glabra</i>	✓	
Mexican rush	<i>Juncus mexicanus</i>		✓
goldentop grass*	<i>Lamarckia aurea</i>	✓	
narrowleaf cottonrose*	<i>Logfia gallica</i>	✓	
miniature lupine	<i>Lupinus bicolor</i>	✓	
laurel sumac	<i>Malosma laurina</i>		✓
chilicothe	<i>Marah macrocarpa</i>		✓
bur clover*	<i>Medicago polymorpha</i>	✓	
common muilla	<i>Muilla maritima</i>		✓
wild radish*	<i>Raphanus sativus</i>		✓
California groundsel	<i>Senecio californicus</i>	✓	
London rocket*	<i>Sisymbrium irio</i>	✓	
stinging nettle	<i>Urtica dioica</i>		✓
hairy vetch*	<i>Vicia villosa</i>	✓	

NOTES:

* Non-native plant species.

¹ Trees, woody shrubs, perennials, and summer annuals were not collected per the sampling protocol (Bartolome et al. 2002).

Invasive Non-Native Plant Incidental Observations

Non-native plant species such as slender oat, wild oat, black mustard, rippgut brome, soft chess brome, compact brome, red brome, lamb's quarters, Bermuda grass, longbeak filaree, foothill filaree, redstem filaree, whitestem filaree, rattail fescue, shortpod mustard, foxtail barley, smooth cat's ear, narrowleaf cottonrose, bur clover, wild radish, Russian thistle, London rocket, spring vetch, and hairy vetch were observed during monitoring. No high-priority invasive non-native plants were observed. These incidental observations are not representative of comprehensive invasive non-native plant mapping.

Special-Status Species Incidental Observations

A southern mule deer (*Odocoileus hemionus fuliginatus*), which is a Multiple Species Conservation Program–covered species, was observed within management unit 4B during spring 2022 peak forage production monitoring (Figure 3).



Annual Precipitation

The current annual precipitation recorded for water year 2022 is 9.49 inches at the Ramona climate station (NOAA 2022). This is the value for October 1, 2021 through June 12, 2022. Normal precipitation from October 1 through June 12 is 14.34 inches. The precipitation is tracking at 66% of normal. For the full water year (October 1 through September 30), normal precipitation is 14.65 inches.

Peak Forage Production Values

The average lb/acre of peak forage for a given management unit is presented in **Table 3** and in Figure 3. The results of the average peak forage production values from each monitoring plot in 2022 can be found in **Appendix A**.

**TABLE 3
 SUMMARY OF MANAGED RESOURCES AND PEAK FORAGE PRODUCTION MONITORING RESULTS**

Management Unit	Managed Resources	Average Peak Forage Production (lb/acre)
		2022
1A	Riparian pastures and arroyo toad habitat	5,522
2A	SKR habitat	3,119
2B	SKR habitat	2,171
3A	SKR habitat	3,453
3B	Species diversity, fire hazard reduction, and soil conservation	3,767
3C	Vernal pool habitat	3,389
3D	Vernal pool habitat	2,722
3E	Not grazed	4,458
4A	Species diversity, fire hazard reduction, and soil conservation	1,389
4B	Species diversity, fire hazard reduction, and soil conservation	1,144
4C	Not grazed	N/A
5	Not grazed	N/A

NOTES:

lb/acre = pounds per acre

N/A = not applicable, no monitoring plots established for these management units

SKR = Stephens' kangaroo rat

These results are an average of the peak production values of all monitoring plots per management unit from 2022.

Ms. Price:
June 14, 2022
Page 7

Conclusions

Peak forage and RDM monitoring allow for identification of forage gaps, fine-tuning of grazing plans, and development of contingency plans for drought. These two monitoring points allow for adjustment of stocking rates for each management unit based on (1) amount of forage available, (2) whether RDM targets were met, and (3) annual weather conditions (e.g., drought). For example, if forage availability dictates a certain stocking rate, but RDM is above target levels at the end of the season, the stocking rate may be increased with the same forage availability. Year-to-year weather variability must also be considered— forage production and composition will vary depending on rainfall and temperature.

This is the first time peak production monitoring was conducted at the Preserve. Over time, DPR will use monitoring results to detect year-to-year fluctuations in forage production. Peak production targets are not established for the Preserve or per management unit; rather peak production monitoring results inform stocking rates. The following decision-making parameters will be considered:

- Identify the amount of peak forage available in the spring.
- Determine stocking rate peak forage supports; adjust stocking rate as appropriate.
- Measure RDM in the fall.
- Determine if the stocking rate was appropriate to achieve RDM targets by management unit.
- Adjust stocking rate assumptions related to peak forage availability and ability to achieve RDM targets; placement of livestock attractions (e.g., molasses, water) may also be considered.

Together with RDM monitoring and grazing reports, DPR will use the results to determine whether stocking rate adjustments are necessary to meet RDM targets and the associated goals and objectives. Adjustments to stocking rates should be made in collaboration with the grazing lessee.

If you have questions, please feel free to contact me at (619) 719-4222 or alee@esassoc.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'A. Lee', written in a cursive style.

Adrienne Lee
Senior Biologist

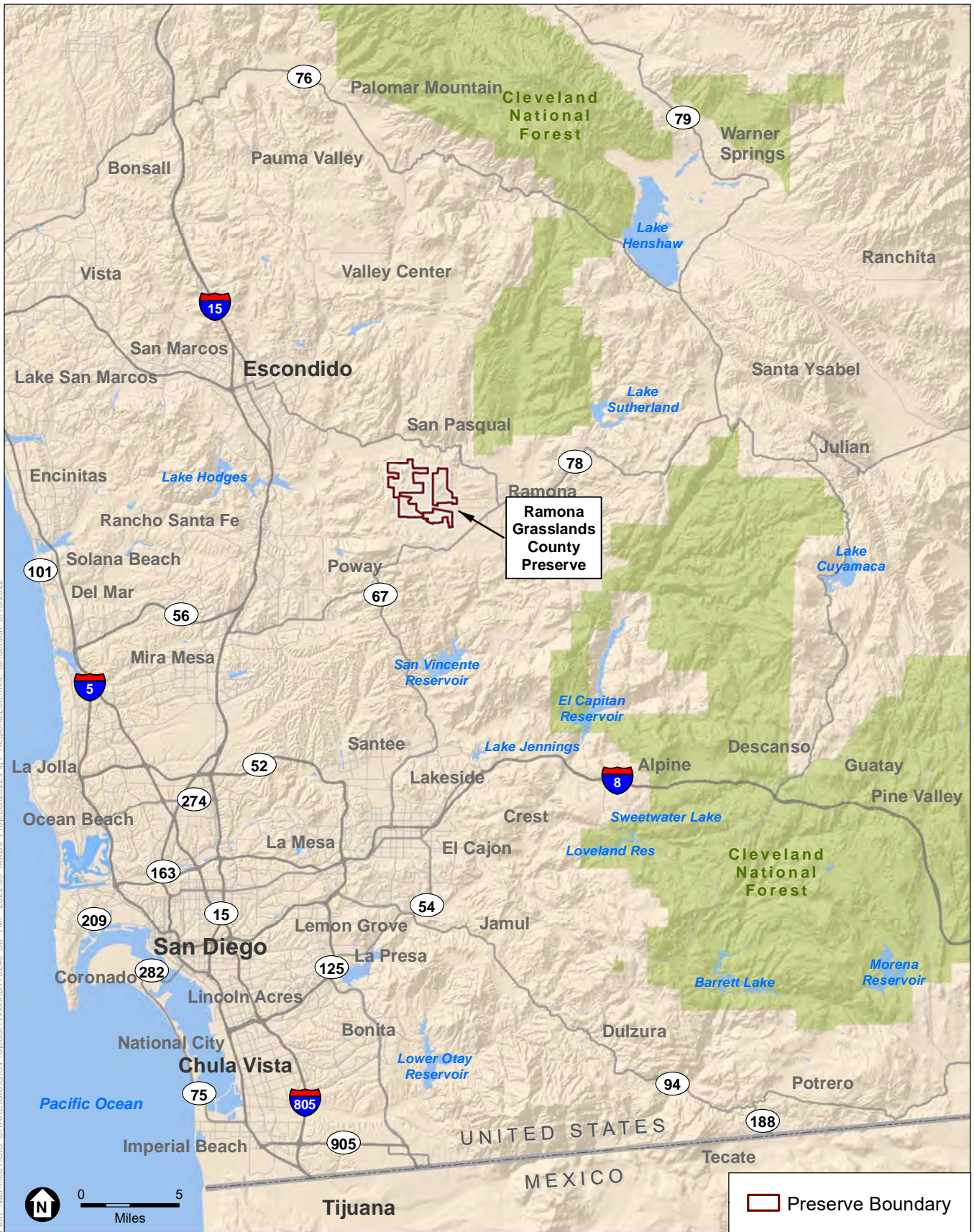
Attachments: Figure 1 – Preserve Location
Figure 2 – Monitoring Plot Locations
Figure 3 – Peak Forage Production Monitoring Results
Appendix A – Results of 2022 Peak Forage Production Monitoring at the Preserve



Ms. Price:
June 14, 2022
Page 8

References

- Bartolome, J. W., W. E. Frost, N. K. McDougald, and M. Conner. 2002. Guidelines for Residual Dry Matter Management on Coastal and Foothill Rangelands in California. *Rangeland Management* 8092: 1–7.
- Environmental Science Associates (ESA). 2019. *Ramona Grasslands, Santa Ysabel, and Boulder Oaks Preserves Grazing Management Plan*. Prepared for the County of San Diego Department of Parks and Recreation.
- National Oceanic and Atmospheric Administration (NOAA). 2022. California Nevada River Forecast Center Hydrology-meteorology Data Report.
https://www.wrh.noaa.gov/cnrfc/rsa_getprod.php?prod=RNORR4RSA&wfo=cnrfc&version=0.
- Tellam and Tellam Cattle. 2021. Ramona Grasslands Grazing Report.
- University of California Agriculture and Natural Resources (UCANR). 2016. *Rangeland Management Series Annual Range Forage Production*. ANR Publication 8018. January 2016.

