FINAL

COUNTY OF SAN DIEGO MULTIPLE SPECIES CONSERVATION PROGRAM

SOUTH COUNTY SUBAREA PLAN ANNUAL REPORT YEAR 27

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ACRONYMS

BLM – Bureau of Land Management
BMO – Biological Mitigation Ordinance
Board – Board of Supervisors
CAP – Climate Action Plan
CDFW – California Department of Fish and Wildlife
CEQA – California Environmental Quality Act
CIVICS – Community Involved Vocational Inmate Crew Service
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
DGS – County of San Diego Department of General Services
DIY – Do-it-Yourself
DPR – County of San Diego Department of Parks and Recreation
DPW – County of San Diego Department of Public Works
EIR – Environmental Impact Report
EOTAS – East Otay Trail Alignment Study
GIS – Geographic Information System
HabiTrak – Habitat Tracking Reporting, State of California instrument and database
HCP – Habitat Conservation Plan
HOA – Homeowners Association
IA – Implementing Agreement
IMG – Inspect and Manage
LUEG – Land Use & Environmental Group
MD – Management Directive
MHPA – Multiple Habitat Planning Area
MLP – Mitigation Land Policy
MSCP – Sub-Regional Multiple Species Conservation Program
MSCP Preserve – Multiple Species Conservation Program Subarea Plan Preserve
NCCP – Natural Community Conservation Planning
Otay Ranch POM – Otay Ranch Preserve Owner/Manager
PAMA – Pre-Approved Mitigation Area
PDS – County of San Diego Planning & Development Services
RDF – Regional Decarbonization Framework
RDM – Residual Dry Matter
RECON – RECON Environmental, Inc.
REPI – U.S. Navy Readiness and Environmental Protection Integration
RMP – Resource Management Plan
RMWD – Ramona Municipal Water District
ROE – Right-Of-Entry Permit
RWQCB – Regional Water Quality Control Board
SANDAG – San Diego Association of Governments
SDGE – San Diego Gas & Electric
SDHS – San Diego Humane Society
SDMMP – San Diego Management and Monitoring Program
SDMS – San Diego Mycological Society
STEAM – Science, Technology, Engineering, Arts, and Math

Subarea Plan – South County Subarea Plan
SWRCB – State Water Resources Control Board
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
USCBP – United States Customs and Border Protection
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

81,566 acres preserved

83% of MSCP Preserve goal achieved

13,729 acres County-owned, managed or funded

30 County Parks and Preserves

Reporting Year Highlights

1,047 acre MSCP Preserve increase

3 MSCP Preserve management partnership projects

49 MSCP covered species monitored or documented in County Preserves

13 Grant-funded management projects

19 MSCP Preserve monitoring and research partnerships

This is the 27th 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, 2024, 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 permits, State Endangered Species Act, and State Natural Communities Conservation Planning Act 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 ensure 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 linkage[2]. 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 27 years, assembling 81,566 acres of the MSCP Preserve, which represents 83% 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 13,729 acres[3] (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 81,566 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 2024 reporting period, January 1, 2024, to December 31, 2024, 1,047 acres were added to the MSCP Preserve (conserved within the PAMA and hardline preserve areas) through County, federal, and state acquisitions, and private mitigation. The County acquired a total of 346 acres (with 147 acres adding to the MSCP Preserve as 199 acres were previously added as private mitigation). An additional 30 acres that the County had previously acquired, but had not been added to the MSCP Preserve were added to the MSCP Preserve assemblage during this reporting period. The USFWS acquired 97 acres and CDFW acquired 738 acres located within PAMA and added

[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.

to the MSCP Preserve. Private land dedication required as a County condition of private development added 35 acres.

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 81,566 acres (83% 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 81,566 acres. This effort will be ongoing through the term of the permit.

Covered Projects

The County permitted 39 development projects in the reporting period in the MSCP Subarea Plan Area, all of which were residential projects. 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 1,616 acres of habitat gains and 110 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 951.5 acres. There were an additional 664.5 acres of complementary conservation outside these areas. Habitat losses total 9.7 acres inside PAMA and hardline preserve areas and 100.5 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.

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 objectives[4]. 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 49 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 20 MSCP covered species that were not previously found on other County Preserves. These acquisitions provide long-term protection for the species and ensure 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.

[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).

Grant-funded projects across seven County Preserves benefited MSCP covered species, such as San Diego thornmint, variegated dudleya, willowy monardella, coastal California gnatcatcher, least Bell's vireo, coastal cactus wren, northern harrier, Cooper's hawk, golden eagle, light-footed Ridgway's rail, arroyo toad, southwestern pond turtle, southern mule deer, and mountain lion, and included habitat restoration, access control, invasive, non-native plant control, invasive non-native animal control, and trail alignment. Grant funding totaled approximately $23.6 million and was provided by 13 grants, County General Funds, and one local agency matching. Grant funds were from three Wildlife Conservation Board Proposition 68 grants, one State Coastal Conservancy Proposition 68 grant, one CDFW 30x30 Grant Program grant, two CDFW Proposition 1 grants, two TransNet Environmental Mitigation Program (EMP) grants, one U.S Navy Readiness and Environmental Protection Integration Program grant, two State Water Resources Control Board (SWRCB) Border Water Quality Infrastructure grants, and one California Natural Resources Agency (CNRA) Proposition 84 River Parkways grant.

Preserve management partners implemented three management projects across three County Preserves to benefit wetland, riparian, stream, and coastal sage scrub habitats. Partners were the City of San Diego (Stormwater Department, Public Utilities Department) and the Nature Collective.

Private mitigation lands management was documented for 21 properties and included habitat restoration, access control, fire management, environmental education, invasive, non-native plant control, and invasive non-native wildlife control actions completed to benefit MSCP covered species and habitats.

Environmental education informs the public about the county's natural and cultural resources. In 2024, the County was excited to offer many popular educational programs and approximately 21,000 guests participated in over 750 programs. County Preserve visitors were able to attend in-person ranger-led hikes and programs, Hawk Talk and Hawktober programs in 47 County parks, Discovery Program events, and other popular environmental education programs and activities. County Park staff participated in the San Diego Festival of Science & Engineering by providing a nature discovery table featuring several live animals during their Expo Day event Also, DPR partnered with Nature Unplugged to host ranger-led hikes during their 2024 Hike-a-Thon, which helped raise funds for their scholarship and subsidy program for organizations and communities in need. The County also continued the environmental education programs of the TRACK Trails Program, 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. 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 species[5]. 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 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 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 not only that 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 identify species that are stable or increasing in numbers.

These efforts have monitored or documented 49 MSCP covered species in County Preserves and an additional three MSCP covered species on private mitigation lands, as well as approximately 188 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 12 County Preserves during the reporting period, including seven preserves in the South County MSCP Subarea. During the reporting period, TMP monitoring and management efforts targeted ten MSCP covered species (and one habitat) and documented an additional 16 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.

Preserve monitoring and research partnership projects totaled 19 in the reporting year across 30 County Preserves in the South County MSCP Subarea. These projects inform stewardship and adaptive management in County Preserves and the MSCP Preserve.

[5] 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.

Monitoring and research topics included Harbison's dun skipper, arroyo toad, western spadefoot, southwestern pond turtle, coastal California gnatcatcher, least Bell's vireo, burrowing owl, coastal cactus wren, southwestern willow flycatcher, tricolored blackbird, American badger, mountain lion, Englemann oak, and Orcutt's brodiaea, as well as other species inside and outside of the MSCP Subarea Plan Area. Research occurred on County Preserves through the County's right-of-entry (ROE) permit process. ROEs were requested by federal and state agencies, universities, the San Diego Zoo, the San Diego Natural History Museum, environmental organizations, a wildlife rehabilitation organization, and a community science organization.

Private mitigation lands monitoring detected 23 MSCP covered species across 15 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 $56 million which leveraged over $35 million of other funding to acquire 8,830 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 13,729 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. Approximately $23.6 million of grant funding augments annual appropriations for projects spanning Fiscal Year 2016-2017 through Fiscal Year 2023-2024. 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. In 2024, one Major Amendment was finalized that included amending 77.02 acres of conservation lands into the MSCP Subarea Plan boundary. The MSCP Subarea Plan maps will be updated in the 2025 Annual Report to reflect these changes. There were no other Minor, Major, or Subarea amendments to the MSCP Subarea Plan or MSCP map updates in 2024.

CHAPTER 1

Introduction

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 2024 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, 2024 through December 31, 2024, and ongoing progress from previous reporting years. The 2024 reporting period marks the 27th 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 2025-2026. 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 Climate Action Plan (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 and agricultural exemptions.

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 Habitat Conservation Plan (HCP) and Natural Community Conservation Planning 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 49 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

Through December 31, 2024, the MSCP Preserve totals 81,566 acres and 83% 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, 2024 to December 31, 2024, 1,047 acres were added to the MSCP Preserve. This includes 147 acres preserved by the County (an additional 199 acres had previously been added to the MSCP Preserve through private mitigation but were acquired by the County), 97 acres preserved by USFWS, 738 preserved by CDFW, and 35 acres preserved by private mitigation. An additional 30 acres that had previously been acquired by the County, but was outside PAMA, was added to the MSCP Preserve during this reporting period. There were no acquisitions by local, non-profit partners in 2024. The MSCP Preserve benefits MSCP covered species and habitats.

Acreage reported in Chapters 2, 3, 4, and 5 are Geographic Information System (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 81,566 acres with 83% 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 PAMA and the hardline preserve areas.[6] MSCP Preserve goals are split between public acquisitions (including local/non-profit partners) and private mitigation with each having a preserve goal[7].

[6] 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.

[7] 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.

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 (**Table 1**, *Summary of MSCP Subarea Plan Preserve Assembly Status*). 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.

TABLE 1. SUMMARY OF MSCP SUBAREA PLAN PRESERVE ASSEMBLY STATUS

Landowner	MSCP Preserve Goals (acres)	2023 MSCP Preserve Total (acres)	2024 MSCP Preserve Gain (acres)	2024 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		25,127	835	25,962	
County[a]		7,895	376	8,271	
Local/non-profit partners		3,347	-	3,347	
Total	**18,850**	**36,369**	**1,211**	**37,580**	**199%**
Private Mitigation					
Dedicated Within Hardline	11,563	4,643	-	4,643	40%
Dedicated Outside Hardline	22,150	2,304	(164)	2,104	9%
Total	**33,713**	**6,947**	**(164)**	**6,747**	**20%**
MSCP Preserve Total[b]					
Total	**98,379**	**80,519**	**1,047**	**81,566**	**83%**

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 Appendix A, the 2016 through 2024 approved additions to the MSCP Preserve that have not been formally designated in HabiTrak.

SOURCES: 2023 Annual Report and 2024 HabiTrak report Summary of Project Gains included in Appendix C, Summary of MSCP Gains.

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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 37,584 acres (**Table 3**, *MSCP Public and Partner Acquisitions Since 1998*). Within the MSCP Subarea Plan boundaries, land owned and/or managed by the Wildlife Agencies, local partners, and the County total 55,751 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, 34,237 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.

Since 2017, the County has contributed to the MSCP Preserve with acquisitions outside of PAMA and hardline areas (Appendix A2). In 2017, the Wildlife Agencies approved the inclusion of an additional 173 acres[8] in the MSCP Preserve for the County's Dictionary Hill acquisition. Subsequent acquisitions for Peutz Valley, Lakeside Linkage, Ramona Grasslands, Skyline, Santa Fe Valley Preserves and Sweetwater Regional Park have resulted in 309 acres of

[8] 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.

non-PAMA or hardline area conservation of preserve lands to add to the MSCP Preserve. Data contained in this chapter reflects these manual additions to the MSCP Preserve plus those reported as HabiTrak 2024 habitat gains **(Appendix C**). HabiTrak has not been updated to reflect these changes.

TABLE 3. MSCP PUBLIC AND PARTNER ACQUISITIONS SINCE 1998

Agency	Funded In MSCP Preserve (acres)	2024 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	3,109	8,840	3,242	12,082
BLM	1,830	1,830	2,609	4,439
Subtotal	**4,939**	**10,670**	**5,851**	**16,521**
Non-Federal				
State	12,202	15,296	12,088	27,384
County	5,181[b]	8,271[c]	0	7,395[d]
Local Partners	2,606	3,347	1,104	4,451
Subtotal	**19,989**	**26,914**	**13,192**	**39,230**
Total				
Grand Total	**24,928**	**37,584**	**19,043**	**55,751**

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: 2023 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 13,729 acres in the MSCP Subarea Plan Area (**Tables 2 and 3** and **Figure 1**). This includes 5,466 acres of baseline and 8,271 acres of newly acquired conserved lands. In 2024, the County acquired 346 acres comprised of an 82-acre addition to Santa Fe Valley Preserve, a 195-acre addition to the Sweetwater Regional Park, and a 69-acre addition to El Capitan Preserve. Of the 346 acres, 199 acres had previously been added to the MSCP Preserve through private mitigation, resulting in a 147 increase to the MSCP Preserve in 2024. An additional 30 acres that had previously been acquired by the County for the Ramona Grasslands Preserve was added to the MSCP Preserve in 2024, increasing the total County contributions to 376 acres in 2024 and to 13,729 acres in the MSCP Subarea Plan Area.

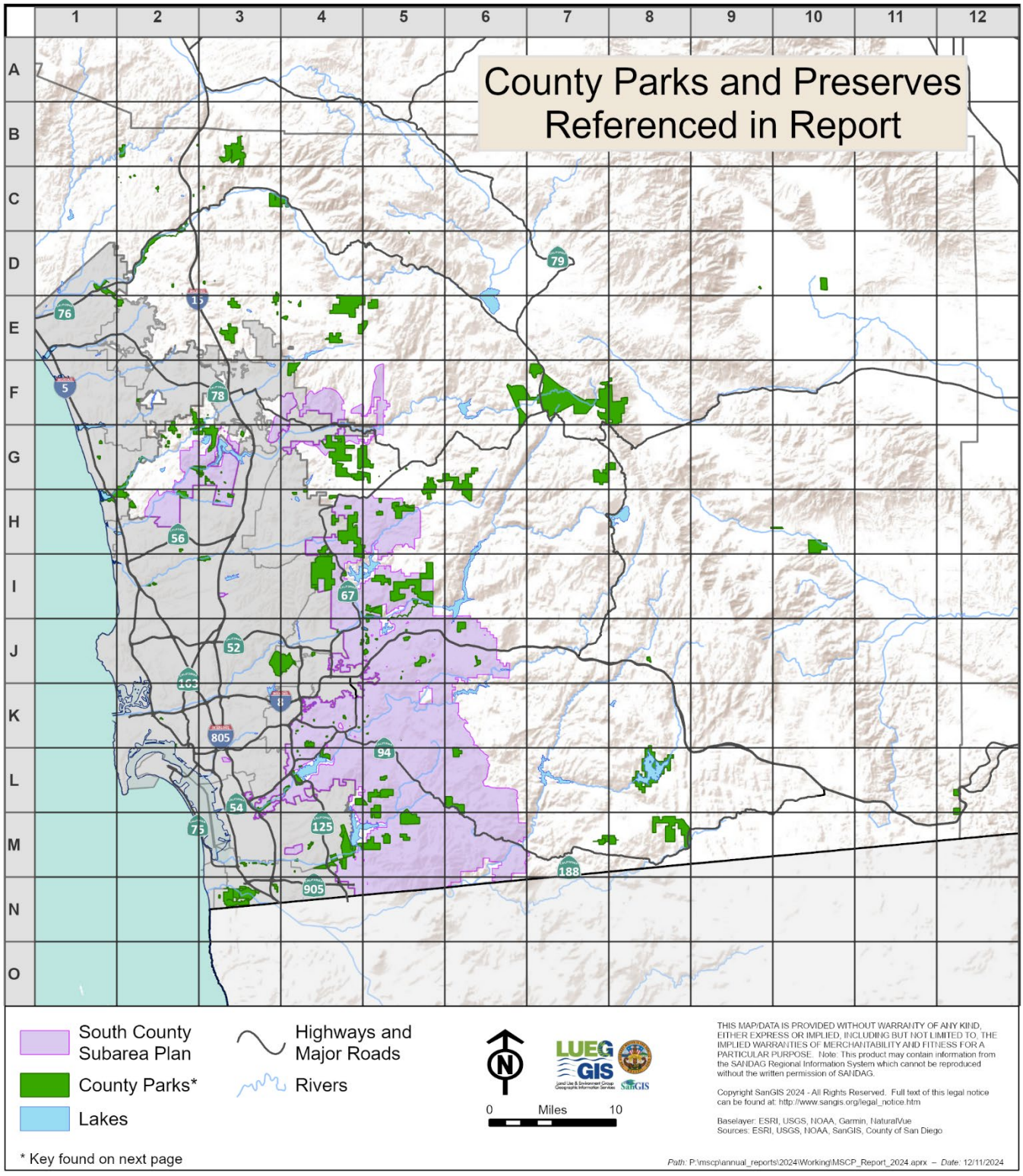

Figure 1. County Parks and Preserves Referenced in Annual Report

Map Key is on the following page

Map Key:

County Parks and Preserves Referenced in Report

	MSCP Subarea Plan*
H5	Barnett Ranch Preserve**
H4, H5, I4, I5	Boulder Oaks Preserve
I5, J5	Cactus Park
H3	Christopher Hill Preserve
K4	Damon Lane Park
G2, G3	Del Dios Highlands Preserve**
K4	Dictionary Hill Preserve
H4	Dos Picos Park
I5	El Capitan Preserve**
I5	El Monte Park
J5	Flinn Springs Park
N3	Furby-North Property
I5, J5	Historic Flume Corridor
H5	Holly Oaks County Park
H4	Iron Mountain Preserve
J4, J5	Lakeside Linkage Preserve
L6, M6	Lawrence & Barbara Daley Preserve
J4, J5	Lindo Lake Park
H2, I2, I3	Los Peñasquitos Canyon Preserve
I5	Louis A. Stelzer Park
H5	Luelf Pond Preserve
H2	Lusardi Creek Preserve
J3, J4	Mission Trails Regional Park
I5	Oakoasis Preserve
J5	Old Ironsides Park
M4	Otay Lakes Park
L4, L5, M4, M5	Otay Ranch Preserve
M3, M4	Otay Valley Regional Park
J6	Peutz Valley
G4, G5	Ramona Grasslands Preserve**
G2, G3	Santa Fe Valley Preserve
L6	Skyline Preserve
J5	Stoneridge Preserve
L4	Sweetwater Regional Park
H4, I4	Sycamore Canyon and Goodan Ranch Preserve
N3	Tijuana River Valley Regional Park

	Draft North County MSCP
G4, H4	Blue Sky Ranch Ecological Reserve
F2	Diamond Trail Preserve Property
F2, F3, G2, G3	Escondido Creek Preserve
G3	Felicita Park
D1, E1	Guajome Park
D4, D5, E4, E5	Hellhole Canyon Preserve
C2	Live Oak Park
G5, G6, H6	Mt. Gower Preserve
B3, C3	Mt. Olympus Preserve
H4	Mt. Woodson Gateway Preserve
E1, E2	Rancho Guajome Adobe Park
F2, G2	Sage Hill Preserve
H2	San Dieguito Park
G2, H1, H2	San Elijo Lagoon Ecological Reserve
C2, D2	San Luis Rey River Park
B2	Santa Margarita Preserve
F6, F7, G6	Santa Ysabel Preserve
G5, H5	Simon Preserve
F7, F8, G8	Volcan Mt. Wilderness Preserve
C3, C4	Wilderness Gardens Preserve
G7, G8	William Heise Park

	Future East County MSCP
H10	Agua Caliente Park
L12, M12	In-Ko-Pah Park
K8, L8	Lake Morena Park
D5	Palomar Mountain Park
J8	Pine Valley Park
M7	Potrero Park
M8, M9	Star Ranch
H9, H10	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 6,747 acres in the MSCP Preserve (**Table 4**, *MSCP Private Mitigation*). In the reporting year, 35 acres of private mitigation were added to the MSCP Preserve. A total of 199 acres of private mitigation was acquired by the County and added to the County contributions and removed from the private mitigation contributions total acreages. The result was a reduction of a total of 164 acres from the private mitigation contributions in 2024. 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 (including Otay Ranch Preserve Owner/Manager [POM]) are found in the "Dedicated Private Hardline" totals. Private mitigation for new developments and other regulations is found in the "Privately Dedicated Lands" totals. An audit of the acreage of the dedicated private hardline (hardline areas) is in process and is anticipated to be completed in 2025 and reflected in the 2025 MSCP Annual Report. County staff are working on reconciling "Privately Dedicated Lands" data. This effort is anticipated to be completed in 2025, and the results are anticipated to be reported in the 2025 MSCP Annual Report.

TABLE 4. MSCP PRIVATE MITIGATION

Mitigation Type	MSCP Preserve Goal (acres)	2023 Cumulative (acres)	2024 MSCP Preserve Gains (acres)	2024 MSCP Preserve Total (acres)
Dedicated Private Hardline[a]	11,563	4,643	0	4,643
Privately Dedicated Lands[b]	22,150	2,304	(164)	2,140
TOTAL	**33,713**	**6,947**	**(164)**	**6,783**

NOTES:
a Dedicated Private Hardline are HabiTrak Acres Inside Habitat Preserve.
b Privately Dedicated Lands are HabiTrak Acres Inside Habitat Preserve attributed to Private.

2.5 Mitigation Areas and Banks

Five County owned and managed mitigation areas, Boden Canyon, Old Castle, Rancho San Diego, Singing Hils, and Sweetwater, are established in the unincorporated county. Rancho San Diego, Singing Hills, and Sweetwater are in the South County Plan Area boundary. 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 mitigation areas 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). During the reporting period, 0.02 acre of riparian and 0.01 acre of marsh/riparian scrub mitigation area credits were used at the Rancho San Diego mitigation area for the Los Coches Flow Urban Runoff Project. The status of each of the mitigation areas is detailed in **Appendix H** and summarized below.

Boden Canyon. Mitigation area 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 area 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 area totals 409.20 acres and includes the seven habitat types of coast live oak woodland, coastal sage scrub, non-native grassland, marsh/riparian scrub/floodplain, mixed chaparral, native grasslands, and southern riparian/oak woodland. Credits totaling 248.34 acres remain.

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

Sweetwater. Mitigation area 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. **Table 5**, *Mitigation Banks Available for Private Mitigation*, includes a list of approved mitigation banks in the South County Plan Area that are available for private mitigation. Additional information on approved mitigation banks can be found at www.wildlife.ca.gov/Conservation/Planning/Banking.

TABLE 5. MITIGATION BANKS AVAILABLE FOR PRIVATE MITIGATION

Mitigation Bank	Manager
Crestridge Phase Conservation Bank	J. Whalen Associates, Inc.
Daley Ranch Conservation Bank	City of Escondido
Rancho Jamul Wetland Mitigation Bank	Wildlands, Inc.
Ramona Grasslands Conservation Bank	McCollum Associates
San Miguel Conservation Bank	San Diego Water Authority
San Vicente Conservation Bank	Mitigation Land Specialists
Skyline Conservation Bank	Skyline Land Partners, LLC
Willow Road Conservation Bank	Mitigation Credit Services

2.6 Mitigation Land Policy (I-138)

In November 2020, the County Board of Supervisors reestablish 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), which 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. MLP I-138 sets forth methods by which the value of the mitigation

credits may be determined and requires applicants to pay for the valuation. The policy also requires an endowment for annual stewardship costs. A Certificate of Mitigation and Purchase Agreement is required for each transaction. The County trades the conveyance of mitigation credits to purchasers and the application of mitigation credits to development projects. County numbers, in **Table 6**, *Mitigation Land Policy*, and **Appendix A**, accurately show year-to-year manual County updates and subtraction of acres used for MLP credits. There no mitigation credits sold in 2024. **Table 6** 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 6** 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.

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TABLE 6. MITIGATION LAND POLICY

Date	MSCP Plan Area	Project	Preserve	Credits Sold	Mitigation Credit Cost	Endowment For Stewardship
5/3/2011	SC	Tuscan Ridge	Louis A. Stelzer Park	1.070	$16,050.00	$4,060.00
6/21/2011	NC	L. Rancho Viejo	Wilderness Gardens - Rowan	3.700	$37,000.00	$18,500.00
6/22/2011	SC	Dictionary Hill - Maria Ave	Lakeside Linkage	0.310	$7,225.00	$1,240.00
10/2/2012	SC	DPW South (5) - Tavern Rd, Wing Ave, Woodside Ave., Emery Rd, Jamacha Blvd	Lawrence & Barbara Daley	2.450	$98,000.00	$14,700.00
1/17/2013	City of SD	Swiss Park Staging Area	Furby-North (East Otay Mesa)	1.000	$23,300.00	$6,000.00
2/14/2013	City of SD	San Ysidro Freight Yard Improvement	Tijuana River Valley Regional Park[a]	1.750	$61,250.00	$10,500.00
4/3/2014	NC	De Luz Rd Emergency Storm Drain Repair	Wilderness Gardens - Rowan	0.360	$14,400.00	$6,000.00
1/21/2014	SC	Central Ave Drainage Improvement and Woodside Ave Flood Control	Lawrence & Barbara Daley	0.370	$14,800.00	$2,220.00
5/23/2014	EC	Pine Valley SHF Substation	Pine Valley	0.630	$14,679.00	$6,000.00
6/10/2015	NC	San Vicente Rd Improvement - Ramona	Wilderness Gardens - Overall	3.380	$31,050.00	$85,650.00
6/10/2015	SC	San Vicente Rd Improvement - Ramona	Lawrence & Barbara Daley	8.040	$223,512.00	
7/11/2016	City of SD	LOSSAN double-tracking and Mid-Coast light rail	Tijuana River Valley Regional Park[a]	10.000	$350,000.00	$630,644.00
9/30/2016	NC	Holmwood Ln Drainage Improvement	Wilderness Gardens - Rowan	0.010	$4,000.00	$50.00

Date	MSCP Plan Area	Project	Preserve	Credits Sold	Mitigation Credit Cost	Endowment For Stewardship
9/14/2018	NC	Santa Ysabel Nature Center	Santa Ysabel East	3.270	$26,160.00	$11,380.00
2/20/2019	NC	Santa Ysabel Preserve	Santa Ysabel East	0.500	$4,000.00	$1,750.00
10/13/2023	SC	Furby North County Preserve	Furby North County Preserve	0.166	$12,118.00	$74,903.76
			TOTAL	**37.006**	**$937,544.00**	**$873,597.76**
		Add:				
		Interest Earned			$20,750.74	$113,014.10
		Less Fund Disbursements:	MSCP Plan Area			
		Rice El Capitan MSCP Acquisition	SC		$ (60,275.00)	
		Bottle Peak MSCP Acquisition	NC		$ (196,950.00)	
		University Heights MSCP Acquisition	NC		$ (29,479.00)	
		SR 67 Preserve Expansion	SC		$ (254,562.00)	
		Mountain Gate MSCP Acquisition	NC		$ (354,000.00)	
		Funds Available			$63,028.74	$986,611.86

NOTES:
[a] Park is outside of the MSCP Subarea Plan Area but is within the City of San Diego MSCP
SOURCE: DPR

CHAPTER 3

Covered Projects

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 39 development projects in the reporting period in the MSCP Subarea Plan Area, all of which were residential projects. No agricultural exemptions were issued during the reporting period. Habitat clearing acreages for development projects in 2024 are cumulatively included in **Appendix E**. The number of covered projects and associated permit types are included in **Table 7**, *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 7. MSCP COVERED PROJECTS IN REPORTING YEAR

Permit Type	Number of Projects
Single Family Exemptions COI	39
Agricultural Exemption COI	0
TOTAL SINCE 1998	**4,448**

SOURCE: 2024 HabiTrak Report found in Appendix E, Summary of Project Losses

3.1 Clearing for Single Family Residences

COIs were issued for 39 permits for single-family residential projects. Not all projects cleared totaled up to the two or five allowable acres which resulted to 36.7 acres in 2024 in exemptions. 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 ten 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 permits issued in 2024 for clearing habitat on parcels ten 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 ten 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 ten acres and zoned for singlefamily 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

ten 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

No COIs were issued for agricultural exemptions in 2024. 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 reaches 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.

CHAPTER 4

Habitat Gains and Losses

There was a total of 1,616 acres of habitat gains and 110 acres of habitat losses in the reporting period. This includes 951.5 acres of habitat gain inside the MSCP Preserve and 664.5 acres of complementary conservation.[9] Habitat losses total 9.7 acres inside PAMA and hardline preserve areas and 100.5 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.[10] From 1998 to 2024, 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.

4.1 Habitat Gains and Losses

Habitat gains of 951.5 acres and habitat losses of 9.7 acres occurred within PAMA and hardline preserve areas in the reporting period, see **Table 8**, *Habitat Gain and Loss in Reporting Year,* and **Appendix F**.[11] 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 2024, conserved land additions within PAMA and hardline preserve areas included County acquisitions (81 acres), federal acquisitions (97 acres), state acquisitions (738 acres), and

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

[10] Appendix F, *Summary Habitat Losses and Gains*, includes HabiTrak Summary of Project Losses and Gains.

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

private dedications in PAMA (35acres [**Appendix C**]). There were 951.5 acres of habitat gain within the MSCP Preserve per HabiTrak.

Habitat Loss

Losses in 2024 were 9.7 acres within PAMA and hardline preserve areas, part of a total of 110 acres impacted by development projects within the MSCP Subarea Plan boundaries (**Table 8** and **Appendix E**).

TABLE 8. 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	65.8	81.3	147.1
Federal and State	540.0	835.2	1,375.2
Local/Non-profit partners	-	-	-
Private Mitigation Outside Hardline	58.7	35.0	93.7
Private Mitigation Inside Hardline	-	-	-
Total	664.5	951.5	1,616.0
Habitat Losses			
Total	100.5	9.7	110.2

SOURCES: 2024 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 2024 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 2024. 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.

HabiTrak reports a 78,778-acre cumulative gain within PAMA and hardline preserve areas and a loss of 1,580 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 differs 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 9**, *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 9. 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	546	2,964	3,510
North Metro-Lakeside-Jamul	6,993	11,630	18,623
South Metro-Lakeside-Jamul	12,408	13,797	25,845
South County	2,3697	11,485	13,882
Total	**21,984**	**39,876**	**61,860**
Habitat Losses			
Lake Hodges	2,529	108	2,637
North Metro-Lakeside-Jamul	4,083	706	4,789
South Metro-Lakeside-Jamul	3,509	611	4,120
South County	1,091	160	1,251
Total	**11,212**	**1,585**	**12,797**

NOTE: Totals may not add up due to rounding.
SOURCE: 2023 Annual Report plus 2024 HabiTrak reports found in Appendix C, *Summary of MSCP Gains* and Appendix G, *Habitat Conservation Accounting Model*.

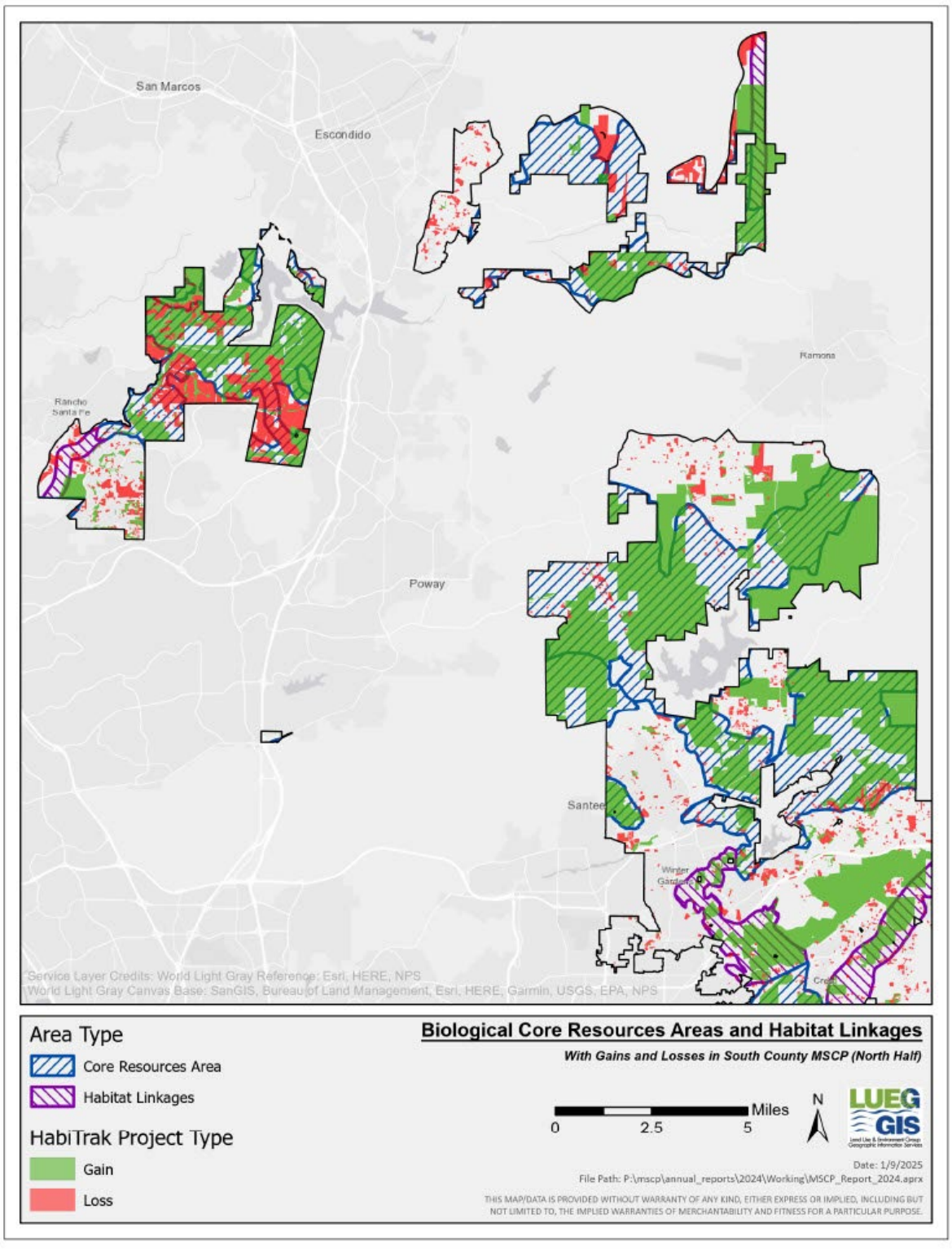

Figure 2. MSCP Biological Core Resource Areas and Habitat Linkages with Gains and Losses in the Northern Half of the MSCP Subarea Plan Area.

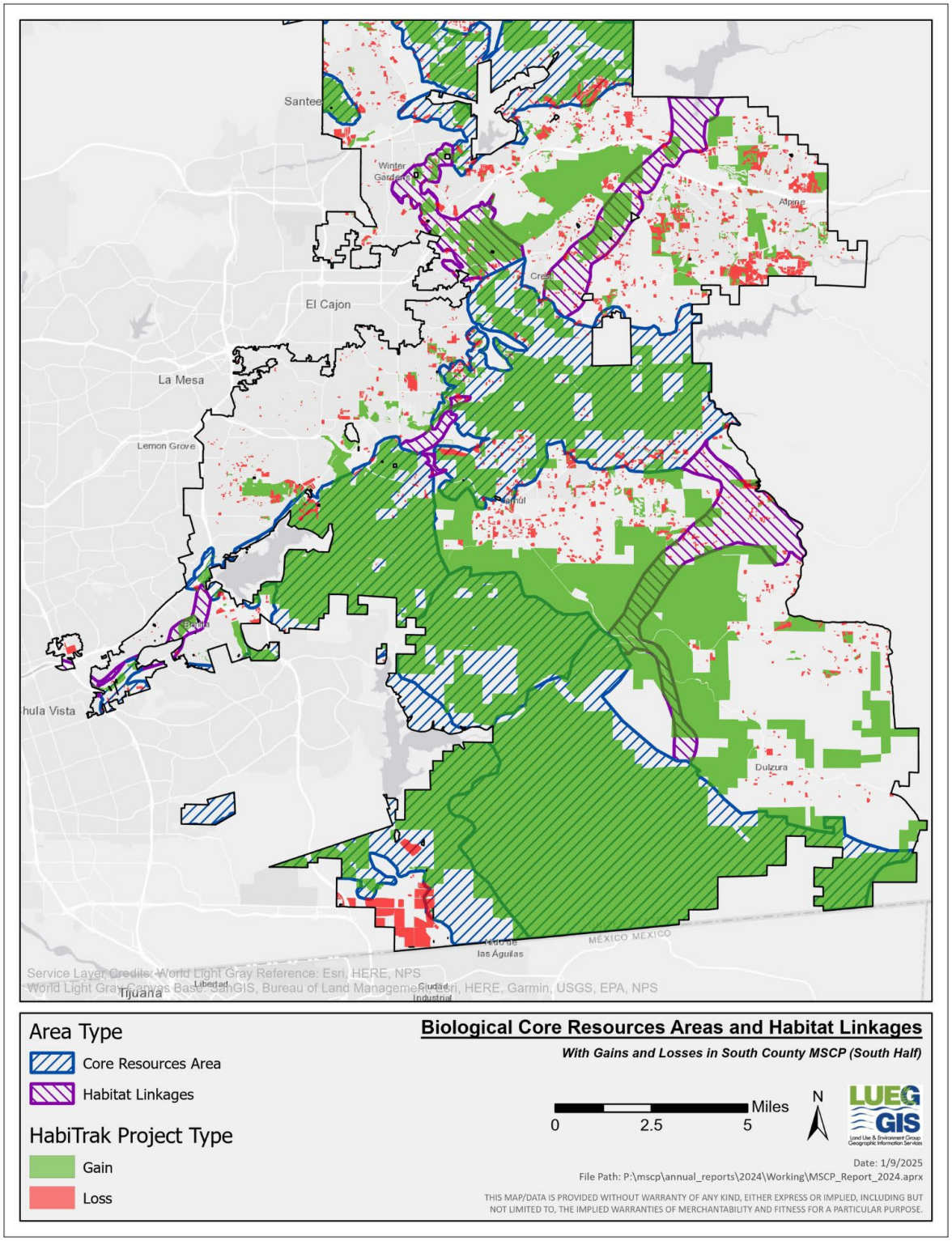

Figure 3. MSCP Biological Core Resource Areas and Habitat Linkages with Gains and Losses in the Southern Half of the MSCP Subarea Plan Area.

CHAPTER 5

Species and Habitat Conservation

This chapter summarizes the status of the MSCP Preserve and the County's contributions within the Subarea Plan and how the objectives outlined in MSCP and the subarea plan are being met. The MSCP objectives ensure the persistence of habitat linkages for wildlife movement, critical biological resource areas for MSCP covered plant and animal species habitat, and MSCP covered plant and animal species occurrences in these areas.

A *Preserve Functionality Assessment*, to evaluate the MSCP Preserve conserved lands' contribution to the MSCP Subarea Plan objectives, was previously initiated and is currently being revised in coordination with regional partners. A draft of the *Preserve Functionality Analysis* will be prepared in 2025. The MSCP Preserve includes both public (state, federal, and local) and private conserved lands. 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.

At the landscape-level, the County Subarea Plan spans 8 of 16 biological core resource areas and 18 habitat linkages. County Parks are located in 11 biological core resource areas and an additional 3 core resource areas within other jurisdictions. At the habitat-level, 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. County Preserves help achieve significant habitat acreage goals for many habitats including oak woodland (21%), coastal sage scrub/chapparal (20%), and riparian woodland (20%). At the species-level, of the 85 MSCP covered species, 49 have been documented across the 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 the individual segments of the preserve (e.g., County Preserves, private mitigation sites). These documents serve as a guidance document to manage and preserve the sensitive biological and cultural resources and include guidance for land management/ stewardship activities. They also include a framework for on-site MSCP covered species monitoring and management. The County's monitoring program provides detailed specifications for implementation of management and monitoring within County-owned and managed conserved lands. Specifically, 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 with over 5,000 acres of coastal sage scrub and over 6,000 acres of chaparral habitat conservation. Habitat types with high biological value

by the MSCP habitat evaluation model (such as coastal sage scrub/chapparal and grasslands) have been conserved successfully in County Preserves.

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: County Preserves conserve lands within 11 of the 16 core biological resource areas, and within six critical biological resource areas identified in MSCP Subarea Plan Section 4.2.2 and six habitat linkages identified in MSCP Subarea Plan Section 4.2.3 (Section 5.3, *Landscape-level Conservation*). As of December 31, 2024, the assembled 81,536-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 **Attachment 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: A total of 49 MSCP covered species are found on County Preserves. 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: County Preserves conserve lands within 11 of the 16 core biological resource areas, and within six critical biological resource areas identified in MSCP Subarea Plan Section 4.2.2 and six habitat linkages identified in MSCP Subarea Plan Section 4.2.3. (Section 5.3, *Landscape-Level Conservation*).

5.2 County Preserves Contribution to MSCP Objectives

The County continues to evaluate the contribution of County Preserves to the Sub-Regional MSCP Plan's and MSCP Subarea Plan's objectives at the landscape-, habitat-, and species-level. This assessment is part of the County's development of a *Preserve Functionality Assessment* which will evaluate the contribution of conserved lands to the assembled MSCP Preserve. As part of a regional effort, and in coordination with conserved land partners, the 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 is used as the measurable objective. The metrics presented in this chapter reflect the contributions of County Preserves. The functionality analysis approach was modified in 2024 in coordination with regional partners. A draft analysis of conserved lands in the MSCP Preserve will be developed in 2025 and reported in the 2025 MSCP Annual Report.

As part of the County's efforts for the development of the *Preserve Functionality Assessment*, DPR, the Wildlife Agencies, San Diego Management and Monitoring Program (SDMMP), and United States Geological Society (USGS) have met and continue to collaborate, determine available data sets, coordinate on analysis, and discuss the County's approach to the project. The evaluation of County Preserves was based on availability of data and knowledge of management activities on County Preserves and to show the County's contribution to the MSCP species and habitats goals and objectives. The *MSCP Preserve Functionality Assessment* will focus on all conserved lands of the MSCP Preserve.

The evaluation of the County Preserves that contribute to the assembled MSCP Preserve included the following components and criteria:

- **County Preserves.** County Preserves enrolled in the MSCP Preserve was 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 2024 was considered in the analysis. Data sources included GIS data from DPR's TMP, RMPs, inventory surveys, habitat vegetation mapping, and restoration projects as well as the CNDDB. County partner data from the SDMMP, USGS, and Wildlife Agencies was also included.

- **MSCP Covered Species on County Preserves.** The analysis determined species-level contributions to MSCP covered species conservation goals. The data was used to determine which of the 85 MSCP covered species are found on County Preserves. Results were 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. These results are shown in **Appendix J**.

- **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 were 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 were summarized for the County Preserves as a whole and by each County Preserve in **Appendix J**.

- **Summary of threats and monitoring activities on County Preserves for MSCP covered species.** The summary of threats to MSCP covered species is used to inform

habitat and species-level management and monitoring actions for MSCP covered species. An evaluation of threats to MSCP covered species and the DPR monitoring activities that are implemented to ensure the success of the MSCP covered species on County Preserves was summarized.

Section 5.3 through Section 5.5 provides preliminary results and assessments of the contribution of the County's Preserves within the MSCP Preserve.

5.3 Landscape-Level Conservation

A landscape-level conservation evaluation 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 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 linkages [12] to quantify the landscape level conservation 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).

County Preserves contribute to MSCP Subarea Plan landscape, habitat, and species objectives by spanning 11 biological core resource areas, 6 habitat linkages, and seven segments. **Table 10**, *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. The *Preserve Functionality Analysis* will 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. The *Preserve Functionality Analysis* will assess all conserved

[12] 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]).

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 up to 77% of the segment goals.[13] 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 10**. Only the acreage within the MSCP Plan Area's boundaries is reported in **Table 10** as four County Preserves span both the South County and draft North County MSCP Plan Areas.

TABLE 10. 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	2,019	North Metro-Lakeside-Jamul	2,019	Central Poway/San Vicente Reservoir	1,416	-
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	176	South Metro-Lakeside-Jamul	176	-	-	-
El Capitan Preserve	2,446[a]	North Metro-Lakeside-Jamul	2,2446	Lake Jennings/Wildcat Canyon	2,381	-
El Monte Park	87	North Metro-Lakeside-Jamul	87	Lake Jennings/Wildcat Canyon	87	-
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	-

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

County Preserve	Area within MSCP Subarea Plan Area (acres)	Segment Name	Segment acres	Biological Core Resource Area Habitat Linkage	Core Area acres	Linkage acres
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	199	North Metro-Lakeside-Jamul	199	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	199	City of San Diego Northern Area	199	Los Peñasquitos Lagoon/Del Mar Mesa Los Peñasquitos Creek west of Poway Linkage	176	14
Louis A. Stelzer Park	369	North Metro-Lakeside-Jamul	369	Lake Jennings/Wildcat Canyon	369	-
Luelf Pond Preserve	87	North Metro-Lakeside-Jamul	87	-	-	-
Lusardi Creek Preserve	226	Lake Hodges	226	Hodges Reservoir/San Pasqual Valley	226	-
Oakoasis Preserve	391	Lake Hodges	391	Central Poway/San Vicente Reservoir	27	-
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	3,996	City of Chula Vista South County	99 2,991	Jamul Mountains Otay Lakes/Otay Mesa/Otay River Valley Otay Mountain/ Marron Valley	907 1,800 1,266	-
Otay Valley Regional Park	412	South County City of Chula Vista City of San Diego Southern Area	189 125 99	Otay Lakes/Otay Mesa/Otay River Valley Otay River west of I-805 Linkage	319	41
Peutz Valley Preserve	255	North Metro-Lakeside-Jamul	255	Dehesa to El Capitan Reservoir Linkage	-	7
Ramona Grasslands Preserve	775[a]	North Metro-Lakeside-Jamul	755	Hodges Reservoir/San Pasqual Valley	775	-

County Preserve	Area within MSCP Subarea Plan Area (acres)	Segment Name	Segment acres	Biological Core Resource Area Habitat Linkage	Core Area acres	Linkage acres
Santa Fe Valley Preserve	402	Lake Hodges	402	Hodges Reservoir/San Pasqual Valley	402	-
Skyline Preserve	261	South Metro-Lakeside-Jamul	261	Otay Mountain/Jamul Mountains to Sequan Peak Linkage	-	122
Stoneridge Preserve	255	South Metro-Lakeside-Jamul	255	Dehesa to El Capitan Reservoir Linkage	-	249
Sweetwater Regional Park	567	South County South Metro-Lakeside-Jamul City of Chula Vista National City Sweetwater Authority	474 16 6 42 2	Sweetwater Reservoir/San Miguel Mountain Otay Lakes/Otay Mesa/Otay River Valley	239 129	108
Sycamore Canyon and Goodan Ranch Preserve	2,769	North Metro-Lakeside-Jamul City of San Diego Northern Area	2,766 3	Central Poway/San Vicente Reservoir Mission Trails/Kearny Mesa/East Elliot/Santee	1,269 1,500	-
Tijuana River Valley Regional Park	1,803	City of San Diego Southern Area	1,779	Tijuana Estuary/River Valley	1,198	-

[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

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 sub-associations in biologically functioning units."* The draft *Preserve Functionality Assessment,* which will analyze all of the conserved lands that contribute to the MSCP Preserve and towards the MSCP objectives and will be completed in 2025 and preliminary results will be reported in the 2025 MSCP Annual Report.

The 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 the 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 (6,400 acres) and coastal sage scrub (5,200 acres). For these habitat types, County Preserves contribute up to 16% and 12%, respectively, to the Subarea Plan segment goals. **Table 11**, *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 13 of 16 target habitats conserved in the Lake Hodges segment, 15 of 17 target habitats conserved in South County, and 10 of 14 target habitats conserved in the Metro-Lakeside-Jamul Segment. Depending on the vegetation community, County Preserves account for up to approximately 77% of the habitat conservation goals identified in MSCP Subarea Plan Table 1-2. County Preserves' contribution is provided in **Table 12**, *Habitat Conservation Goals Achieved in County Preserves for all Subunits*, and summarized as follows.

- **Lake Hodges.** Thirteen target habitats are conserved in the Lake Hodges segment. The largest contributions are for riparian scrub (45%) and freshwater marsh (35%).

- **South County.** Fifteen target habitats are conserved in the South County segment. The largest contributions are for coastal sage scrub/chaparral (77%), open water (64%), and grassland (24%).

- **Metro-Lakeside-Jamul.** Ten target habitats are conserved in the Metro-Lakeside-Jamul segment. The largest contributions are for riparian woodland (67), chaparral (30%), and oak woodland (22%).

The MSCP Subarea Plan establishes additional habitat conservation goals for 14 habitats in the north and south sub-segments of the Metro-Lakeside-Jamul segment in MSCP Subarea Plan Table 4-2. County Preserves conserve 10 of 13 target habitat types in the North sub-segment and eight of 13 in the South sub-segment. County Preserves' contributions are provided in **Table 13**, *Habitat Conservation Goals Achieved in County Preserves for Metro-Lakeside-Jamul Segment*, and summarized as follows.

- **North Metro-Lakeside-Jamul.** Ten target habitats are conserved in North Metro-Lakeside-Jamul. The largest contributions are for riparian woodland (67%), grassland (51%), chaparral (44%), and oak woodland (41%).

- **South Metro-Lakeside-Jamul.** Eight target habitats are conserved in South Metro-Lakeside-Jamul. The largest contributions are for chaparral (3%), coastal sage scrub (2%), and oak riparian forest (2%).

TABLE 11. HABITAT CONSERVATION IN COUNTY PRESERVES

Vegetation Community	Cumulative within MSCP Subarea Plan Area (acres)	% of Total[a]
Coastal Sage Scrub	5,225	38%
Maritime Succulent Scrub	1	0%
Chaparral	6,377	46%
Southern Maritime Chaparral		0%
Coastal Sage Scrub/Chaparral	260	2%
Grassland	778	6%
Freshwater Marsh	51	0.4%
Oak Riparian Forest	142	1%
Riparian Forest	66	0.5%
Riparian Woodland	4	0.03%
Riparian Scrub	83	1%
Oak Woodland	474	3%
Tecate Cypress Forest	164	1%
Eucalyptus Woodland	8	0.1%
Open Water	10	0.1%
Disturbed Wetland	7	0.05%
Flood Channel	3	0.02%
Other Habitat[b]	282	2%
Alkali Seep		0%

[a]Component parts may not add up to 100% because of rounding errors.

[b]Other Habitat includes areas mapped as non-native vegetation, unvegetated habitat, disturbed land, agriculture, and urban/developed.

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 12. 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[a]	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	405	2530	2290	5,225	16%	11%	12%	12%
Maritime Succulent Scrub	0	158	0	158		1		1		0%		0%
Chaparral	1,391	19,874	18,619	39,884	94	726	5556	6,377	7%	4%	30%	16%
Southern Maritime Chaparral	5	0	0	5				0				0%
Coastal Sage Scrub/Chaparral	20	153	1,152	1,325	3	118	139	260	17%	77%	12%	20%
Grassland	305	1,658	1,603	3,566	56	399	323	778	18%	24%	20%	22%
Freshwater Marsh	50	173	15	238	17	33		51	35%	19%		21%
Oak Riparian Forest	7	141	2,045	2,194		6	136	142	0%	4%	7%	6%
Riparian Forest	21	243	84	348	9	48	9	66	42%	20%	11%	19%
Riparian Woodland	6	8	6	20			4	4			67%	20%
Riparian Scrub	38	424	298	760	17	64	3	83	45%	15%	1%	11%
Oak Woodland	21	284	1,901	2,206	1	49	424	474	4%	17%	22%	21%
Tecate Cypress Forest	0	5,589	0	5,589		164		164		3%		3%
Eucalyptus Woodland	61	17	41	120	7			7	12%			6%
Open Water	19	6	124	149	4	4	2	10	22%	64%	1%	6%
Disturbed Wetland	4	34	52	90	1	5		7	30%	16%		7%
Flood Channel	15	132	197	344	3			3	20%			1%
Other Habitat	16	2	0	18	46	124	113	438	>100%	>100%	>100%	>100%

[a] Component parts may not add to total because of rounding errors.

[b] 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.

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TABLE 13. HABITAT CONSERVATION GOALS ACHIEVED IN COUNTY PRESERVES FOR METRO-LAKESIDE-JAMUL SEGMENT

	Metro-Lakeside-Jamul Goals (acres)		Conserved in County Preserves within MSCP Subarea Plan Area (acres)		Contribution to Goals (%)	
Vegetation Community	**North**	**South**	**North**	**South**	**North**	**South**
Coastal Sage Scrub	9,525	9,101	2,123	167	22%	2%
Maritime Succulent Scrub	-	-	-	-	-	-
Chaparral	12,134	6,285	5,385	171	44%	3%
Southern Maritime Chaparral	-	-	-	-	-	-
Coastal Sage Scrub/Chaparral	454	698	132	7	29%	1%
Grassland	633	971	322	1	51%	0%
Freshwater Marsh	2	13	-	-	-	-
Oak Riparian Forest	1,121	923	120	16	11%	2%
Riparian Forest	51	33	9	-	18%	-
Riparian Woodland	6	-	4	-	67%	-
Riparian Scrub	236	63	2	1	-	-
Oak Woodland	1,036	862	420	4	41%	0%
Tecate Cypress Forest	-	-	-	-	-	-
Eucalyptus Woodland	27	14	-	-	-	-
Open Water	90	34	2	-	2%	-
Disturbed Wetland	-	52	-	-	-	-
Flood Channel	34	163	-	-	-	-
Other Habitat	-	-	113	1	-	-
Total	25,353	19,411	8,632	368	35%	2%

NOTES: Metro-Lakeside-Jamul Goals are from MSCP Subarea Plan Table 4-2.
SOURCE: County, LUEG-GIS.

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 draft *Preserve Functionality Assessment,* which will analyze all of the conserved lands that contribute to the MSCP Preserve and towards the MSCP objectives, will be prepared in 2025 and preliminary results will be reported in the 2025 MSCP Annual Report.

To complete this analysis, MSCP covered species occurrence data for occurrences documented from 1998 to 2024 was consolidated. GIS data sources were SanBIOS, California Natural Diversity Database, SDMMP'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 49 MSCP covered species, including 26 MSCP covered plant, two MSCP covered invertebrate, two MSCP covered reptile, 17 MSCP covered bird, and two MSCP covered mammal species. Of the 30 County Preserves evaluated, 26 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 (San Diego) barrel cactus, and variegated dudleya (documented in six County Preserves), and San Diego goldenstar (documented in five County Preserves). Blainville's horned lizard is documented in 19 County Preserves and Belding's orange-throated whiptail is documented in 18 County Preserves. The most widespread bird species are the southern California rufous-crowned sparrow (documented in 20 County Preserves), coastal California gnatcatcher (documented in 16 County Preserves), and Cooper's hawk, (documented in 15 County Preserves). The most widespread mammal is southern mule deer (documented in 16 County Preserves).

MSCP covered species have also been documented only in a single County Preserve. This includes Del Mar manzanita in Lusardi Creek Preserve, heart-leaved 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 nine County Preserves (Barnett Ranch Preserve, Boulder Oaks Preserve, Del Dios Highlands Preserve, El Capitan Preserve, Iron Mountain Preserve, Lakeside Linkage Preserve, Otay Ranch Preserve, Peutz Valley Preserve, and Sycamore Canyon and Goodan Ranch Preserve). Southern mule deer are documented in 16 County Preserves (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, and Sycamore Canyon and Goodan Ranch Preserve). Golden eagles are documented in seven County Preserves (Barnett Ranch Preserve, Del Dios Highlands Preserve, El Capitan Preserve, Otay Ranch Preserve, Ramona Grasslands Preserve, Skyline 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.”*

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CHAPTER 6

Preserve Management

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. Private mitigation lands stewardship activities are summarized in *Section 6.5, Private Mitigation Lands Management*.

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. RMPs are in progress for Dictionary Hill, Iron Mountain, Peutz Valley, and Skyline Preserve, all of which are located within the MSCP Subarea Plan boundaries. RMP updates are in progress for Barnett Ranch, Boulder Oaks, Lakeside Linkage, Lusardi Creek, Ramona Grasslands, Sycamore Canyon and Goodan Ranch, 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.

Table 14, *Resource Management Plans for County Preserves*, reflects the current status of baseline inventory surveys and RMPs for the County Preserves with RMPs completed or updated.

TABLE 14. RESOURCE MANAGEMENT PLANS FOR COUNTY PRESERVES

County Preserve	Baseline Inventory Surveys Completed	RMP Completed/ Updated
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
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. Oakoasis Preserve	2008	2009
13. Otay Ranch Preserve	1989-1991	2002/2018
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	2013/2024
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 49 MSCP covered species found across County Preserves. Stewardship and adaptive management activities performed in 2024 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 differ 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 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. Tree pests including goldspotted oak borer and invasive shot hole borer remain a threat to trees on County Preserves and affected trees are treated when infestation is observed. 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.

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 utilize 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**. A total of 47 coast live oaks were planted by County Park Rangers and 22 dead coast live oaks were removed from the Preserve. Following the Bunnie Fire in August 2023, which was initially estimated to have burned 184 acres and was later determined to be 75 acres, County personnel reported natural regrowth of on-site plant species several months later. A site visit performed by County personnel in July 2024 confirmed continued regrowth within the previously burned areas. Restoration of the entire 75 acres was determined to not be necessary, apart from reseeding the two-acre dozer line with on-site native California buckwheat, which was carried out by County Park Rangers.

- **Invasive, non-native plant control**. Invasive, non-native plant removal efforts included hand-pulling, removal with shovels, and herbicide application. Target species included brittlebush, Italian thistle, and mustard.

- **Access control**. County Park Rangers installed four interpretive signs, two gates, and barbed wire fencing to discourage unauthorized trail use. County Park Rangers have continued to educate visitors in order to prevent off-trail activity.

- **Fire management**. County Park Rangers maintained an existing firebreak along Deviney Road, close to residential properties, using mowers and string trimmers.

- **Environmental education**. County Park Rangers and volunteers hosted a Discovery Table over Earth Day weekend that attracted 28 visitors. Visitors learned about different wildlife species found throughout the Preserve.

Volunteers hosting a Discovery Table 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, in collaboration with the Community Involved Vocational Inmate Crew Service (CIVICS) Program, planted 49 coast live oak trees to reestablish trees in an area where 28 newly potted coast live oak trees had been removed due to being killed by gophers, ground squirrels, deer, or lack of water. Also, collaboration occurred with The Morton Arboretum and San Diego

Botanic Garden involving planting of 22 Engelmann oak trees in the meadow area north of the on-site Ranger Station. These trees will be studied by The Morton Arboretum over a 2-year period to assess survival, growth, and climate adaptation (Section 7.3).

- **Invasive, non-native plant control**. Invasive, non-native plant species removal efforts included hand-pulling, removal with shovels, and herbicide application. Target species included mustard, Dyer's rocket, milk thistle, and puncture vine.

- **Access control**. County Park Rangers repaired split rail fencing to prevent unauthorized access. When unauthorized access was observed, County Park Rangers addressed trespassers and achieved compliance through education.

- **Fire management**. County Park Rangers maintained the existing firebreak along the Preserve's entry road. Fire management included mowing, string trimming, and herbicide application. Fire fuels were reduced with help from the California Conservation Corps.

Tree Planting Event at Boulder Oaks Preserve

Cactus Park

Preserve Total Acreage: 61 Assessor's acres, 62 GIS acres
MSCP Subarea Plan: 61 Assessor's acres, 62 GIS acres
Segment: Metro-Lakeside-Jamul

Management benefits the two MSCP covered species known to occur on the Preserve, which are Blainville's horned lizard and coastal California gnatcatcher. Management actions included the following.

- **Habitat restoration and management**. County Park Rangers removed three diseased non-native pepper trees that were potentially hazardous to Park visitors.

- **Invasive, non-native plant control**. Invasive, non-native plant species removal efforts included mowing and string trimming. Target species included castor bean.

- **Access control**. Illegal dumping of materials continues to be an ongoing issue at the Park. Additional challenges include unauthorized trail creation and use by unhoused individuals. These issues were addressed by County Park Rangers throughout 2024.

- **Fire management**. County Park Rangers maintained an existing firebreak within the Park adjacent to the residences located along Casa Grande Avenue.

Christopher Hill Preserve

Preserve Total Acreage: 126 Assessor's acres, 133 GIS acres
MSCP Subarea Plan: 134 Assessor's acres, 134 GIS acres
Segment: Lake Hodges

Management benefits the three MSCP covered species known to occur on the Preserve, which are coastal California gnatcatcher, coastal cactus wren, and San Diego barrel cactus. Management actions included the following.

- **Habitat restoration and management**. County Park rangers trimmed overgrown vegetation along Preserve maintenance road.

- **Invasive, non-native plant control**. Invasive, non-native plant species removal efforts included hand-pulling. Target species included bull thistle and mustard.

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 in the Park, which are coastal sage scrub, grasslands, and riparian forest. Management actions include the following.

- **Habitat restoration and management**. County Park Rangers removed three non-native, invasive Mexican fan palms and planted four coast live oak trees. County Park Rangers also diligently repaired all trails damaged by stormwater runoff in 2023.

- **Invasive, non-native plant control**. Invasive, non-native plant species removal efforts included hand-pulling, shovels, loppers, pruners, and string trimmers within the Park, including the creek. Targeted species included mustard, castor bean, Russian thistle, and giant reed. Removal of non-native and invasive species in the creek is an ongoing process to maintain an unrestricted stormwater flow.

- **Access control**. County Park Rangers installed two new signs prohibiting dumping, off-leash dogs, and smoking within the Park.

- **Fire management**. County Park Rangers maintained an existing firebreak using loppers and string trimmers. The firebreak follows the fence line around the northern boundary of the Park.

- **Environmental education**. County Park Ranger led one hike attended by 12 visitors who learned about bird species found in the Park.

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.

- **Invasive, non-native plant control**. Invasive, non-native plant species removal efforts included string trimming and hand-pulling. Target species included tree tobacco, black mustard, and castor bean.

- **Access control**. County Park Rangers replaced an interpretive sign that was damaged and illegible due to weathering. A concrete split rail fencing that was damaged by a vehicle was repaired in the staging area. County Park Rangers increased ranger presence, installed game cameras, and conducted as-needed coordination with the San Diego Police Department to address reports of vehicle break-ins on the Preserve.

- **Fire management**. County Park Rangers maintained an existing firebreak along a San Diego Gas & Electric (SDGE) power pole trail using string trimmers, mowers, and hedgers. An existing firebreak along Mt. Israel Road was maintained with string trimmers and hedgers.

An interpretive sign replaced due to weathering at Del Dios Highlands 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**. A habitat restoration project benefiting California coastal gnatcatcher, Quino checkerspot and monarch butterfly is ongoing across the Preserve. Initiated in 2021 as a Proposition 68 Grant-funded project, this habitat restoration effort aims to 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. Target species included mustard, stinkwort, puncture vine, and fountain grass.

- **Access control**. County Park Rangers installed five new fence posts with chains at the San Bernardino trailhead to deter illegal off-road vehicle activity, littering, off-leash dogs, graffiti, alcohol consumption, and smoking within the Preserve. Other preventative and corrective actions include daily Ranger patrols, litter removal, and graffiti abatement.

- **Fire management**. County Park Rangers performed maintenance of the existing firebreaks using string trimmers. Existing firebreaks occur adjacent to the south, west, northwest, and southeast borders of the Preserve.

- **Environmental education**. County Park Rangers led hikes and hosted events within the Preserve, attracting 183 visitors in total. Educational opportunities included a collaborative hike with Women in the Wild volunteers on National Trails Day and interpretive talks about birds of prey, snakes and "creepy crawlies," and coyotes. In addition, County Park Rangers put up flyers throughout the Preserve that provided educational information about coyotes and their behaviors.

Visitors enjoying an educational opportunity at Dictionary Hill Preserve.

Dos Picos Park

Management actions included the following.

- **Habitat restoration and management**. County Park Rangers planted 127 coast live oak trees to re-establish 40 dead coast live oak trees that had been removed. Also, 26 Engelmann oak trees, and 10 incense cedar trees were planted for habitat restoration and biodiversity purposes.

- **Invasive, non-native plant control**. Invasive, non-native plant species treatment and removal efforts included the use of string trimmers, mowing, and herbicide application. Non-native mustard was targeted for removal.

- **Access control**. County Park Rangers installed six new signs discouraging unauthorized vehicle access. County Park Rangers reported instances of campers littering, damaging trees by hanging objects from tree limbs and visitors accessing the Park after-hours. Rangers and staff conducted regular patrols to prevent littering and discourage unlawful access of vehicles and after-hours entry by locking park gates, restrooms, and other amenities at closing time.

- **Fire management**. County Park Rangers maintained a firebreak along the park's main service road and along Dos Picos Park Road via mowing and string trimming.

- **Environmental education**. County Park Rangers held multiple educational activities, including guided hikes, animal presentations and Discovery Tables, a tree planting event, a scavenger hunt, and a Junior Ranger event to approximately 400 park visitors in 2024.

Visitors enjoy a reptile interpretive event and Discovery Table at Dos Picos County Park.

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.

- **Invasive, non-native plant control**. Invasive, non-native plant species removal efforts included hand-pulling and the use of saws for cutting. Pampas grass was the target species.

- **Access control**. County Park Rangers repaired one concrete fence in the Preserve and increased patrols in response to the use of an illegal trail.

- **Environmental education**. County Park Rangers guided "Warrior Hikes" held on Memorial Day and Veteran's Day. A total of approximately 500 Park visitors attended.

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. Other notable wildlife species reported by park rangers in 2024 include golden eagle, bald eagle, and mountain lion. Management actions included the following.

- **Habitat restoration and management**. County Park Rangers planted over 145 native trees, including over 100 coast live oak, 10 Fremont cottonwood, 10 incense cedar, eight Torrey pine, 11 Italian stone pine, and six California sycamore. County Park Rangers removed two diseased carob trees, one pepper tree, and one coast live oak tree that were potentially hazardous. Twenty-six shrubs and herbs were also planted by County Park Rangers, including six white sage, six Cleveland sage, five dwarf coyote bush, and nine snapdragon.

- **Invasive, non-native plant control**. Invasive, non-native plant species removal efforts included intermittent use of herbicide, hand-pulling, and use of chainsaws. Target species included tamarisk, Mexican fan palm, and castor bean.

- **Access control**. County Park Rangers installed four new signs, repaired one barb-wire fence, and installed two new swing gates within the Park. In response to illegal activities including unauthorized access, camping, graffiti, drug use, off-road activity, and hunting, County Park Rangers increased patrols, installed signage, and implemented the use of trail cameras.

- **Fire management**. County Park Rangers used spin trimmers, mowers, and tractors to maintain a firebreak around the perimeter of the Park and adjoining property lines.

- **Environmental education**. County Park Rangers held a variety of interpretive programs, including Hawk Talks and guided hikes on the historic flume trail, with a combined attendance of more than 1,150 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 in 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 24 coast live oak trees, 12 Engelmann oak trees, and two madrone trees. One non-native pepper tree and three non-native Mexican fan palms were removed. County Park Rangers also worked

with volunteers to plant 30 native toyon, 12 sugar bush, and 12 lemonade berry shrubs within the Park.