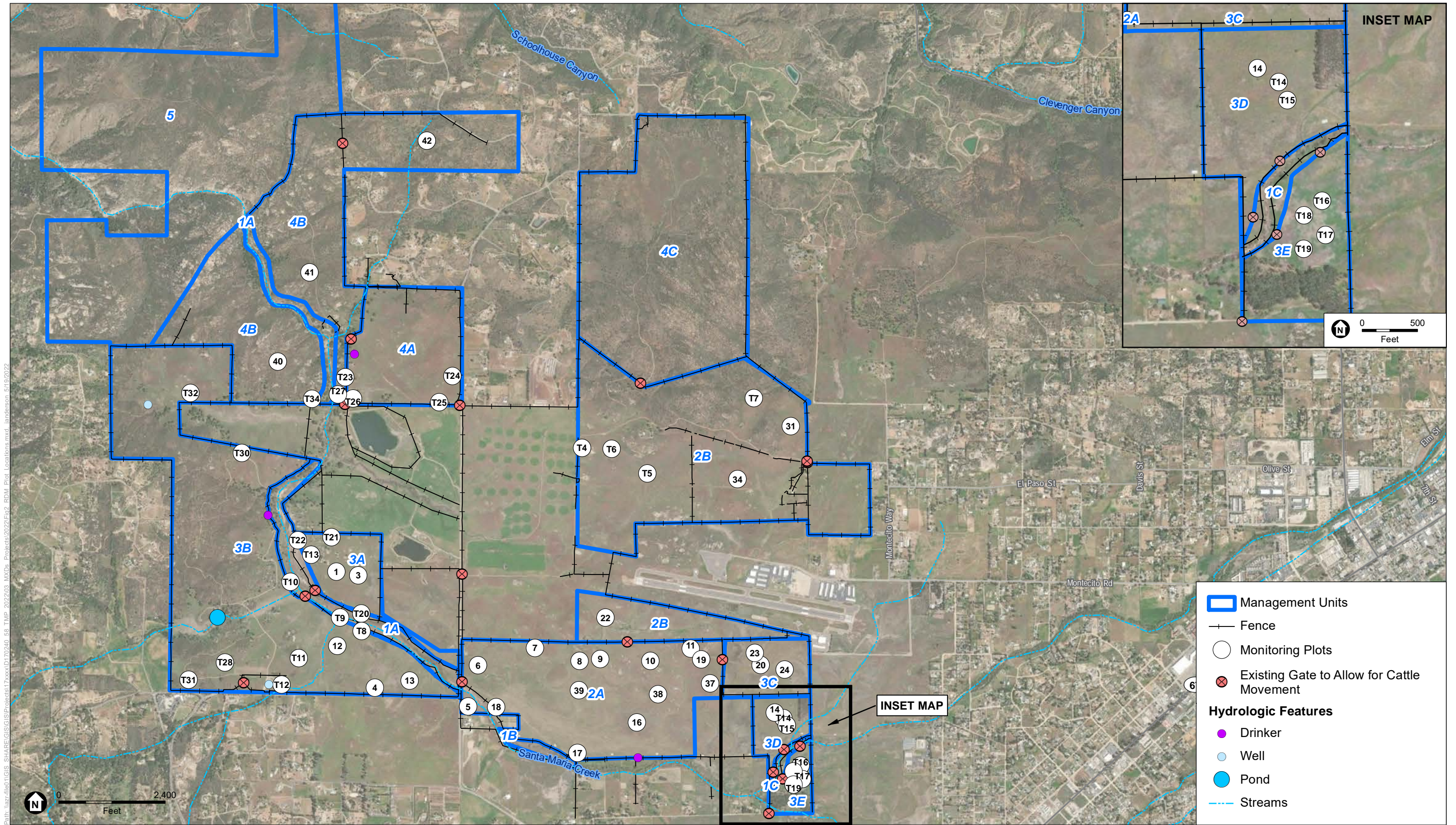


SOURCE: ESRI

COSD DPR 557744 TO 58 – Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
2022 Ramona Grasslands County Preserve Peak Forage Production Report



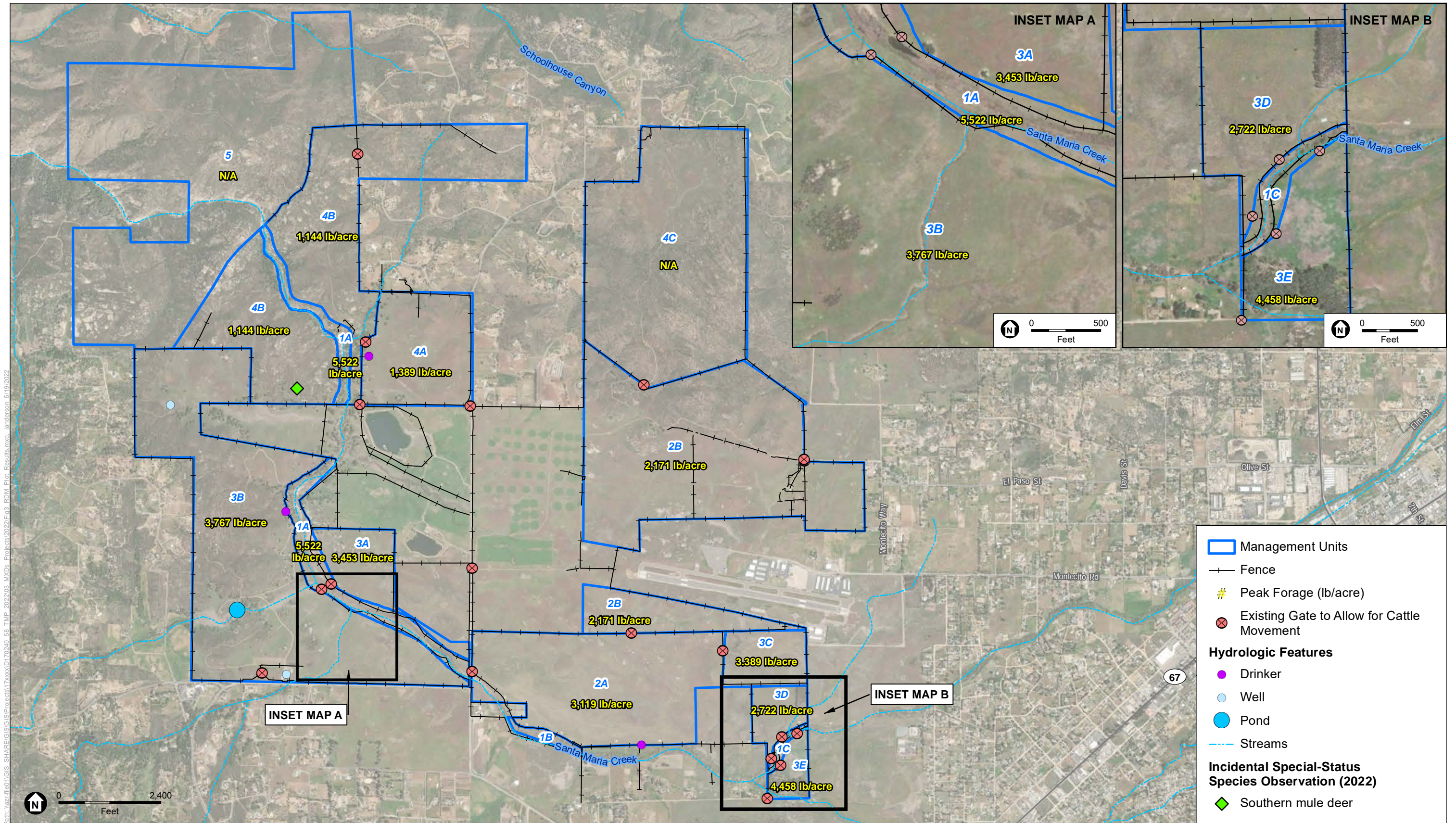
Figure 1
Preserve Location



SOURCE: ESRI, AECOM 2017; ESA 2021

COSD DPR 557744 TO 58 – Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
2022 Ramona Grasslands County Preserve Peak Forage Production Report

Figure 2
Monitoring Plot Locations



SOURCE: ESRI, AECOM 2017; ESA 2021

COSD DPR 557744 TO 58 – Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring
2022 Ramona Grasslands County Preserve Peak Forage Production Report



Figure 3
Peak Forage Production Results

Appendix A
**Results of 2022
Peak Forage Production
Monitoring at the Preserve**

APPENDIX A
RESULTS OF 2022 PEAK FORAGE PRODUCTION MONITORING AT THE PRESERVE

Management Unit	Plot #	Date Collected	Monitoring Plot Average (grams) 2022	Pounds per Acre 2022
1A	T9	4/8/2022	55.3	5533
1A	T10	4/8/2022	76.3	7633
1A	T20	4/8/2022	34.0	3400
2A	5	4/8/2022	24.0	2400
2A	6	4/8/2022	23.7	2367
2A	7	4/8/2022	22.0	2200
2A	8	4/8/2022	20.7	2067
2A	9	4/8/2022	32.7	3267
2A	10	4/8/2022	25.7	2567
2A	11	4/8/2022	19.7	1967
2A	16	4/8/2022	37.3	3733
2A	17	4/8/2022	84.7	8467
2A	18	4/8/2022	54.7	5467
2A	19	4/8/2022	20.7	2067
2A	37	4/8/2022	20.7	2067
2A	38	4/8/2022	33.0	3300
2A	39	4/8/2022	17.3	1733
2B	22	4/8/2022	21.3	2133
2B	31	4/5/2022	11.3	1133
2B	34	4/5/2022	23.3	2333
2B	T4	4/5/2022	20.7	2067
2B	T5	4/5/2022	43.7	4367
2B	T6	4/5/2022	12.7	1267
2B	T7	4/5/2022	19.0	1900
3A	1	4/8/2022	39.3	3933
3A	3	4/8/2022	20.7	2067
3A	T13	4/8/2022	33.0	3300
3A	T21	4/8/2022	22.3	2233
3A	T22	4/8/2022	57.3	5733
3B	4	4/8/2022	22.7	2267
3B	12	4/8/2022	97.0	9700
3B	13	4/8/2022	41.0	4100
3B	T8	4/8/2022	30.3	3033
3B	T11	4/8/2022	67.7	6767
3B	T12	4/8/2022	18.7	1867
3B	T28	4/8/2022	24.3	2433
3B	T30	4/8/2022	17.3	1733

Management Unit	Plot #	Date Collected	Monitoring Plot Average (grams) 2022	Pounds per Acre 2022
3B	T31	4/8/2022	5.0	500
3B	T32	4/8/2022	52.7	5267
3C	20	4/8/2022	34.3	3433
3C	23	4/8/2022	20.7	2067
3C	24	4/8/2022	46.7	4667
3D	14	4/5/2022	30.7	3067
3D	T14	4/5/2022	22.3	2233
3D	T15	4/5/2022	28.7	2867
3E	T16	4/5/2022	99.0	9900
3E	T17	4/5/2022	2.3	233
3E	T18	4/5/2022	52.7	5267
3E	T19	4/5/2022	24.3	2433
4A	T24	4/5/2022	13.0	1300
4A	T25	4/5/2022	22.0	2200
4A	T26	4/5/2022	6.7	667
4B	T23	4/5/2022	16.0	1600
4B	T27	4/5/2022	14.0	1400
4B	T34	4/5/2022	12.0	1200
4B	40	N/A	N/A	N/A
4B	41	N/A	N/A	N/A
4B	42	N/A	N/A	N/A

M-2 Residual Dry Matter Monitoring Report



550 West C Street
Suite 750
San Diego, CA 92101
619.719.4200 phone
619.719.4201 fax

www.esassoc.com

December 23, 2022

Jennifer Price
County of San Diego
Department of Parks and Recreation
5500 Overland Avenue, Suite 410
San Diego, CA 92123

Subject: Residual Dry Matter Monitoring for the Ramona Grasslands County Preserve, September 2022

Dear Ms. Price:

At the request of the County of San Diego (County) Department of Parks and Recreation (DPR), Environmental Science Associates (ESA) performed residual dry matter (RDM) monitoring in September 2022 at 58 predetermined vegetation monitoring plots within the Ramona Grasslands County Preserve (Preserve). The Preserve is located in the Santa Maria Valley, southwest of the unincorporated township of Ramona and northeast of the city of Poway in central San Diego County (**Figure 1**).

RDM values for each monitoring plot within management units 1A, 2A, 2B, 3A, 3B, 3C, 3D, 3E, 4A, and 4B were collected following the University of California Division of Agriculture and Natural Resources' *Guidelines for Residual Dry Matter Management on Coastal and Foothill Rangelands in California* recommendations (Bartolome et al. 2002). RDM is determined by measuring the biomass (i.e., the amount of residual plant matter) in the rangeland at the end of fall. RDM acts as soil protection from the compacting and erosive effects of rains and can help conserve initial rainfall soil moisture to facilitate germination of the next season's annual plants. Annual RDM monitoring is a method used to quantify the impact of cattle grazing on grasslands from year to year, to determine if natural community or species-specific RDM targets are achieved, and to provide land managers with information that allows them to make grazing management adjustments to maintain a sustainable rangeland.

DPR's livestock grazing program includes goals for improving and maintaining biodiversity, reducing wildfire hazards, and maintaining soil health. Grazing on the Preserve is managed under the *Ramona Grasslands, Santa Ysabel, and Boulder Oaks Preserves Grazing Management Plan* (Grazing Management Plan) (ESA 2019). The Grazing Management Plan designates grazing management units within the Preserve and monitors the effects of cattle grazing on the land to support the following management goals and objectives:

- Goal 1: Maintain and improve biodiversity:
 - Objective 1.1. Reduce abundance of non-native annual grasses.
 - Objective 1.2. Maintain and improve habitat for raptors.
 - Objective 1.4. Maintain and improve habitat for arroyo toad (*Anaxyrus californicus*).
 - Objective 1.5. Maintain and improve habitat for Stephens' kangaroo rat (SKR; *Dipodomys stephensi*).



Ms. Price:
 December 23, 2022
 Page 2

- Goal 2: Reduce wildfire hazard:
 - Objective 2.1. Reduce thatch buildup and continuity of fine fuels.
 - Objective 2.2. Reduce the abundance of non-native annual grasses.
- Goal 3: Maintain soil health:
 - Objective 3.1. Maintain minimum RDM standards to protect soil structure.

As of April 2022, the original grazing lessee, Tellam and Tellam Cattle, no longer had a grazing lease with DPR. The cattle remained on the Preserve through April 2022; however, they were no longer actively managed. A grazing report from January 2021 through July 2021 was submitted to DPR. The cattle remained on the Preserve through April 2022; however, they were no longer actively managed. The monthly AUM (animal unit months) reports from the grazing report are provided in **Table 1**. The livestock grazing program at the Preserve will be reinstated once a new grazing lessee is selected through a County Request for Proposals solicitation.

TABLE 1
SUMMARY OF MONTHLY AUM REPORTS¹

Management Unit	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021
1A	0	0	0	0	0	0	0
2A	75	75	75	75, 68, 0 ³	68	0	71
2B	75	75	75	75, 68, 0 ³	68	68	71
3A	0	0	0	0	0	0	0
3B	34	34	34, 0 ²	0, 26 ⁴	24, 0 ⁵	0	9
3C	0	0	0	0	0	0	0
3D	0	0	0	0	0	0	0
3E	0	0	0	0	0	0	0
4A	0	0	2 bulls	2 bulls	2 bulls, 1 bull ⁶	1 bull	1 bull
4B	0	0	2 bulls	2 bulls	2 bulls, 1 bull ⁶	1 bull	1 bull
4C	Not grazed	Not grazed	Not grazed	Not grazed	Not grazed	Not grazed	Not grazed
5	Not grazed	Not grazed	Not grazed	Not grazed	Not grazed	Not grazed	Not grazed

NOTES:

- ¹ AUM = animal unit months
- ² 34 AUMs from 3/1/21–3/6/21 and 0 AUMs from 3/7/21–3/31/21.
- ³ 75 AUMs from 4/1/21–4/11/21; 68 AUMs from 4/12/21–4/23/21, and 0 AUMs from 4/24/21–4/30/21.
- ⁴ 0 AUMs from 4/1/21–4/23/21 and 26 AUMs from 4/24/21–4/30/21.
- ⁵ 24 AUMs from 5/1/21–5/7/21 and 0 AUMs from 5/8/21–5/31/21.
- ⁶ 2 bulls from 5/1/21–5/10/21 and 1 bull from 5/11/21–5/31/21.

SOURCE: Tellam and Tellam Cattle 2021.

Methods

RDM monitoring for all 58 vegetation monitoring plots was conducted on September 13, 2022, by ESA biologists Adrienne Lee, Amanda French, Brittany Poloni, Jaclyn Catino-Davenport, Jack Quinzon, and Sonya Vargas (**Figure 2**).

A sampling hoop with a 13.25-inch interior diameter (hoop area is 0.96 square feet) was tossed randomly and sampled three times within each of the designated monitoring plots. Biomass (i.e., RDM) samples were obtained by collecting all aboveground biomass, including vegetation and thatch, from within the hoop using gardening shears or by gathering manually; samples were subsequently stored in paper bags. Biomass collections did not include tree leaves (e.g., oaks [*Quercus* spp.]) or summer annuals such as doveweed (*Croton setiger*) and tarplant (*Centromadia* spp., *Holocarpha* spp.), as referenced in the RDM methodology (Bartolome et al. 2002). Additionally, woody shrubs (e.g., scrub oak [*Quercus berberidifolia*, *xacutidens*]) were not collected. Native species seen in the vicinity of the RDM plots were also recorded at the time of sampling, as well as any incidental observations of special-status species or invasive non-native species encountered while traveling to each RDM plot.

ESA biologists processed the RDM samples in the ESA office located at 550 West C Street, Suite 750, San Diego, CA, 92101. All samples were air-dried and weighed in grams using a digital scale. Biologists excluded the weight of the paper bags. The weights of the three biomass samples from each of the vegetation monitoring plots were averaged and then converted to pounds per acre (lb/acre) by a multiplication of 100 (Bartolome et al. 2002). The average lb/acre for each management unit was then calculated by averaging all RDM plots within a management unit.

The average lb/acre for a given management unit was compared to the target RDM values established for each management unit (**Table 2**). Target RDM values for each management unit are based on the management prescriptions detailed in the Grazing Management Plan (ESA 2019). Management prescriptions were based on creating optimal conditions to achieve the management goals and objectives, including those for sensitive biological resources, for each management unit. Target sensitive species and habitats for the Preserve include arroyo toad, SKR, raptor habitat, and vernal pools (ESA 2019).

TABLE 2
SUMMARY MANAGEMENT TARGETS AND TARGET GRAZING INTENSITIES PER MANAGEMENT UNIT

Unit	Management Targets	Target Grazing Intensities (RDM Values ¹)
1A	Riparian pasture, Arroyo toad	800 to 2,000 lb/acre
2A, 2B, 3A	SKR	400 to 800 lb/acre
3B, 4A, 4B	Flexible use	800 to 1,500 lb/acre
3C, 3D	Vernal pool	800 to 1,500 lb/acre
3E	Restoration ²	800 to 1,500 lb/acre
4C	Not proposed for managed grazing due to vegetation community	N/A
5	Not proposed for grazing due to topography	N/A

NOTES: lb/acre = pounds per acre; RDM = residual dry matter; SKR = Stephens' kangaroo rat; Flexible use = managed for species diversity, fire hazard reduction, and soil conservation; N/A = not applicable

¹ Target grazing intensities (RDM Values) based on Ramona Grasslands, Santa Ysabel, and Boulder Oaks Preserves Grazing Management Plan (ESA 2019).

² After recommended restoration (ESA 2019) is completed, this pasture should have a target RDM value of 800 lb/acre.

Results

The following plant species were observed to be the most common within or adjacent to the monitoring plots in 2022: western ragweed (*Ambrosia psilostachya*), wild oat (*Avena* spp.), brome grass (*Bromus* spp.), saltgrass (*Distichlis spicata*), filaree (*Erodium* spp.), short-pod mustard (*Hirschfeldia incana*), and coast goldenbush (*Isocoma menziesii*). Wild oat, brome grass, saltgrass, and filaree were collected during RDM sampling, while western ragweed, short-pod mustard, and coast goldenbush were not collected, per the protocol (Bartolome et al. 2002).

The following plants were observed but seen less commonly within or near the monitoring plots: chamise (*Adenostema fasciculatum*), fiddleneck (*Amsinckia* sp.), yerba mansa (*Anemopsis californica*), California sagebrush (*Artemisia californica*), mule fat (*Baccharis salicifolia*), tocalote (*Centaurea melitensis*), bush rue (*Cneoridium dumosum*), common sandaster (*Corethrogyne filanginifolia*), doveweed, dodder (*Cuscuta* sp.), Bermuda grass (*Cynodon dactylon*), Jimsonweed (*Datura wrightii*), clustered tarweed (*Deinandra fasciculata*), California buckwheat (*Eriogonum fasciculatum*), salt heliotrope (*Heliotropium curassavicum*), barley (*Hordeum* spp.), prickly lettuce (*Lactuca serriola*), narrowleaf cottonrose (*Logfia gallica*), Parish's bush mallow (*Malacothamnus parishii*), laurel sumac (*Malosma laurina*), dotseed plantain (*Plantago erecta*), coast live oak (*Quercus agrifolia*), Engelmann oak (*Quercus engelmannii*), pickleweed (*Salicornia* sp.), Russian thistle (*Salsola tragus*), needlegrass (*Stipa* sp.), and vinegarweed (*Trichostema lanceolatum*). Only Bermuda grass was collected during RDM sampling, per the protocol.

Invasive Non-Native Species Incidental Observations

No high-priority invasive non-native plants or wildlife were observed incidentally during 2022 surveys.

Special-Status Species Incidental Observations

One special-status wildlife species was observed during 2022 RDM monitoring – a coastal California gnatcatcher (*Polioptila californica californica*) was observed within management unit 1A (Figure 3). This species is proposed for coverage under the draft North County Plan. Coastal California gnatcatcher is listed as federally threatened by U.S. Fish and Wildlife Service (USFWS), a California Department of Fish and Wildlife (CDFW) Species of Special Concern, and a County Group 1 species.

Residual Dry Matter Values and Recommendations

All management units, with the exception of 4A and 4B, had higher RDM values than their target values. Management unit 4A and 4B fell within the target RDM values for the unit. Results of RDM analyses are depicted in Figure 3.

The majority of management units were above their target RDM values in 2022. This can be attributed to a few factors: (1) lack of active grazing; (2) fluctuations in rainfall; and (3) drought conditions. As of April 2022, the original grazing lessee, Tellam and Tellam Cattle, no longer had a grazing lease with DPR. The cattle remained on the Preserve through April 2022; however, they were no longer actively managed. The late season rainstorm from September 9 to 11, 2022, prior to RDM monitoring, could have played a part in these results, as many plant species took advantage of the rainfall and began sprouting. Average RDM results were lower in 2022 compared to 2021 in most of the management units, despite the limited grazing. This is likely due to continued drought conditions in the region. The Ramona Airport reported approximately 4 inches of accumulated rainfall from January to September 2022 compared to approximately 6.5 inches of accumulated rainfall from January to September 2021 and (NOAA 2022). The effects of these factors relative to RDM are discussed further in the *Summary and Recommendations* section.