- **Invasive, non-native plant control**. Invasive, non-native plant species control efforts included hand-pulling and use of loppers, pruners, string trimmers, and shovels to remove giant reed, castor bean, Russian thistle, and mustard species. The Park is adjacent to Crestridge Ecological Preserve, owned by CDFW. As such, treatment of invasive, non-native plant species within the Park benefits movement of animals through both properties and benefits native plant species.

- **Access control**. County Park Rangers installed two new interpretive signs restricting access to acorn grow areas. County Park Rangers reported instances of illegal dumping, off-leash dogs, and smoking within the Park.

- **Fire management**. County Park Rangers used line trimmers and loppers to maintain an existing firebreak along the northern and western Park boundaries.

- **Environmental education**. County Park Rangers held multiple educational outreach events through the Discovery Program in 2024. A total of 258 Park visitors attended these events. County Park Rangers also led a hike attended by 12 visitors who learned about bird species found in the Park.

Volunteer native shrub educational planting event at Flinn Springs Park.

Furby-North Preserve

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 Preserve, 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**. Illegal trails and off-road activity continue to be a challenge throughout the Preserve. County Park Rangers added fencing, gates, and large boulders to deter these activities. County Park Rangers also installed signs along Otay Mesa Road prohibiting illegal trash dumping.

- **Invasive, non-native plant control**. Invasive, non-native plant species control efforts were performed in the northern portion of the Preserve associated with 2024 Targeted Monitoring Plan management efforts as described in Chapter 7, Section 7.1.

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 five SMSCP covered species known to occur in the Park, which are Cooper's hawk, Swainson's hawk, tricolored blackbird, western bluebird, and Lakeside ceanothus. Management actions included the following.

- **Habitat restoration and management**. County Park Rangers planted four coast live oak trees in the Preserve and removed four dead incense cedar trees. In addition, County Park Rangers partnered with the CIVICS Program to prune 10 coast live oak trees and three Lakeside ceanothus shrubs.

- **Invasive, non-native plant control**. Invasive, non-native plant species control efforts included hand-pulling, shoveling, and herbicide application. Target species included puncture vine, mustard, eucalyptus, and fennel.

- **Access control**. County Park Rangers installed one new sign and repaired split rail fencing to deter illegal off-road activity and ensure that Preserve visitors remained on the authorized trail. In addition, the Ramona Preserves Work Group replaced a section of rotted wood fencing at the Preserve. In instances where off leash dogs were observed, County Park Rangers contacted individuals and gained voluntary compliance. Overall, off-leash dog activity decreased at the Preserve in 2024.

- **Fire management**. County Park Rangers maintained an existing firebreak along Dye Road and Southern Oak Road and within the Preserve staging area. Fire management included mowing and string trimming.

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-leaved 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 string trimming. Target species included black mustard.

- **Access control**. Park Rangers did not observe any signs of unauthorized access or activities while patrolling the Preserve.

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. Management actions included the following.

- **Invasive, non-native plant control**. Invasive, non-native plant species removal efforts included hand-pulling. Target species included tamarisk.

- **Access control**. County Park Rangers installed one new sign to deter illegal off-road activity. County Park Rangers increased ranger presence to address unauthorized vehicle activity and illegal dumping on the Preserve.

- **Fire management**. County Park Rangers maintained existing firebreaks within the Preserve via mowing, hand-pulling, and string trimming. The firebreaks were maintained using weed whips, mowing, and hand-pulling at all four properties of the preserve.

- **Environmental education**. County Park Rangers held multiple educational outreach events, including two school field trips, a Women in the Wild hike, and a Santee Discovery Days event. A total of 180 Park visitors attended these events.

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.

- **Invasive, non-native plant control**. Invasive, non-native plant species removal efforts included the use of string trimmers. Target species included Castor bean to prevent native plant displacement and cleared areas along the main road.

- **Access control**. County Park Rangers issued courtesy notices to those who parked illegally near the Preserve entrance. Litter and dumped items were removed from along Highway 94.

- **Fire management**. County Park Rangers maintained existing firebreaks along Highway 94 and along Honey Springs Road. Fire management included mowing and use of string trimmers.

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 86 trees, including 80 coast live oaks to replace 6 dead coast live oaks that were removed and planted 6 cottonwood trees. County Park Rangers also removed 3 dead Canary Island palms. Management challenges in 2024 included the occurrence of flooding, expanding wetlands, and saturated and impassable trails and entrances at the Preserve. The wetland that was created after an earthquake occurred has been expanding and poses a threat to the historic Los Peñasquitos Ranch House.

- **Invasive, non-native plant and animal control**. Invasive, non-native plant species removal efforts included hand-pulling, removal with shovels, and herbicide application. Target species included stinkwort, fennel, and Russian thistle.

- **Access control**. County Park Rangers installed and repaired 12 informational signs and repaired the Preserve's entrance gate. County Park Rangers also increased patrols and direct contacts to prevent unauthorized use of motorized vehicles, particularly along the main trail in the southern portion of the Preserve.

- **Fire management**. County Park Rangers maintained an existing firebreak on the south rim of the canyon along Capcano Road using string trimmers, chainsaws, and handsaws. All brush was removed by hand.

- **Environmental education**. County Park Rangers led numerous educational outreach efforts in 2024, including one Discovery Program event held at the Preserve with 750

attendees, a Hike-A-Thon kickoff event led in collaboration with Nature Unplugged with 70 attendees, weekly docent-led history tours with over 200 attendees, library story times with over 300 attendees, and scout-led hikes with over 250 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 approximately 100 individuals of various wildflowers and succulents. In addition, Rangers built a total of 10 check dams made of stone and sandbags and placed them in Stelzer Creek. Check dams help with erosion control, improve water retention, and provide habitat for riparian species.

- **Invasive, non-native plant control**. Invasive, non-native plant species removal efforts included hand-pulling, shoveling, and string trimming. Target species included poison oak, stinkwort, and mustards.

- **Access control**. County Park Rangers increased patrols and installed an alarm system at the Park entrance in response to a vehicle break-in.

- **Fire management**. County Park Rangers worked with the California Department of Forestry and Fire Protection and the California Conservation Corps to perform vegetation management meant for firebreak purposes along the roadways.

- **Environmental education**. County Park Rangers hosted multiple tree planting events within the Park that were attended by 150 visitors.

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 herbicide application. Target species included poison oak, Italian thistle, and mustards.

- **Access control**. County Park Rangers installed a new trail name sign.

- **Fire management**. County Park Rangers maintained an existing firebreak along Duck Pond Lane.

- **Environmental education**. County Park Rangers hosted a trail dedication event attended by 45 community members.

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.

- **Habitat restoration and management**. Management challenges in 2024 included flooding on the southwest edge of the Preserve caused by overgrown vegetation and silt buildup around the Arizona crossing on Artesian Road. County Park Rangers are working with the Rancho Santa Fe Fire District and the adjoining neighborhood homeowner's association to develop a plan and procure funding to clear the area.

- **Invasive, non-native plant control**. Invasive, non-native plant species removal efforts focused on pampas grass removal with saws and hand tools.

- **Access control**. County Park Rangers installed two new signs and one new fence and gate to deter illegal off-roading activities and to delineate the Preserve property boundary.

Mission Trails Regional Park

Management benefits the two MSCP covered species known to occur on the Property, which are coastal California gnatcatcher and San Diego ambrosia. Management actions included the following.

Preserve Total Acreage: 1,557 Assessor's acres, 1,521 GIS acres
MSCP Subarea Plan: 1,516 Assessor's acres, 1,516 GIS acres
Segment: Eastern Area (Outside MSCP Subarea Plan Area)

- **Invasive, non-native plant control**. Invasive, non-native plant species control included the use of string trimmers for pampas grass removal.

- **Access control**. County Park Rangers repaired five informational signs to inform Park visitors of the Park's rules and regulations. Rangers increased patrols and repaired amenities in response to graffiti and vandalism activities.

- **Fire management**. County Park Rangers used mowers and string trimmers to maintain approximately existing firebreaks along the Park boundaries near private residences and access roads.

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**. County Park Rangers planted 75 coast live oak trees to replace 60 dead coast live oak trees damaged by gophers and removed by park rangers. Additionally, 25 Engelmann oak trees were planted in the Preserve.

- **Invasive, non-native plant control**. Invasive, non-native plant species control included hand-pulling, shoveling, and string trimming. Target species included poison oak, stinkwort, and mustards.

- **Fire management**. County Park Rangers worked with the California Department of Forestry and Fire Protection and the California Conservation Corps to perform vegetation management for firebreak purposes along the roads and within the campground.

- **Environmental education**. County Park Rangers hosted two tree planting events at the Preserve attended by a total of seventy-five community members.

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.

- **Habitat restoration and management**. County Park Rangers planted eight coast live oak trees and 12 Engelmann oak trees and removed three non-native invasive Mexican fan palms. Also, Rangers planted four white sage, six sugar bush, and four toyon shrubs and installed an irrigation system as part of a native tree planting project.

- **Invasive, non-native plant control**. Invasive, non-native plant species removal efforts included hand pulling and use of string trimmers, loppers, and pruners within the Park and along the creek. Target species included mustards, giant reed, and castor bean.

- **Access control**. County Park Rangers installed one new sign to prevent illegal trash dumping. In response to observed alcohol consumption at the Park, County Park Rangers reached out to County Sheriff and requested extra patrols.

- **Fire management**. County Park Rangers regularly clear all tall invasive non-native plants and grasses to reduce fire fuels throughout the Park.

- **Environmental education**. County Park Rangers hosted two Discovery Program events that were attended by 45 people.

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 ten coast live oak trees.

- **Fire management**. County Park Rangers maintained existing firebreaks using string trimmers.

- **Environmental education**. Environmental outreach efforts included County Park Ranger-led events concerning natural history and conservation content, which were attended by 415 participants. County Park rangers hosted an I Love A Clean San Diego event with 26 participating guests. Environmental outreach efforts also included the participation of 40 student volunteers from St. Augustine School, who assisted with a trail maintenance and trash cleanup project.

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 of San Diego 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 Environmental, Inc. [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 2024, preserve monitoring and operations/maintenance tasks were implemented by the Preserve Steward/Biologist (RECON) in consultation with the Otay Ranch POM. Regular coordination meetings occurred during 2024 to track progress of MSCP management and monitoring. Habitat maintenance activities were performed to control brown-headed cowbird and non-native plant species, including stinkwort, and to enhance habitat for sensitive species, including coastal cactus wren, Quino checkerspot butterfly, Otay tarplant habitat, and vernal pools. All work summarized in this report is detailed in the 2024 Annual Report for the Otay Ranch Preserve and can be found in **Appendix N**.

Management activities in the Preserve 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-leaved 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 vernal pools, maritime succulent scrub, riparian habitat, 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 cactus wren surveys, least Bell's vireo and yellow-billed cuckoo surveys, shot hole borer tree health surveys and native shrub dieback surveys, gold-spotted oak borer monitoring, Hermes copper butterfly surveys, western spadefoot surveys, golden eagle camera surveys, vernal pool plant monitoring, wet season fairy shrimp surveys, seed collection and redistribution, and vegetation rapid assessment monitoring.

  Additional management projects are being implemented on the Preserve through grant funding. As part of a TransNet EMP funded project, the County implemented habitat restoration activities within the Preserve to benefit Quino checkerspot butterfly. The project included container plant installation, seeding, watering, erosion and access control, and monitoring and was completed in June 2024. As part of a project funded by a Wildlife Conservation Board (WCB) grant, County funding, and local agency matching, the County is completing a comprehensive planning document for 13 new trail alignments in the Preserve. Wet season fairy shrimp surveys were conducted in 2023 and 2024, when substantial ponding was observed, as part of the planning effort for this project. Preparation of the Draft Environmental Impact Report (EIR) is underway. More information regarding these projects can be found in *Section 6.3 Grant Funded Management Projects*.

- **Invasive, non-native plant control and habitat enhancement**. Numerous non-native plant control efforts occurred during the reporting year, and were conducted using herbicides, string trimmers, and hand tools. The invasive, non-native plant species treated were short-pod mustard, tocalote, stinkwort, oats, bromes, filaree, fennel, black mustard, prickly sow-thistle, annual rye grass, crete weed, fescue, false hawkbit, annual beard grass, hyssop loosestrife, tree tobacco, golden-top, prickly lettuce, salt cedar, gum tree, and Peruvian pepper tree. In addition, shrubs were selectively thinned and removed from existing coast cholla patches to increase available coastal cactus wren habitat. The primary shrubs removed via hand tools and trimmers during shrub thinning activities were broom baccharis, California buckwheat, and California sagebrush. Otay tarplant and Quino checkerspot butterfly host and nectar plants were flagged for avoidance prior to applying herbicide.

- **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 to prevent illegal access and block unauthorized trails included the installation of vertical mulch and coast cholla, installation of T-posts with concrete along fencing, installation of fencing, repair of fencing, rock barrier installation, installation of 14 signs, repair of two signs, and replacement of three

signs, as well as coordinating with adjacent land managers, including CDFW and the City of San Diego. Access control off-site within adjacent City of San Diego and CDFW property included installation of four signs, replacement of three signs, installation of fencing, and placement of vertical mulch. Fencing at Jamul Mountains, Dulzura, McMillin, Northern Salt Creek, Salt Creek, Millenia, San Ysidro, and Northern San Ysidro parcels were installed and/or repaired after they were vandalized by trespassers. Signs were installed and/or replaced at Dulzura, Jamul Mountains, McMillin, Millenia, and Northern Salt Creek parcels.

- **Fire management**. No focused fuel management activities were identified in the Otay Ranch Preserve Annual Report. However, while control of invasive non-native plants and implementation of shrub thinning programs are typically implemented on the Preserve for habitat restoration or for the benefit of MSCP covered species and other wildlife, these activities also help reduce the amount of fuel available to carry fire within the Preserve.

Additional management and monitoring efforts conducted on Otay Ranch Preserve are reported in the 2024 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 maintained patrols as part of the ongoing Cholla Cactus Restoration Project and performed trail management activities to exclude motorized vehicles and cleaned them from debris.

- **Invasive, non-native plant control**. Invasive, non-native plant removal efforts included using string trimmers along the Otay Valley Regional Park Active Rec 3 site.

- **Access control**. County Park Rangers maintained "no off-roading" signs and increased patrols. As-needed coordination with the San Diego Police Department were conducted, and weekly patrols to prevent unauthorized use of motorized vehicles were increased. Four metal gates were also installed to deter unauthorized access.

- **Fire management**. County Park Rangers maintained existing firebreaks through as-needed mowing.

- **Environmental education**. Environmental outreach efforts included seven park ranger guided hikes, which were attended by 165 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 included the following.

- **Habitat restoration and management**. County Park Rangers removed three invasive Mexican fan palms from the Preserve.

- **Invasive, non-native plant control**. Invasive, non-native plant control efforts included hand pulling and using string trimmers, pruners, and loppers within the Preserve and the staging area. Target species included mustards, giant reed, castor bean, and non-native grasses.

- **Access control**. County Park Rangers installed one new sign and increased patrols to prevent illegal trash dumping.

- **Fire management**. County Park Rangers maintained existing firebreaks along Peutz Valley Road.

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 five coast live oak trees and two Engelmann oak trees and performed native plant hydroseeding across the Preserve. Rangers continue to manage the cattle grazing lease, working closely with ranchers to target each management area to maintain soil health and reduce wildfire hazards. The grazing lease reduces invasive, non-native plant cover and ensures that suitable habitat is available to sensitive species, including the Stephens' kangaroo rat.

  As part of a *TransNet* EMP funded project, the County implemented a bullfrog eradication project within the Preserve to benefit arroyo toad and southwestern pond turtle. The County worked with the Ramona Municipal Water District to install silt fence on the western side of the southern effluent pond to prevent bullfrog movement into Santa Maria Creek. More information regarding this project can be found in *Section 6.3 Grant Funded Management Projects*.

- **Invasive, non-native plant control**. County Park Rangers continued to coordinate with the County of San Diego Department of Agriculture, Weights and Measures to strategically treat and remove milk thistle, artichoke, and tamarisk. Cattle grazing continued, allowing County Park Rangers to manage target plant species specific to each management unit. Other invasive, non-native plant species removal efforts included hand-pulling, shoveling, and intermittent herbicide usage. 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**. County Park Rangers repaired peeler log, barbed wire and concrete split rail fencing and one metal hinge gate within the Preserve. Rangers increased patrols and educational outreach activities to help prevent illegal access and off-trail use. The County continued the "Responsible Photography" campaign initiated in 2022 to help encourage photographers and groups to stay on existing trails. Game cameras were maintained and used by Rangers to monitor unauthorized entry activities, as well as used brush piles to block out spur trails. Two small fires were started illegally on the roadside and contained. Rangers and Preserve visitors used word of mouth and an "If You See Something, Say Something" approach to raise public awareness about fire prevention and safety.

  As a measure to protect the golden eagles nesting adjacent to the Preserve, a seasonal trail in the northwest portion of the preserve 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, two days a week, and a permit is required to access the trail. County Park Rangers are present along the trail to facilitate the permitting process, provide oversight, and educate trail users about the resource. A total of 364 hikers, 63 equestrians, and seven mountain bikers utilized the trail for a total of 434 users. The daily average use was 17 participants with an average time of two hours and ten minutes on the trail. 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. No permits were revoked in 2024 due to violation of rules and regulations. The permit process, in conjunction with increased Ranger presence, appears to be successful in enforcing trail use restrictions.

- **Fire management**. County Park Rangers maintained existing firebreaks along the Preserve border with adjacent residences and along roads within the Highland Hills community.

- **Environmental education**. Environmental outreach efforts included County Park Rangers staffing two school field trips, a Pedal at the Preserves event consisting of a three-mile bike tour of the Preserve, and an Acorns 101 event where visitors learned about different types of trees and the acorns they produce. Discovery Tables were staffed by County Park Rangers every Saturday and Sunday, between August 17 and November 10, 2024, at the Old Survey Road 97 trailhead. These Discovery Tables were visited by 437 community members. Additional Discovery Tables and nature crafts were held throughout the year and were visited by 460 community members. Over 1,000 visitors were reached by the County Park Ranger's environmental outreach efforts at the Preserve.

Students from Ramona High School's special education class enjoying a guided hike to the pond at Ramona Grasslands Preserve.

Santa Fe Valley Preserve

Preserve Total Acreage: 293 Assessor's acres, 299 GIS acres
MSCP Subarea Plan: 308 Assessor's acres, 308 GIS acres
Segment: Lake Hodges

Management benefits the eight MSCP covered species known to occur on the Preserve, which are tricolored blackbird, least Bell's vireo, coastal California gnatcatcher, wart-stemmed ceanothus, Encinitas coyote brush, San Diego marsh-elder, San Diego barrel cactus, and variegated dudleya. Management actions included the following.

- **Invasive, non-native plant control**. Invasive, non-native plant species control included hand-pulling and removal of bull thistle. Additionally, County Park Rangers partnered with the Nature Collective to perform 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. More information regarding this project can be found in ***Section 6.4 Preserve Management Partnerships***.

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 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, included the following.

- **Invasive, non-native plant control**. Invasive, non-native plant control efforts included removing non-native grasses and invasive non-native plants within the Preserve access point.

- **Fire management**. County Park Rangers cleared a firebreak along the Preserve fence line.

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**. County Park Rangers removed two invasive Mexican fan palms. Rangers planted two native toyon, four sugar bush, and six white sage shrubs for erosion control.

- **Invasive, non-native plant control**. Invasive, non-native plant species removal efforts included use of string trimmers, loppers, and pruners. Target species included castor bean, giant reed, and mustards.

- **Access control**. County Park Rangers installed two new signs and increased patrols to prevent illegal dumping.

- **Fire management**. County Park Rangers maintained an existing firebreak near residences along Kelly 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 native shrubs including 80 California sagebrush, 26 San Diego snapdragon, and 25 white sage shrubs. As part of a grant from the WCB, the County is restoring coastal sage scrub and enhancing riparian habitat around Morrison Pond. This three-year restoration project will also benefit least Bell's vireo. Implementation began 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 use of hand saws, loppers, and wood chippers. Target species included tree of heaven.

- **Access control**. County Park Rangers repaired lodgepole fencing within the Park. Illegal encampments, motorized vehicles, and dumping at staging areas continue to present management challenges for the Park.

- **Fire management**. County Park Rangers maintained an existing firebreak around Morrison Pond and in the western portion of the Park.

- **Environmental education**. County Park Rangers led various nature hikes and Native American programs and hosted a Discovery Table once a month within the Park. A total of 225 visitors attended environmental education events at the Park.

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 thornmint, 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 200 coast live oak trees and 20 native shrub species, including 10 white sage and 10 lemonade berry shrubs. Trees and native shrubs were planted as part of the Oak Grove Revegetation Project and the Disturbed Areas Restoration Project, which aim to plant new oaks near

existing groves and to restore disturbed areas around the Visitor Center through replanting efforts. County Park Rangers also removed six dead lemonade berry shrubs and restored an unauthorized trail. Rangers installed toad fencing along the edges of suitable habitat to keep spadefoot toads from crossing trails and prevent fatalities.

- **Invasive, non-native plant control**. Invasive, non-native plant species removal efforts included intermittent herbicide usage and weed whipping, including areas of open meadows and riparian habitat. Target species included Sahara mustard and artichoke thistle. Invasive, non-native plant species control efforts were also performed associated with the San Diego thornmint, variegated dudleya, and willowy monardella populations within the Preserve, along Sycamore Creek and in the northern portion of the preserve associated with the California Department of Fish and Wildlife 30x30 Grant Program Sycamore Canyon and Goodan Ranch Preserve Covered Species Threat Reduction Project as described in *Section 6.3 Grant Funded Management Projects*.

- **Access control**. County Park Rangers installed four new signs restricting unauthorized trail usage and repaired wire fencing in response to incidents of unauthorized trail building and off-road vehicle use. County Park Rangers also addressed these issues by increasing the frequency of patrols.

- **Environmental education**. Environmental outreach efforts included County Park Rangers leading interpretive hikes, tree planting events, and interpretive programs. Rangers also partnered with the San Diego Astronomy Association to host star parties. Outreach efforts were attended by a total of 275 visitors. In addition to Preserve-sponsored events, the San Diego Mountain Biking Association hosted an Archipelago Ride in the preserve.

Tree planting event hosted by County Park Rangers at Sycamore Canyon and 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 23 coast live oak trees to provide shade along an open trail and removed one eucalyptus tree that was potentially hazardous to Park visitors and one sycamore tree that was rooted atop a broken pipe main. Several ongoing and approved management projects within the Park are grant funded. These projects are summarized below, and more information regarding these projects can be found in *Section 6.3 Grant Funded Management Projects*.

  As part of a grant from the State Coastal Conservancy, the County will design and implement improvements within Smuggler's Gulch to capture trash and sediment to prevent these materials from being transported downstream to important riparian habitat along the Tijuana River. The project will include a sedimentation basin, trash capture devices, and culvert improvements. 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 of native habitat. The County continued design for the project in 2024 and is planning to complete the design and apply for environmental permits in 2025.

  As part of a grant from SWRCB, the County received funding to remove trash and accumulated sediments from Smuggler's Gulch. The project involved a full-scale dredging effort throughout the Smuggler's Gulch channel and portions of the Pilot Channel of the Tijuana River Along with disposal of the dredged material. Implementation of the grant began in March 2024 and project activities concluded in November 2024. Implementation benefits will include enhancement of the hydrologic health and habitat of the Tijuana River Valley watershed.

  As part of a grant from CDFW, the County finalized a Habitat Restoration Plan for the entire Tijuana River Valley Regional Park. This restoration plan provides 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 study area for the Habitat Restoration Plan supports 35 vegetation communities/habitat types, including 26 sensitive vegetation types: saltgrass grassland, southern coastal salt march, coastal valley and freshwater march, emergent wetland, southern riparian forest (including disturbed), southern riparian woodland, non-native riparian, southern willow

scrub (including disturbed), mule fat scrub (including disturbed), tamarisk scrub, riparian scrub (disturbed), open water, unvegetated habitat – streambed, arundo-dominated riparian, maritime succulent scrub, southern maritime chaparral, coastal scrub, Diegan coastal sage scrub (including disturbed), Diegan coastal sage scrub: baccharis dominated (including disturbed), chenopod scrub, and non-native grasslands. Seventeen special status plant species were confirmed as occurring within the study area during the rare plant surveys: San Diego bur-sage (*Ambrosia chenopodiifolia*), singlewhorl burrobrush (*Ambrosia monogyra*), San Diego sagewort (*Artemisia palmeri*), San Diego viguiera (*Bahiopsis laciniata*), golden-spined cereus (*Bergerocactus emoryi*), wart-stemmed ceanothus (*Ceanothus verrucosus*), western dichondra (*Dichondra occidentalis*), San Diego marsh-elder (*Iva hayesiana*), southwestern spiny rush (*Juncus acutus* ssp. *Leopoldii),* sea dahlia (*Leptosyne maritima),* Baja California birdbush (*Ornithostaphylos oppositifolia*), Torrey pine (*Pinus torreyana* ssp. *Torreyana),* Nuttall's scrub oak (*Quercus dumosa*), and ashy spike-moss (*Selaginella cinerascens*). The Mitigated Negative Declaration (MND) for the Tijuana River Valley Invasive Species Removal and Restoration Habitat Restoration Plan was adopted by County DPR on March 1, 2024. In addition, the County has applied for environmental permits from CDFW, USACE, and RWQCB.

Another grant funded restoration project in the Tijuana River Valley Regional Park is the Brown Property Fill Removal/Restoration project, which will improve water quality by removing trash and invasive species and restore the Tijuana River and adjacent areas to its native habitat. Restoration planning and environmental review for this project was completed in 2023 using grant funds from CDFW; implementation is funded separately under a different grant. Implementation of the project was funded by a grant from the SWRCB. The project includes removal of invasive species and existing structures from the Brown property, and short-term maintenance and monitoring. In 2024, hazardous materials on the site were removed and on-site structures were demolished. The site was graded and revegetated with native plants and seed. Over 1,800 plants and 500 pounds of seed were placed on the Brown Property and adjacent areas. In 2025, the County will perform maintenance and monitoring at the restoration site. The project will benefit least Bell's vireo and other wildlife by restoration of disturbed lands into native habitat.

The County received grant funding in 2023 from the U.S. Navy to develop an adaptive work plan and implement restoration efforts within the Park, which will improve and enhance habitat for least Bell's vireo and coastal California gnatcatcher. Implementation is expected to begin in 2025.

- **Invasive, non-native plant and insect control**. Invasive, non-native plant species removal efforts included intermittent herbicide application, hand-pulling, mowing, and use of string trimmers, loppers, shears, chainsaws, machetes, riding and tractor pulled deck mowers, and the use of hand tools. Target species included Russian thistle, castor bean, tree tobacco, crown daisy, nasturtium, giant reed, and non-native grasses.

- **Access control**. County Park Rangers installed 50 new informational/directional signs to encourage Park visitors to stay on the designated trails, identify sensitive habitat, and deter illegal trash dumping. Rangers also repaired fencing. Illegal dumping remains an ongoing issue and occurs most often along the northeast edge along Servando Road, on the east side of Dairy Mart Road, on Sunset Avenue, and in the central staging area on Saturn Boulevard. County Park Rangers and staff members conduct daily patrols to

prevent and address illegal dumping across. Patrols also discourage unauthorized trail use, a recurring issue that subjects native plants and wildlife to trampling and exacerbates erosion in sensitive areas. Reminders to stay on trails are provided in Park brochures, on signage and kiosks throughout the Park, and by rangers during patrols. In addition, equestrian volunteers conduct monthly patrols and report incidents of illegal dumping and unauthorized trail use to County Park Rangers.

- **Fire management**. County Park Rangers maintained existing firebreaks using string trimmers, hand tools, herbicide application, and chainsaws.

- **Environmental education**. County Park Rangers led seven nature hikes along the Dairy Mart trail loop and the Spooners Mesa trail loop, gave two snake presentations, hosted two animal touch tables, gave one bird talk, and hosted one Hawktober event. Events were attended by a total of 251 visitors.

Comprehensive Tree Program

The County has always planted 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 40,000 trees have been installed on County properties. Over 4,600 trees were planted in 2024. 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 has a GPS location, its species, health ranking, and other characteristics, including trunk diameter 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 2024, all newly planted trees at County Parks and Preserves have been mapped.

DPR is currently investing in an oak genetic conservation program with the intent of preserving our local trees' genetic material, especially in some more sensitive areas. The project is carried out in cooperation with the County of San Diego Sheriff's Office via their CIVICS program. Seeds (acorns) are harvested by DPR staff and transported to the Sheriff's East Mesa Reentry Facility greenhouse facility where under DPR supervision, they are propagated and then transferred in 5-gal size containers. When trees are ready, DPR staff relocate them in the park of origin to establish.

Also, in 2024 DPR implemented the Oak Advanced Regeneration Program, with the intent of enhancing tree's natural succession capabilities. Some selected old oak tree specimens located in developed park's areas are fenced out, the turf left unmown, so acorns are protected and allowed to germinate in an undisturbed soil and environment. In the future, some well-established saplings will be selected for replacing the older tree.

6.3 Grant Funded Management Projects

The County implemented 13 grant funded management projects across seven County Preserves in the reporting year. See **Table 15**, *Grant Funded Management Projects, Locations, and Species Benefited in Reporting Year*. These projects benefited fourteen MSCP covered species, which are San Diego thornmint, variegated dudleya, willowy monardella, coastal California gnatcatcher, least Bell's vireo, coastal cactus wren, northern harrier, Cooper's hawk, golden eagle, light-footed Ridgway's rail, arroyo toad, southwestern pond turtle, southern mule deer, and mountain lion, and included habitat restoration, access control, invasive, non-native plant control, invasive non-native animal control, and trail alignment. Grant-funded projects occurred at Dictionary Hill Preserve, Sweetwater Regional Park, Ramona Grasslands Preserve, Tijuana River Valley Regional Park, Boulder Oaks Preserve, Sycamore Canyon and Goodan Ranch Preserve and Otay Ranch Preserve. Grant funding totaled approximately $23.6 million and was provided by 13 grants, County General Funds, and one local agency matching. Grant funds were from three WCB Proposition 68 grants, one State Coastal Conservancy Proposition 68 grant, two CDFW Proposition 1 grants, two TransNet Environmental Mitigation Program (EMP) grants, one U.S Navy Readiness and Environmental Protection Integration Program grant, two SWRCB Border Water Quality Infrastructure grants, one California Natural Resources Agency (CNRA) Proposition 84 River Parkways grant and one CDFW Natural Community Conservation Planning (NCCP) 30x30grant.

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 2024, the County applied for three grants, which included proposals for restoration of habitats within preserves, and were awarded three grants.

TABLE 15. GRANT FUNDED MANAGEMENT PROJECTS, LOCATIONS, AND MSCP SPECIES BENEFITED IN REPORTING YEAR

Project	Preserve	MSCP Species Benefited
Coastal California Gnatcatcher Habitat Restoration	Dictionary Hill Preserve	Coastal California gnatcatcher, coastal cactus wren, Quino checkerspot butterfly[1], monarch butterfly[1]
East Otay Trail Alignment Study	Otay Ranch Preserve	Quino checkerspot butterfly[1]
Otay Ranch Preserve Enhancement	Otay Ranch Preserve	Quino checkerspot butterfly[1]
Ramona Grasslands and Boulder Oaks Preserve Bullfrog Eradication	Ramona Grasslands, Boulder Oaks Preserve	Arroyo toad, southwestern pond turtle
Morrison Pond Restoration and Enhancement	Sweetwater Regional Park	Coastal California gnatcatcher, coastal cactus wren, least Bell's vireo
Sycamore Canyon and Goodan Ranch Preserve Covered Species Threat Reduction Project	Sycamore Canyon and Goodan Ranch Preserve	San Diego thornmint, variegated dudleya, willowy monardella, coastal California gnatcatcher, northern harrier, Cooper's hawk, golden eagle, southern mule deer and mountain lion.

Project	Preserve	MSCP Species Benefited
Smuggler's Gulch Dredging	Tijuana River Valley Regional Park	Coastal California gnatcatcher, 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
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
Habitat Improvement, Restoration, and Erosion Control	Tijuana River Valley Regional Park	Least Bell's vireo and coastal California gnatcatcher
Brown Property Restoration Project	Tijuana River Valley Regional Park	Least Bell's vireo

[1] Species are not MSCP covered species; however, will benefit from habitat restoration.

Dictionary Hill Preserve Coastal California Gnatcatcher Habitat Restoration Project

Funding Source: WCB Proposition 68 Grant and County funding
Funding Amount: $814,560 (Prop 68 funds $790,000 and County funds $24,560)
Project Timeline: June 2021 – March 2025
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. A budget augmentation for $263,000 was approved at the November 2023 WCB hearing.

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 four-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 plants 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 200 pounds of coastal sage scrub seed mix. In January 2024, 973 one-gallon container coastal sage scrub plants were installed, including California sagebrush, coast cholla, bush sunflower, chaparral yucca, coast prickly pear, spiny redberry, lemonade berry, white sage, and blue elderberry.

The second annual monitoring visit of the restoration and enhancement areas occurred in March 2024. Within the restoration areas, native plant cover was estimated at 30 percent while invasive non-native plant cover was estimated at three percent. Overall container plant survivorship was estimated at 86 percent. Within the enhancement area, native plant cover was estimated to be 60 percent and non-native plant cover was reduced from approximately three to less than one percent. During the second monitoring year, a total of 74 plant species and 70 animal species were observed or detected on the Preserve. These included five sensitive species: turkey vulture, Costa's hummingbird, Southern California rufous-crowned sparrow, costal cactus wren and coastal California gnatcatcher.