The results of vegetation sampling within each management unit are discussed below, and 2022 RDM values are summarized in **Table 3**. The results of the average RDM values from each of the individual RDM plots from 2011 through 2022 can be found in **Appendix A**.



Ms. Price:
 December 23, 2022
 Page 6

TABLE 3
SUMMARY OF 2022 RDM RESULTS

Management Unit	Target RDM Value	Average RDM (lb/acre)											2022 Results	
		2011*	2012*	2013*	2014*	2015*	2016*	2017*	2018*	2019*	2020	2021		2022
1A	800 to 2,000 lb/acre	4,900	2,137	586	453	350	843	679	233	2,522	4,178	1,833	2,478	Does not meet grazing requirements.
2A	400 to 800 lb/acre	6,241	3,381	1,728	517	1,137	1,479	1,085	394	3,071	3,352	2,348	2,186	Does not meet grazing requirements.
2B	400 to 800 lb/acre	3,957	1,844	933	301	1,124	747	798	338	3,167	3,786	2,962	1,400	Does not meet grazing requirements.
3A	400 to 800 lb/acre	3,688	2,796	384	136	238	282	1,521	20	1,767	2,600	2,540	1,627	Does not meet grazing requirements.
3B	800 to 1,500 lb/acre	2,450	2,405	635	402	385	880	803	27	2,420	2,587	2,413	1,933	Does not meet grazing requirements.
3C	800 to 1,500 lb/acre	4,055	2,890	1,013	810	403	1,543	919	233	2,622	2,100	3,711	2,456	Does not meet grazing requirements.
3D	800 to 1,500 lb/acre	6,855	3,740	1,406	1,450	370	1,190	709	167	489	1,800	2,622	2,522	Does not meet grazing requirements.
3E	800 to 1,500 lb/acre	0	123	2,540	1,547	1,330	5,883	4,923	5,908	925	1,025	2,675	5,608	Does not meet grazing requirements.
4A	800 to 1,500 lb/acre	4,122	2,407	2,086	100	513	890	876	78	2,522	1,889	1,267	911	Meets grazing requirements.
4B	800 to 1,500 lb/acre	2,688	1,140	1,210	400	1,053	633	573	244	1,417	1,594	2,039	1,272	Meets grazing requirements.
4C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not proposed for managed grazing.
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not proposed for managed grazing.

NOTES: RDM = residual dry matter; lb/acre = pounds per acre; N/A = not applicable

* RDM values from 2011–2019 were compared to previous target RDM values as described in the Ramona Grasslands Preserve Vegetation Management Plan (ICF 2012). These results are an average of the RDM values of all monitoring plots per management unit 2011 through 2022.

Ms. Price:
December 23, 2022
Page 7

Management Unit 2A

RDM levels in management unit 2A average 2,186 lb/acre, which is above the target RDM value range of 400 to 800 lb/acre in the Grazing Management Plan (Table 3). The loamy grasslands in management unit 2A should continue to be managed for SKR. SKR prefers loamy grassland soils with high forb cover and low overall aboveground biomass (ESA 2019). Grazing can reduce aboveground biomass and shift species composition to higher forb cover to provide better habitat for SKR.

Cattle grazing should be increased within this management unit to achieve the target grazing intensity proposed by the Grazing Management Plan (400 to 800 lb/acre), which is beneficial for SKR. Grazing in 2023 is recommended to target a RDM value range of 400 to 500 lb/acre. SKR reaches their highest densities in grassland communities dominated by forbs and characterized by moderate to high amounts of bare ground (USFWS 2020).

Rare plant populations in management unit 2A should continue to be monitored by DPR. Previously documented rare plants, including Coulter's saltbush (*Atriplex coulteri*) (CRPR 1B.2), southern tarplant (*Centromadia parryi* ssp. *australis*) (CRPR 1B.1), and graceful tarplant (*Holocarpha virgata* ssp. *elongata*) (CRPR 1B.2), were not observed during the 2022 surveys. Coulter's saltbush and graceful tarplant were last observed in this management unit in 2013 and 2020. Southern tarplant was last observed in this management unit in 2021. The high RDM levels resulting from thatch buildup could preclude the emergence of rare plants.

Management Unit 2B

RDM levels in management unit 2B average 1,400 lb/acre, which is above the target RDM value range of 400 to 800 lb/acre in the Grazing Management Plan (Table 3). SKR prefers loamy grassland soils with high forb cover and low overall aboveground biomass (ESA 2019). Grazing can reduce aboveground biomass and shift species composition to higher forb cover to provide better habitat for SKR.

Cattle grazing should be increased within this management unit to achieve the target grazing intensity proposed by the Grazing Management Plan (400 to 800 lb/acre), which is beneficial for SKR. Grazing in 2023 is recommended to target a RDM value range of 400 to 500 lb/acre. SKR reaches their highest densities in grassland communities dominated by forbs and characterized by moderate to high amounts of bare ground (USFWS 2020).

Rare plant populations in management unit 2B should continue to be monitored by DPR. Graceful tarplant and southern tarplant were not detected during 2022 surveys but were previously detected during 2019 and 2021 surveys, respectively. Small flower bindweed (*Convolvulus simulans*, CRPR 4.2) has also been known to occur within this management unit, though it has not been documented since 2007. The high RDM levels resulting from thatch buildup could preclude the emergence of rare plants.

Management Unit 3A

RDM levels in management unit 3A average 1,627 lb/acre, which is above the target range of RDM value range of 400 to 800 lb/acre in the Grazing Management Plan (Table 3). SKR prefers loamy grassland soils with high forb cover and low overall aboveground biomass (ESA 2019). Grazing can reduce aboveground biomass and shift species composition to higher forb cover to provide better habitat for SKR.

Ms. Price:
December 23, 2022
Page 8

Cattle grazing should be increased within this management unit to achieve the target grazing intensity proposed by the Grazing Management Plan (400 to 800 lb/acre), which is beneficial for SKR. Grazing in 2022 is recommended to target a RDM value range of 400 to 500 lb/acre. SKR reaches their highest densities in grassland communities dominated by forbs and characterized by moderate to high amounts of bare ground (USFWS 2020).

Rare plant populations in management unit 3A should continue to be monitored by DPR. Graceful tarplant was not detected during 2022 surveys but was detected in low numbers during 2019 surveys. The high RDM levels resulting from thatch buildup could preclude the emergence of rare plants.

Management Unit 3B

RDM levels in management unit 3B average 1,933 lb/acre, which is above the target range of 800 to 1,500 lb/acre in the Grazing Management Plan (Table 3). This management unit should continue to be managed for specific management goals and objectives, including species diversity, fire hazard reduction, and soil conservation. Cattle grazing should be increased within this management unit to achieve the updated target grazing intensity proposed by the Grazing Management Plan (800 to 1,500 lb/acre), which is appropriate for flexible use.

Rare plant populations in management unit 3B should continue to be monitored by DPR. Graceful tarplant and San Diego gumplant were previously detected during 2021 surveys but were not detected within this management unit during 2022 surveys. The high RDM levels resulting from thatch buildup could preclude the emergence of rare plants.

Management Unit 3C

RDM levels in management unit 3C average 2,456 lb/acre, which is above the target range of 800 to 1,500 lb/acre in the Grazing Management Plan (Table 3). Management unit 3C should continue to be managed to maintain the health and function of the vernal pool complex south of Ramona Airport. Targeted spring grazing can more effectively cause a shift in species composition toward native annual forbs, relative to other seasons, helping to reduce the abundance of invasive non-native grasses. This will reduce evapotranspiration and can help promote longer vernal pool inundation periods, increasing the likelihood of San Diego fairy shrimp being able to complete their lifecycle within vernal pools, particularly in years with marginal rainfall (ESA 2019).

Cattle grazing should be increased within this management unit to achieve the target grazing intensity proposed by the Grazing Management Plan (800 to 1,500 lb/acre), which is beneficial for vernal pools. As recommended in the Targeted Monitoring Plan (TMP) (ESA and ICF 2022), a springtime vernal pool survey to assess the health of the vernal pool complex was conducted in 2022. The vernal pool survey assessed the plant community and habitat function of the vernal pools and provided comprehensive management recommendations (ESA 2022). Based on the results of the springtime vernal pool survey, cattle grazing frequency and rotations should be carefully monitored to restrict access to vernal pool and playa habitat during the wet season, as well as when clay soils are still moist and malleable.

Rare plant populations in management unit 3C should continue to be monitored by DPR. Graceful tarplant was last observed in low numbers in the northern section of this management unit during the 2017 surveys, but has not

been detected during recent monitoring efforts from 2019–2022. The high RDM levels resulting from thatch buildup could preclude the emergence of rare plants.

Management Unit 3D

RDM levels in management unit 3D average 2,522 lb/acre, which is above the target range of 800 to 1,500 lb/acre in the Grazing Management Plan (Table 3). Management unit 3D should continue to be managed to maintain the health and function of vernal pools. Targeted spring grazing can more effectively cause a shift in species composition toward native annual forbs, relative to other seasons, helping to reduce the abundance of invasive non-native grasses. This will reduce evapotranspiration and can help promote longer vernal pool inundation periods, increasing the likelihood of San Diego fairy shrimp being able to complete their lifecycles within vernal pools, particularly in years with marginal rainfall (ESA 2019).

Cattle grazing should be increased within this management unit to achieve the updated target grazing intensity proposed by the Grazing Management Plan (800 to 1,500 lb/acre), which is appropriate for flexible use. As recommended in the TMP (ESA and ICF 2022), a springtime vernal pool survey to assess the health of the vernal pool complex was conducted in 2022. The vernal pool survey assessed the plant community and the habitat function of the vernal pools and provided comprehensive management recommendations (ESA 2022). Based on the results of the springtime vernal pool survey, cattle grazing frequency and rotations should be carefully monitored to restrict access to vernal pool and playa habitat during the wet season, as well as when clay soils are still moist and malleable.

Rare plant populations in management unit 3D should continue to be monitored by DPR. Graceful tarplant was last observed in the central section of this management unit during the 2017 surveys but was not detected during the 2022 surveys. The high RDM levels resulting from thatch buildup could preclude the emergence of rare plants.

Management Unit 3E

RDM levels in management unit 3E average 5,608 lb/acre, which is above the target range of 800 to 1,500 lb/acre in the Grazing Management Plan (Table 3). This management unit was previously overgrazed by cattle between 2005 and 2010, causing invasive non-native plant species to grow after the cattle were removed by DPR (ICF 2012). This management unit was observed to contain a high density of summer annuals, including invasive non-native plant species such as Russian thistle and short-pod mustard. As of 2022, grazing has still not been reinstated within this management unit and has contributed to the high RDM levels.

Continued active restoration can be implemented using a combination of mechanical removal by mowing, herbicide, and/or targeted grazing as recommended by the Ramona Grasslands Preserve Vegetation Management Plan (ICF 2012) to return this management unit to a grass regime. Quantitative vegetation monitoring is recommended to document before-and-after conditions and determine restoration progress and success. Relevé assessment of the management unit using the California Native Plant Society (CNPS) protocol (CNPS 2000) would provide detailed species composition and cover to the land manager and would capture the presence of



Ms. Price:
December 23, 2022
Page 10

biomass from invasive summer annuals that are not included in the RDM. The information, in turn, will give DPR the ability to assess the quality of the vegetation on-site and track the progress of restoration from invasive non-native forbs to native grasses.

Rare plant populations in management unit 3E should continue to be monitored by DPR. Southern tarplant was not detected during 2022 surveys, although it was previously detected within this management unit during 2021 surveys. The high RDM levels resulting from thatch buildup could preclude the emergence of rare plants.

Management Unit 4A

RDM levels in management unit 4A average 911 lb/acre, which is within the target range of 800 to 1,500 lb/acre in the Grazing Management Plan (Table 3). This management unit should continue to be managed for specific management goals and objectives, including species diversity, fire hazard reduction, and soil conservation. No invasive non-native plants or rare plants requiring monitoring or management were observed during the 2022 surveys. Cattle grazing should be maintained within this management unit to achieve the target grazing intensity proposed by the Grazing Management Plan (800 to 1,500 lb/acre), which is appropriate for flexible use.

Management Unit 4B

RDM levels in management unit 4B average 1,272 lb/acre, which is within the target range of 800 to 1,500 lb/acre in the Grazing Management Plan (Table 3). This management unit should continue to be managed for specific management goals and objectives, including species diversity, fire hazard reduction, and soil conservation. No invasive non-native plants or rare plants requiring monitoring or management were observed during the 2022 surveys. Cattle grazing should be maintained within this management unit to achieve the updated target grazing intensity proposed by the Grazing Management Plan (800 to 1,500 lb/acre), which is appropriate for flexible use.

Management Unit 4C

Management unit 4C is not proposed for active grazing management due to the on-site vegetation community; therefore, no RDM monitoring was conducted in 2022. This unit consists of southern mixed chaparral, disturbed southern mixed chaparral, and coastal sage scrub (ICF 2012). This unit should be monitored for invasive non-native plant invasion.

Management Unit 5

Management unit 5 is not proposed for grazing due to topography; therefore, no RDM monitoring was conducted in this unit in 2022. This unit should be monitored for invasive non-native plant invasion.

Summary and Recommendations

All RDM values, with the exception of management units 4A and 4B, were above the target RDM values; however, management units 2A, 2B, 3A, 3B, 3C, and 3D were all lower than their 2021 RDM values. Management units 4A and 4B had RDM values within their target RDM value range. In 2022, RDM values in management units 1A and 3E increased from 2021 results, while values in management units 4A and 4B

Ms. Price:
December 23, 2022
Page 11

decreased. Management unit 2B had the most significant decrease in RDM value this season, while management unit 3E had the most significant increase in RDM value.

The majority of management units were above their target RDM values in 2022. These results were likely influenced by the lack of a grazing lessee at the Preserve since April 2022. Results were likely also influenced by the rainstorm event in early September 2022 that initiated vegetative growth. Extreme fluctuations in rainfall in recent years (e.g., drought conditions in 2018, above-average rainfall in 2019, below-average to average rainfall in 2020, and drought conditions in 2021) drive substantial variability in vegetative cover from year to year. As mentioned in the *Results* section, the decrease in RDM values between 2021 and 2022 is likely low rainfall levels and continued drought conditions in the region. Ramona Airport reported approximately 6.5 inches of accumulated rainfall from January to September 2021 and approximately 4 inches of accumulated rainfall from January to September 2022 (NOAA 2022).

To better estimate how much biomass is available and likely to persist in a given year, ESA initiated annual spring peak forage production monitoring on the Preserve, with the inaugural monitoring effort in April 2022. Based on the results of this monitoring, the grazing regime can be adjusted accordingly by either increasing or decreasing heads of cattle or grazing duration/frequency. Spring peak forage production monitoring is recommended to be conducted annually to better inform the grazing lessee on grazing practices for a given year.

Based on the annual RDM monitoring results, the following measures are recommended for all management units:

- Continue spring peak forage monitoring in all units (except 4C and 5). This monitoring assesses the amount of forage available for grazing in a given year, allowing the grazing lessee to adjust their grazing regime (e.g., stocking density and grazing duration) with the RDM target values in mind to meet management targets.
- Continue long-term RDM monitoring in all units (except 4C and 5). This is important to make sure that RDM values do not exceed or drop below the range needed to meet the management targets and increase biodiversity.
- Invasive non-native plant mapping should be conducted throughout the Preserve annually, if feasible, per the monitoring recommendations in the TMP (ESA and ICF 2022).
- Continue active restoration of management unit 3E to remove non-native species by a combination of mowing, herbicide treatment, and/or targeted grazing. Quantitative vegetation monitoring, such as Relevé assessment, is recommended within this management unit to document pre-restoration and post-restoration conditions.
- Seed bare ground surrounding water troughs. Extensive areas of bare ground were observed surrounding the water troughs during 2018–2022 surveys. Native grass seed should be planted around water troughs and in bare ground near water troughs to improve soil quality. Seed should be from a local, credible source or collected within the Preserve by hired seed collectors or DPR rangers who have been taught by a consultant how to collect native plant seeds. Plant species that could be distributed in areas with bare ground, such as those around the troughs, include purple needlegrass (*Stipa pulchra*), nodding needlegrass (*Stipa cernua*),

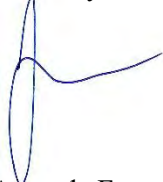
Ms. Price:
December 23, 2022
Page 12

wild rye (*Elymus triticoides*), and Lemmon's canary grass (*Phalaris lemmonii*). These species have been verified as native grasses found within the Preserve, according to the San Diego Natural History Museum Plant Atlas Database (2011). Seeds should not come from outside of San Diego County.

- Conduct rare plant surveys throughout the Preserve at 10-year intervals in the spring and late summer, per the monitoring recommendations in the TMP (ESA and ICF 2022). Rare plants have been incidentally observed during RDM monitoring; however, these incidental observations are not representative of comprehensive rare plant surveys. Rare plant surveys should focus on areas with rare soils and sensitive habitats, and areas where rare plants have been recorded in the past. The rare plant surveys should be used to update the sensitive plant maps from the Vegetation Management Plan (ICF 2012), identify populations of sensitive species for more intensive monitoring, and determine if any new sensitive species are present. Following the completion of rare plant surveys, monitoring plots located within sensitive plant populations should be adjusted to avoid impacts to the species.
- Cattle grazing frequency and rotations should be carefully monitored to restrict access to vernal pool and playa habitat during the wet season, as well as when clay soils are still moist and malleable. The TMP requires quantitative monitoring every 5 years and qualitative monitoring twice annually (ESA and ICF 2022). To better evaluate functional trends in vernal pool and alkali playa habitat, it is recommended to increase quantitative monitoring to twice annually and conduct it concurrently with qualitative monitoring (e.g., during the wet phase in early spring to capture aquatic plant and wildlife species, and during the dry phase to capture flowering plants at their peak). Conduct SKR surveys, per the TMP (ESA and ICF 2022). SKR burrow count/sign surveys, quantitative habitat assessments, and SKR live trapping should be conducted to determine whether grazing is meeting management goals for this species, or if other management actions are needed.

If you have questions, please feel free to contact me at (530) 966-4294 or afrench@esassoc.com.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Amanda French'. The signature is fluid and cursive, with a large initial 'A' and a long, sweeping tail.

Amanda French
Biologist

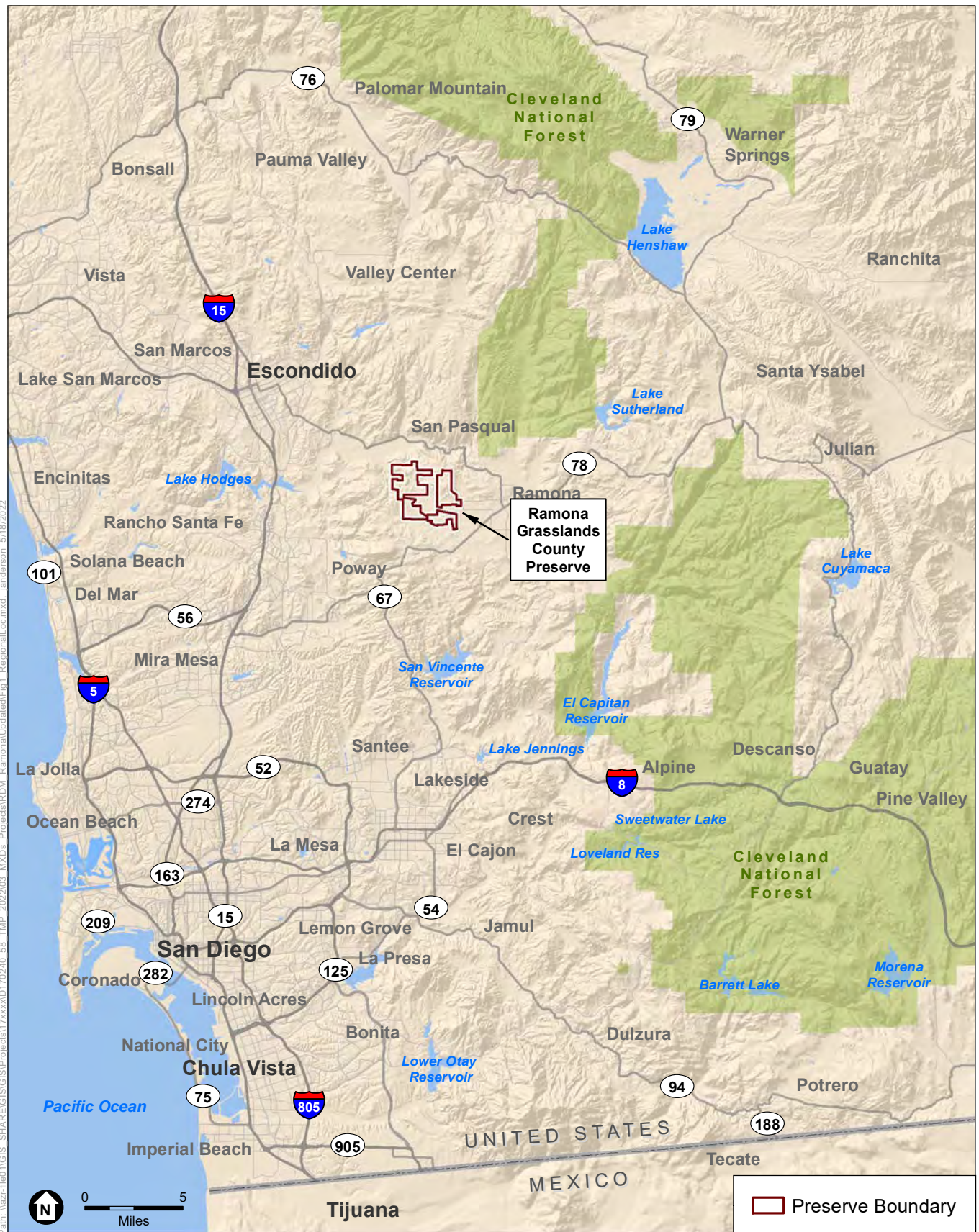
Attachments: Figure 1 – Preserve Location
Figure 2 – Monitoring Plot Locations
Figure 3 – RDM Plot Results
Appendix A – Results of 2011–2022 RDM Monitoring at the Preserve