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 – December 2027
Target Species or Habitat: Upland habitat surrounding trails
Management Action: Habitat Management

The *East Otay Trail Alignment Study (EOTAS)* project will complete an EIR 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. In 2024, technical studies and an EIR were drafted. The EIR, and associated technical documents, are anticipated to be released for public review in 2025.

Otay Ranch Preserve Enhancement

Funding Source: TransNet Environmental Mitigation Program
Funding Amount: $80,000
Project Timeline: March 2023 – September 2024
Target Species or Habitat: Quino checkerspot butterfly
Management Action: Habitat management and restoration

The *Otay Ranch Preserve Enhancement* project addressed access control issues on multiple Otay Ranch Preserve (POM) parcels. In coordination with the City of Chula Vista and Preserve Manager (RECON), the project goal was to restore and increase the quality of habitat for Quino checkerspot butterfly (Quino) near Minnewawa Truck Trail through seasonal road closure, and seeding and planting within 0.69 acres of suitable Quino habitat. The project was funded by a *TransNet* EMP Short Term Threat Reduction Stewardship grant of $80,000 awarded to the County in 2023. Project objectives included container plant installation, seeding, watering, erosion and access control, and monitoring. The project was successfully completed at the end of June 2024.

In December 2023, 100 San Diego County viguiera (*Bahiopsis laciniata*), 180 California buckwheat (*Eriogonum fasciculatum*), 45 Munz's sage (*Salvia munzii*), 20 scrub oak (*Quercus*

berberidifolia), and 55 chamise (*Adenostoma fasciculatum*) 1-gallon container plants were installed within 0.15 acres of the project area. After installation the container plants were watered to encourage plant establishment. Consistent rainfall in winter and spring 2024 eliminated the need for supplemental watering at that time. In June 2024, the field crew planted an additional 200 chamise and 200 scrub oak to supplement previously installed container plants that had died earlier in the year. Watering occurred after installation of the additional container plants. Supplemental watering of the installed plants will be included as a task in the Otay Ranch Preserve annual work plan.

Also in December 2023, Quino host and nectar plant seed was applied to 0.54 acre of the project area. Applied seed consisted of 1.0 pound of cryptantha (*Cryptantha* spp.) seed, 1.0 pound of common goldfields (*Lasthenia gracilis*) seed, 0.5 pound of tidy-tips (*Layia platyglossa*) seed, and 2.0 pounds of dot-seed plantain (*Plantago erecta*) seed. Additional native seed was applied to the project area in early June 2024 consisting of 0.5 pound of common goldfields, 0.5 pound of tidy-tips, 0.5 pound of nievitas cryptantha (*Cryptantha intermedia*), and 0.5 pound of dot-seed plantain. This additional seed was placed on-site to create greater cover of host and nectar plants for Quino. Continued monitoring of the seeded area will be included as a task in the Otay Ranch Preserve annual work plan.

In November 2023, holes were dug, and bases were set for the seven removable bollards. Also, a 24-inch by 36-inch aluminum sign stating “Road Closed” was purchased. The bollards and seasonal closure sign will be installed and locked to close the road to vehicles when Quino larvae and adults are active. The road on the project site is located behind a robust tubular steel locked gate and a tubular steel barrier that runs parallel to Minnewawa Truck Trail. The road is exclusively used by United States Customs and Border Protection (USCBP), with the hilltop being an observation area and the base of the road used to occasionally stage equipment when repairing Minnewawa Truck Trail. The road will remain open to USCBP when Quino checkerspot butterfly are in diapause. The project has been designed to cooperate with the USCBP mission by allowing off-season vehicle access to the hilltop while protecting and restoring Quino checkerspot butterfly habitat. During the post-grant period, installation and removal of bollards will occur annually during and after the seasonal closure for Quino checkerspot butterfly by the Otay Ranch Preserve Manager.

Ramona Grasslands and Boulder Oaks Preserve Bullfrog Eradication

Funding Source: TransNet Environmental Mitigation Program
Funding Amount: $223,668
Project Timeline: March 2023 – July 2025
Target Species or Habitat: Arroyo toad and southwestern pond turtle
Management Action: Invasive, non-native animal control

The *Ramona Grasslands and Boulder Oaks Preserve Bullfrog Eradication* project was implemented to ensure southwestern pond turtle and red-legged frog persistence within conserved lands of San Diego County by enhancing unoccupied habitat that have potential to support these species and to enhance a MSCP Core Resource Area. Also, the project will ensure on-site arroyo toad persistence within conserved lands of San Diego County by enhancing occupied habitat. The project is funded by a *TransNet* EMP grant of $223,668 awarded to the County in 2023. The objective of the project is to implement a bullfrog eradication program within Ramona Grasslands Preserve and the treatment ponds on adjacent Ramona Municipal Water District (RMWD) property and within the four ponds of Boulder Oaks Preserve. Bullfrog eradication efforts within Boulder Oaks Preserve would improve habitat to

facilitate the translocation of southwestern pond turtle and red-legged frog. Arroyo toad, a federally endangered species, has been observed within Santa Maria Creek west of Rangeland Road within the western portions of Ramona Grasslands Preserve. The presence of adult and juvenile bullfrogs reduces the chances of a viable population of arroyo toads and southwestern pond turtles within the Preserve. Installation of silt fencing and eradication efforts began in August 2024. Between August and December 2024, 48 bullfrogs (28 adults, 20 juveniles) were eradicated from Ramona Grasslands Preserve and 132 bullfrogs (36 adults, 39 juveniles, 57 tadpoles) were eradicated from Boulder Oaks Preserve.

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 Morison 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. In 2023, the project continued implementation and began maintenance, monitoring, and reporting.

The second annual monitoring visit of the upland restoration and enhancement areas occurred in April 2024. Native plant cover was estimated at 60 percent while non-native plant cover was estimated at two percent. Additional container plantings were installed in January 2024. Native recruitment was high within the upland restoration area. During the first monitoring year, a total of 79 animal species were observed or detected on the Preserve. Survivorship of planted coastal cholla and coastal prickly pear continued to be high (~99%) and recruitment was observed.

Sycamore Canyon and Goodan Ranch Preserve Covered Species Threat Reduction Project

Funding Source: California Department of Fish and Wildlife 30X30 Grant Program
Funding Amount: $888,054 (Grant Funds)
Project Timeline: April 2024 – March 2026

Target Species or Habitat: San Diego thornmint, variegated dudleya, and willowy monardella, coastal California gnatcatcher, northern harrier, Cooper's hawk, golden eagle, southern mule deer and mountain lion.
Management Action: Invasive, non-native plant species removal and habitat restoration

The *Sycamore Canyon and Goodan Ranch Preserve Covered Species Threat Reduction Project* will address the urgent need for invasive non-native plant species removal and habitat restoration within Sycamore Canyon and Goodan Ranch Preserve (Preserve) that as a result will restore and enhance native and naturalized habitats on the Preserve to benefit MSCP covered species including San Diego thornmint (*Acanthomintha ilicifolia*), variegated dudleya (*Dudleya variegate*), willowy monardella (*Monardella linoides* ssp. *viminea*), coastal California gnatcatcher (*Polioptila californica californica*), northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperii*), golden eagle (*Aquila chrysaetos*), southern mule deer (*Odocoileus hemionus*), and mountain lion (*Puma concolor*). The objectives of this Project include treatment and removal of invasive non-native plants within approximately 290 acres of the 2,927-acre Preserve, restoration, and enhancement of chaparral and coastal sage scrub habitats, maintenance of San Diego thornmint, variegated dudleya, and willowy monardella populations, fire risk reduction and resiliency, and promotion of native plant recruitment within the Preserve.

During the first quarter of Year 1 (April–June 2024), work performed included pre-enhancement activities. Pre-enhancement activities included monitoring to document baseline conditions, and the development of the enhancement approach to be taken to ensure that all sensitive environmental resources are preserved. Baseline conditions documentation included establishing repeat photograph locations, taking baseline site photographs, and mapping invasive non-native plant species polygons.

In the second quarter of Year 1 (July–September 2024), work performed included enhancement activities, seed collection and distribution, and monitoring. Enhancement activities within the approximately 32 acres of riparian habitat along Sycamore Canyon Creek included spot spraying vegetative stinkwort adjacent to the creek bed and surrounding uplands, and line trimming thatch in the surrounding uplands followed by raking and removal of the cut material. In the northern portion of Preserve treatment occurred within approximately 1 acre of Diegan coastal sage scrub and meadow habitat and targeted Maltese starthistle and non-native grasses. Additionally, stinkwort was removed by hand along approximately 5,200 linear feet of trail. Hand-weeding occurred around San Diego thornmint and variegated dudleya plants and line trimming non-native grasses and Maltese starthistle within the wider monitoring plots. Invasive non-native plant removal consisted of hand-weeding immediately surrounding willowy monardella plants/populations, and line trimming adjacent upland areas beyond the established hand weeding buffers. A total of approximately five pounds of native plant seed was collected and immediately seeded within the willowy monardella project area in Clark Canyon on September 19, 2024, in conjunction with invasive non-native plant removal. The following native plant species were seeded: California buckwheat (*Eriogonum fasciculatum*), willowy monardella, California everlasting (*Psuedognaphalium californicum*), blue dicks (*Dichelostemma capitatum*), seep monkeyflower (*Erythranthe guttata*), laurel sumac (*Malosma laurina*), smooth mountain mahogany (*Cercocarpus minutiflorus*), and mission manzanita (*Xyloccocus bicolor*).

In the third quarter of Year 1 (October–December 2024), work performed included enhancement activities and monitoring. In the northern portion of the Preserve treatment occurred within approximately 1 acre of coastal sage scrub and meadow habitat and targeted Maltese starthistle and non-native grasses. Hand-weeding occurred around San Diego thornmint and variegated dudleya plants and line trimming non-native grasses and Maltese starthistle within the wider

monitoring plots. Invasive non-native plant removal consisted of hand-weeding immediately surrounding willowy monardella plants/populations, and line trimming adjacent upland areas beyond the established hand weeding buffers.

Smuggler's Gulch Dredging Project

Funding Source: SWRCB Border Water Quality Infrastructure Grant
Funding Amount: $4,250,000
Project Timeline: October 2023 – December 2025
Target Species or Habitat: Riparian Wetland and adjacent upland habitats
Management Action: Habitat enhancement

The Smuggler's Gulch Dredging Project improved water quality by removing trash and sediments that have accumulated within the Smuggler's Gulch channel and Pilot Channel of the Tijuana River over years of transboundary flows coming from Mexico. The project involved a full-scale dredging effort throughout the Smuggler's Gulch channel and portions of the Pilot Channel of the Tijuana River Along with disposal of the dredged material. This project complements the Smuggler's Gulch Improvements Project discussed above. This project is funded by a SWRCB Border Water Quality Infrastructure Grant of $4,250,000 the County successfully secured in late 2023 by leveraging existing County funding for the project. Implementation of the grant began in March 2024 and project activities concluded in November 2024. Implementation benefits will include enhancement of the hydrologic health and habitat of the Tijuana River Valley watershed.

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 – June 2028
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. The County continued design for the Project in 2024. Due to the early 2024 storms which resulted in damages to existing stormwater infrastructure, additional analysis and design changes were necessary to ensure long-term project success. The County will finalize design and apply for environmental permits in 2025.

Tijuana River Valley Invasive Species Removal and Restoration Plan

Funding Source: CDFW Proposition 1 Grant
Funding Amount: $520,167
Project Timeline: July 2020 – March 2024
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, apply for 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. These surveys included several MSCP covered species including coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher. In 2022, a draft biological technical report and a draft cultural resources report were prepared. In late Fall 2023, the Habitat Restoration Plan and the Draft Initial Study Mitigated Negative Declaration were circulated for public review. The County finalized the project's CEQA analysis and permit applications were submitted to CDFW, RWQCB, and USACE in 2024. The Regional Water Quality Control Board provided necessary permits in 2024. Coordination with CDFW and USACE is underway for final environmental permits. While CDFW funded grant activities are complete, the County will continue working with regulatory agencies to obtain final permits in 2025.

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 – June 2025
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 7-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 includes

preparation of a habitat restoration plan for the Brown Property, preparation of design plans and environmental analysis to allow for the future removal of accumulated sediment, debris, and vegetation from the Tijuana River Valley and the Smuggler's Gulch channel to enhance the hydrologic health and habitat of the Tijuana River Valley watershed, as well as additional hydrologic studies.

Restoration planning for the Brown Property was completed in June 2023 and included technical studies, design, and environmental review and documentation. Implementation of the restoration plan will include removal of invasive species and existing structures from the Brown property in the Tijuana River Valley Regional Park. While the existing CDFW grant cannot be used for implementation of this restoration plan, the County successfully secured alternative grant funding in late 2023. Implementation began in February 2024 and will continue through December 2025. Implementation benefits will include restoration of disturbed land into native habitat for least Bell's vireo and other native wildlife.

In Fall 2023, the County also completed environmental review and documentation for the future removal of accumulated sediment, debris, and vegetation from the Tijuana River Valley and the Smuggler's Gulch channel. While the existing CDFW grant cannot be used for implementation of the sediment removal, the County successfully secured alternative grant funding, and the sediment removal project implementation began in March 2024 and concluded in November 2024. Implementation benefits will include enhancement of the hydrologic health and habitat of the Tijuana River Valley watershed.

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

Funding Source: CNRA Proposition 84 River Parkways Grant
Funding Amount: $494,920
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 Proposition 84 River Parkways grant for $494,920 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. In 2023, crews spot-treated, weed whipped, and/or removed by hand non-native seedlings within the restoration site. Non-native plants were hand-pulled where growing adjacent to native plants. Supplemental watering occurred as needed. All irrigation was removed from the site in Fall 2023, which concluded all work within the restoration site. The project has met the grant's dual goals of tamarisk eradication and increasing native riparian vegetation. The County completed grant close-out paperwork and submitted final invoicing in early February 2024. This project provided new habitat for several species within the Park, including least Bell's vireo, an MSCP covered species.

Tijuana River Valley Regional Park Habitat Improvement, Restoration, and Erosion Control

Funding Source: U.S. Navy Readiness and Environmental Protection Integration (REPI) Program Funding
Funding Amount: $1,500,000
Project Timeline: September 2023 – September 2028
Target Species or Habitat: Least Bell's vireo and coastal California gnatcatcher
Management Action: Habitat restoration

The Tijuana River Valley Regional Park Habitat Improvement, Restoration, and Erosion Control Project will develop an adaptive work plan and implement restoration efforts within the Park, which will improve and enhance habitat for least Bell's vireo and coastal California gnatcatcher. The adaptive work plan will detail habitat improvement and resilience efforts to benefit least Bell's vireo and coastal California gnatcatcher. The project is funded by a $1,500,000 cooperative agreement with the Navy under the REPI Program, which was executed in Fall 2023. Due to the early 2024 storms and flooding in the Tijuana River Valley, additional soil testing and revisions to the revegetation plans were necessary. Therefore, implementation will begin in 2025.

Tijuana River Valley Regional Park Brown Property Restoration Project

Funding Source: SWRCB Border Water Quality Infrastructure Grant
Funding Amount: $2,000,000
Project Timeline: October 2023 – February 2026
Target Species or Habitat: Upland Coastal Sage Scrub and Least Bell's vireo
Management Action: Habitat restoration

The Tijuana River Valley Regional Park Brown Property Restoration Project will improve water quality by removing trash and invasive species and restore the Tijuana River and adjacent areas to its native habitat. The project will include demolition of on-site structures, restoration of the approximately seven-acre property to native upland coastal sage scrub habitat, and short-term maintenance and monitoring of the restoration site. The project is funded by a SWRCB Border Water Quality Infrastructure Grant of $2,000,000 awarded to the County in late 2023. In 2024, hazardous materials on the site were removed and on-site structures were demolished. The site was graded and revegetated with native plants and seed. Over 1,800 plants and 500 pounds of seed were placed on the Brown Property and adjacent areas. In 2025, the County will perform maintenance and monitoring at the restoration site. Implementation benefits will include restoration of disturbed land into native habitat for least Bell's vireo and other native wildlife.

6.4 Preserve Management Partnerships

Three County partners implemented three management projects across two 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 two County Preserves: Santa Fe Valley Preserve and Tijuana River Valley Regional Park; and continued the implementation of channel and culvert maintenance at the Tijuana River Valley Regional Park. Partners were the City of San Diego (Stormwater Department, Public Utilities Department), and the Nature Collective.

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.

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 proposed to 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. Monitoring and retreatments of the project area continued in 2023. No work was performed in 2024. This project helped maintain the ecological health of riparian habitats in the preserve and benefited downstream areas by minimizing the spread of invasive plant species.

Stream Gauge Monitoring/Santa Fe Valley Preserve

Lead Agency: City of San Diego (Public Utilities Department)
Project Timeline: September 2024 – September 2026
Target Species or Habitat: Stream habitat
Management Action: Installation and maintenance of a stream gauge
County Preserve: Santa Fe Valley Preserve

The City of San Diego Public Utilities Department plans to install a stream gauge at the Santa Fe Valley Preserve to monitor releases and spillway flows downstream of Hodges Dam. The data from the stream gauge will provide reliable, real-time information about the conditions and amount of water flowing downstream of Hodges Dam. The stream gauge will be part of an existing monitoring network of stream gauges around the San Dieguito River Watershed that provide critical information for management of water resources. The site was visually surveyed in 2024, and installation of the stream gauge will be completed in early 2025.

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

Lead Agency: City of San Diego (Stormwater Department)
Project Timeline: August 2023 – August 2025
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, non-native invasive plant treatment, and native plant restoration within previous maintenance areas within Tijuana River Valley Regional Park over a two-year period. In 2024, channel maintenance occurred within the Smuggler's Gulch drainage channel and Tijuana River Pilot Channel and consisted of removing soil, rock, and vegetation from the channel bottoms. Channel maintenance required some pumping of stagnant water downstream. In addition, in 2024 the City of San Diego repaired and rebuilt the berm breach on the western side of Smuggler's Gulch and the County of San Diego maintained existing culverts under Monument Road.

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-Bandola Mitigation Site. This treatment will focus on removal of giant reed, castor bean, tamarisk, 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. In 2024, the City of San Diego maintained the Smythe Channel and Black Sage Environmental began monitoring maintenance in Smuggler's Gulch with the removal of castor bean and other invasive species.

The project includes various measures to protect environmental resources. Best Management Practices 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.

6.5 Private Mitigation Lands Management

Private Resource Management Plans (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 Library[14] using the associated Record ID. **Appendix L** provides a general overview of the 26 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 2023-2024 fiscal reporting period.

2024 Annual Report Private RMP Review

Seven new private RMPs began reporting in 2024, increasing the total number of private RMPs within the South County Subarea from nineteen to twenty-six. Twenty-one of the twenty-six (81%) Private RMPs submitted reports for the 2023-2024 reporting period. Each report was reviewed by County PDS staff to evaluate compliance with the RMP document terms. Review letters were sent to all 21 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

Record ID: PDS2008-3914-98-001
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 2024 towards bringing this RMP into compliance is provided in the next section.

4S Ranch Ralphs Preserve

Record ID: PDS2008-3914-99-001
MSCP Subarea Plan: 1,065 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,

[14] The PDS Document Library can be accessed at: https://www.sandiegocounty.gov/content/sdc/pds/doclibrary.html.

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 continuous efforts of removal, it was determined that there is a diminishing population, as only blown in or very old seeds can sprout.

- **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. Small amounts of windblown trash were also removed from the preserve.

4S Ranch Specific Plan Preserve

Record ID: PDS2012-3914-99-002-02
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 species throughout the preserve on a monthly and annually occurrence, depending on the location. Non-native species treatment focused on artichoke thistle, tamarisk, stinkwort, pampas grass, black mustard, fennel, tree tobacco, eucalyptus, and castor bean.

- **Access control**: Resource managers monitored for illegal off-road vehicle and trail access issues. Damage to signage and fencing continues to be a persistent issue, but its regularly maintained and replaced when needed. Trash and debris were removed during site visits. Instances of vandalism were reported and addressed by the property manager.

Golem Preserve

Record ID: PDS2008-3914-99-003
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**: Riparian areas are now predominantly native forests after the successful riparian weed control program and the Resource Managers have found evidence of least Bell’s vireo breeding. Sticky dudleya grown at the San Dieguito River Park Nursery grew well and the harvested seed will be returned to the area where the original seed was collected.

- **Invasive, non-native plant control**: Removal efforts included ongoing weed control in riparian areas and monitoring of targeted weed species. Weed control also occurred in the floodplain to control the fountain grass. Eucalyptus has been eradicated, however the monitoring of trees near the property line is necessary to prevent the re-population on the preserve.

- **Access control**: Resource managers patrolled almost daily and there is a security guard at the main entrance every day. Graffiti on signs continues to be an issue and the work to remove it is an ongoing effort. New trails and access points are closed to protect coastal California gnatcatcher habitat.

- **Environmental education**: Two educational programs, engaging a total of 98 students, occurred at the preserve. The school groups explored the biodiversity of the area and learned about ongoing restoration efforts. Engagement with visitors occurred while on patrol, site visits, and during restoration projects.

Starwood (Crosby) Preserve

Record ID: PDS2008-3914-99-004
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 approximated that half the planted native plant species in the upland habitat survived, though invasive weed species were encroaching. Riparian areas have coast live oaks and prickly pear cacti. The native plant installation efforts from previous years in the chaparral area shows signs of healthy growth.

- **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 in non-infested areas. These efforts were assessed during monthly monitoring visits and prioritized based on their ecological impact.

- **Invasive, wildlife control**: Efforts included surveying for brown-headed cowbird and American bullfrog. A significant increase in brown-headed cowbirds has been identified and a removal/monitoring program is being discussed with neighboring land managers for the coming years. No American bullfrogs were observed or heard.

- **Access control**: Unauthorized trails, trampling of vegetation, and sign and fence vandalism continues to be an issue. Coordination will continue with the Encinitas and 4S Ranch Sheriff departments, as well as adjacent land managers, on the unauthorized use. Trash was removed during field visits.

- **Fire Management**: Resource managers conducted brush management in coordination with the San Diego County Fire Marshall. 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 managed and 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. The history and successful restoration efforts of this preserve was presented at the California Society for Ecological Restoration.

Woodridge Preserve

Record ID: PDS2008-3914-99-005
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 maintained previous year's planting. About 50 cholla and 40 coastal prickly pear pads were propagated in 1-gallon pots for planting in the winter of 2024 in the areas that are currently heavily invaded by mustard or brittlebush. This strategy will help control invasive populations and simultaneous creation of cactus wren habitat.

- **Invasive, non-native plant control**: Removal efforts included the hand removal of more than 1,000 shortpod mustard and several stinkwort plants. About 18 olive and one tamarisk tree were cut and treated with herbicide. About 200 brittlebush of varying sizes and bridal creeper were treated across the preserve.

- **Fire Management**: Fuel zones were thinned or cleared to no more than 50 percent to help protect the surrounding residential community. Vegetation was also cleared along roadways.

- **Access control**: Resource managers conducted weekly to bi-weekly patrols. A bike jump was found off-trail, it was flattened, and brush that had been cut by the jump builders was placed on top to discourage rebuilding. A fence was installed to prevent off-trail bike activity. Two additional signs for no motorcycle use were posted around the preserve after evidence suggested there was occasional use. Minimal trash was found and picked up during patrols and the trash cans onsite were emptied weekly.

- **Environmental education**: The materials in the kiosk located at the Currant Court/Morning Glory trailhead were periodically updated with a site map, a brief narrative of the purpose of the site, various brochures, and wildlife pictures. Resource managers frequently interface with public trail users during patrols.

Blossom Valley Preserve

Record ID: PDS2008-3914-01-001
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 treated or removed about 100 tree tobacco, 200 Sahara mustard, and 50 Russian thistle across the preserve. Fountain grass and natal was removed when found.

- **Access control**: Resource managers conducted patrols bi-weekly. Several off-leash dogs were observed during patrols and dog owners were issued a verbal reminder of the rules and asked to put their dog on leash. A wildlife camera was in operation and monitored the number of hikers and the presence of illegal trail usage, like off-leash dogs and mountain bikers. Minimal trash was found and picked up during patrols and other management activities.

- **Environmental education**: The kiosk on the Flume Trail displays information on native and invasive species and provides a trail map to trail users. Efforts included providing educational outreach to trail users as they were encountered on trails.

McCrink Ranch Preserve

Record ID: PDS2008-3914-02-001
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 2024 towards bringing this RMP into compliance is provided in the next section.

Maranatha Chapel Preserve

Record ID: PDS2008-3914-02-003
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 2024 towards bringing this RMP into compliance is provided in the next section.

El Apajo Preserve

Record ID: PDS2008-3914-03-002
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 2024 towards bringing this RMP into compliance is provided in the next section.

Greenhills Ranch Preserve

Record ID: PDS2010-3914-05-004
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, and southern mule deer. Management actions included the following:

- **Invasive, non-native plant control**: Removal efforts included hand removal, weed whacking, and chemical treatments throughout the preserve. Targeted species included non-native annual grasses, mustard, and tocalote.

- **Access control**: Resource managers conducted quarterly patrols and seven maintenance visits. Minimal trash was found and removed during regular maintenance and monitoring visits. Trespass and damage from bike trails and jumps was observed was addressed with adaptive management strategies. Four additional trespassing signs were installed to discourage trespassing in key locations.

- **Environmental education**: Resource managers regularly communicated with the Homeowners Association (HOA) to report visits and activities. Coordination regarding trespassing issue was the main focus, which resulted in the approval and implementation of signage design, purchase, and installation.

Artesian Trail Preserve

Record ID: PDS2009-3914-06-005
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 2024 towards bringing this RMP into compliance is provided in the next section.

Lonestar Preserve

Record ID: PDS2012-3914-11-002
MSCP Subarea Plan: 62.16 acres
Segment: South County

Management benefits eight MSCP covered species known to occur on or utilizing the preserve including Otay tarplant, Otay mesa mint, variegated dudleya, burrowing owl, San Diego fairy shrimp, Riverside fairy shrimp, northern harrier, and coastal cactus wren. Management actions included the following:

- **Habitat restoration**: Resource managers coordinated with the Native Plant Seed Bank and San Diego Zoo Wildlife Alliance on habitat management and improvement for Otay tarplant. Seeds were collected that will be used for future replanting efforts in the location of the preserve's historical Otay tarplant community. For better burrowing owl habitat, line trimming and mowing was performed to reduce nonnative grasses growing around existing brush piles.

- **Invasive, non-native plant control**: Removal efforts included hand removal, mowing and treatment of black mustard, milk thistle, tocalote, fennel, and prickly lettuce throughout the preserve.

- **Access control**: Resource managers conducted monthly monitoring visits and found small damage in a chain link fence along the southern boundary and is planned to be repaired soon. Minimal trash was found and removed mostly along the eastern edge of the preserve.

- **Environmental education**: The resource manager attended the San Diego County Burrowing Owl Management meeting. Extensive coordination was conducted with the San Diego Zoo Wildlife Alliance for burrowing owl management.

East Otay Mesa Preserve

Record ID: PDS2014-RMPM-10-003
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 conducted 12 site visits. Illegal trespass of offroad vehicles is an ongoing issue. Fences have been repaired and new signage was added to discourage unauthorized use. The lock at the main gate was replaced. 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

Record ID: PDS2015-RMPM-12-002
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. A few patches of giant reed were found and removal options will be coordinated with state and federal agencies.
- **Access control**: Resource managers conducted biannual patrols. Fences and gates were checked and in adequate condition. Minimal trash removal was needed.
- **Environmental education**: The resource manager communicated with neighboring property owners who were 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

Record ID: PDS2015-RMPM-12-003
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 multiple treatments of tamarisks using chainsaws to first cut tamarisks down, the application of post-emergent herbicide, and re-treatment efforts. Additionally, weed trimmers were used to cut non-native species including stinkwort, mustard, and tocalote before applying post-emergent herbicide.
- **Access control**: Resource managers conducted quarterly monitoring visits. During these visits, no vandalism or graffiti were observed. Minimal trash was found and removed.

Otay Crossings Commerce Park Preserve

Record ID: PDS2016-RMP-16-004
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**: Weed control and removal efforts focused on Australian saltbush, black mustard, cheeseweed, non-native grass species, shortpod mustard, fennel, crown daisy, milk thistle, prickly lettuce, sow thistle, tocalote, and Russian thistle. Hand weeding focused on slender-leaved ice plant in the Quino checkerspot butterfly area. Crystalline ice plant was removed around the Quino checkerspot butterfly areas.

- **Access control**: Resource managers conducted monthly patrols. Trash was found and removed. Fencing repairs were made on the north parcel.

OMC Resource Management Area

Record ID: PDS2019-RMP-19-004
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**: Removal and treatment efforts focused on Australian saltbush, black mustard, artichoke thistle, fennel, shortpod mustard, Russian thistle, and tree tobacco.

- **Access Control**: 12 general site visits were conducted throughout the year. There was evidence of unauthorized use and vandalism to fencing, signage, and gates. The resource manager coordinated with the San Diego County Sheriff's Off-Road Enforcement team to help reduce unauthorized use. Large trash items were found and removed from the preserve.

Sweetwater Vistas Resource Management Area

Record ID: PDS2018-RMP-18-002
MSCP Subarea Plan: 28.8 acres
Segment: South County

Management benefits several MSCP covered species known to occur on or utilizing the preserve, which are the coopers hawk, coastal California gnatcatcher, least Bell's vireo, and the northern harrier. Management activities included the following:

- **Invasive, non-native plant control**: Removal and treatment efforts were conducted over 5 site visits and targeted mustard, castor bean, fountain grass, salt cedar, fennel, and palm seedlings.

- **Access Control**: The resource manager conducted monthly patrols and removed trash that was found. The resource manager encounter occasional trespassers and signs of illegal use, such as graffiti use. Coordination occurred with the Sheriff to report active encampments and requested assistance with trespasser removal during monthly patrol. Additional signs and fencing are planned to be installed next year.

Otay Crossings Off-Site (Lonestar Ridge) Preserve

Record ID: PDS2016-RMP-16-005
MSCP Subarea Plan: 82 acres
Segment: South County

Management benefits several MSCP covered species known to occur on or utilizing the preserve, which are the San Diego fairy shrimp, burrowing owl, and Quino Checkerspot butterfly. Management activities included the following:

- **Invasive, non-native plant control**: Removal and treatment efforts were focused on invasive grasses, tocalote, shortpod, black mustard, Russian thistle, stinkwort, tree tobacco, and fennel. 33 acres of burrowing owl habitat was line trimmed, hand-picked, and mowed.

- **Access Control**: The resource manager conducted monthly visits to the preserve. Fencing along the southern boundary was repaired.

Hillside Meadows Preserve

Record ID: PDS2021-RMP-21-003
MSCP Subarea Plan: 3.13 acres
Segment: South County

Management benefits several MSCP covered species known to occur on or utilizing the preserve, which are the cooper's hawk, California rufous-crowned sparrow, California gnatcatcher, and orange throated whiptail. Management activities included the following:

- **Invasive, non-native plant control**: Removal and treatment efforts were focused on two invasive weed species, crown daisy and shortpod mustard.

- **Access Control**: The resource manager conducted quarterly visits to the preserve. Evidence of off-road vehicle activity was noted during all four visits. Trash was removed during two extra site visits.

International Industrial Park Upland Resource Management Area

Record ID: PDS2021-RMP-21-005
MSCP Subarea Plan: 5 acres
Segment: South County

Management benefits two MSCP covered species with the potential to occur on or utilizing the preserve, the burrowing owl and northern harrier. Management activities included the following:

- **Invasive, non-native plant control**: Removal efforts consisted of mowing non-native grasses to support burrowing owl habitat. Black mustard, artichoke thistle, shortpod mustard, Russian thistle, and tree tobacco were removed by hand before mowing.

- **Access Control**: The resource manager conducted monthly site visits. Fencing and signage will be installed soon. Illegal dumping and garbage accumulation was a result of off-road trespassers. Trash was removed during the general site visits.

International Industrial Park Wetland Resource Management Area

Record ID: PDS2021-RMP-21-005
MSCP Subarea Plan: 8.4 acres
Segment: South County

Management benefits one MSCP covered species known to occur on or utilizing the preserve, the norther harrier. Management activities included the following:

- **Access Control**: The resource manager conducted quarterly site visits. Trash was found and removed.

Pinnacles at Santa Fe Valley Preserve

Record ID: PDS2022-RMP-22-001
MSCP Subarea Plan: 26.04 acres
Segment: Lake Hodges

Management benefits several MSCP covered species known to occur on or utilizing the preserve, which are wart-stemmed ceanothus, San Diego barrel cactus, and the coastal California gnatcatcher. Management activities included the following:

- **Invasive, non-native plant control**: Removal efforts of consisted of the eradication of about 8 acres of artichoke thistle along the eastern border, as well as Russian thistle, tocalote, black mustard, scarlet pimpernel, and stinkwort. A variety of methods were used in these removal efforts, including backpack sprayers, line trimmers, chainsaws, and removal by hand.

- **Access Control**: Old fencing was replaced along the eastern border and new signage was added. Broken fencing was repaired. Trash was found and removed. During site visits, resource managers encounter one off road motorcyclist and two dog walkers.

Hawano Preserve

Record ID: PDS2022-RMP-22-004
MSCP Subarea Plan: 33.1 acres
Segment: South County

Management benefits several MSCP covered species known to occur on or utilizing the preserve, which are Parry's tetracoccus, San Diego fairy shrimp, burrowing owl, San Diego ringneck snake, southern California rufous-crowned sparrow, northern harrier, and Thorne's hairstreak. Management activities included the following:

- **Habitat restoration**: Selective mowing occurred around the 12 artificial burrows, targeting Russian thistle and tocalote, to encourage habitat use by the burrowing owl.

- **Invasive, non-native plant control**: Removal efforts focused on black mustard, sweetclover, Australian saltbush, bristly ox-tongue, fennel, garland daisy, horehound, Russian thistle, shortpod mustard, stinkwort, and tocalote. Areas for removal and treatment were focused around the 12 artificial burrows and in the west portion.

- **Access Control**: The resource manager conducted monthly site visits. Illegal dumping occurred along the two roads along the preserve's boundary and will be continually monitored. No signs of trespassing or illegal entry were observed.

- **Environmental education**: Coordination is planned for the adjacent landowners and residents. Interns from UC San Diego, San Diego State University, and Mira Costa College, as well as several volunteers, accompanied the resource managers on patrol visits to remove invasive plants and trash.

Quail Canyon Preserve

Record ID: PDS2023-RMP-23-001
MSCP Subarea Plan: 199.72 acres
Segment: North Metro-Lakeside-Jamul

Management benefits several MSCP covered species known to occur on or utilizing the preserve, which are the rufous-crowned sparrow, Cooper's hawk, coast horned lizard, orange-throated whiptail, and the northern harrier. Management activities included the following:

- **Invasive, non-native plant control**: Removal efforts of invasive and non-native plant species was conducted using manual and chemical methods.

- **Access Control**: Resource managers found evidence of ongoing unauthorized access, trail creation, and dumping. Four trail gates will be installed at strategic locations to prevent motorized vehicles from accessing the preserve.

Non-Compliant Private RMP Reporting

Five of the 26 (19%) RMPs did not submit annual reports for the 2023-2024 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 2024, the County was successful in discovering a solution for two of the five non-compliant RMPs and bringing them back into compliance. In 2024, the County corresponded with one of the RMP responsible parties and is still evaluating paths forward for the remaining two more complicated RMP compliance cases. Below summarizes the County steps taken in 2024 towards bringing these RMPs into compliance and their current status.

Bernardo Lakes Preserve (PDS2008-3914-98-001) – Bernardo Lakes Preserve RMP is now in compliance. County staff continued to actively work with the HOA to ensure the updated Property Analysis Record identifies all of the RMP implementation costs. The County has reviewed and approved the proposal and executed a new Open Space Maintenance Agreement between all parties to begin implementation of the RMP immediately. The County will continue to monitor this effort and the first report for this RMP is projected to begin in 2025.

McCrink Ranch Preserve (PDS2008-3914-02-001) – McCrink Ranch Preserve RMP is now in compliance. The County and developer entered into an agreement that resulted in an item going before the Board of Supervisors on March 13, 2024 (5), for approval to allow the County's Department of Parks and Recreation to accept an endowment and the conveyance of the remaining approximately 82.33 acres of open space to implement the RMP. The transfer was successful in 2024, and the Department of Parks and Recreation will report on the implementation of this RMP moving forward in the 2025 MSCP South County Subarea Plan Annual Report.

Maranatha Chapel Preserve (PDS2008-3914-02-003) – County staff continued to identify and assess the County's options to achieve compliance, including correspondence with the point of contact for Maranatha Chapel. An RMP was approved for the 72-acre preserve in 2003. Additionally, an Open Space Easement was recorded over the five-acre southern portion of the RMP area in 2019. The County is identifying ways to put the entire RMP into long-term conservation and establish a funding mechanism for monitoring and management. Discussions on a path forward will continue into 2025 and a status update will be provided in the 2025 MSCP Annual Report.

El Apajo Preserve (PDS2008-3914-03-002) – County staff continued to identify and assess 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. The County is identifying ways to put the RMP into long-term conservation and establish a funding mechanism and parties to the Open Space Maintenance Agreement for monitoring and management. Discussions on a path forward will continue into 2025 and a status update will be provided in the 2025 MSCP Annual Report.

Artesian Trail Preserve (PDS2009-3914-06-005) – County staff continued to identify and assess 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. The County is identifying ways to put the RMP into long term conservation and establish a funding mechanism for monitoring and management. Discussions on a path forward will continue into 2025 and a status update will be provided in the 2025 MSCP Annual Report.

6.6 Education and Outreach

County Park Ranger discussing the Los Peñasquitos watershed with visitors participating in the Hike-a-Thon at Los Peñasquitos Canyon Preserve

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 2024, DPR returned to offering a wide range of popular educational programs again and approximately 21,000 guests participated in over 750 programs. Highlights for 2024 include the following:

Hawktober and Hawk Talk continued to be one of DPR's most popular educational programs. In 2024, County Park Rangers visited 47 County parks and outreach facilities and interacted with over 4,000 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. In addition to educational talks; Rangers also offered several hands-on activities including an owl pellet dissection, Kite making and designing their own Falconry hood.

Hawk Talk at Dictionary Hill Preserve.

Hike-a-Thon encourages more people to spend quality time outside – wherever and whenever they can. For the second year, DPR partnered with Nature Unplugged to host ranger-led hikes during their October 2024 Hike-a-Thon. The event had a dual purpose: to encourage people to fully experience nature, and to raise funds to Nature Unplugged's scholarship and subsidy program for organizations and communities in need. Mileage was calculated October 1–31, 2024 via a trail application. Participants had all month to log their travels for opportunities to collect prizes and earn matched dollars for charitable contributions. County Parks hosted a Kick-off event and four ranger-led hikes to promote the program, which drew 4,765 participants overall–937 from California and 345 from San Diego County–and logged 15,053 collective miles in San Diego County.

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, 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 2024, the Discovery Program hosted over 5,000 students from various schools in San Diego County.

Green Friday is celebrated the day after Thanksgiving; it's a day when County Parks encourages San Diegans to swap shopping plans for outdoor experiences via family-friendly activities in parks and preserves. In 2024, DPR hosted 19 volunteer park beautification and tree planting events through the three-day weekend, at numerous park locations. DPR also hosted several fitness events and an interpretive program, including a mountain biking event at Ramona Grasslands, a nature hike at Wilderness Gardens County Preserve, and Boot Camp with Mission: Fit at Pioneer Park. DPR also continued a five-year Story Trails partnership with County Libraries to encourage reading in public spaces at 10 different parks. This program encourages families to spend quality time outside by displaying pages of children's books – in both English and Spanish – along popular hiking trails. Green Friday activities will continue in 2025. They are always free and designed for people of all ages and interests, in all parts of San Diego County.

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 Lindo Lake Park. In 2024, 86 participants submitted registrations for 143 adventures completed at DPR TRACK Trails over the course of the year. San Dieguito County Park received the most registrations, closely followed by Felicita Park.

Astronomy Programs: DPR continued the partnership with the San Diego Astronomy Association via monthly Star Party programs at parks such as Oakoasis County Park, Wilderness Gardens, and Sycamore Canyon County Preserves – weather permitting. These events continue to be popular with people of all ages and 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 Science, Technology, Engineering, Art, and Math (STEAM) activities to diverse populations. Their Expo Day, held at Snapdragon Stadium, is the largest event of its kind in Southern California. It's a collective effort between industry, business leaders, government, community organizations, public outreach centers, academia, schools and school districts, and parents. Expo Day is a comprehensive San Diego County community event that celebrates the diverse cultures, communities and populace of San Diego, and works to inspire the curious young minds of our region to become tomorrow's STEAM leaders. In 2024, County Park Rangers participated by providing a nature discovery table featuring several live animals. This event is free and open to the public, attracts over 20,000 attendees each year, and hosts over 150 exhibitors.

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 2024, Nature Explorers participants hiked Morrison Pond,

Mission Trails Regional Park, Oakoasis County Preserve, Lindo Lake County Park, Louis A. Stelzer County Park. Participants kayaked at Lake Morena County Park, in addition to surfing, kayaking, and paddleboarding at the Mission Bay Aquatic Center. Participants enjoyed snorkeling at La Jolla Shores and deep seafishing in Point Loma. They slept under the stars at Joshua Tree National Park, William Heise County Park, Sweetwater Regional Park, Oakoasis County Preserve, Guajome County Park, Lake Morena County Park, Potrero County Park, Dos Picos County Park, and Agua Caliente County Park 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 tree planting, ongoing tree care and watering.
- Stormwater and watershed education.
- Leave No Trace Program

Social media is also a powerful tool that DPR utilizes to share information about park people, places, and programs. A multi-platform approach is used to ensure content is available in many formats, in the places where people choose to get their information. In addition to sdparks.org and the department's e-newsletter, Facebook, Instagram, Twitter, YouTube, and Pinterest are used to relay important department information, such as land acquisitions, environmental reports, preserve updates, species highlights, habitat restoration projects and volunteer opportunities to grow San Diego's tree canopy.

- Here are reports from DPR's online accounts from the end of 2024: DPR maintains 11 active Facebook pages, which cumulatively have more than about 78,000 followers. The main DPR Facebook page has nearly 27,000 followers and is ranked in the top five among other counties in California. Other accounts have been set up for the community centers in Fallbrook, Lakeside and Spring Valley, Waterfront Park, Lido Lake, 4S Ranch, El Monte, and Sweetwater Bike Park. Two program pages have also been built: Women in the Wild and Summer Movies in the Park.

- DPR's Twitter/X feed has over 13,000 followers and is ranked second only to San Francisco's twitter feed that covers both the city and county.

- DPR's main Instagram account is only a few years old and has already gained nearly 13,000 followers (organically). Additional Instagram Accounts exist for the Sweetwater Bike Park, SD Nights, the Spring Valley Gym, and the Goats at Los Peñasquitos (DPR's first animal ambassador social media forum).

- DPR's YouTube channel has 780 subscribers and over 24,000 views equating to nearly 605 watch hours.

- DPR's Pinterest page has over 2,400 followers.

- DPR has an E-blast distribution list of 24,807 subscribers.
- DPR website receives an average of over 673,000 visits per month.

Discovery Program: County Park Ranger's school visit.

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CHAPTER 7

Preserve Monitoring and Research

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 12 County Preserves and 13 private mitigation areas.

MSCP monitoring on County Preserves includes TMP monitoring, baseline inventory surveys, research partnerships, and private mitigation lands monitoring. MSCP monitoring in the reporting year consisted of TMP monitoring, research partnerships, and private mitigation lands monitoring; no baseline inventory surveys occurred in 2024. County monitoring efforts also include the monitoring of sensitive species during and after park improvement projects. The 2024 monitoring results of park improvement projects are included in Section 7.1, Preserve Biological Monitoring of County Lands. Monitoring efforts conducted by County partners in 2024 can be found in Section 7.3, Preserve Monitoring and Research Partnerships. Surveys conducted on private mitigation areas consist of species-specific monitoring and general monitoring efforts throughout the year. MSCP monitoring surveys have resulted in monitoring or documentation of 49 MSCP covered species and one MSCP covered habitat in County Preserves and an additional three MSCP covered species on private mitigation lands (**Table 16**, *MSCP Covered Species or Habitats Documented by Program*).

TABLE 16. MSCP COVERED SPECIES OR HABITATS DOCUMENTED BY PROGRAM

	Monitoring Program				
MSCP Covered Species and Habitats	**TMP[a]**	**ROE[a]**	**Otay Ranch POM**	**Private Mitigation**	**Baseline 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-leaved pitcher sage	✓				✓
7. Lakeside ceanothus	✓				✓

	Monitoring Program				
MSCP Covered Species and Habitats	**TMP[a]**	**ROE[a]**	**Otay Ranch POM**	**Private Mitigation**	**Baseline Inventory Surveys**
8. Orcutt's bird's-beak	✓				✓
9. Orcutt's brodiaea	✓	✓		✓	✓
10. Otay manzanita					✓
11. Otay mesa mint			✓	✓	
12. Otay tarplant	✓	✓	✓	✓	✓
13. Palmer's goldenbush					✓
14. San Diego ambrosia				✓	
15. San Diego barrel cactus	✓[b]		✓	✓	✓
16. San Diego button celery	✓[b]				✓
17. San Diego goldenstar			✓	✓	✓
18. San Diego thornmint	✓				✓
19. San Diego mesa mint	✓[b]				
20. San Miguel savory	✓				✓
21. Snake cholla			✓		✓
22. Spreading (prostrate) navarretia					✓
23. Sticky dudleya					
24. Tecate cypress					
25. Thread-leaved brodiaea					
26. Torrey pine					✓
27. Variegated dudleya	✓		✓	✓	✓

	Monitoring Program				
MSCP Covered Species and Habitats	**TMP[a]**	**ROE[a]**	**Otay Ranch POM**	**Private Mitigation**	**Baseline Inventory Surveys**
28. Wart-stemmed ceanothus				✓	✓
29. Willowy monardella	✓				✓
Birds					
30. American peregrine falcon	✓[b]			✓	✓
31. Bald eagle	[c]		✓		
32. Burrowing owl	✓	✓		✓	✓
33. Canada goose	✓[b]				
34. Coastal (San Diego) cactus wren	✓	✓	✓	✓	✓
35. Coastal California gnatcatcher	✓[b]	✓	✓	✓	✓
36. Cooper's hawk	✓[b]		✓	✓	✓
37. Ferruginous hawk	✓[b]				✓
38. Golden eagle	✓		✓		✓
39. Least Bell's vireo	✓[b]	✓	✓	✓	✓
40. Light-footed Ridgway's rail					✓
41. Long-billed curlew				✓	
42. Northern harrier	✓		✓	✓	✓
43. Southern California rufous-crowned sparrow	✓[b]		✓	✓	✓

	Monitoring Program				
MSCP Covered Species and Habitats	**TMP[a]**	**ROE[a]**	**Otay Ranch POM**	**Private Mitigation**	**Baseline Inventory Surveys**
44. Southwestern willow flycatcher	✓	✓			✓
45. Swainson's hawk	✓[b]				✓
46. Tricolored blackbird		✓			✓
47. Western bluebird	✓[b]			✓	✓
48. White-faced ibis	✓[b]				✓
Reptiles and Amphibians					
49. Arroyo toad	[c]	✓			
50. Belding's orange-throated whiptail			✓		✓
51. Blainville's horned lizard			✓	✓	✓
52. Southwestern pond turtle		✓			
Mammals					
53. American badger		✓			
54. Mountain lion		✓			✓
55. Southern mule deer			✓	✓	✓
Invertebrates					
56. Riverside Fairy Shrimp				✓	
57. San Diego fairy shrimp	✓[d]		✓	✓	
58. Thorne's hairstreak butterfly			✓		

	Monitoring Program				
MSCP Covered Species and Habitats	**TMP[a]**	**ROE[a]**	**Otay Ranch POM**	**Private Mitigation**	**Baseline Inventory Surveys**
Habitats					
59. Vernal pool/alkali playa	✓		✓		✓

NOTES:
a TMP = Targeted Monitoring Plan; ROE = DPR issued Right-of-Entry (ROE) Permit
b These species were incidental observations during TMP monitoring surveys.
c Monitoring is conducted for this species, but it has not been observed in the South County MSCP area.
d 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. 2025. Targeted Monitoring Plan Resource-Specific Monitoring & Management 2024 Annual Report. Prepared for County of San Diego Department of Parks and Recreation. February. PDS Private Mitigation RMP Annual Reports.

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. A reconnaissance baseline survey was conducted at the Los Peñasquitos Canyon Preserve to map the current extent of vernal pools and establish permanent photo-points for the 45 vernal pools observed in 2024. No baseline surveys were completed in 2024. TMP monitoring for the reporting year started in early spring 2024 and was conducted at 12 County parks and preserves to monitor MSCP covered species and habitats in seven County parks and preserves within the South County MSCP Subarea, and five preserves outside the South County MSCP Subarea. 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 SDMMP, and additional monitoring protocols stated in the TMP. Habitats and species included in the TMP are listed in **Table 17**, *Targeted Monitoring Plan Species and Habitats by Location*. Monitoring frequency is provided in **Table 18**, *Targeted Monitoring Plan Species and Habitats Monitoring Frequency*.

The TMP goal 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 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 (ESA 2024b). 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 2024 to incorporate eleven new preserves (five MSCP Subarea Plan County Preserves, six draft North County MSCP County Preserves). The 2024 TMP update included three additional species. The five Subarea Plan County Preserves added to the TMP update are Dictionary Hill Preserve, Iron Mountain Preserve, Los Peñasquitos Canyon Preserve, Peutz Valley Preserve, and Skyline Preserve[15]. In 2024, the Wildlife Agencies were included in the review process of updating the TMP. In total, the TMP currently addresses monitoring and adaptive management within 31 parks and preserves. The sections below address monitoring of MSCP covered species performed through implementation of the TMP.

[15] Bottle Peak, Escondido Creek, Keys Creek, Mountain Meadow, and Sage Hill Preserves, and San Luis Rey River Park are also included in the TMP update and are located in the draft North County MSCP Plan Area.

TABLE 17. TARGETED MONITORING PLAN SPECIES AND HABITATS BY LOCATION

Common Name [a]	Boulder Oaks	Lakeside Linkage	El Capitan	El Monte	Louis A. Stelzer	Oakoasis	Sycamore Canyon and Goodan Ranch	Ramona Grasslands [b]	Del Dios Highlands [b]	Lusardi Creek	Barnett Ranch	Tijuana River Valley Regional Park	Furby-North	Stoneridge	Dictionary Hill	Iron Mountain	Los Peñasquitos Canyon	Peutz Valley	Skyline
San Diego thornmint							✓												
Otay tarplant													✓						
Orcutt's bird's-beak												✓							
Encinitas baccharis									✓										
Lakeside ceanothus	✓		✓		✓	✓													
Variegated dudleya							✓			✓					✓				
Willowy monardella							✓												
Spreading (Prostrate) navarretia								✓											
San Miguel savory	✓																		
Heart-leaved pitcher sage																✓			
San Diego fairy shrimp								✓ [b]											
Arroyo toad								✓											
Tricolored blackbird								✓[b]											
Golden eagle			✓					✓	✓		✓								
Burrowing owl								✓[b]											
Northern harrier												✓							

Common Name [a]	Boulder Oaks	Lakeside Linkage	El Capitan	El Monte	Louis A. Stelzer	Oakoasis	Sycamore Canyon and Goodan Ranch	Ramona Grasslands [b]	Del Dios Highlands [b]	Lusardi Creek	Barnett Ranch	Tijuana River Valley Regional Park	Furby-North	Stoneridge	Dictionary Hill	Iron Mountain	Los Peñasquitos Canyon	Peutz Valley	Skyline
Coastal (San Diego) cactus wren		✓																	
Bald eagle								✓ [b]											
Least Bell's vireo												✓							
Vernal Pool / Alkali Playa Habitat	✓							✓ [b]									✓		
Habitat Mapping	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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.

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. 2024b. Targeted Monitoring Plan. Prepared for Department of Parks and Recreation County of San Diego. August.

TABLE 18. 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 every 2 years	No
Encinitas baccharis	Population quantified and threats assessed every 2 years	No
Lakeside ceanothus	Population quantified and threats assessed every 5 years	No
Variegated dudleya	Population quantified and threats assessed every 3 years	No
Willowy monardella	Population quantified and threats assessed annually for 5 years	Yes
San Miguel savory	Population quantified and threats assessed every 3 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 every 2 years	No
Golden eagle	Foraging study monthly for 3 years	Yes
Burrowing owl	Presence/absence surveys, and habitat and threats assessment every 3 years	No
	RDM monitoring annually	Yes[c]
Coastal (San Diego) cactus wren	Avian point counts monthly during breeding season, every three years	No
	Qualitative habitat and threat assessment, photo monitoring, and vegetation density estimates during breeding season, every 3 years	No
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, habitat and threat assessments 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
	Brown-headed cowbird trapping, as needed (April 1 – June 30)	Yes[d]

Species or Habitat[a]	Monitoring Frequency[b]	Monitored in Reporting Year
Vernal pool / alkali playa habitat	Quantitative vegetation monitoring every 3 years	Yes
	Qualitative monitoring early and late season, annually for 5 years	No
	RDM monitoring annually	Yes
	Hydrological monitoring every 5 years	No
	San Diego fairy shrimp (*Branchinecta sandiegonensis*) monitored as part of qualitative monitoring	No
Habitat Mapping	Mapping every 10 years	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 Residual Dry Matter (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

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. 2025. Targeted Monitoring Plan. August.
Environmental Science Associates. 2025. Targeted Monitoring Plan Resource-Specific Monitoring & Management 2024 Annual Report. Prepared for County of San Diego Department of Parks and Recreation. February.

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.

Targeted Monitoring Plan

Ten MSCP covered species and one habitat were monitored and managed across 12 County Parks and Preserves as part of the TMP monitoring efforts in the reporting year (**Table 19**, *Targeted Monitoring Plan Species Monitored in Previous Reporting Years: Year-to-Year Comparison* and **Appendix P**, *Targeted Monitoring Plan Resource-Specific Monitoring & Management 2024 Annual Report*). The San Diego thornmint population decreased at Sycamore Canyon and Goodan Ranch Preserve. Also, the Otay tarplant population decreased at Furby North Preserve. The willowy monardella population remained the same at Sycamore Canyon and Goodan Ranch Preserve. Monitoring followed the methods and key considerations as outlined in the TMP (ESA 2024b) for each species and habitat type. An additional 16 MSCP

covered species were incidentally observed during TMP monitoring (**Table 20**, *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 (ESA 2024b). 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.

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TABLE 19. TARGETED MONITORING PLAN SPECIES MONITORED IN PREVIOUS REPORTING YEARS: YEAR-TO-YEAR COMPARISON

Species[b]	Location/Measurements	2015	2016	2017	2018	2019	2021	2022	2023	2024
San Diego thornmint	Sycamore Canyon and Goodan Ranch Population estimate, individuals	OY[g]	20,000-30,000	777,300	5,525	27,200	12,990	41,921	46,032	36,788
Orcutt's bird's-beak	Tijuana River Valley Regional Park[a] Population estimate, individuals	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]	123	315	9,668	O/Y[g]
Otay tarplant	Furby North[a] Population estimate, individuals	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]	1	610	3,667	770
Lakeside ceanothus	Boulder Oaks Population estimate, individuals	600	O/Y[g]	O/Y[g]	O/Y[g]	O/Y[g]	1,100	O/Y[g]	O/Y[g]	O/Y[g]
	El Capitan Population estimate, individuals	400	O/Y[g]	O/Y[g]	O/Y[g]	O/Y[g]	450	O/Y[g]	O/Y[g]	O/Y[g]
	Louis A. Stelzer Population estimate, individuals	135	O/Y[g]	O/Y[g]	O/Y[g]	O/Y[g]	428	O/Y[g]	O/Y[g]	O/Y[g]
	Oakoasis Population estimate, individuals	225	O/Y[g]	O/Y[g]	O/Y[g]	O/Y[g]	573	O/Y[g]	O/Y[g]	O/Y[g]
Encinitas baccharis	Del Dios Highlands Population estimate, individuals	250	O/Y[g]	344	O/Y[g]	350	350	O/Y[g]	177	O/Y[g]
San Miguel savory	Boulder Oaks Population estimate, individuals	OY[g]	184	145	145	99	127	O/Y[g]	607	O/Y[g]
Variegated dudleya	Lusardi Creek Population estimate, individuals	OY[g]	199	199	199	33	0	O/Y[g]	9	O/Y[g]
	Sycamore Canyon and Goodan Ranch Population estimate, individuals	OY[g]	11	60	O/Y[g]	30	1,275	O/Y[g]	1,348	O/Y[g]

Species[b]	Location/Measurements	2015	2016	2017	2018	2019	2021	2022	2023	2024
Willowy monardella	Sycamore Canyon and Goodan Ranch Population estimate, individuals	441	238	284	283	364	305	332	444	444
Golden eagle	Ramona Grasslands Species Observed	yes	yes	O/Y[g]	O/Y[g]	yes	yes	yes	yes	yes
	Off-site Species Nesting	no	yes	O/Y[g]	O/Y[g]	yes	yes	yes	yes	yes
	Barnett Ranch[a] Species Observed	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]	yes	N/A[h]	N/A[h]	N/A[h]
	El Capitan Preserve On-site Species Nesting	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]	yes	no	O/Y[g]
Tricolored blackbird	Ramona Grasslands Species Observed	O/Y[g]	O/Y[g]	yes	yes	yes	No monitoring	no	yes[e]	no[e]
	Species Nesting	O/Y[g]	O/Y[g]	no	no	no	No monitoring	no	no	no
Burrowing owl	Ramona Grasslands Species Observed	O/Y[g]	yes[c]	O/Y[g]	no	no	O/Y[g]	no	no[f]	O/Y[g]
	Species Nesting	O/Y[g]	no	O/Y[g]	no	no	O/Y[g]	no	no	O/Y[g]
Coastal (San Diego) cactus wren	Lakeside Linkage Species Observed	O/Y[g]	O/Y[g]	O/Y[g]	yes	yes	O/Y[g]	yes	O/Y[g]	O/Y[g]
	Species Nesting	O/Y[g]	O/Y[g]	O/Y[g]	no	yes	O/Y[g]	yes	O/Y[g]	O/Y[g]
Bald eagle	Ramona Grasslands Species Observed	yes	yes	OY[g]	OY[g]	yes	yes	yes	yes	yes

Species[b]	Location/Measurements	2015	2016	2017	2018	2019	2021	2022	2023	2024
	Species Nesting	yes	yes[d]	OY[g]	OY[g]	yes[d]	no	yes[d]	yes	yes
Northern harrier	Tijuana River Valley Regional Park[a] Species Observed	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]	yes	yes	yes	yes
	Species Nesting	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]	yes	yes	yes	yes
Least Bell's vireo	Tijuana River Valley Regional Park[a] Species Observed	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]	yes	OY[g]	OY[g]	O/Y[g]
	Species Nesting	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]	yes	OY[g]	OY[g]	O/Y[g]
	Santa Margarita Preserve[a] Species Observed	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]	yes	yes	yes	yes
	Species Nesting	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]	yes	yes	yes	yes
Arroyo toad (ARTO)	Ramona Grasslands # of occupied reaches	OY[g]	9	9	6	7	0 reaches occupied 2 juvenile ARTO detected in upland area	0 ARTO tadpoles detected	12 reaches occupied 8,565 ARTO tadpoles detected	5 reaches occupied 212 ARTO larvae detected
Vernal pool/alkali playa	Ramona Grasslands # of pools supporting at least one USACE indicator species	OY[g]	15	OY[g]	11	17	15	OY[g]	18	22
	# of pools supporting spreading (prostrate) navarretia	OY[g]	0	OY[g]	0	0	0	OY[g]	OY[g]	0
	Los Peñasquitos Canyon Preserve # of pools supporting at least one USACE indicator species	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]	45
	# of pools supporting San Diego fairy shrimp	OY[g]	14	OY[g]	OY[g]	7	OY[g]	4	OY[g]	OY[g]

NOTES:
a Tijuana River Valley Regional Park, Furby North Preserve, Santa Margarita Preserve, and Barnett Ranch Preserve were added to the Targeted Monitoring Plan in 2019, monitoring began for each property in 2021. One monitoring plot within the San Diego thornmint population in Simon County Preserve was monitored by ESA in 2024. A baseline survey was conducted at the Los Peñasquitos Canyon Preserve to map the current extent of vernal pools and establish a permanent photo-point for the vernal pools observed in 2024.
b 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 also monitored as part of the TMP.
c One burrowing owl was reported by DPR staff. None were observed during surveys.
d 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.
e Tricolored blackbird monitoring was conducted by AECOM San Diego Natural History Museum as part of an ROE monitoring and research partnership, results are included in the 2023 TMP annual report. Monitoring occurred again in 2024 as part of an ROE monitoring and research partnership with San Diego Natural History Museum, results are included in the 2024 TMP annual report.
f Burrowing owl monitoring was conducted by San Diego Zoo Wildlife Alliance as part of an ROE monitoring and research partnership, results are included in the 2023 TMP report.
[g] O/Y indicates that, per the monitoring frequency of the species/habitat; site conditions not appropriate for monitoring; or changes to monitoring frequency occurred to be consistent with regional monitoring efforts, no monitoring was conducted as it was an "Off Year".
[h] Initial monitoring efforts determined that additional surveys were not required as species was not currently utilizing property.

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. 2022. *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.
Environmental Science Associates. 2023a. Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report. Prepared for Department of Parks and Recreation County of San Diego. January.
Environmental Science Associates. 2023b. *Ramona Grasslands Preserve 2022-2023 Raptor Surveys Summary Report.* Prepared for the County of San Diego Department of Parks and Recreation. November.
Environmental Science Associates. 2024a. Targeted Monitoring Plan Resource-Specific Monitoring and Management 2023 Annual Report. Prepared for Department of Parks and Recreation County of San Diego. March.
Environmental Science Associates. 2025. Targeted Monitoring Plan Resource-Specific Monitoring & Management 2024 Annual Report. February.

TABLE 20. 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	Los Peñasquitos Canyon Preserve
1. Orcutt's brodiaea				✓
2. San Diego barrel cactus			✓	✓
3. San Diego button celery				✓
4. San Diego mesa mint				✓
5. Canada goose			✓	
6. Variegated dudleya		✓		
7. Cooper's hawk	✓		✓	
8. Swainson's hawk	✓			
9. Ferruginous hawk	✓			
10. American Peregrine falcon	✓			
11. Western bluebird	✓			
12. White-faced ibis			✓	
13. Coastal California gnatcatcher			✓	
14. Least Bell's vireo			✓	
15. Burrowing owl	✓			
16. Northern harrier	✓			

SOURCE:
Environmental Science Associates. 2024c. *Ramona Grasslands Preserve 2023-2024 Raptor Surveys Summary Report.* Prepared for the County of San Diego Department of Parks and Recreation. November.
Environmental Science Associates. 2025. Targeted Monitoring Plan Resource-Specific Monitoring & Management 2024 Annual Report. February.

San Diego Thornmint

Monitoring Location: Sycamore Canyon and Goodan Ranch Preserve
Plot Establishment Dates: April 22, May 4-5, 2016 (10 plots); May 4, 2017 (added 1 plot); and in February 2024, SDMMP recommended reducing the monitoring effort for San Diego thornmint at the Sycamore Canyon and Goodan Ranch Preserve, permanent monitoring plots were reduced from 11 to 5 in 2024
Reporting Year Monitoring Dates: May 7-9, 2024
Reporting Year Management Dates: August 13-16, 19-23, 26-29; September 3-6
Number of Permanent Monitoring Plots: 5
Reporting Year Population Estimate: 36,788 plants

The San Diego thornmint population estimate was 36,788 individuals at Sycamore Canyon and Goodan Ranch Preserve in 2024, and a total of 7,086 San Diego thornmint were estimated within the monitoring plots. Incidentally observed special-status plant species included small-flowered bindweed at one of the five monitoring plots, Palmer's grappling hook at all five monitoring plots, and variegated dudleya at one of the five monitoring plots. Across the monitoring plots, San Diego thornmint habitat contained invasive, non-native plants including non-native grasses and forbs, particularly tocalote and purple false brome. The annual San Diego thornmint population fluctuates based on rainfall. In years prior to 2024, high annual rainfall has been associated with 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 19**).

Monitoring results indicate the importance of invasive, non-native plant control for this species. At Sycamore Canyon and Goodan Ranch Preserve, three of the five plots would benefit from invasive, non-native plant control (ESA 2025). 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% (ESA 2024b). Non-native plant cover of plots 1, 5, 6, 8, and 10 were recorded at 42.6%, 14.6%, 8.6%, 31.6%, and 2.2%, respectively.

Focused management in 2024 was funded through the CDFW 30x30 grant program. The management occurred in response to the high thatch and invasive non-native plant cover in monitoring plots 1, 2, 3, 5, 6, 8, 9, and 10. Management consisted of carefully hand-pulling target invasive non-native species within an approximately 0.98-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 and Maltese starthistle. 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: Off-year for monitoring efforts
Reporting Year Management Dates: May 10, May 14, and July 25, 2024
Number of Permanent Monitoring Plots: 2
Reporting Year Population Estimate: Off-year for monitoring efforts

Monitoring did not occur in 2024 because monitoring frequency is every two years and monitoring is planned for 2025. In response to high thatch cover detected in 2023, focused management occurred in 2024. Management consisted of carefully hand-pulling invasive non-native grasses and herbs, primarily red brome and tocalote, adjacent to Orcutt's bird's-beak individuals within the 2 monitoring plot maximum extents, for an approximately 0.46-acre management area. Additional Orcutt's bird's-beak individuals were detected on May 14, 2024, north of one of the two monitoring plots and focused management was extended to this new site. All biomass was manually collected, bagged, and properly disposed of at an approved off-site facility. No herbicide was used. Total non-native plant cover within the two monitoring plots were 25-35% and 15%. Special-status species coastal California gnatcatcher was observed during focused management.

Management of Orcutt's birds-beak, a Targeted Monitoring Plan species at Tijuana River Valley Regional Park

Otay Tarplant

Monitoring Location: Furby-North Preserve
Plot Establishment Dates: June 29, 2016 and June 2, 2023 (added one plot)
Reporting Year Monitoring Dates: May 14 and 21
Reporting Year Management Dates: April 2 and July 17, 2024
Number of Permanent Monitoring Plots: 2
Reporting Year Population Estimate: 770

In 2024 the Otay tarplant population estimate was 770 plants at Furby-North Preserve, and a total of 397 individuals were estimated within the monitoring plots. In response to the high thatch and invasive non-native plant cover observed in 2023, focused management occurred in 2024. Management occurred within the maximum extent of the monitoring plot located in the northern portion of the preserve and consisted of carefully hand-pulling invasive non-native grasses and herbs directly adjacent to Otay tarplant individuals, followed by line trimming invasive non-native grasses and thatch removal, and surrounding the hand-pulled areas within a 0.30-acre management area. All cut biomass was manually collected, bagged, and properly disposed of at an approved off-site facility. No herbicide was used. Total non-native plant cover within the two monitoring plots were 39.2% and 16.4%; continued thatch removal and non-native plant control are recommended to ensure persistence of Otay tarplant within the Preserve.

Management of Otay Tarplant, a Targeted Monitoring Plan species found in Furby North Preserve.