Ms. Price:
December 23, 2022
Page 13

References

- Bartolome, J. W., W. E. Frost, N. K. McDougald, and M. Conner. 2002. Guidelines for Residual Dry Matter Management on Coastal and Foothill Rangelands in California. *Rangeland Management* 8092: 1–7.
- California Native Plant Society (CNPS). 2000. *Relevé Protocol*. CNPS Vegetation Committee. Available at https://cnps.org/wp-content/uploads/2018/03/cnps_releve_protocol_20070823.pdf. October 20 (revised August 23, 2007).
- County of San Diego. 1997. *Multiple Species Conservation Program County of San Diego Subarea Plan*. October 22, 1997.
- Environmental Science Associates (ESA). 2019. *Ramona Grasslands, Santa Ysabel, and Boulder Oaks Preserves Grazing Management Plan*. Prepared for the County of San Diego Department of Parks and Recreation.
- ESA. 2022. Draft Targeted Monitoring Plan (TMP) Resource-specific Monitoring: 2022 Annual Report. Prepared for County of San Diego, Department of Parks and Recreation.
- ESA and ICF. 2022. *Targeted Monitoring Plan*. Prepared for the County of San Diego Department of Parks and Recreation. July 2022.
- Hancock, J. P. 2009. *Arroyo Toad Life History, Population Status, Population Threats, and Habitat Assessment of Conditions at Fort Hunter Liggett, Monterey County, California*. California Polytechnic State University San Luis Obispo Publishing.
- ICF International (ICF). 2012. *Final Ramona Grasslands Preserve Vegetation Management Plan*. Prepared for the County of San Diego Department of Parks and Recreation. June 2012.
- National Oceanic and Atmospheric Administration (NOAA). 2022. National Weather Service – Advanced Hydrologic Prediction Service. <https://water.weather.gov/precip/>.
- San Diego Natural History Museum. 2011. Plant Atlas Database. Available at <http://www.sdplantatlas.org/>. Accessed October 2021.
- Tellam and Tellam Cattle. 2021. Ramona Grasslands Grazing Report.
- U.S. Fish and Wildlife Service (USFWS). 2011. News Release: Service Announces Final Critical Habitat for Endangered Arroyo Toad. Available at <http://www.fws.gov/pacific/news/2001/2001-34.htm>. Accessed 2020.
- USFWS. 2020. *Endangered and Threatened Wildlife and Plants: Reclassification of Stephens' Kangaroo Rat from Endangered to Threatened With a Section 4(d) Rule*. Federal Register Volume 85, No. 161: 50991–51006.

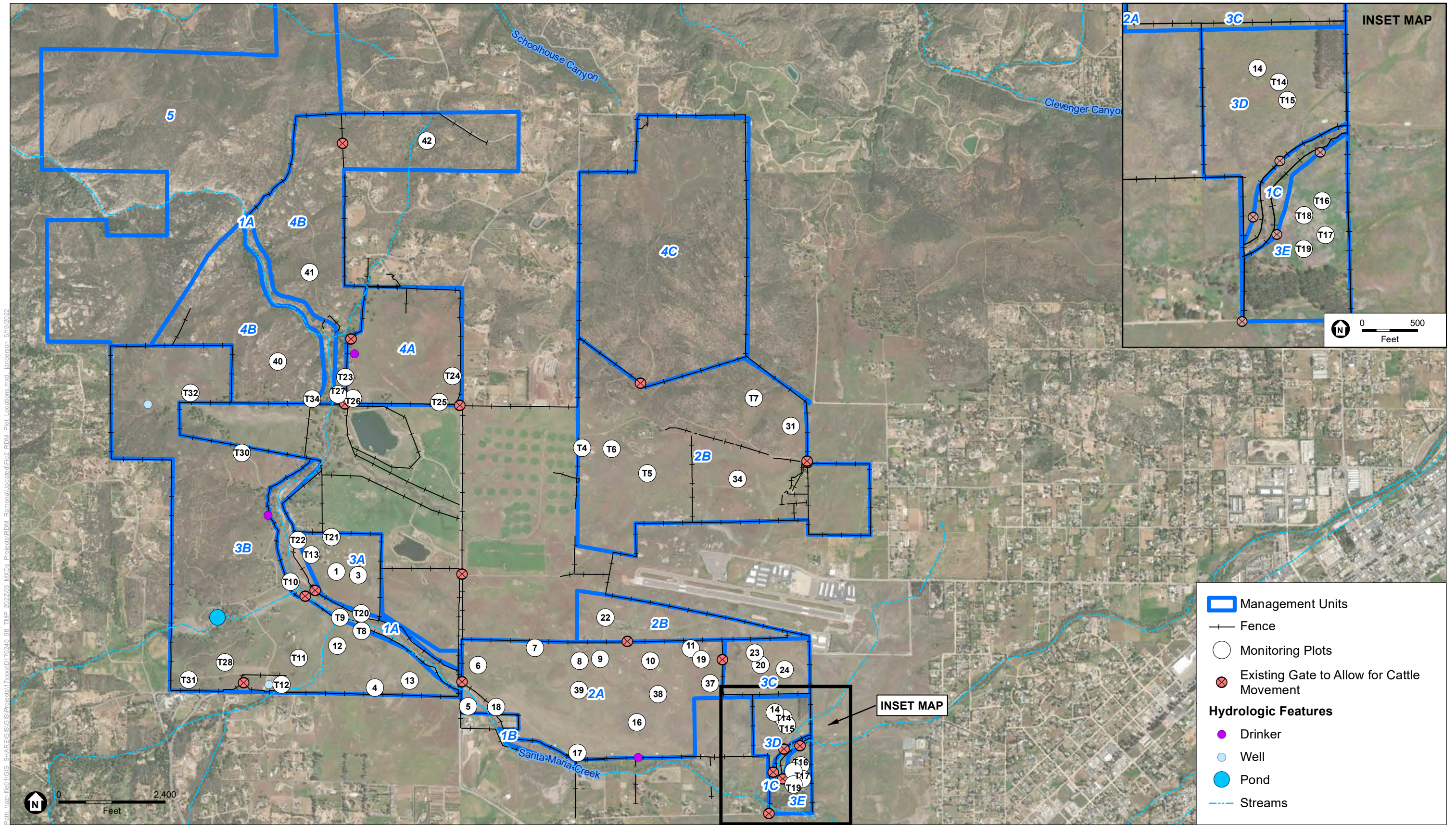


SOURCE: ESRI

COSD DPR 557744 TO 58 – Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring 2022
 Ramona Grasslands County Preserve Residual Dry Matter Monitoring Report



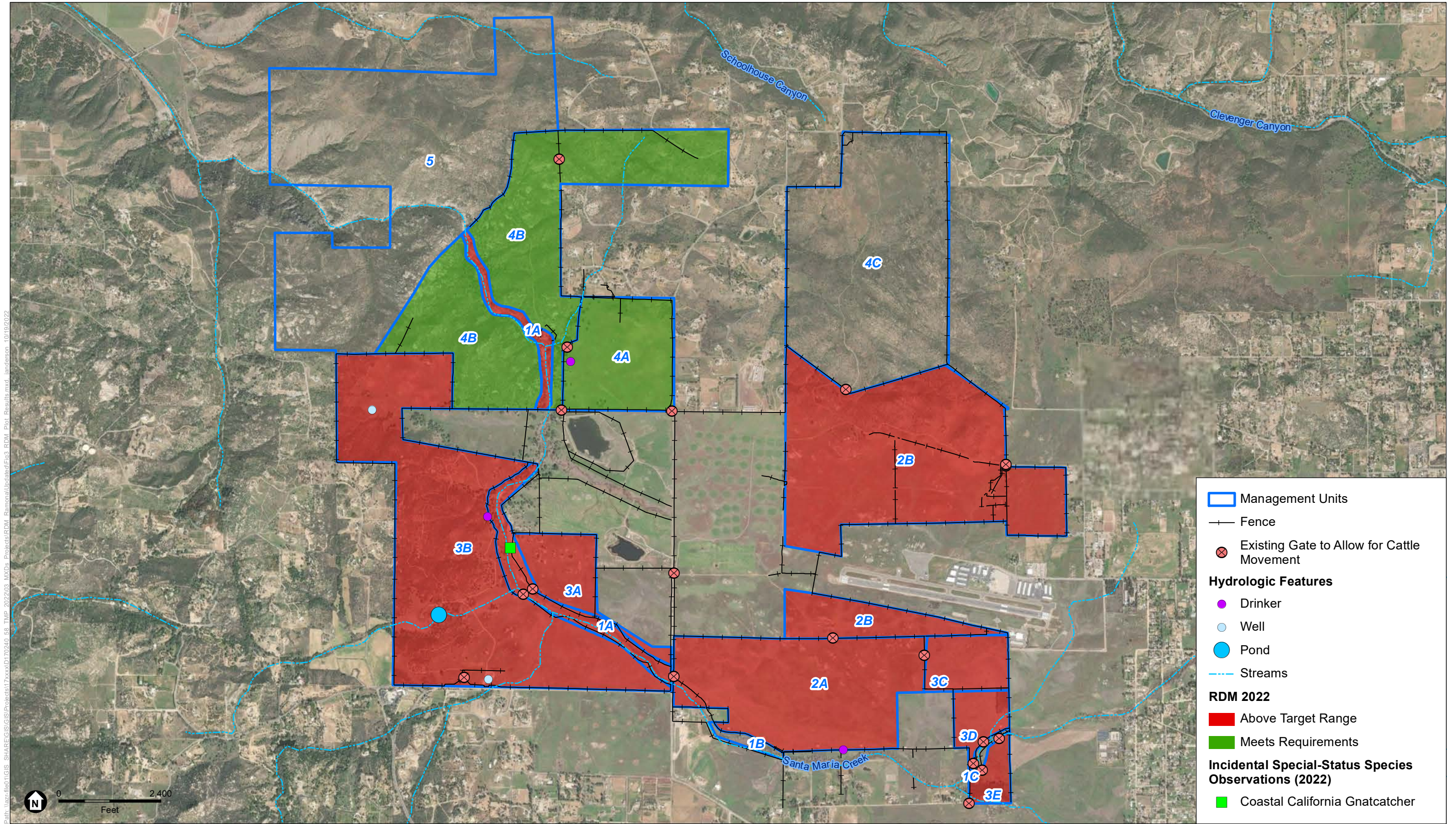
Figure 1
 Preserve Location



SOURCE: ESRI, AECOM 2017; ESA 2021

COSD DPR 557744 TO 58 – Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring 2022
 Ramona Grasslands County Preserve Residual Dry Matter Monitoring Report