San Miguel Savory

Monitoring Location: Boulder Oaks Preserve
Plot Establishment Dates: April 6 and 16, 2016
Reporting Year Monitoring Dates: Off-year for monitoring efforts
Reporting Year Management Dates: April 8 and 12, 2024
Number of Permanent Monitoring Plots: 2
Reporting Year Population Estimate: Off-year for monitoring efforts

Monitoring did not occur in 2024 because monitoring frequency is every two years and monitoring is planned for 2025. In response to the presence of invasive non-native plant species detected in 2023, focused management occurred in 2024. Management consisted of carefully removing invasive non-native plants by hand within 12 inches of the San Miguel savory plants in the 0.57-acre management area around one of the two monitoring plots (BOCLCH02). Management targeted removal of high-priority invasive perennial veldtgrass. All cut biomass was manually collected, bagged, and properly disposed of at an approved off-site facility. No herbicide was used.

Management of San Miguel savory, a Targeted Monitoring Plan species at Boulder Oaks Preserve

Continued focused invasive non-native plant species removal within and around the same monitoring plot is recommended (ESA 2025). Although monitoring did not occur in 2024, on-site observations demonstrated that high-priority invasive non-native perennial veldtgrass was still detected within the monitoring plot, with increased cover adjacent to the monitoring plot.

Variegated Dudleya

Monitoring Location: Lusardi Creek Preserve
Plot Establishment Dates: Lusardi Creek Preserve: April 27, 2016
Reporting Year Monitoring Dates: Off-year for monitoring efforts
Reporting Year Management Dates: April 3, April 22, and June 27, 2024
Number of Permanent Monitoring Plots: 1
Reporting Year Population Estimate: Off-year for monitoring efforts

Monitoring did not occur in 2024 because monitoring frequency is every three years and monitoring is planned for 2025. In response to the high thatch and invasive non-native cover observed in 2023, focused management occurred in 2024. Management consisted of carefully removing invasive non-native plants by hand within the herbivory fencing surrounding the monitoring plot and line trimming within the maximum extent. Focused management for variegated dudleya was conducted within a 0.75-acre management area. Invasive non-native plant cover consisted primarily of purple false brome, tufted wallaby grass, artichoke thistle, fountain grass, and other non-native grasses and herbs. All cut biomass was manually

collected, bagged, and properly disposed of at an approved off-site facility. No herbicide was used. Special-status species Crotch's bumble bee was observed during focused management. Despite focused management, invasive non-native plant cover remains above the 20% recommended limit. To ensure the persistence of variegated dudleya at the Preserve, the TMP recommends additional and ongoing focused management, specifically invasive non-native plant removal and thatch removal. Artichoke thistle and tufted wallaby grass should continue to be targeted for removal and treatment to prevent future spread and encroachment into the variegated dudleya population.

Management of variegated dudleya, a Targeted Monitoring Plan species at Lusardi Creek Preserve

Variegated dudleya, a Targeted Monitoring Plan species at Lusardi Creek Preserve

Monitoring Location: Sycamore Canyon and Goodan Ranch Preserve
Plot Establishment Dates: June 23, 2017 and April 14, 2021
Reporting Year Monitoring Dates: Off-year for monitoring efforts
Reporting Year Management Dates: August 13-16, 19-23, 26-29; September 3-6
Number of Permanent Monitoring Plots: 2
Reporting Year Population Estimate: Off-year for monitoring efforts

Monitoring did not occur in 2024 because monitoring frequency is every three years and monitoring is planned for 2025. Focused management for variegated dudleya occurred at Sycamore Canyon and Goodan Ranch Preserve in 2024, following the 2023 TMP recommendation that percent cover of invasive non-native plant species be kept to less than 20% within the vicinity of variegated dudleya populations (ESA 2024b). Focused management in 2024 was funded through the CDFW 30x30 grant program. Activities at Sycamore Canyon and Goodan Ranch Preserve included hand-pulling of invasive plants within the maximum extents of variegated dudleya populations, focusing on areas where variegated dudleya had previously occurred. Sycamore Canyon and Goodan Ranch Preserve management also included line trimming non-native plants surrounding variegated dudleya occurrences within 12-meter radius circles of monitoring plot center points. Herbicide was not applied in the Preserve. To ensure the persistence of variegated dudleya at the Preserve, the TMP recommends additional and ongoing focused management, specifically invasive non-native plant removal and thatch removal.

Willowy Monardella

Monitoring Location: Sycamore Canyon and Goodan Ranch Preserve
Plot Establishment Dates: July 7, 2015, June 22, 2016 and June 9, 2021
Reporting Year Monitoring Dates: June 20, 2024
Reporting Year Management Dates: September 19
Number of Permanent Monitoring Plots: 3
Reporting Year Population Estimate: 444

The three willowy monardella monitoring plots within Sycamore Canyon and Goodan Ranch Preserve were monitored in 2024. A total of 56 willowy monardella plants were estimated within the monitoring plots. The entire population within the Preserve is an estimated 444 individual plants. The population estimates range from a low of 238 in 2016 to a high of 444 in 2023 and 2024 (**Table 19**). Population variability may be attributed to how surveyors count clumps of plants rather than annual fluctuations in population size (ESA 2024b). No additional special-status species were observed within the three monitoring plots, although ashy spike-moss and Crotch's bumble bee were incidentally observed outside the monitoring plots. Across all monitoring plots, willowy monardella habitat contained invasive non-native grasses and herbs, particularly slender wild oat, purple false brome, annual fescue, tocalote, and brome grasses. Invasive crimson fountain grass was detected at multiple locations within the monitoring plot located in Clark Canyon.

Focused management occurred for willowy monardella at Sycamore Canyon and Goodan Ranch Preserve in 2024. The TMP recommends overall invasive non-native plant cover be kept to less than 10 percent (ESA 2024b) around willowy monardella plants. Total invasive non-native plant cover was 11.8 percent within the monitoring plot located in Clark Canyon, 17.8 percent within the monitoring plot near the Ranger Station, and 12.0 percent within the southwest monitoring plot. In 2024, management activities focused on hand-weeding immediately surrounding the willowy monardella plants/populations, and line trimming adjacent upland areas within the monitoring plot in Clark Canyon and within the southwest monitoring plot. Treatment methods in the upland areas included the avoidance of willowy monardella seedlings. Crimson fountain grass within the monitoring plot located in Clark Canyon was dormant during management activities in September 2024 and was not able to be treated with herbicide. Treatment will begin when the plants begin to green. Continued treatment of non-native grasses, and thatch is recommended to preserve willowy monardella in Sycamore Canyon and Goodan Ranch Preserve.

Willowy Monardella, a Targeted Monitoring Plan species at Sycamore Canyon and Goodan Ranch Preserve

Arroyo Toad

Monitoring Location: Ramona Grasslands Preserve
Stream Reaches: USGS-established monitoring reaches along Santa Maria Creek (18 stream reaches out of 23 total); stream reaches 22 and 23 are in the County MSCP Subarea Plan
Assessment: Visual surveys for life stages and threat and habitat assessment
Reporting Year Monitoring Dates: May 13, 14, 15, and 16, 2024 (June 20 and 24)[17]
Reporting Year Species Observed: Yes (212 arroyo toad larvae) (25)[16]

In 2024, a total of 212 arroyo toad larvae were observed within Santa Maria Creek during the surveys. A total of 23 survey reaches have been established in Santa Maria Creek. DPR consultant surveyed 18 of the 23 reaches while USGS surveyed the remaining 5 reaches. Larvae were all observed prior to metamorphosis and were categorized into two size classes: 10–20 millimeters and 15–25 millimeters. Occupied reaches vary from a low of zero in 2022 and a high of twelve in 2023 (**Table 19**).

Vegetation along Santa Maria Creek generally consists of riparian forest/riparian woodland, characterized by a prominence of mule fat, red willow, and common three-square bulrush. Much of the northwestern, downstream extent of the creek is less dense and exhibits more open channel. Flowing water was observed within the channel throughout the survey period and pool depth ranged between shallow, medium, and deep. The northwestern, downstream extent of the survey area provides a much higher concentration of suitable habitat for arroyo toad. This portion of the creek supports a relatively high concentration of sand and gravel, shallow pooling,

[16] Monitoring results from USGS provided in parentheses

and reduced overstory density, all of which are habitat characteristics necessary for supporting breeding behavior and successful larval development.

One invasive non-native plant, tamarisk, occurs in moderate densities throughout Santa Maria Creek, increasing in density downstream. Arundo was mapped in low densities along Santa Maria Creek. Exotic predators have been noted in abundance during previous monitoring efforts and were observed during the 2024 surveys. Eleven red swamp crayfish and 17 American bullfrogs were observed in 2024. This is an increase in the number of exotic predators as compared to the 2023 surveys, during which one red swamp crayfish and one American bullfrog was observed.

The TMP recommends treating invasive non-native plant species because these species have potential to reduce available breeding habitat along Santa Maria Creek over time and should be treated to prevent their spread throughout the survey area (ESA 2025). Specifically, hand-removal is recommended as the primary control method for tamarisk and Arundo due to their proximity to arroyo toad breeding habitat. Furthermore, it is recommended to control exotic predators since the number of observations increased in 2024. This should be accomplished through targeted removal of breeding-size adult bullfrogs to avoid and minimize impacts to aquatic species and habitats. Red-swamp crayfish should be removed concurrently. Ongoing rangeland management practices that keep cattle out of Santa Maria Creek during the arroyo toad breeding season will be maintained.

Regional monitoring efforts for arroyo toad included monitoring surveys performed by USGS through a DPR issued ROE permit. A total of 25 arroyo toad larvae were observed during surveys of the 5 remaining reaches within Santa Maria Creek. No special-status wildlife species were incidentally observed during the surveys, and invasive non-native wildlife species, American bullfrog and red swamp crayfish, were incidentally observed during the surveys along three reach segments in the western portion of the Preserve and one reach segment in the eastern portion of the Preserve.

Pool at Santa Maria Creek in Ramona Grasslands Preserve that supports arroyo toad tadpoles, a Targeted Monitoring Plan species

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: April 3, May 2, June 4, and July 2, 2024
Reporting Year Species Observed: Yes
Reporting Year Species Nesting: Yes (fledglings heard from one nest)

Northern harriers were observed during all surveys with the highest observations during the month of June. Territorial behavior exhibited by northern harriers included prey carrying, prey transfers, females seen visiting probable nest sites, and fledglings heard begging from a probable nest location. Nesting behavior was confirmed within Territory 1 and Territory 3. While up to five northern harrier territories could be present within the Park, only two (Territories 1 and 3) appeared to be occupied with unknown nest success in 2024. The presumed nest site in Territory 1 was located approximately 200 meters north of the Park campground. A pair was seen making prey transfers during the May survey and making multiple prey deliveries to the presumed nest site during the June survey. No juveniles were detected on the July survey; therefore, the outcome of the nest is unknown. The nest in Territory 3 was confirmed to have an unknown number of chicks during the July survey, but it is unknown if they fledged as no subsequent visits were conducted. The timing of future monitoring efforts will be modified to determine if observed juveniles have fledged. Overall, there were a similar number of northern harrier observations in 2024 compared to 2022 and 2023, but fewer compared to 2021.

Incidentally observed special-status species include monarch butterfly(*Danaus plexippus*), Canada goose (*Branta canadensis*), gadwall (*Mareca strepera*), gull-billed tern (*Gelochelidon nilotica*), double-crested cormorant (*Nannopterum auritum*), great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), white-faced ibis (*Plegadis chihi*), turkey vulture, osprey (*Pandion haliaetus*), Cooper's hawk (*Accipiter cooperii*), red-shouldered hawk (*Buteo lineatus*), white-tailed kite (*Elanus leucurus*), Vaux's swift (*Chaetura vauxi*), least Bell's vireo, yellow-breasted chat (*Icteria virens*), and yellow warbler (*Setophaga petechia*)

Overall, the Park provides high-quality suitable foraging and nesting habitat for northern harriers as demonstrated by observed prey transfers and the Park being occupied by up to fourt northern harrier territories in 2024. However, threats such as nest disturbance and predator harassment, without effective management, may diminish the success of the species over time. Territories 1 and 3 nest sites are close to authorized public trails; although Territory 1 was occupied in 2024, an increase in public use and U.S. Border Patrol activities could affect future nesting success if trail usage encroaches on nesting harriers. While predator harassment was not observed in 2024, 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. DPR staff litter-picks around the campground once a week and increases frequency if additional trash is observed. Also, DPR staff remove trash from the campground yurt's trashcans after every visit.

Northern harrier, a Targeted Monitoring Plan species at Tijuana River Valley Regional Park

Tricolored Blackbird

Monitoring Location: Ramona Grasslands Preserve
Habitat surveyed: Suitable foraging and nesting habitat
Assessment: Visual surveys
Reporting Year Monitoring Dates: April 30, 2024
Reporting Year Species Observed: No
Reporting Year Species Nesting: No

Tri-colored blackbird monitoring was conducted through a DPR-issued ROE (see Section 7.3 below). No tricolored blackbird nesting colonies were observed within Ramona Grasslands Preserve. However, potentially suitable nesting and foraging habitat was observed. In the past, tricolored blackbirds were documented foraging annually in Ramona Grasslands with nesting occurring on the adjacent RMWD property (**Table 19**).

The TMP management goal for tricolored blackbirds is to maintain suitable foraging and nesting habitat on Ramona Grasslands Preserve. Based on previous habitat and threats assessments, 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 currently for the Preserve due to the lack of moderate- to high-quality tricolored blackbird nesting habitat (ESA 2024b).

Vernal Pool/Alkali Playa

Monitoring Location: Ramona Grasslands Preserve
Habitat surveyed: Subset of 18 vernal pools (including Cagney Swale) and four alkali playas
Assessment: Quantitative monitoring of vernal pools and alkali playas during the 2024 wet and dry seasons
Reporting Year Monitoring Dates: April 11, 12, and 16, May 6, 7, and 8, and June 4, 2024
Reporting Year Habitat Function: 19 of 19 pools and one alkali playa

Vernal pool/alkali playa quantitative monitoring was conducted during an above-average winter and spring rainfall year. The first measurable rain event occurred on January 22, 2024, which resulted in 2.73 inches of rain. Due to contract timing, ESA's first quantitative monitoring visit was conducted on April 11, 2024. Quantitative monitoring consisted of documenting the presence of vernal pool and alkali playa plant species and estimating their cover, distribution, and abundance, and documenting vernal pool faunal indicator species and estimating their abundance across 22 study locations.

Forty-eight native plant species and twenty-three vernal pool floral indicator species were observed among the study locations, with toad rush (*Juncus bufonius*) and pale spikerush (*Eleocharis macrostachya*) as the most common floral indicator species. Native plant diversity, including floral indicator species, in each vernal pool ranged from six to 20 observed species and from one to eight observed species in each alkali playa over the course of the wet and dry season surveys. Floral indicator species observed within each vernal pool ranged from five to 12 species and from zero to five species within each alkali playas. Floral indicator species that were observed within the alkali playas over the course of the wet and dry season surveys

included Pacific saltscale (*Atriplex pacifica*), Coulter's saltbush (*Atriplex coulteri*), toad rush, dwarf peppergrass (*Lepidium latipes*), and coastal plantain (*Plantago elongata*).

Invasive, non-native plant species were observed detected in all study locations, with a total of 28 non-native species observed. The most common invasive non-native plant species were hare barley (*Hordeum murinum* ssp. *leporinum*), grass poly (*Lythrum hyssopifolium*), Italian rye grass (*festuca perennis*), red-stem filaree (*Erodium botrys*), and oat (Avena sp.). Faunal indicator species were observed in 16 of the 22 study locations. Specifically, no faunal indicator species were observed within the alkali playas during any of the surveys. The most common aquatic faunal indicator species observed in vernal pools and the Cagney Swale were seed shrimp. Fairy shrimp were visually identified in three vernal pools. Dip-netting was not conducted to confirm species, but San Diego fairy shrimp were positively identified within the Preserve in three vernal pools and in the Cagney Swale during USFWS protocol surveys performed during 2022 DPR monitoring efforts. No other fairy shrimp species, including the more regionally abundant versatile fairy shrimp, were detected during the monitoring surveys performed in 2022. Baja California tree frog (*Pseudacris hypochondriaca hypochondriaca*), western spadefoot toad (*Spea hammondii*), and unknown species of tadpoles, froglets, and toadlets were also observed in vernal pools and in the Cagney Swale study locations.

The TMP recommends overall invasive non-native plant cover within vernal pool basins to be kept to less than 20 percent (ESA 2024b). Based on 2023 adaptive monitoring recommendations, focused invasive non-native plant species treatment/removal was performed in 14 vernal pools and four alkali playa. Two focused invasive, non-native plant management visits were conducted at Ramona Grasslands County Preserve, the first between August 19 and 24, 2024 and the second between October 14 and 17. The first management visit was conducted while vernal pools and alkali playa features were no longer holding water and the soil substrate was firm, although native vernal pool plants were observed live and growing. Native plants were flagged for avoidance during a site visit on August 12, 2024, prior to the start of invasive non-native plant removal activities. Management activities consisted of hand weeding invasive non-native plant species within the vernal pool basins and line trimming a three-foot buffer around the pools for a total management area of 2.23 acres. The second management visit was conducted later in the season to remove any new invasive non-native plant species that had grown since the first management visit. Management consisted of hand weeding standing invasive non-native plant biomass. Line trimmers were also used within the pool basins to cut up to two inches above ground where there was limited native plant growth. Additional line trimming was used to touch up the three-foot buffer where needed. Biomass was then manually collected, bagged, and properly disposed of at an approved off-site facility. Herbicide was not applied within vernal pool basins or within ten feet of basin margins during both management visits.

Monitoring Location: Los Peñasquitos Canyon Preserve
Habitat surveyed: 45 study locations
Assessment: Quantitative monitoring of vernal pools and alkali playas during the 2024 wet and dry seasons
Reporting Year Monitoring Dates: April 2, 3, 4, 9, 29, and 30 and May 1 and 2, and June 3

A reconnaissance baseline survey was performed at the Preserve to map the current extent of vernal pools and establish permanent photo-points for the 45 vernal pools observed in 2024. In addition, quantitative monitoring was conducted for each of the 45 pools observed in 2024. Quantitative monitoring was conducted in the Preserve during an above-average winter and spring rainfall year. The first measurable rain event occurred on January 22, 2024, which

resulted in 2.73 inches of rain. Due to contract timing, ESA's first quantitative monitoring visit was conducted on April 2, 2024.

Seventeen vernal pool floral indicator species were observed, with winged water starwort (*Callitriche marginata*), water pygmy weed (*Crassula aquatica*), toad rush, and woolly marbles (*Psilocarphus brevissimus*) recorded as the most common. Floral indicator species within each vernal pool ranged from 4 to 14 observed species over the course of the wet and dry season surveys. Native plant diversity, including floral indicator species, in each vernal pool ranged from 4 to 34 species. The federally listed vernal pool indicator plant species San Diego mesa mint (*Pogogyne abramsii*) was observed within two vernal pools and San Diego button celery (*Eryngium aristulatum var. parishii*) was observed within 11 vernal pools. These two plants are MSCP covered species. Additional incidental special-status plant species detected included Orcutt's brodiaea (*Brodiaea orcuttii*), California adolphia (*Adolphia californica*), small-flowered microseris (*Microseris douglasii ssp. platycarpha*), little mousetail (*Myosurus minimus ssp. apus*), California adders-tongue (*Ophioglossum californicum*) and San Diego barrel cactus (*Ferocactus viridescens*). Orcutt's brodiaea and San Diego barrel cactus are both MSCP covered species.

Invasive non-native plant species were detected in 24 of the 45 surveyed vernal pools, with a total of 19 invasive non-native plant species observed, including rattail fescue (*Festuca myuros*) and Boccone's sand-spurrey as the most common invasive non-native plant species encountered. Faunal indicator species were observed in 36 of the 45 surveyed vernal pools. The maximum number of faunal indicator species observed within a vernal pool was four species. The most common aquatic faunal indicator species observed was seed shrimp. Fairy shrimp were visually identified in four vernal pools; however, dip-netting was not conducted to confirm species. Baja California tree frog, western spadefoot toad, and unknown species of tadpoles, froglets, and toadlets were also observed in 14 of the 45 surveyed vernal pools over the course of the wet and dry season surveys.

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 2024 monitoring tasks were conducted in support of the Phase 1 and Phase 2 RMPs (County of San Diego 1993 and RECON 2018).

In 2024, monitoring efforts focused on vegetation mapping, vegetation rapid assessment, photographic monitoring, seed collection and redistribution, and surveys for rare plant species, vernal pool plant species, Quino checkerspot butterfly, Hermes copper butterfly, western spadefoot toad, coastal cactus wren, least Bell's vireo, and yellow-billed cuckoo. Tree health surveys were conducted to document the effects of the invasive Kuroshio shot hole borer within riparian habitat on multiple parcels of the Preserve. Gold-spotted oak borer monitoring was also conducted. Golden eagle camera monitoring that was initiated in 2021 continued through 2024. Wet season fairy shrimp surveys were conducted for the 2023-2024 rainy season. 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, 2024 and included site visits to cover most of the property that is currently included as part of the 4,373-acre Otay Ranch Preserve; no activities were performed on the 11.9-acre Piper Ranch

parcels during 2024. Regular coordination meetings between the Preserve Steward/Biologist and Otay Ranch POM occurred to track progress of management and monitoring activities. All 2024 management and monitoring activities are included in the 2024 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 2024 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 also 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.

Fifteen raptor species were detected at both the northeast and northwest survey areas during the 2023-2024 raptor point count surveys (ESA 2024c). Eight of the 15 raptors were MSCP covered species, which are golden eagle, bald eagle, American peregrine falcon, northern harrier, Cooper's hawk, Swainson's hawk, burrowing owl, and ferruginous hawk. Special-status species red-tailed hawk, red-shouldered hawk, sharp-shinned hawk, prairie falcon, merlin, American kestrel, and osprey were also observed. Special-status raptors with potential to breed on the Preserve includes golden eagle, bald eagle, burrowing owl, and Cooper's hawk. Red-tailed hawk was the most frequently observed raptor species within and adjacent to the Preserve, followed by bald eagle. However, not all red-tailed hawk observations were recorded because when special-status species were detected, additional focus was required for those observations. Raptor species richness was highest during the spring season at the northwest survey area and in the fall season at the northeast survey area. Raptor species richness was higher in the northeast survey than in the northwest survey area throughout all seasons except the summer season (ESA 2024c).

An adult golden eagle individual or pair, assumed to be the Bandy Canyon territory, was observed during the 2023–2024 survey period within the Preserve. Six separate monitoring surveys were conducted by ESA to observe the golden eagle nest site in Bandy Canyon. The resident pair successfully fledged two young in 2019 and one young in 2020, 2021, and 2022. The first monitoring survey was conducted in February 2024. One adult golden eagle was on the nest during the survey with a second adult golden eagle observed carrying something (potentially nesting material) to the nest site location. This nest was at the same location on the cliff face as the presumed nest used in 2023. The third monitoring survey was conducted in April 2024. One medium-sized downy chick was seen in the nest with the adult perched next to it in the nest. The fifth monitoring survey was conducted on June 17, 2024. However, due to a mountain lion observation, the survey was not completed, and no eagle observations were noted. Therefore, a sixth and final monitoring survey was conducted on June 18, 2024. The nest site was empty and one adult golden eagle was observed circling over the canyon. However, a family group, two adults and one juvenile golden eagle, were observed during the June 18, 2024

raptor foraging survey. In conclusion, the golden eagle nest site in Bandy Canyon was occupied and successfully fledged one chick (determined through the observation of an independently flying juvenile) in 2024.

Golden eagles were detected in all seasons but not detected during each survey within the Preserve. Monitoring results indicate Preserve use by a minimum of one resident golden eagle throughout the survey period. An adult golden eagle individual or pair, assumed to be from the Bandy Canyon territory, was observed during the 2023–2024 survey period within the Preserve. A family group (pair of adults and one juvenile) was observed during the fall season. The pair of adults with their 2024 juvenile was observed during the summer season. Other individuals within the Preserve were undistinguishable (i.e., without markers or features).

The highest numbers of individual golden eagles were observed during the fall and winter seasons: one juvenile, one subadult, and two adults. The number of distinct individuals using the Preserve remained the same in the winter season—up to four distinct golden eagles (two adults, one juvenile, and one subadult individual) were observed. During the spring season, only one adult and one subadult were observed. In the summer, golden eagle activity occurred only within the northwest survey area. While observed from the northeast survey point, the eagles were observed on their preferred rock located within the northwest survey area. Up to three individuals, the family group (pair of adults and one juvenile), were documented.

Bald eagles were detected in each season but were not detected during each survey or survey area within the Preserve. It is assumed that the pair of bald eagles that nested in 2021–2023 was not the same pair that nested in the Preserve during the 2024 breeding season due to the death of an adult bald eagle in the summer of 2023. During the fall season, only two adults were observed with all observations from the northeast survey point. During the winter season, three adults and two subadult were observed. This is also typically the season when breeding behavior is observed regularly. In the spring season, two adults and one subadult were observed. This was the season when the nest was documented to have failed for unknown reasons. There were multiple documentations of the adult pair perched together or singly throughout the survey areas. During the summer season, two adults were observed from both survey points. The only foraging behavior documented was an adult bringing an unknown prey item while perched on a wooden utility pole.

The highest density and spatial use for bald eagles on the Preserve were observed in the grasslands south of the nest tree from within the northeast survey area and the northernmost RMWD effluent pond.

Throughout the survey period, the Preserve consistently supported one bald eagle territory. One bald eagle pair was observed nesting on the Preserve in the same nest tree and eucalyptus grove as 2022 and 2023. The nest site was located wholly within the northeast portion of the Preserve in a eucalyptus grove. The adult pair were not successful; however, they did incubate eggs but failed (for unknown reasons) during this nesting phase.

Golden eagle family group (pair of adults and one juvenile) at Ramona Grasslands Preserve

Residual Dry Matter Monitoring at Ramona Grasslands Preserve

Ramona Grasslands Preserve is divided into 12 management units, ten 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 Residual Dry Matter (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 2024. Monitoring results were a low of 756 to a high of 5,244 lbs./acre (ESA 2025). Of the ten grazed management units measured, eight were above RDM target values and two showed an increase in RDM values from 2023 to 2024. Results were likely influenced by the accumulated rainfall in 2024 and the reinstatement of cattle grazing in January 2023. 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, drought conditions in 2021 and 2022, and above-average rainfall in 2023 and 2024) drive substantial variability in vegetative cover from year to year. The overall decrease in RDM values between 2023 and 2024 is likely due to the return of cattle on the Preserve.

Park Improvement MSCP Covered Species Monitoring

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

Smuggler's Gulch Dredging Project

The Smuggler's Gulch Dredging Project is a County project within the Tijuana River Valley Regional Park which includes removal of trash, sediment, debris, and non-native plant species

within the Smuggler's Gulch flood control channel south of Monument Road. This work has historically been completed as part of the County of San Diego's Flood Control Maintenance efforts through Regional General Permit 53. In 2023, DPR received a $4,250,000 grant from the California State Water Resources Control Board (SWRCB) to implement a full-scale dredging effort in both the Smuggler's Gulch channel and the Pilot Channel of the Tijuana River. This larger effort included coordination with the City of San Diego to dredge the portion of Smuggler's Gulch north of Monument Road and the Pilot Channel, which have both been historically maintained by the City.

Dredging activities began in March 2024 and were completed in November 2024. Project activities included dredging approximately 1,743 linear feet in Smuggler's Gulch and approximately 2,101 linear feet in the Pilot Channel. The Project dredged approximately 25,056 cubic yards of sediment, cleared approximately 6,056 cubic yards of debris, and removed 2,614 tires. Nesting bird surveys and biological monitoring occurred throughout the duration of the activities to ensure no impacts to nesting birds, including MSCP covered species.

7.2 Grant Funded Monitoring Projects

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

7.3 Preserve Monitoring and Research Partnerships

Nineteen monitoring and research partnerships occurred in 2024 on County Preserves through the County's ROE permit process (**Table 21**, *Preserve Monitoring and Research Partnerships Projects, Monitoring Targets, and Locations in Reporting Year*). ROEs were requested by federal and state agencies, universities, the San Diego Zoo, the San Diego Natural History Museum, environmental organizations, a wildlife rehabilitation organization, and a community science organization. In 2024, as in years prior, the County continued to issue ROEs free of charge; however, due to the extensive review these permits require to ensure compliance with the MSCP and County rules, a fee to recover a portion of the processing cost may be implemented for ROEs in the future. ROEs issued in 2024 included studies focused on species such as Harbison's dun skipper, arroyo toad, western spadefoot toad, southwestern pond turtle, coastal California gnatcatcher, least Bell's vireo, burrowing owl, coastal cactus wren, southwestern willow flycatcher, tricolored blackbird, American badger, mountain lion, Englemann oak, and Orcutt's brodiaea, as well as 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 21. 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	• 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 • Tijuana River Valley Regional Park	• Mt. Olympus Preserve • Santa Margarita Preserve • Santa Ysabel Preserve • Volcan Mountain Wilderness Preserve • Wilderness Gardens Preserve • William Heise Park
2. Spider Diversity Study	San Diego Natural History Museum	Terrestrial arthropod diversity, specifically Arachnida	• Oakoasis Preserve	• None
3. Bumble Bee Study	Xerces Society	Bumble bees	• Dictionary Hill Preserve • Stoneridge Preserve • Dos Picos Park • Louis A. Stelzer Preserve	• Agua Caliente Park • San Dieguito Park
4. Burrowing Owl Monitoring	San Diego Zoo Wildlife Alliance	Burrowing owl	• Ramona Grasslands Preserve	• None
5. Rare Plant Surveys	AECOM	Rare plants included in the San Diego Management and Monitoring Program's Management Strategic Plan for Western San Diego County	• Tijuana River Valley Regional Park • Ramona Grasslands Preserve • Boulder Oaks Preserve • Sycamore Canyon and Goodan Ranch Preserve	• Simon Preserve • Escondido Creek Preserve • Mt. Olympus Preserve

Project Name	Project Lead	Monitoring/ Research Target	County Preserves Within MSCP Subarea Plan Area	County Parks and Preserves Outside MSCP Subarea Plan Area
6. Release of Rehabilitated Wildlife	San Diego Humane Society/ Project Wildlife	Rehabilitated native wildlife	• Barnett Ranch Preserve • Boulder Oaks Preserve • Del Dios Highlands Preserve • Dictionary Hill Preserve • Dos Picos Park • El Capitan Preserve • El Monte Park • Flinn Springs Park • Holly Oaks County Park • Lakeside Linkage Preserve • Lawrence & Barbara Daley Preserve • Los Peñasquitos Canyon Preserve • Louis A. Seltzer Park • Luelf Pond Preserve • Lusardi Creek Preserve • Oakoasis Preserve • Otay Lakes Park • Ramona Grasslands Preserve • Sycamore Canyon and Goodan Ranch Preserve • Tijuana River Valley Regional Park	• Agua Caliente Park • Hellhole Canyon Preserve • In-Ko-Pah County Park • Lake Morena Park • Mt. Gower Preserve • Palomar Mountain Park • Potrero Park • San Elijo Lagoon Ecological Reserve • Santa Margarita Preserve • Santa Ysabel Preserve • Simon Preserve • Volcan Mt. Wilderness Preserve • Wilderness Gardens Preserve • William Heise Park
7. Coastal California Gnatcatcher Surveys	California State Parks	Coastal California gnatcatcher	• Tijuana River Valley Regional Park (Goat Canyon)	• None
8. Environmental and Engineering Studies for Proposed SR 67	California Department of Transportation	Biology, engineering, floodplain, visual resource studies	• Sycamore Canyon and Goodan Ranch Preserve	• Mt. Woodson Gateway County Preserve

Project Name	Project Lead	Monitoring/ Research Target	County Preserves Within MSCP Subarea Plan Area	County Parks and Preserves Outside MSCP Subarea Plan Area
9. Feral Pig Eradication and Control Project and Monitoring	San Diego State University and CDFW	Feral pigs	• Boulder Oaks Preserve • Ramona Grasslands Preserve	• Santa Ysabel Preserve • William Heise Park • Lake Morena Park • Volcan Mountain Wilderness Preserve • Mt. Gower Preserve
10. Mushroom Identification Excursions	San Diego Mycological Society	Various mushroom species	• Dos Picos Park • Flinn Springs Park • Los Peñasquitos Canyon Preserve • Louis A. Stelzer Park • Oakoasis Preserve	• Felicita Park • Potrero Park
11. Englemann Oak Monitoring and Maintenance	Global Conservation Consortium for Oak, San Diego Botanic Garden	Englemann oaks	• Boulder Oaks Preserve	• None
12. Tijuana River Valley Contamination Study	San Diego State University	Chemical and microbiological contamination	• Tijuana River Valley Regional Park	• None
13. Wildlife Movement Ecology Study	University of San Diego	Various wildlife species	• Los Peñasquitos Canyon Preserve	• None
14. Biological Monitoring, Surveys, and Assessments for the SDMMP Management Strategic Plan	San Diego Association of Governments (SANDAG)	Arroyo toad, western spadefoot, southwestern pond turtle, American badger, mountain lion, tricolored blackbird, least Bell's vireo, cactus wren, coastal California gnatcatcher, southwestern willow flycatcher, Hermes copper butterfly, Harbinson's dun skipper, multiple pollinators, and rare plant species	• Barnett Rach Preserve • Boulder Oaks Preserve • Cactus Park • Christopher Hill Preserve • Damon Lane Park • Del Dios Highlands Preserve • Dictionary Hill Preserve • Dos Picos Park • El Capitan Preserve • El Monte Park • Flinn Springs Park • Furby-North Preserve • Historic Flume Trail	• Blue Sky Ranch Ecological Reserve • Bottle Peak Preserve • Diamond Trail • Escondido Creek Preserve • Guajome Regional Park • William Heise Park • Hellhole Canyon Preserve • Hidden Meadows Preserve • Keys Creek Preserve • Knollwood Preserve • Lake Morena Park • Lakeside Sports Park • Mt. Gower Preserve • Mt. Olympus Preserve

Project Name	Project Lead	Monitoring/ Research Target	County Preserves Within MSCP Subarea Plan Area	County Parks and Preserves Outside MSCP Subarea Plan Area
			• Iron Mountain Preserve • Lakeside Linkage Preserve • Lawrence and Barbara Daley Preserve • Los Peñasquitos Canyon Preserve • Louis A. Stelzer Park • Lusardi Creek Preserve • Oakoasis Preserve • Old Ironsides County Park • Otay Lakes Park • Otay Ranch Preserve • Otay Valley Regional Park • Peutz Valley Preserve • Ramona Grasslands Preserve • Santa Fe Valley Preserve • Stoneridge Preserve • Sweetwater Regional Park • Sycamore Canyon and Goodan Ranch Preserve • Tijuana River Valley Regional Park	• Mountain Meadow Preserve • Pala Mesa Mitigation Property • Paradise Mountain Preserve • Pine Valley Park • Potrero Park • Sage Hill Preserve • San Dieguito Park • San Elijo Lagoon Ecological Reserve • San Luis Rey River Park • Santa Margarita Preserve • Santa Ysabel Preserve • Simon Preserve • Star Ranch Preserve • Volcan Mountain Wilderness Preserve • Wilderness Gardens Preserve
15. Invasive Dung Beetle Study	University of California, San Diego	Dung beetles	• Ramona Grasslands Preserve	• None
16. Tricolored Blackbird Surveys	San Diego Natural History Museum	Tricolored blackbird	• Boulder Oaks Preserve • Ramona Grasslands Preserve • Sweetwater Regional Park • Tijuana River Valley Regional Park	• Pine Valley Park • Santa Ysabel Preserve • Star Ranch 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
17. Orcutt's Brodiaea Population Genetics Study	Mulligan Biological Consulting	Orcutt's brodiaea	• Boulder Oaks Preserve	• Simon Preserve • Mt. Gower Preserve • Mt. Olympus Preserve • Escondido Creek Preserve
18. Groundwater Level Monitoring	California Department of Water Resources	Groundwater	• Ramona Grasslands Preserve	• None
19. San Diego County Plant Atlas	San Diego Natural History Museum	Various	• Barnett Ranch Preserve • Boulder Oaks Preserve • Del Dios Highlands Preserve • Dos Picos Park • El Capitan Preserve • El Monte Park • Flinn Springs Park • Lakeside Linkage Preserve • Los Peñasquitos Canyon Preserve • Louis A. Stelzer Preserve • Luelf Pond Preserve • Oakoasis Preserve • Otay Lakes Regional Park • Otay Valley Regional Park • Ramona Grasslands Preserve • Sweetwater Summit Regional Park • Sycamore Canyon and Goodan Ranch Preserve • Tijuana River Valley Regional Park	• Agua Caliente • Escondido Creek • Felicita Park • Rancho Guajome Adobe Park • Guajome Park • Hellhole Canyon Preserve • Lake Morena Park • Lindo Lake Preserve • Live Oak Park • Mt. Gower Preserve • Palomar Mountain Park • Pine Valley Park • Potrero Park • San Dieguito Park • San Elijo Lagoon Ecological Reserve • Santa Ysabel Preserve • Simon Preserve • Volcan Mountain Wilderness Preserve • Wilderness Gardens Preserve • William Heise Park

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 – April 2024
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, Tijuana River Valley Regional Park
County Preserves Outside MSCP Subarea Plan Area: Mt. Olympus Preserve, 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 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. Surveys were conducted within 14 County parks and preserves to locate sensitive plant species between 2021 and 2024 and seed banking efforts are ongoing.

Spider Diversity Study

Project Lead: San Diego Natural History Museum
Project Timeline: June 2023 – June 2025
Target Species or Habitat: Terrestrial arthropod diversity, particularly class Arachnida.
County Preserves within MSCP Subarea Plan Area: Oakoasis Preserve
County Preserves Outside MSCP Subarea Plan Area: None

The spider diversity study examines terrestrial arthropod diversity within Oakoasis Preserve, focusing on members of the class Arachnida. Twelve surveys are planned over the course of the project timeline, during which SDNHM employees record visual observations, take photographs, and collect specimens for identification. Surveys are conducted by inspecting leaf litter, overturning rocks and wood debris, and occasionally flooding burrows with small amounts of water. Surveys are conducted primarily along and adjacent to established trails, although surveyors are able to travel off-trail to investigate rock piles and plant communities that would be otherwise inaccessible. All overturned rocks, wood, and other debris are returned to original conditions after the inspection is complete. In order to sample arthropod diversity in all vegetation communities present within Oakoasis Preserve, seven study locations were proposed based on surrounding plant communities. In addition to specimens collected for

identification, four voucher specimens may also be collected, representing two males and two females of a known species to allow for morphological comparison between individuals of the same sex. Collected specimens will be submitted to the SDNHM collection to serve as vouchers for the diversity study. Data retrieved during this study will be used to update the Checklist of Spiders of San Diego County, which is maintained by the SDNHM. The spider diversity study will continue through June 2025.

Bumble Bee Study

Project Lead: Xerces Society
Project Timeline: May 2023 – May 2025
Target Species or Habitat: Bumble Bees
County Preserves within MSCP Subarea Plan Area: Dictionary Hill Preserve, Stoneridge Preserve, Dos Picos Park, Louis A. Stelzer Preserve
County Preserves Outside MSCP Subarea Plan Area: Agua Caliente Park, San Dieguito Park

The Bumble Bee Study project was initiated in 2023 to collect data for inclusion in the Bumble Bee Atlas, a state-wide community science partnership between the Xerces Society for Invertebrate Conservation and CDFW. Volunteers collect, photograph, and release bumble bees following Xerces Society survey methodology. Photographs of bumble bees are then submitted for identification, along with ecological data including plant species the bees were collected on, vegetation communities present within the survey area, and weather conditions. Data collected during these surveys is compiled into the Bumble Bee Atlas, a community science project that collects data from volunteers surveying in all regions of the state, with the aim of providing updated range and population estimates of bumble bee species throughout California. The Xerces Society was issued a Scientific Collecting Permit authorizing take or possession of Crotch's bumble bee, Franklin's bumble bee, western bumble bee, and/or Suckley's cuckoo bumble bee for scientific, educational, or propagation purposes. The Bumble Bee Study project will continue through May of 2025.

Burrowing Owl Monitoring

Project Lead: San Diego Zoo Wildlife Alliance
Project Timeline: June 2021 – December 2024
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. County Park Rangers searched for burrowing owls at Ramona Grasslands Preserve in 2024. No burrowing owls or burrowing owl sign were documented. While not conducted in 2024, TMP monitoring for this species should be coordinated with the San Diego Zoo Wildlife Alliance to implement consistent monitoring protocols, limit duplication of efforts, provide cumulative

adaptive management recommendations, and provide transparency on any implemented management activities.

Rare Plant Monitoring and Discovery Surveys

Project Lead: AECOM
Project Timeline: May 2023 – May 2025
Target Species or Habitat: Various sensitive plant species
County Preserves within MSCP Subarea Plan Area: Tijuana River Valley Regional Park, Ramona Grasslands Preserve, Boulder Oaks Preserve, Sycamore Canyon and Goodan Ranch Preserve, Otay Valley Regional Park, Furby-North County Preserve
County Preserves Outside MSCP Subarea Plan Area: Escondido Creek Preserve, Simon Preserve, Mt. Olympus Preserve

The Rare Plant Surveys project performs monitoring (Inspect and Manage [IMG]) and discovery surveys of rare plants included in the SDMMP Management Strategic Plan for Western San Diego County. Survey results assist the County regarding rare plant populations on County property. A total of nine County preserves are included in this ROE permit. In 2024 the population estimate for Parish's brittlescale at Ramona Grasslands Preserve was 129; the population estimate for Otay tarplant at Johnson Canyon was 0 plants; the population estimate for Otay tarplant at Furby North DECO13_3OMEA040 was 340 plants and 430 plants for DECO13_3OMEA040; and the population estimate for Baja California oatgrass at Sycamore Canyon/Goodan Ranch Preserve was 516.

Release of Rehabilitated Wildlife

Project Lead: San Diego Humane Society / Project Wildlife
Project Timeline: March 2023 – December 2025
Target Species or Habitat: Rehabilitated native wildlife
County Preserves within MSCP Subarea Plan Area: Barnett Ranch Preserve, Boulder Oaks Preserve, Del Dios Highlands Preserve, Dictionary Hill Preserve, Dos Picos Park, El Capitan Preserve, El Monte Park, Flinn Springs Park, Holly Oaks County Park, Lakeside Linkage Preserve, Lawrence & Barbara Daley Preserve, Los Peñasquitos Canyon Preserve, Louis A. Seltzer Park, Luelf Pond Preserve, Lusardi Creek Preserve, Oakoasis Preserve, Otay Lakes Park, Ramona Grasslands Preserve, Sycamore Canyon and Goodan Ranch Preserve, Tijuana River Valley Regional Park
County Preserves Outside MSCP Subarea Plan Area: Agua Caliente Park, Hellhole Canyon Preserve, In-Ko-Pah County Park, Lake Morena Park, Mt. Gower Preserve, Palomar Mountain Park, Potrero Park, San Elijo Lagoon Ecological Reserve, Santa Margarita Preserve, Santa Ysabel Preserve, Simon Preserve, Volcan Mt. Wilderness Preserve, Wilderness Gardens Preserve, William Heise Park

The Release of Rehabilitated Wildlife project was initiated in 2023 to facilitate the release of rehabilitated wildlife into native habitats within County parks and preserves. Project Wildlife, an affiliate organization of the San Diego Humane Society (SDHS), rehabilitates injured, sick, and displaced animals recovered by members of the public within San Diego County. Under the terms of SDHS partnership with the County, SDHS staff identified potential release locations based on the species' native habitats. SDHS coordinated the release of rehabilitated wildlife with DPR to determine if the species, number of animals to be released, and release date were suitable for the proposed release location. DPR was able to deny release requests or select

alternate dates for release. The San Elijo Ecological Reserve, unlike other parks and preserves participating in this project, could only serve as a release location if the rehabilitated wildlife had been originally recovered from the reserve.

Coastal California Gnatcatcher Surveys

Project Lead: California State Parks
Project Timeline: February 2023 – August 2025
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 implements presence/absence surveys for coastal California gnatcatcher in the Goat Canyon area of Tijuana River Valley Regional Park. Surveys are conducted to fulfill environmental compliance requirements for the annual maintenance of the Goat Canyon sediment basins. The primary goal is to document presence/absence of coastal California gnatcatcher; however, if this species is detected during surveys, attempts are made to document breeding status, including nest locations and nest. Fourteen coastal California gnatcatcher pairs were detected within the survey area in Tijuana River Valley Regional Park in 2024.

Environmental and Engineering Surveys for State Route (SR) 67

Project Lead: California Department of Transportation
Project Timeline: March 2022 – December 2024
Target Species or Habitat: Biology, engineering, floodplain, and visual resource studies
County Preserves within MSCP Subarea Plan Area: Sycamore Canyon and Goodan Ranch Preserve
County Preserves Outside MSCP Subarea Plan Area: Mt Woodson Gateway County Preserve

Environmental and engineering surveys for the SR 67 project were implemented to document existing conditions ahead of the proposed SR 67 Improvements Project. The California Department of Transportation and consultants conducted engineering field studies across the permit area, using conventional and remote sensing survey methods to determine property rights and boundaries, create Digital Terrain Models, and locate key design points and facilities. Surveyors also used flagging to mark important locations including right of way limits, easements, environmentally sensitive areas, and existing facilities. Biological surveys included wetland delineations, presence/absence surveys for sensitive plants and wildlife, floodplain surveys, and general biological surveys to document existing plant and animal species, plant communities, and the potential for sensitive species to occur within the survey area. Visual reviews were also conducted to establish baseline levels of visual quality of the viewshed from various locations. For all survey types occurring as part of this project, surveyors recorded photographs and videos and collected minimal amounts of soil, rock, and plant material for analysis. The Environmental and Engineering Studies program was initiated in 2022 and was completed in 2024.

Feral Pig Eradication and Control Project and Monitoring

Project Lead: San Diego State University and CDFW
Project Timeline: September 2023 – September 2025
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

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 through 2024 and will continue until September 2025.

Mushroom Identification Excursions

Project Lead: San Diego Mycological Society
Project Timeline: March 2023 – May 2025
Target Species or Habitat: Varied species of mushrooms
County Preserves within MSCP Subarea Plan Area: Dos Picos Preserve, Flinn Springs Park, Los Peñasquitos Canyon Preserve, Louis A. Stelzer Park, Oakoasis Preserve
County Preserves Outside MSCP Subarea Plan Area: Felicita Park, Potrero Park

This ROE permit allowed members of the San Diego Mycological Society (SDMS) to search for mushrooms in the noted preserves and gather specimens for identification. Samples of mushrooms were collected by hand and members of SDMS did not disturb the soil or take all specimens of any type of mushroom. Samples of mushrooms were brought to a central location, usually a picnic table in the property, and the samples were identified and discussed. After discussion of mushroom samples was complete, the samples were returned to the field. Some of the mushroom specimens gathered during excursions were vouchered in the herbarium at the SDNHM with the goal of cataloging mushrooms in San Diego County. All off-trail access avoided and minimized impacts to flora and fauna to the maximum extent possible. The permit was initially issued in March 2023 and was extended until May 2025.

Englemann Oak Monitoring and Maintenance

Project Lead: Global Conservation Consortium for Oak, San Diego Botanic Garden
Project Timeline: November 2024 – November 2026
Target Species or Habitat: Englemann oak
County Preserves within MSCP Subarea Plan Area: Boulder Oaks Preserve
County Preserves Outside MSCP Subarea Plan Area: None

This ROE permit allows the Global Conservation Consortium for Oak and the San Diego Botanic Garden to monitor and maintain 22 Englemann oak saplings that have been transplanted to the Boulder Oaks County Preserve. Specifically, survival and growth data will be collected on a quarterly basis by San Diego Botanic Garden staff as part of the Global Conservation Consortium for Oak's metacollection partnership program. A core component of the Global Conservation Consortium for Oak is coordinating a strategic, scientifically informed network of living collections of threatened oak species across multiple sites, known as a "metacollection," as well as supporting and building capacity for organizations conserving threatened species in the wild. The planting of Englemann oak saplings at Boulder Oaks Preserve is considered "semi-experimental" as seedlings were given an initial watering on the day of the planting, but will be left to rely on winter rains as they establish to test the suitability of the site for this species.

Tijuana River Valley Contamination Study

Project Lead: San Diego State University
Project Timeline: December 2024 – December 2026
Target Species or Habitat: All habitats
County Preserves within MSCP Subarea Plan Area: Tijuana River Valley Regional Park
County Preserves Outside MSCP Subarea Plan Area: None

The Tijuana River Valley contamination study consists of the collection of water, air, and sediment samples within Tijuana River Valley Regional Park to document potential chemical and microbiological contamination in the Tijuana River Valley. This study builds upon previous studies documenting complex chemical and microbiological contamination in the Tijuana River Valley and investigates water to air transfer of pollutants impacting environmental justice in the Imperial Beach and San Ysidro communities. Microorganisms and chemicals will be sampled at six locations throughout the Tijuana River and estuary over a two-year period. Specifically, San Diego State University staff will collect and analyze paired air, water, and sediment samples in the Tijuana River and estuary. Staff will also collect and analyze outdoor air samples from sites operated by their community partner, Casa Familiar. This study will address critical gaps in understanding and monitoring of contaminants and their impacts on community health in Imperial Beach, San Ysidro, and other South Bay communities.

Wildlife Movement Ecology Study

Project Lead: University of San Diego
Project Timeline: August 2024 – December 2024
Target Species or Habitat: Various wildlife species
County Preserves within MSCP Subarea Plan Area: Los Peñasquitos Canyon Preserve
County Preserves Outside MSCP Subarea Plan Area: None

This ROE permit allowed the University of San Diego to conduct a research project on movement ecology of local wildlife. This project was carried out as part of a University of San Diego course in Animal Behavioral Ecology. This course examines the evolution of animal behavior in an ecological context and includes an inquiry-based lab. The lab introduces methods commonly used in behavioral ecology and allows students to test their own hypotheses within the framework of prescribed field and laboratory exercises. For this project, the course instructor and 16 students set out camera traps in areas that indicated the presence of wildlife. These cameras were attached to trees near Los Peñasquitos Creek using straps. The traps were retrieved after two months, and showed a wide variety of species, including bobcats, mule deer, pack rats, rabbits, coyotes, and various bird species.

Biological Monitoring, Surveys, and Assessments for the SDMMP Management Strategic Plan

Project Lead: SANDAG
Project Timeline: May 2024 – May 2026
Target Species or Habitat: Arroyo toad, western spadefoot toad, southwestern pond turtle, American badger, mountain lion, tricolored blackbird, Hermes copper butterfly, Harbinson's dun skipper, least Bell's vireo, cactus wren, coastal California gnatcatcher, southwestern willow flycatcher, vegetation types and rare plants

County Preserves within MSCP Subarea Plan Area: Barnett Rach Preserve, Boulder Oaks Preserve, Cactus Park, Christopher Hill Preserve, Damon Lane Park, Del Dios Highlands Preserve, Dictionary Hill Preserve, Dos Picos Park, El Capital Preserve, El Monte Park, Flinn Springs Park, Furby-North Preserve, Historic Flume Trail, Iron Mountain Preserve, Lakeside Linkage Preserve, Lawrence and Barbara Daley Preserve, Los Peñasquitos Canyon Preserve, Louis A. Stelzer Park, Lusardi Creek Preserve, Oakoasis Preserve, Old Ironsides County Park, Otay Lakes Park, Otay Ranch Preserve, Otay Valley Regional Park, Peutz Valley Preserve, Ramona Grasslands Preserve, Santa Fe Valley Preserve, Stoneridge Preserve, Sweetwater Regional Park, Sycamore Canyon and Goodan Ranch Preserve, and Tijuana River Valley Regional Park

County Preserves Outside MSCP Subarea Plan Area: Blue Sky Ranch Ecological Preserve, Bottle Peak Preserve, Diamond Trail, Escondido Creek Preserve, Guajome Regional Park, William Heise Park, Hellhole Canyon Preserve, Hidden Meadows Preserve, Keys Creek Preserve, Knollwood Preserve, Lake Morena Regional Park, Lakeside Sports Park, Mt. Gower Preserve, Mt. Olympus Preserve, Mountain Meadow Preserve, Pala Mesa Mitigation Property, Paradise Mountain Preserve, Pine Valley Park, Potrero Park, Sage Hill Preserve, San Dieguito Regional Park, San Elijo Lagoon Ecological Reserve, San Luis Rey River Park, Santa Margarita Preserve, Santa Ysabel Preserve, Simon Preserve, Star Ranch Preserve, Volcan Mountain Wilderness Preserve, Wilderness Gardens Preserve

This project conducts biological monitoring, surveys, and assessments associated with SDMMP's Management Strategic Plan. As part of this effort, SANDAG monitors numerous herptile, bird, mammal, insect, and plant species. The results of these monitoring activities will support regional strategies, decision making, and funding priorities for managing species and vegetation communities on conserved lands within western San Diego County. A total of 31 County Preserves within the MSCP Subarea Plan Area and 29 County Preserves outside of the MSCP Subarea Plan Area are included in this ROE permit. Herptile monitoring activities will occur annually for arroyo toad and between 2024 and 2026 for southwestern pond turtle and

spadefoot toad. For plants, monitoring will occur annually for rare plants and between 2024 and 2025 for vegetation. Monitoring for insects will occur annually for Hermes copper butterfly and Harbinson's dun skipper, and between 2024 and 2025 for pollinators. For birds, monitoring will occur annually for coastal California gnatcatcher, least Bell' vireo, and southwestern willow flycatcher and will occur twice a year for coastal cactus wren and in 2025 for tricolored blackbird. Lastly, monitoring for American badgers will occur based on reported sightings, and for mountain lions, the timing of potential captures and camera trap installation has yet to be determined.

Invasive Dung Beetle Study

Project Lead: University of California, San Diego
Project Timeline: October 2024 – October 2024
Target Species or Habitat: Dung beetles
County Preserves within MSCP Subarea Plan Area: Ramona Grasslands Preserve
County Preserves Outside MSCP Subarea Plan Area: None

This ROE permit allowed collection of invasive dung beetles (*Onthophagus* sp.) at the Ramona Grasslands Preserve for lab rearing to study the development, ecology, and evolution of dung beetles, with a focus on the bull-headed beetle. Samples collected from the Ramona Grasslands Preserve will be used to study a wide range of different aspects of dung beetle biology. This includes the function of genes involved in insulin signaling, how the microbiome of dung beetles affects performance and ecology, and how veterinary antibiotics given to cattle affect the survival and ecosystem function of dung beetles. Sampling of dung pads occurred over the course of three site visits in October 2024. Sampling occurred on and adjacent to the eastern portions of the Meadow Loop and Wildflower Loop trails that pass through grassland habitat. All off-trail access avoided and minimized impacts to flora and fauna to the maximum extent possible.

Tricolored Blackbird Surveys

Project Lead: San Diego Natural History Museum
Project Timeline: April 2024 – August 2025
Target Species or Habitat: Tricolored Blackbird
County Preserves within MSCP Subarea Plan Area: Boulder Oaks Preserve, Ramona Grasslands Preserve, Sweetwater Regional Park, Tijuana River Valley Regional Park
County Preserves Outside MSCP Subarea Plan Area: Pine Valley Park, Santa Ysabel Preserve, Star Ranch Preserve, Wilderness Gardens Preserve

This project was implemented by the San Diego Natural History Museum's ornithology team to identify tricolored blackbird colony locations on conserved lands. Surveyors also performed habitat assessments of survey areas, using GIS to plot the location and extent of suitable habitat. In 2024, one tricolored blackbird nesting colony was confirmed at Star Ranch Preserve. No tricolored blackbird nesting colonies were observed at Boulder Oaks Preserve, Ramona Grasslands Preserve, or Wilderness Gardens Preserve; however, each site contained potentially suitable nesting and foraging habitat. Sweetwater Regional Park, Tijuana River Valley Regional Park, and Santa Ysabel Preserve were not visited or surveyed in 2024 but will be surveyed in 2025. Surveys results will help inform proposed management of conserved lands for tricolored blackbird.

Orcutt's Brodiaea Population Genetics Study

Project Lead: Mulligan Biological Consulting
Project Timeline: February 2024 – July 2025
Target Species or Habitat: Orcutt's brodiaea
County Preserves within MSCP Subarea Plan Area: Boulder Oaks Preserve
County Preserves Outside MSCP Subarea Plan Area: Simon Preserve, Mt. Gower Preserve, Mt. Olympus Preserve, Escondido Creek Preserve

This population genetics study includes targeted field surveys and genomic analysis to support adaptive management and recovery of Orcutt's brodiaea on County preserves. Genetic studies will be used to help clarify the phylogenetic relationships among Orcutt's brodiaea, thread-leaved brodiaea, and other Brodiaea taxa to determine the level of hybridization present, assess the genetics of natural and translocated populations, identify genetically compatible source populations for translocations, and help inform appropriate management strategies. Project activities include tissue sampling, voucher collection, and DNA extraction and analysis. Mulligan Biological Consulting will visit known locations at five County Preserves and sample up to 10 individual plants of Orcutt's brodiaea from each preserve. Genetic tissue sampling will be non-destructive. Additionally, one voucher specimen will be collected from each site visit. Vouchers will be curated and databased at the San Diego Natural History Museum and made available for cytological, genetic, and morphological research. Population information and environmental covariates will be collected at each collection site. Parking areas and access to populations will follow established routes created by previous IMG projects and no new parking areas or routes will be created.

Groundwater Level Monitoring

Project Lead: California Department of Water Resources
Project Timeline: April 2024 – April 2026
Target Species or Habitat: Groundwater
County Preserves within MSCP Subarea Plan Area: Ramona Grasslands Preserve
County Preserves Outside MSCP Subarea Plan Area None

This groundwater level monitoring project will be implemented as part of the California Department of Water Resources' Groundwater Monitoring Enhancement Project. The California Department of Water Resources will install and maintain a pressure transducer in an existing onsite well at the Ramona Grasslands Preserve to monitor groundwater level. Data collected for this project will help improve understanding of groundwater conditions in the area. This information is crucial for identifying groundwater shortage issues, tracking groundwater levels during droughts, and providing assistance when needed.

San Diego County Plant Atlas Project

Project Lead: San Diego Natural History Museum
Project Timeline: June 2016 – December 2026
Target Species or Habitat: Various
County Preserves within MSCP Subarea Plan Area: Barnett Ranch Preserve, Boulder Oaks Preserve, Del Dios Highlands Preserve, Dos Picos Park, El Capitan Preserve, El Monte Park, Flinn Springs Park, Lakeside Linkage Preserve, Los Peñasquitos Canyon Preserve, Louis A. Stelzer Park, Luelf Pond Preserve, Oakoasis Preserve, Otay Lakes Park, Otay Valley Regional

Park, Ramona Grasslands Preserve, Sweetwater Summit Regional Park, Sycamore Canyon and Goodan Ranch Preserve, Tijuana River Valley Regional Park

County Parks and Preserves Outside MSCP Subarea Plan Area: Agua Caliente Park, Escondido Creek Preserve, Felicita Park, Rancho Guajome Adobe Park, Guajome Regional Park, Hellhole Canyon Preserve, Lake Morena Park, Lindo Lake Park, Live Oak Park, Mt. Gower Preserve, Palomar Mountain Park, Pine Valley Park, Potrero Park, San Dieguito Park, San Elijo Lagoon Ecological Reserve, Santa Ysabel Preserve, Simon Preserve, Volcan Mountain Wilderness Preserve, Wilderness Gardens Preserve, and William Heise Park

The *San Diego County Plant Atlas Project* documents and collects non-listed plants in 38 County Preserves. Throughout County parks and preserves, the San Diego Natural History Museum continued the Plant Atlas Project, which focuses on the documentation and collection of non-threatened plant specimens. Since the project began in 2005, over 3,600 specimens have been collected and added to the Plant Atlas for the County (L. Aerne-Hains pers comm). Trained volunteers continued their collection of museum-quality voucher plant specimens through 2024. Collected specimens will be stored and cared for at the San Diego Herbarium and will eventually be included in the *San Diego County Plant Atlas Project* database.

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 Library[17] using the associated Record ID. **Appendix L** provides a general overview of the 26 RMPs located within the MSCP Subarea Plan including a description of the habitat conservation area, required surveys, and monitoring/maintenance status for each RMP.

Seven new private RMPs began reporting in 2024, increasing the total number of private RMPs within the South County Subarea from nineteen to twenty-six. An accounting of RMP annual report submissions revealed that in 2024, twenty-one of the twenty-six (81%) RMPs submitted reports for the 2023-2024 reporting period. **Table 22**, *MSCP Covered Species Documented on Private Mitigation Lands In Reporting Year*, summarizes the MSCP covered species documented in the 2023-2024 annual RMP monitoring reports.

General monitoring, aside from survey requirements, is conducted on the Private Preserves. The frequency of these general monitoring visits varies, including annual, quarterly, or monthly visits. The monitoring frequency for each preserve will be summarized as a table in the 2025 Annual Report.

Species surveys are required for some Private Preserves, but not all. The species and frequency of these surveys will be summarized as a table in the 2025 Annual Report. Included below is a summary of species surveys conducted at Private Preserves during the reporting period.

[17] The PDS Document Library can be accessed at: https://www.sandiegocounty.gov/content/sdc/pds/doclibrary.html.

Golem

- **Species Surveys and Frequency:** California gnatcatcher (twice annually)
- **Reporting Period Activities**: The presence/absence surveys were completed but no individuals were observed.

Woodridge

- **Species and Frequency:** California gnatcatcher (every 3 years)
- **Reporting Period Activities**: Three protocol surveys were conducted between April and June 2023. The survey found 3 pairs of gnatcatchers, one pair of which was observed with two juveniles. California gnatcatchers were also observed several times throughout the year while conducting habitat maintenance and other surveys.

Blossom Valley

- **Species and Frequency:** California gnatcatcher (every 3 years)
- **Reporting Period Activities**: To be conducted in 2025.

Greenhills Ranch

- **Species and Frequency:** California gnatcatcher (every 2 years), cactus wren (every 2 years)
- **Reporting Period Activities**: Four protocol surveys were conducted between February and August 2023 for the California gnatcatcher. Cactus wren was surveyed during these visits for presence/absence, but none were observed. Three pairs of gnatcatchers were observed within the preserve. No juveniles were observed.

East Otay Mesa

- **Species and Frequency:** California gnatcatcher (every 3 years)
- **Reporting Period Activities**: To be conducted in 2024.

Lonestar

- **Species and Frequency:** Otay tarplant (annually), burrowing owl (annually)
- **Reporting Period Activities**: The Otay tarplant survey was conducted in June and no individuals were detected. The resource manager continues to coordinate with the Native Plant Seed Bank and San Diego Zoo Wildlife Alliance. If there is enough seed, the resource manager will use seed for a replanting effort in the location of Lonestar's historic Otay Tarplant community in future years following a weed treatment effort. One burrowing owl was observed foraging on the preserve.

Otay Crossings Commerce Park

- **Species and Frequency:** Otay tarplant (annually), burrowing owl (Annually), San Diego/Riverside fairy shrimp (2 out of every 5 years), variegated dudleya (every 2 years), San Diego barrel cactus (every 5 years)
- **Reporting Period Activities**: Surveys were performed for Otay tarplant and San Diego barrel cactus. Otay tarplant was not detected and another survey will be carried out next year, which will also include variegated dudleya. The next survey for San Diego barrel cactus will be conducted in 2028. No San Diego fairy shrimp or Riverside fairy shrimp were detected within the vernal pools; however, versatile fairy shrimp were detected. For the burrowing owl, three protocol surveys were conducted between April and July 2023. Three individuals were observed.

OMC

- **Species and Frequency:** Burrowing owl (annually)
- **Reporting Period Activities**: The preserve was assessed for burrowing owl habitat in early 2023. No suitable burrows or individuals were observed.

Sweetwater Vistas

- **Species and Frequency:** California gnatcatcher (every 5 years), Least Bell's vireo (every 5 years)
- **Reporting Period Activities**: To be conducted in 2027.

Otay Crossings Off-Site (Lonestar Ridge)

- **Species and Frequency:** Otay tarplant (annually), burrowing owl (annually), San Diego/Riverside fairy shrimp (annually), variegated dudleya (every 2 years), San Diego barrel cactus (every 5 years), San Diego button-celery (every 2 years)
- **Reporting Period Activities**: 115 Otay tarplant individuals were observed. Baseline inventories for variegated dudleya, San Diego barrel cactus, and San Diego button-celery will be performed in 2024 before beginning the prescribed survey schedule for plants. Three surveys were conducted for the burrowing owl and 26 individuals were observed to be utilizing the site. 10 of the 11 vernal pools were observed to contain San Diego fairy shrimp, with two pools also containing Riverside fairy shrimp during the 2023 wet season.

International Industrial Park Upland

- **Species and Frequency:** Burrowing owl (annually)
- **Reporting Period Activities**: The preserve was assessed for burrowing owl habitat in early 2023. No suitable burrows or individuals were observed.

Pinnacles at Santa Fe Valley

- **Species and Frequency:** California gnatcatcher (every 5 years)
- **Reporting Period Activities**: To be conducted in 2028.

Hawano

- **Species and Frequency:** Burrowing owl (3 times a year)
- **Reporting Period Activities**: Three surveys were conducted between April and July 2023. Several individuals were observed at the artificial burrows.

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TABLE 22. 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	Sweetwater Vistas	Otay Crossings Off-Site (Lonestar Ridge)	Hillside Meadows	IIP Upland	IIP Wetland	Pinnacles at Santa Fe Valley	Hawano	Quail Canyon
Plants																										
Del Mar manzanita					✓																					
San Diego barrel cactus					✓								✓				✓			✓				✓		
San Diego ambrosia					✓																					
San Diego goldenstar			✓																							
Wart-stemmed ceanothus																								✓		
Variegated dudleya																	✓			✓						
Orcutt's brodiaea																				✓						
Otay mesa mint																				✓						
Otay tarplant																				✓						

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	Sweetwater Vistas	Otay Crossings Off-Site (Lonestar Ridge)	Hillside Meadows	IIP Upland	IIP Wetland	Pinnacles at Santa Fe Valley	Hawano	Quail Canyon
Reptiles																										
Blainville's horned lizard (San Diego horned lizard)							✓																			
Birds																										
Burrowing owl														✓						✓					✓	
Coastal California gnatcatcher			✓		✓	✓					✓		✓						✓					✓		✓
California rufous-crowned sparrow													✓													
Cooper's hawk						✓								✓												✓
Least Bell's vireo				✓															✓							
Northern harrier																				✓					✓	

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	Sweetwater Vistas	Otay Crossings Off-Site (Lonestar Ridge)	Hillside Meadows	IIP Upland	IIP Wetland	Pinnacles at Santa Fe Valley	Hawano	Quail Canyon
Peregrine falcon						✓																				
Coastal (San Diego) cactus wren														✓						✓						
Long-billed curlew																				✓						
Western bluebird																					✓					
Invertebrates																										
Riverside fairy shrimp																				✓						
San Diego fairy shrimp																				✓						
Mammals																										
Southern mule deer							✓																	✓		

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CHAPTER 8

Financial Summary

Scenic view of El Monte Park with the rocky face of El Cajon Mountain in the background

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 SANDAG *TransNet* EMP.