Figure 2
 Monitoring Plot Locations



SOURCE: ESRI, AECOM 2017; ESA 2022

COSD DPR 557744 TO 58 – Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring 2022
 Ramona Grasslands County Preserve Residual Dry Matter Monitoring Report

Figure 3
 RDM Plot Results

Appendix A
**Results of 2011–2022
RDM Monitoring at the Preserve**

**APPENDIX A
RESULTS OF 2011–2022 RDM MONITORING AT THE PRESERVE**

Management Unit	Plot #	Date Collected	Monitoring Plot Average (grams) 2011	Pounds per Acre 2011	Date Collected	Monitoring Plot Average (grams) 2012	Pounds per Acre 2012	Date Collected	Monitoring Plot Average (grams) 2013	Pounds per Acre 2013	Date Collected	Monitoring Plot Average (grams) 2014	Pounds per Acre 2014	Date Collected	Monitoring Plot Average (grams) 2015	Pounds per Acre 2015	Date Collected	Monitoring Plot Average (grams) 2016	Pounds per Acre 2016	Date Collected	Monitoring Plot Average (grams) 2017	Pounds per Acre 2017	Date Collected	Monitoring Plot Average (grams) 2018	Pounds per Acre 2018	Date Collected	Monitoring Plot Average (grams) 2019	Pounds per Acre 2019	Date Collected	Monitoring Plot Average (grams) 2020	Pounds per Acre 2020	Date Collected	Monitoring Plot Average (grams) 2021	Pounds per Acre 2021	Date Collected	Monitoring Plot Average (grams) 2022	Pounds per Acre 2022	
1A	T9	10/4/2011	51.3	5133	10/10/2012	23.2	2320	10/9/2013	2	200	10/24/2014	2.4	240	10/21/2015	4.8	480	10/25/2016	16.3	1630	10/24/2017	4.2	420	12/27/2018	5	500	10/14/2019	27.7	2766.7	10/27/2020	40.33	4033	10/11/2021	33.67	3367	9/13/2022	25.33	2533	
1A	T10	10/5/2011	25	2500	10/10/2012	18.8	1880	10/8/2013	12.6	1260	10/24/2014	4.9	490	10/21/2015	4.3	430	10/25/2016	3.3	330	10/24/2017	7.8	780	12/27/2018	0	0	10/14/2019	17.3	1733.3	10/27/2020	25.33	2533	10/11/2021	21.33	2133	9/13/2022	22.67	2267	
1A	T20	10/5/2011	70.7	7067	10/10/2012	22.1	2210	10/9/2013	3	300	10/24/2014	6.3	630	10/21/2015	1.4	140	10/25/2016	5.7	570	10/24/2017	8.37	837	12/27/2018	2	200	10/14/2019	30.7	3066.7	10/27/2020	59.67	5967	10/11/2021	0.00	0	9/13/2022	26.33	2633	
2A	5	10/3/2011	93.7	9367	10/9/2012	37.5	3750	10/7/2013	26.6	2660	10/27/2014	26.1	2610	10/21/2015	5.6	560	10/27/2016	36	3600	10/26/2017	10.2	1020	12/28/2018	6.33	633	10/14/2019	57	5700	10/28/2020	33.67	3367	10/11/2021	36.00	3600	9/13/2022	16.67	1667	
2A	6	10/3/2011	83.3	8333	10/9/2012	25.4	2540	10/7/2013	15	1500	10/27/2014	0.5	50	10/21/2015	5.9	590	10/27/2016	8	800	10/26/2017	2.5	250	12/27/2018	0	0	10/14/2019	32	3200	10/28/2020	29.67	2967	10/11/2021	20.00	2000	9/13/2022	15.67	1567	
2A	7	10/3/2011	31	3100	10/9/2012	35.2	3520	10/10/2013	11	1100	10/27/2014	2.6	260	10/21/2015	12.7	1270	10/27/2016	1.3	130	10/26/2017	3.6	360	12/28/2018	0.67	67	10/14/2019	28	2800	10/28/2020	37.33	3733	10/11/2021	22.00	2200	9/13/2022	17.33	1733	
2A	8	10/3/2011	66.7	6667	10/9/2012	35.2	2790	10/10/2013	22	2200	10/23/2014	5.4	540	10/22/2015	17.5	1750	10/27/2016	10	1000	10/26/2017	18.1	1810	12/28/2018	0.67	67	10/14/2019	39.3	3933.3	10/28/2020	46.67	4667	10/11/2021	27.00	2700	9/13/2022	20.00	2000	
2A	9	10/3/2011	60.3	6033	10/9/2012	42.9	4290	10/10/2013	33	3300	10/23/2014	5.4	540	10/22/2015	17.8	1780	10/27/2016	3	300	10/26/2017	3.67	367	12/28/2018	1	100	10/14/2019	47.7	4766.7	10/28/2020	44.33	4433	10/11/2021	26.67	2667	9/13/2022	28.00	2800	
2A	10	10/3/2011	44.7	4467	10/9/2012	31.9	3190	10/7/2013	17	1700	10/22/2014	3.7	370	10/22/2015	4.5	450	10/27/2016	9	900	10/26/2017	10.03	1003	12/28/2018	0.33	33	10/14/2019	34.3	3433.3	10/28/2020	35.33	3533	10/11/2021	21.67	2167	9/13/2022	22.00	2200	
2A	11	10/4/2011	56	5600	10/9/2012	27.9	2790	10/8/2013	7.3	730	10/22/2014	3.4	340	10/22/2015	5.2	520	10/27/2016	21	2100	10/26/2017	11.9	1190	12/28/2018	1.33	133	10/14/2019	26	2600	10/28/2020	26.00	2600	10/11/2021	24.33	2433	9/13/2022	25.67	2567	
2A	16	10/4/2011	60.7	6067	10/9/2012	31.2	3120	10/8/2013	19.3	1930	10/23/2014	2.3	230	10/22/2015	5.6	560	10/27/2016	30	3000	10/26/2017	10.8	1080	12/28/2018	1.33	133	10/14/2019	5	500	10/28/2020	17.67	1767	10/11/2021	20.33	2033	9/13/2022	17.00	1700	
2A	17	10/4/2011	83.7	8367	10/3/2012	37.9	3790	10/7/2013	24.6	2460	10/27/2014	4.2	420	10/22/2015	6.2	620	10/27/2016	36	3600	10/26/2017	22.5	2250	12/28/2018	0.33	33	10/14/2019	39.3	3933.3	10/28/2020	37.33	3733	10/11/2021	25.67	2567	9/13/2022	40.00	4000	
2A	18	10/3/2011	73	7300	10/3/2012	27.7	2770	10/7/2013	14.7	1470	10/27/2014	2.9	290	10/21/2015	13.2	1320	10/27/2016	6	600	10/26/2017	20.6	2060	12/28/2018	33.33	3333	10/14/2019	80	8000	10/28/2020	61.67	6167	10/11/2021	39.00	3900	9/13/2022	48.33	4833	
2A	19	10/4/2011	40	4000	10/9/2012	35.7	3570	10/8/2013	9.3	930	10/22/2014	0.4	40	10/22/2015	31.9	3190	10/27/2016	8.6	860	10/26/2017	6.57	657	12/28/2018	1.33	133	10/14/2019	15.7	1566.7	10/28/2020	48.33	4833	10/11/2021	15.00	1500	9/13/2022	14.00	1400	
2A	37	10/4/2011	56	5600	10/9/2012	44.5	4450	10/8/2013	7.6	760	10/22/2014	11.1	1110	10/22/2015	10.3	1030	10/27/2016	8.6	860	10/26/2017	9.83	983	12/28/2018	0.67	67	10/14/2019	8.7	866.7	10/28/2020	14.33	1433	10/11/2021	16.67	1667	9/13/2022	12.00	1200	
2A	38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10/14/2019	3.3	333.3	10/28/2020	21.33	2133	10/11/2021	12.00	1200	9/13/2022	16.67	1667
2A	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10/14/2019	13.7	1366.7	10/28/2020	15.67	1567	10/11/2021	22.33	2233	9/13/2022	12.67	1267	
2B	22	10/3/2011	60	6000	10/9/2012	14.7	1470	10/7/2013	15	1500	10/23/2014	3.1	310	10/20/2015	34.1	3410	10/27/2016	8.6	860	10/26/2017	4.9	490	12/28/2018	21.67	2167	10/14/2019	61	6100	10/28/2020	56.33	5633	10/11/2021	19.33	1933	9/13/2022	6.33	633	
2B	31	10/4/2011	26.3	2633	10/3/2012	19.7	1970	10/9/2013	3.6	360	10/22/2014	4.6	460	10/20/2015	7.7	770	10/26/2016	11.3	1130	10/25/2017	5.5	550	12/28/2018	0.67	67	10/15/2019	17.3	1733.3	10/29/2020	26.00	2600	10/12/2021	12.67	1267	9/13/2022	3.33	333	
2B	34	10/4/2011	48.3	4833	10/3/2012	14.8	1480	10/7/2013	2	200	10/22/2014	2	200	10/20/2015	3.6	360	10/26/2016	16	1600	10/25/2017	7.2	720	12/28/2018	0.33	33	10/15/2019	22.3	2233.3	10/29/2020	34.00	3400	10/12/2021	37.33	3733	9/13/2022	18.67	1867	
2B	T4	10/4/2011	37.3	3733	10/3/2012	28.8	2880	10/7/2013	9	900	10/22/2014	4.4	440	10/20/2015	6.1	610	10/26/2016	0	0	10/25/2017	6.67	667	12/28/2018	0.33	33	10/15/2019	29.7	2966.7	10/29/2020	26.67	2667	10/12/2021	32.33	3233	9/13/2022	7.33	733	
2B	T5	10/4/2011	39.7	3967	10/3/2012	17.5	1750	10/7/2013	10	1000	10/22/2014	0.7	70	10/20/2015	21.9	2190	10/26/2016	1.7	170	10/25/2017	14.53	1453	12/28/2018	0.33	33	10/15/2019	37.3	3733.3	10/29/2020	35.00	3500	10/12/2021	51.67	5167	9/13/2022	36.33	3633	
2B	T6	10/4/2011	24	2400	10/3/2012	11.2	1120	10/7/2013	19	1900	10/22/2014	3.9	390	10/20/2015	2.1	210	10/26/2016	3.7	370	10/25/2017	6.37	637	12/28/2018	0.33	33	10/15/2019	13.3	1333.3	10/29/2020	26.67	2667	10/12/2021	19.33	1933	9/13/2022	15.67	1567	
2B	T7	10/4/2011	41.3	4133	10/3/2012	22.4	2240	10/7/2013	6.7	670	10/22/2014	2.4	240	10/20/2015	3.2	320	10/26/2016	11	1100	10/25/2017	10.73	1073	12/28/2018	0	0	10/15/2019	40.7	4066.7	10/29/2020	60.33	6033	10/12/2021	34.67	3467	9/13/2022	10.33	1033	
3A	1	10/4/2011	36	3600	10/10/2012	31.5	3150	10/8/2013	4.6	460	10/24/2014	1.1	110	10/21/2015	3.3	330	10/25/2016	2	200	10/24/2017	18.83	1883	12/27/2018	0	0	10/14/2019	17	1700	10/27/2020	41.00	4100	10/11/2021	30.33	3033	9/13/2022	27.00	2700	
3A	3	10/4/2011	22.3	2233	10/10/2012	15.4	1540	10/8/2013	1	100	10/24/2014	0.1	10	10/21/2015	0.9	90	10/25/2016	1	100	10/24/2017	13.4	1340	12/27/2018	0.33	33	10/14/2019	30.3	3033.3	10/27/2020	41.33	4133	10/11/2021	17.67	1767	9/13/2022	26.67	2667	
3A	T13	10/5/2011	50.3	5033	10/10/2012	50	5000	10/9/2013	4	400	10/24/2014	2.8	280	10/21/2015	1.3	130	10/25/2016	1.3	130	10/24/2017	14.3	1430	12/27/2018	0.67	67	10/14/2019	4.7	466.7	10/27/2020	6.67	667	10/11/2021	23.00	2300	9/13/2022	12.67	1267	
3A	T21	10/5/2011	17.7	1767	10/10/2012	34.8	3480	10/9/2013	5	500	10/24/2014	2.3	230	10/21/2015	3.7	370	10/25/2016	9.7	970	10/24/2017	12.43	1243	12/27/2018	0	0	10/14/2019	18.7	1866.7	10/27/2020	29.00	2900	10/11/2021	32.00	3200	9/13/2022	5.00	500	
3A	T22	10/5/2011	24.3	2433	10/10/2012	8.1	810	10/9/2013	4.6	460	10/24/2014	0.5	50	10/21/2015	2.7	270	10/25/2016	0.1	10	10/24/2017	17.1	1710	12/27/2018	0	0	10/14/2019	17.7	1766.7	10/27/2020	12.00	1200	10/11/2021	24.00	2400	9/13/2022	10.00	1000	
3B	4	10/3/2011	10	1000	10/9/2012	25	2500	10/7/2013	11	1100	10/23/2014	2.2	220	10/21/2015	0.5	50	10/25/2016	5.6	560	10/24/2017	5.73	573	12/27/2018	0.33	33													

Management Unit	Plot #	Date Collected	Monitoring Plot Average (grams) 2011	Pounds per Acre 2011	Date Collected	Monitoring Plot Average (grams) 2012	Pounds per Acre 2012	Date Collected	Monitoring Plot Average (grams) 2013	Pounds per Acre 2013	Date Collected	Monitoring Plot Average (grams) 2014	Pounds per Acre 2014	Date Collected	Monitoring Plot Average (grams) 2015	Pounds per Acre 2015	Date Collected	Monitoring Plot Average (grams) 2016	Pounds per Acre 2016	Date Collected	Monitoring Plot Average (grams) 2017	Pounds per Acre 2017	Date Collected	Monitoring Plot Average (grams) 2018	Pounds per Acre 2018	Date Collected	Monitoring Plot Average (grams) 2019	Pounds per Acre 2019	Date Collected	Monitoring Plot Average (grams) 2020	Pounds per Acre 2020	Date Collected	Monitoring Plot Average (grams) 2021	Pounds per Acre 2021	Date Collected	Monitoring Plot Average (grams) 2022	Pounds per Acre 2022	
3B	T31	10/21/2011	15	1500	10/10/2012	20.3	2030	10/9/2013	2.1	210	10/27/2014	2.6	260	10/21/2015	6.1	610	10/25/2016	7	700	10/24/2017	9.03	903	12/27/2018	0	0	10/14/2019	0.3	33.3	10/28/2020	12.33	1233	10/12/2021	7.33	733	9/13/2022	6.67	667	
3B	T32	10/21/2011	30	3000	10/3/2012	13.7	1370	10/10/2013	2	200	10/24/2014	3.3	330	10/27/2015	3.2	320	10/26/2016	16.7	1670	10/24/2017	7.07	707	12/27/2018	0	0	10/15/2019	40.7	4066.7	10/27/2020	46.33	4633	10/12/2021	36.00	3600	9/13/2022	11.67	1167	
3C	20	10/3/2011	58	5800	10/9/2012	35.7	3570	10/8/2013	16	1600	10/22/2014	7.7	770	10/22/2015	6.7	670	10/27/2016	20	2000	10/26/2017	7.6	760	12/28/2018	0.33	33	10/14/2019	25.3	2533.3	10/28/2020	21.33	2,133	10/11/2021	36.33	3633	9/13/2022	29.33	2933	
3C	23	10/4/2011	41	4100	10/9/2012	19.7	1970	10/8/2013	7.7	770	10/22/2014	7.9	790	10/22/2015	5.4	540	10/27/2016	13	1300	10/26/2017	7.63	763	12/28/2018	5	500	10/14/2019	45.7	4566.7	10/28/2020	15.67	1567	10/11/2021	29.00	2900	9/13/2022	11.00	1100	
3C	24	10/3/2011	22.7	2267	10/9/2012	31.3	3130	10/8/2013	6.7	670	10/22/2014	8.7	870	10/22/2015	0	0	10/27/2016	13.3	1330	10/26/2017	12.33	1233	12/28/2018	1.67	167	10/14/2019	7.7	766.7	10/28/2020	26.00	2600	10/11/2021	46.00	4600	9/13/2022	33.33	3333	
3D	14	10/4/2011	93	9300	10/9/2012	23.3	2330	10/9/2013	17.6	1760	10/23/2014	14.4	1440	10/20/2015	0.1	10	10/27/2016	18	1800	10/25/2017	7.73	773	12/28/2018	1	100	10/14/2019	4.7	466.7	10/28/2020	22.33	2233	10/11/2021	27.00	2700	9/13/2022	23.67	2367	
3D	T14	10/5/2011	46.3	4633	10/9/2012	45.6	4560	10/9/2013	12	1,200	10/23/2014	10.9	1090	10/22/2015	0.4	40	10/27/2016	7	700	10/25/2017	7.57	757	12/28/2018	1	100	10/14/2019	1.3	133.3	10/28/2020	14.33	1433	10/11/2021	27.67	2767	9/13/2022	26.00	2600	
3D	T15	10/5/2011	66.3	6633	10/9/2012	43.3	4330	10/9/2013	12.6	1260	10/23/2014	18.2	1820	10/22/2015	10.6	1060	10/27/2016	10.7	1070	10/25/2017	5.97	597	12/28/2018	3	300	10/14/2019	8.7	866.7	10/28/2020	17.33	1733	10/11/2021	24.00	2400	9/13/2022	26.00	2600	
3E	T16	10/5/2011	0	0	10/10/2012	330	330	10/7/2013	25	2500	10/23/2014	6.7	670	10/22/2015	5.3	530	*	*	*	10/25/2017	92.7	9270	12/28/2018	89	8900	10/14/2019	1.7	166.7	10/28/2020	0.00	0	10/11/2021	27.00	2700	9/13/2022	66.00	6600	
3E	T17	10/5/2011	0	0	10/10/2012	0	0	10/7/2013	22	2200	10/23/2014	8.5	850	10/22/2015	27.4	2740	*	*	*	10/25/2017	44.87	4487	12/28/2018	0.33	33	10/14/2019	0	0	10/28/2020	0.00	0	10/11/2021	0.00	0	9/13/2022	28.00	2800	
3E	T18	10/5/2011	0	0	10/10/2012	160	160	10/7/2013	26	2600	10/23/2014	34.5	3450	10/22/2015	13.6	1,360	*	*	*	10/25/2017	59.37	5937	12/28/2018	75.67	7567	10/14/2019	10	1000	10/28/2020	4.00	400	10/11/2021	37.00	3700	9/13/2022	80.67	8067	
3E	T19	10/5/2011	0	0	10/10/2012	0	0	10/7/2013	28.6	2860	10/23/2014	12.2	1220	10/22/2015	6.9	690	*	*	*	10/25/2017	0	0	12/28/2018	71.33	7133	10/14/2019	25.3	2533.3	10/28/2020	37.00	3700	10/11/2021	43.00	4300	9/13/2022	49.67	4967	
4A	T24	10/5/2011	35.3	3533	10/3/2012	24	2400	10/10/2013	22	2200	10/24/2014	0	0	10/21/2015	5.5	550	10/25/2016	0.7	70	10/25/2017	5.17	517	12/27/2018	1.33	133	10/15/2019	34.3	3433.3	10/27/2020	23.00	2300	10/12/2021	15.00	1500	9/13/2022	6.33	633	
4A	T25	10/5/2011	42.7	4267	10/3/2012	17.3	1730	10/9/2013	11.6	1160	10/24/2014	1.2	120	10/21/2015	1.6	160	10/25/2016	7	700	10/25/2017	7.93	793	12/27/2018	0.33	33	10/15/2019	29.7	2966.7	10/27/2020	26.33	2633	10/12/2021	13.00	1300	9/13/2022	12.67	1267	
4A	T26	10/5/2011	45.7	4567	10/3/2012	30.9	3090	10/8/2013	29	2900	10/24/2014	1.8	180	10/20/2015	8.3	830	10/26/2016	19	1900	10/25/2017	13.17	1317	12/27/2018	0.67	67	10/15/2019	11.7	1166.7	10/27/2020	7.33	733	10/12/2021	10.00	1000	9/13/2022	8.33	833	
4B	T23	10/5/2011	30.3	3033	10/3/2012	10.5	1050	10/10/2013	22.3	2230	10/24/2014	4.5	450	10/20/2015	0.2	20	10/25/2016	0	0	10/25/2017	1.73	173	12/27/2018	3.67	367	10/15/2019	5	500	10/27/2020	13.67	1367	10/12/2021	44.67	4467	9/13/2022	29.33	2933	
4B	T27	10/5/2011	27.3	2733	10/3/2012	10.7	1070	10/8/2013	12.3	1230	10/27/2014	3.2	320	10/20/2015	30.9	3,090	10/26/2016	16.3	1630	10/25/2017	7.23	723	12/27/2018	0.33	33	10/15/2019	22.3	2233.3	10/27/2020	19.00	1900	10/12/2021	19.00	1900	9/13/2022	6.67	667	
4B	T34	10/21/2011	23	2300	10/3/2012	13	1300	10/10/2013	1.7	170	10/27/2014	4.3	430	10/20/2015	0.5	50	10/26/2016	2.7	270	10/25/2017	8.23	823	12/27/2018	3.33	333	10/15/2019	9.3	933.3	10/27/2020	16.00	1600	10/12/2021	26.33	2633	9/13/2022	18.67	1867	
4B	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10/15/2019	3.3	333.3	10/27/2020	0.00	0	10/12/2021	0.00	0	9/13/2022	0.00	0
4B	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10/15/2019	17.7	1766.7	10/27/2020	27.33	2733	10/12/2021	24.00	2400	9/13/2022	11.67	1167
4B	42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10/15/2019	27.3	2733.3	10/27/2020	19.67	1967	10/12/2021	8.33	833	9/13/2022	10.00	1000