8.1 County Contribution

The Board of Supervisors allocates funding for ongoing management and monitoring efforts on 47,350 acres within the MSCP Subarea, draft North County MSCP, and proposed East County MSCP Plan Areas, approximately 28,230 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:

- 8,830 acres acquired, managed, or funded within the MSCP Subarea Plan Area since 1998.
- 16,580 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 are in the MSCP Subarea Plan Area.

In Fiscal Year 2024-2025, the County Board of Supervisors appropriated $3.2 million for acquisition of preserve lands throughout the adopted South County Subarea, draft North County MSCP, and proposed East County MSCP Plan Areas. The County's Capital Improvement Needs Assessment for the next five years (Fiscal Year 2024-2025 to Fiscal Year 2028-2029) continues to plan for future investments in MSCP acquisitions. During Fiscal Year 2023-2024, over $13.6 million was spent to successfully manage and maintain the County's MSCP preserve lands across the three MSCP Plan Areas with approximately $6.2 million, $6.1 million and $1.3 million spent in the South County, draft North County, and future East County MSCP Plan Areas, respectively. Over 120 full time staff as well as additional part-time staff and 3,061 volunteers implemented management and monitoring activities on County Preserves in 2024. 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*.

In the MSCP Subarea Plan, since 1998, the County has invested over $56 million which leveraged over $35 million of other funding to acquire 8,830 acres including 556 acres owned by County partners. In 2024, County acquired 347 acres of preserve land in the MSCP Subarea Plan funded by $5.3 million of County funds as well as property donations and dedications valued at $3.5 million.

In the draft North County MSCP Plan Area, since 1998, the County has invested over $82 million with over $60 million of other funding to acquire 16,583 acres. During the reporting period, 766 acres were acquired in the draft North County MSCP Plan Area funded by over $5.5 million of County funds.

In the proposed East County MSCP, since 1998, the County has invested approximately $10 million which leveraged over $1.3 million of other funding to acquire 2,817 acres Plan Area. No acquisitions occurred in the proposed East County MSCP Plan Area in 2024.

In addition to the 47,350 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 Fiscal Year 20243-2025 was $670,000 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.[18] As of 2022, SANDAG invested more than $46.5 million to manage and monitor the regional habitat preserve system.[19] The County has received almost $2.7 million of management and monitoring *TransNet* EMP funds from 2006 through 2024.

The County did not receive new grant funding from SANDAG in 2024; however, in 2024, continued management occurred at Otay Ranch, Ramona Grasslands, and Boulder Oaks Preserves funded through SANDAG *TransNet* EMP grant funding discussed in Section 6.3, *Grant Funded Management Projects*. Habitat restoration efforts to benefit Quino checkerspot butterfly occurred at Otay Ranch Preserve. Bullfrog eradication efforts occurred at Ramona Grasslands Preserve to ensure southwestern pond turtle and arroyo toad persistence by enhancing occupied habitat and to enhance unoccupied habitat at Boulder Oaks Preserve that have potential to support southwestern pond turtle and red-legged frog.

[18] http://www.keepsandiegomoving.com/EMP-Group/EMP-acquisitions.aspx.

[19] https://www.sandag.org/projects-and-programs/environment/regional-habitat-conservation/regional-management-and-monitoring

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CHAPTER 9

Program Administration

Celebrating National Trails Day with a hike at Dictionary Hills 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 Regional Habitat Conservation Taskforce, SDMMP Working Group, MSCP Annual Workshop, Quarterly Acquisitions coordination meetings, South County Land Managers Working Group, San Dieguito River Park Joint Powers Authority, San Diego River Conservancy, 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, 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

The County finalizes amendments upon concurrence from the Wildlife Agencies and when amendment conditions are satisfied. In 2022, there was one proposed Major Amendment to the MSCP Subarea Plan to incorporate an additional 77.02 acres of conservation land discussed with the Wildlife Agencies. The Major Amendment was granted by the Wildlife Agencies on March 1, 2023. The conservation lands are located in an unincorporated portion of northern San Diego and consist of 5 parcels (Assessor's Parcel Numbers 283-055-28-00, 283-055-29-00, 283-055-30-00, 283-055-31-00, and 283-055-31-00). In 2024, there were no Major or Minor Amendments within the MSCP Subarea Plan.

MSCP Map Update

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. The MSCP Subarea Plan map will be updated in the 2025 Annual Report to reflect the Major Amendment to include 77.02 acres of conservation lands. The permit to reflect these changes was delivered on March 2, 2023 to staff. Per the permit issued by the USFWS, this map update was effective as of March 1, 2023.

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. 2023. 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. 2023. *Sycamore Canyon and Goodan Ranch Preserve Resource Management Plan.* July.

2018. *Draft Boulder Oaks Resource Management Plan.* March.

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

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

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

2011. *Lawrence and Barbara 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 (ESA). 2025. *Targeted Monitoring Plan Resource-Specific Monitoring and Management 2024 Annual Report*. Prepared for County of San Diego Department of Parks and Recreation. February.

Environmental Science Associates (ESA). 2024a. *Targeted Monitoring Plan Resource-Specific Monitoring and Management 2023 Annual Report*. Prepared for County of San Diego Department of Parks and Recreation. March.

Environmental Science Associates (ESA). 2024b. *Targeted Monitoring Plan.* Prepared for Department of Parks and Recreation County of San Diego. August.

Environmental Science Associates (ESA). 2024c. *Ramona Grasslands Preserve 2023-2024 Raptor Surveys Summary Report.* Prepared for the County of San Diego Department of Parks and Recreation. November.

Environmental Science Associated (ESA). 2024d. *Residual Dry Matter Monitoring for the Ramona Grasslands County Preserve*. Prepared for the County of San Diego Department of Parks and Recreation. December.

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

Environmental Science Associates (ESA). 2023b. *Ramona Grasslands Preserve 2022-2023 Raptor Surveys Summary Report.* Prepared for the County of San Diego Department of Parks and Recreation. November.

Environmental Science Associates (ESA). 2022. *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.

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.

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.

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APPENDIX A-1

County Tracked Acquisitions Since 1998

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	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 (HabiTrak)	Total Counted toward MSCP Preserve (Manual)	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
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

	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 (HabiTrak)**	**Total Counted toward MSCP Preserve (Manual)**	**Total Acreage of Acquisition**	**Land Cost**	**County Funds**	**Non County Funds**	**Funding Source**
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
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

	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 (HabiTrak)**	**Total Counted toward MSCP Preserve (Manual)**	**Total Acreage of Acquisition**	**Land Cost**	**County Funds**	**Non County Funds**	**Funding Source**
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 acres, but 4 acres in NC)		106		106		106	$ 1,700,000	$ 1,374,000	$ 326,000	County, I-122 (8 acres), State
Sycamore Canyon Preserve (I-122)		63		63		63				County, I-122
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

	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 (HabiTrak)**	**Total Counted toward MSCP Preserve (Manual)**	**Total Acreage of Acquisition**	**Land Cost**	**County Funds**	**Non County Funds**	**Funding Source**
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
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 acres	17			17		17	$1	$1		Olivenhain Water 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										
Christopher Hill TET dedication - Dedication was 69 acres in 2009 with all but 5 acres baseline then; Now 5 acres approved as Preserve										County accepted in bankruptcy settlement

	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 (HabiTrak)	Total Counted toward MSCP Preserve (Manual)	Total Acreage of Acquisition	Land Cost	County Funds	Non County Funds	Funding Source
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
Lakeside Hansen Pond (Endangered Habitats 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 Land Policy Deduction - L B Daley		-2		-2		-2				
2013										
Oakoasis-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
Lusardi Creek, Fingal		31		31		31	$ 1,360,000	$ 1,160,000	$ 200,000	County, State

	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 (HabiTrak)**	**Total Counted toward MSCP Preserve (Manual)**	**Total Acreage of Acquisition**	**Land Cost**	**County Funds**	**Non County Funds**	**Funding Source**
Mit Land Policy Deduction - Tijuana River Valley			-3	-3		-3				
2014										
Stoneridge Preserve (tax default)		1		1		1	$ 9,563	$ 9,563		County
Mit Land Policy Deduction - L B 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 Land Policy Deduction - L B Daley		-8		-8		-8				
2016										
S. Vicente Connection (Navarro)		23		23		23	$ 224,000	$ 224,000		County
Mit Land 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
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 Land)		255		255		255	$ 1,651,000	$ 1,451,000	$ 200,000	County/State

	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 (HabiTrak)**	**Total Counted toward MSCP Preserve (Manual)**	**Total Acreage of Acquisition**	**Land Cost**	**County Funds**	**Non County Funds**	**Funding Source**
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										
2022										
Ramona Grasslands (Metzler)		217		217	9		$640,000	$640,000		County
2023										
No SC MSCP acquisitions in 2023										

	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 (HabiTrak)**	**Total Counted toward MSCP Preserve (Manual)**	**Total Acreage of Acquisition**	**Land Cost**	**County Funds**	**Non County Funds**	**Funding Source**
2024										
Santa Fe Valley (Del Sur – McCrink Developer Dedication)										
Sweetwater Regional Park - Pointe										
El Capitan (Digenan)				**69.19**						
Total	**556**	**7,010**	**885**	**8,451**	**30**	**8,481**	**$ 85,024,608**	**$ 49,842,636**	**$ 35,181,972**	**--**

APPENDIX A-2

DPR Outside Preserve Acquisitions Post 2016

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DPR Outside Preserve Acquisitions Post 2016 **Non-PAMA, Non-Hardline Preserve (HP) Acres**

Acquisition Information						Vegetation		Core/Linkage		Habitat Evaluation Model	
Acquisition Name	**APNs**	**Total Acreage**	**Hardline Preserve Acres**	**PAMA Acres**	**Non-PAMA Acres**	**Vegetation Type**	**Acres**	**BCLA Type**	**Acres**	**Habitat Quality**	**Acres**
LAKESIDE LINKAGE PRESERVE - (CENTEX)	397-180-1300	74.94		70.21	4.73	Coastal Sage Scrub	0.00	HABITAT LINKAGES	3.89	Developed	3.52
										Moderate	0.41
										Very High	0.81
PEUTZ VALLEY PRESERVE	402-160-1800, 402-160-1900,	254.63	177.60	0.17	76.86	Chaparral	71.67			Developed	0.10
	402-160-2000, 402-261-0100					Coastal Sage Scrub	3.36			High	25.68
						Coastal Sage-Chaparral Scrub	0.50			Low	5.02
						Oak Riparian Forest	0.56			Moderate	15.04
						Urban/Developed	0.77			Very High	31.02
RAMONA GRASSLANDS PRESERVE - (CARROLL)	276-050-29	121.33		119.17	2.16	Chaparral	0.00	CORE RESOURCES AREA	2.16	Developed	2.09
						Coastal Sage Scrub	0.00			Very High	0.06
						Urban/Developed	2.16				
RAMONA GRASSLANDS PRESERVE - (TRUSSELL)	276-050-16	24.85		5.36	19.48	Chaparral	19.27	CORE RESOURCES AREA	19.48	Developed	0.20
										High	0.46
										Low	3.64
						Urban/Developed	0.21			Moderate	15.19
SKYLINE PRESERVE	599-042-06, 599-051-19,	261.60		122.01	139.59	Chaparral	133.62	HABITAT LINKAGES	0.01	High	0.56
	599-100-16					Coastal Sage Scrub	0.08			Low	124.42
						Oak Woodland	5.89			Moderate	14.61
				TOTAL	**242.82**						

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APPENDIX B

Wildlife Agency Tracked Acquisitions

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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
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

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
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
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

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
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
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

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
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
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

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
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
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

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
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	TSDF
Otay-Sweet-water	TNC Lyons Valley Partners	121	72	0	0	0%	$0	121	72	100%	650	$0	$650	2020	LWCF
51	Castro	6	6	0	0	0%	$0	6	6	100%	$115	$0	$115	2023	LWCF
95	Dy	11	11	0	0	0%	$0	11	11	100%	$336	$0	$336	2023	LWCF
231	Mohlay	10	10	0	0	0%	$0	10	10	100%	$284	$0	$284	2023	LWCF
336	Ocampo	10	10	0	0	0%	$0	10	10	100%	$260	$0	$260	2024	LWCF
164	Campbell Trust Immenschuh	96	87	0	0	0%	$0	96	87	100%	$1,970	$0	$1,970	2024	LWCF
	Total	**12,037**	**8,840**	**217**	**216**	**--**	**$1,300**	**5,122**	**2,919**	**--**	**$34,476**	**$4,390**	**$36,246**	**--**	**--**

[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	% Cont-ribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP	% Cont-ribution	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
822003	Rancho Montana Unit Pilgrim Mitigation Bank (CALTRANS)	125	125	0	0	0%	$0	0	0	0%	$0	$0	$0	2002	N/A

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	% Cont-ribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP	% Cont-ribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
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
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

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	% Cont-ribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP	% Cont-ribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
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	
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

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	% Cont-ribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP	% Cont-ribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
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
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, ISTEA, 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

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	% Cont-ribution	Cost (000s)	Prorated Acres Purchased	Prorated Acres in MSCP	% Cont-ribution	Cost (000s)	Total Donated Value (000s)	Total Property Cost (000s)	Year	Funding Source
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
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	
	Rancho Jamul Ecological Reserve, Expansion #6	1,291	1,291	646	646	50%	$30,000	54	54	4%	$2,500	$27,500	$60,000	2024	Section 6, General Fund
		27,406	**15,849**	**15,412**	**8,396**		**$101,044**	**7,460**	**3,768**		**$44,113**	**$35,223**	**$181,680**		

NOTES:
[a] All acquisitions are owned in fee title and managed by the 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

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Summary of Project Gains

MSCP South San Diego County

From 1/1/2024 To 12/31/2024

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
24-049	Campbell Trust Immenschuh	None	USFWS	518-040-08	12/10/2024	Gain	Federal	Acquisition	0.00	8.95	87.32	96.27
24-052	Del Sur - McCrink Developer Dedication	None	County of San Diego	265-320-25 267-060-49	6/18/2024	Gain	Local	Acquisition	0.00	0.04	0.79	0.84
24-051	El Capitan Digenan	None	County of San Diego	390-071-01	8/16/2024	Gain	Local	Acquisition	0.00	0.00	69.19	69.19
24-048	Ocampo	None	USFWS	585-091-01	12/10/2024	Gain	Federal	Acquisition	0.00	0.00	10.09	10.09
24-055	OS Bailey	None	Brad S Bailey	404-170-04	12/26/2024	Gain	Private	Easement	0.00	0.00	15.65	15.65
24-054	OS BC Euclid LLC	None	BC Euclid LLC	654-040-21	12/26/2024	Gain	Private	Easement	0.00	0.34	0.00	0.34
24-058	OS Cheng Lucina Revocable Trust	None	CHENG LUCINA REVOCABLE TRUST 06-08-23	396-020-19 396-020-20 396-020-21 396-020-22 396-020-23	1/23/2024	Gain	Private	Easement	0.00	42.16	0.00	42.16
24-056	OS Inmobilaria Hawano SA de CV	None	Inmobilaria Hawano SA de CV	646-080-21	5/6/2024	Gain	Private	Easement	0.00	14.10	19.30	33.40
24-057	OS International Industrial Park Inc	None	International Industrial Park Inc	646-080-34	5/6/2024	Gain	Private	Easement	0.00	2.05	0.11	2.16
24-053	Rancho Jamul Ecological Reserve	None	CDFW	597-020-06 597-020-10 597-140-04 597-140-05 597-140-07 597-150-07 597-150-08 597-150-12 597-150-13 597-190-23 598-010-02 598-020-04 598-020-06 598-021-02 598-070-07 598-070-09	12/17/2024	Gain	State	Acquisition	0.00	531.08	737.79	1,268.86

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
24-050	Sweetwater Regional Park - Pointe	None	County of San Diego	505-231-28 505-672-11 505-672-12 580-010-48 580-010-49 580-010-50 580-220-07 580-220-08	7/9/2024	Gain	Local	Acquisition	0.00	65.78	11.33	77.11
Total for Agency: County of San Diego									**0.00**	**664.51**	**951.56**	**1,616.06**

APPENDIX D

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

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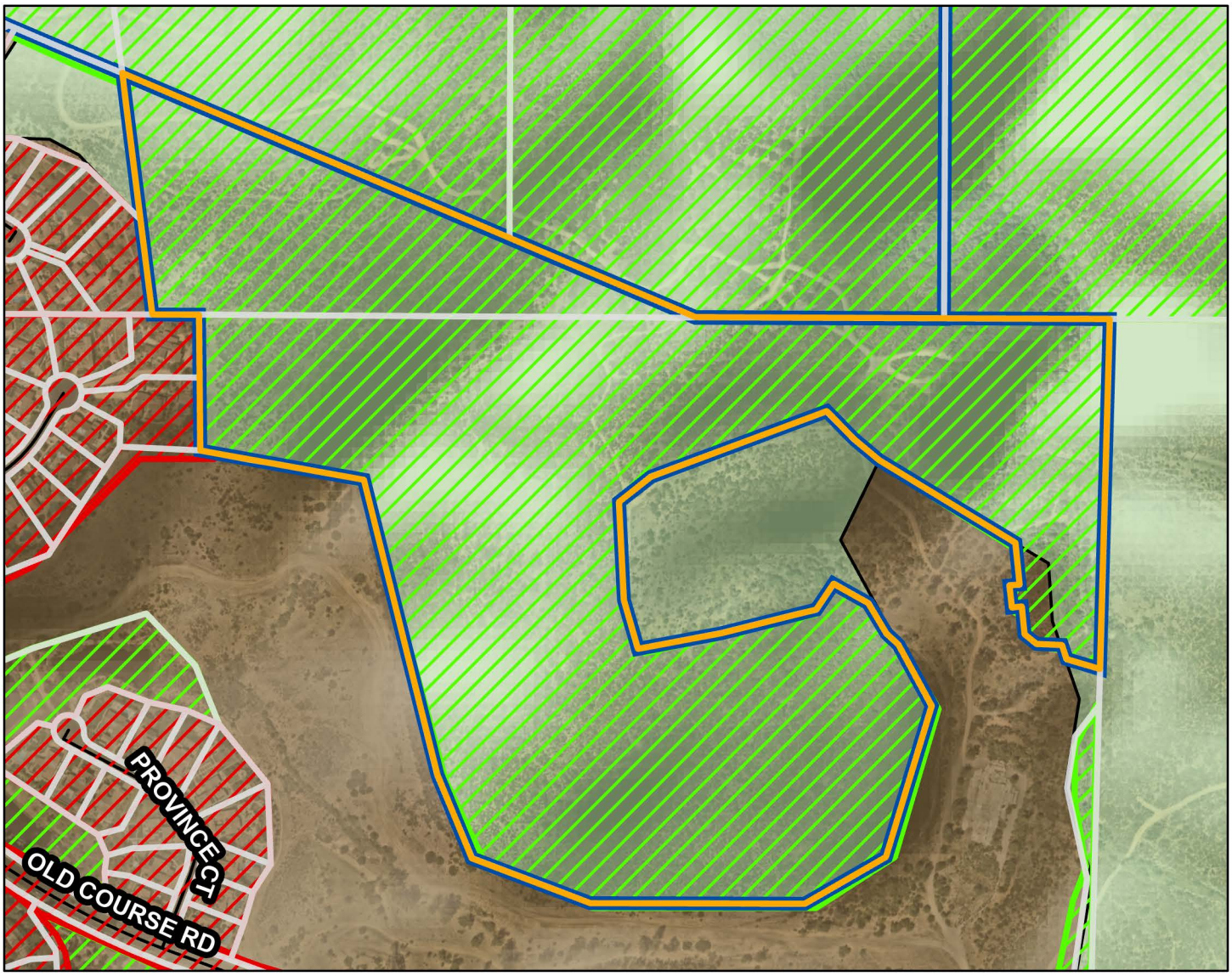
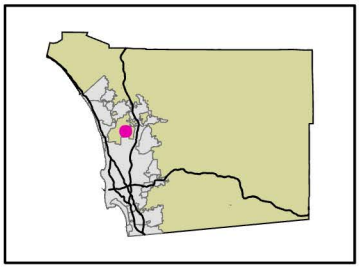
County of San Diego
Del Sur - McCrink Developer Dedication



Acquisition Name:	Del Sur - McCrink Developer Dedication
Owner:	County of San Diego
Management Agency:	Local
GIS Acres:	82.29
Habitrak Acres (Gain):	0.84
Habitrak Acres (Gain Transfer):	81.45
Acquisition Date:	6/18/2024
Habitrak Tracking Number:	24-052
MSCP Segment:	Lake Hodges

Vegetation	Acres
Chaparral	14.71
Coastal Sage Scrub	45.46
Eucalyptus Woodland	1.42
Grassland	11.79
Urban	1.13
Agriculture	7.17
Coastal Sage-Chaparral Scrub	0.28
Disturbed Land	0.13
Oak Woodland	0.06
Open Water	0.03
Freshwater Marsh	0.11



Legend

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

MSCP (South County) Designation

- Hardline Preserve
- Take Authorized Area
- South Plan Boundary
- Segments

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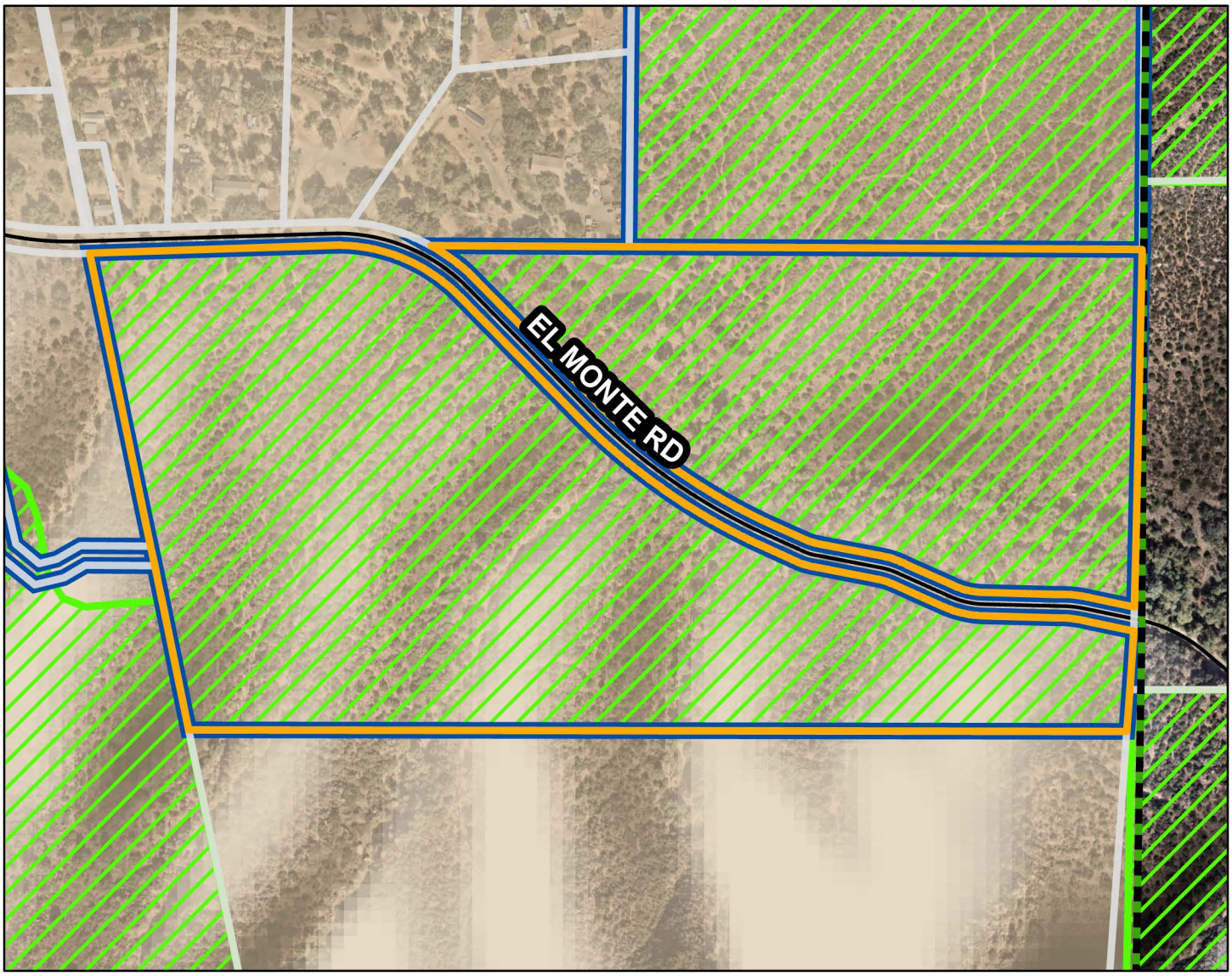
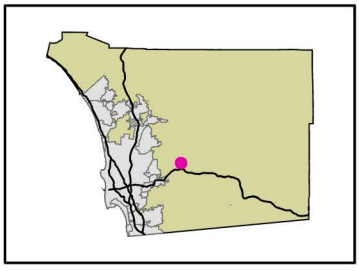
LUEG GIS
Land Use & Environment Group Geographic Information Services
SanGIS

County of San Diego
El Capitan Digenan



Acquisition Name:	El Capitan Digenan
Owner:	County of San Diego
Management Agency:	Local
GIS Acres:	69.19
Habitrak Acres (Gain):	69.19
Habitrak Acres (Gain Transfer):	0.00
Acquisition Date:	8/16/2024
Habitrak Tracking Number:	24-051
MSCP Segment:	North Metro Lakeside Jamul

Vegetation	Acres
Coastal Sage Scrub	27.84
Disturbed Land	0.08
Oak Riparian Forest	10.72
Chaparral	30.55



Legend

- Acquisition
- County Preserve Prior to Acquisition
- Parcel Boundaries
- Street
- Road
- MSCP Gain
- MSCP Loss
- South Plan Boundary
- Segments

MSCP (South County) Designation

- Pre-Approved Mitigation Area

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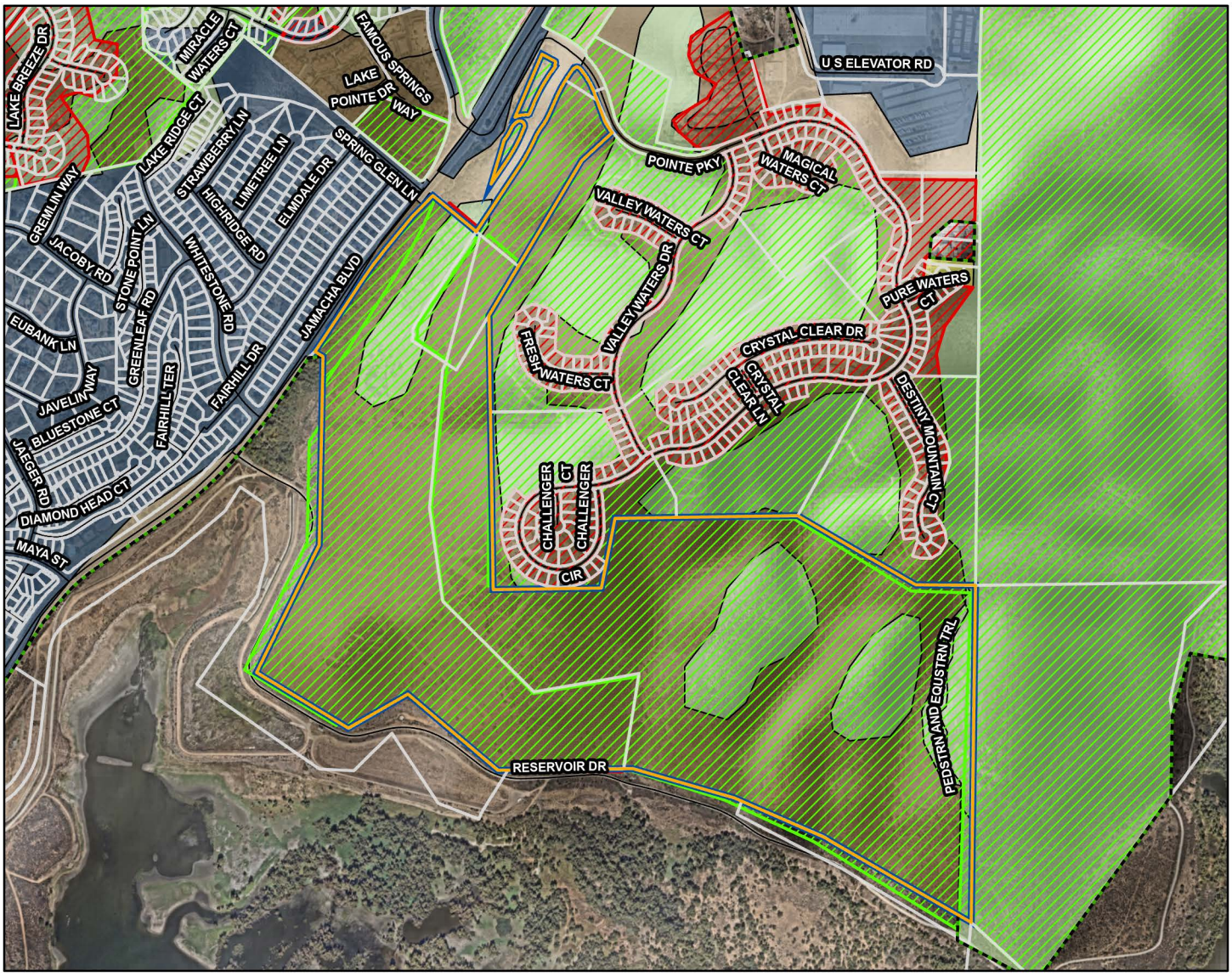
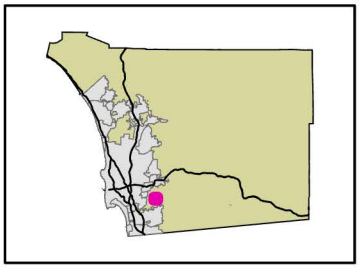
County of San Diego
Sweetwater Regional Park - Pointe



Acquisition Name:	Sweetwater Regional Park - Pointe
Owner:	County of San Diego
Management Agency:	Local
GIS Acres:	195.00
Habitrak Acres (Gain):	77.11
Habitrak Acres (Gain Transfer):	117.89
Acquisition Date:	7/9/2024
Habitrak Tracking Number:	24-050
MSCP Segment:	South County

Vegetation	Acres
Coastal Sage Scrub	81.86
Riparian Scrub	3.81
Grassland	109.19
Disturbed Land	0.13



Legend

- Acquisition
- County Preserve Prior to Acquisition
- Parcel Boundaries
- Primary Road
- Street
- Road
- MSCP Gain
- MSCP Loss
- South Plan Boundary
- Segments

MSCP (South County) Designation

- Pre-Approved Mitigation Area
- Hardline Preserve
- Take Authorized Area
- Minor Amendment Area
- Unincorporated Land in Metro-Lakeside-Jamul Segment

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APPENDIX E

Summary of MSCP Losses

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Summary of Project Losses

MSCP South San Diego County

From 1/1/2024 To 12/31/2024

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
24-041	BP AMAZON.COM SERVICES LLC	None	AMAZON.COM SERVICES LLC	646-080-36	11/12/2024	Loss	None	Industrial	66.88	0.00	66.88
24-028	BP Baghai	None	Justin & Vivian Baghai	599-221-06	10/9/2024	Loss	None	Rural Residential	0.32	0.00	0.32
24-035	BP BC EUCLID LLC	None	B C EUCLID LLC	563-184-44 564-040-02 564-040-21 564-040-23	10/15/2024	Loss	None	Multi-Family Residential	2.30	0.00	2.30
24-016	BP Belvedere	None	Antoinette M Belvedere	393-151-24	8/13/2024	Loss	None	Single-Family Residential	0.54	0.00	0.54
24-029	BP Bush	None	Charles E & Shirley Bush Trust 04-01-10	399-030-45	10/15/2024	Loss	None	Single-Family Residential	0.00	0.40	0.40
24-003	BP CADE	None	CADE JIM L&CLAUDIA	517-020-78	4/23/2024	Loss	None	Single-Family Residential	1.51	0.00	1.51
24-020	BP Caster	None	Caster Barbara M Revocable Trust 09-22-07	393-130-26	8/22/2024	Loss	None	Single-Family Residential	0.69	0.01	0.69
24-021	BP Cervantes Family Trust	None	Cervantes Family Trust 01-16-01	239-151-47	9/25/2024	Loss	None	Single-Family Residential	1.26	0.00	1.26
24-002	BP CORSON	None	CORSON JOSHUA	285-081-30	4/23/2024	Loss	None	Rural Residential	0.00	0.75	0.75
24-004	BP DALLO	None	DALLO RAFID&WAFAA	597-261-19	4/23/2024	Loss	None	Single-Family Residential	0.75	0.00	0.75
24-010	BP DE MARIA	None	MARIA DE MARIA	396-011-09	4/30/2024	Loss	None	Single-Family Residential	1.50	0.00	1.50
24-014	BP FLORES REVOCABLE LIVING TRUST	None	FLORES REVOCABLE LIVING TRUST 03-24-99	396-202-18	4/30/2024	Loss	None	Single-Family Residential	0.17	0.00	0.17
24-009	BP GARVEY	None	GARVEY JENNIFER E	520-320-18	4/30/2024	Loss	None	Single-Family Residential	0.22	0.00	0.22
24-030	BP Helen Woodward Animal Center	None	Helen Woodward Animal Center	269-080-09	10/15/2024	Loss	None	Institutional	1.36	0.00	1.36
24-026	BP Hendrix	None	HENDRIX 1994 FAMILY INTER VIVOS SURVIVORS TRUST 11	597-050-49	10/9/2024	Loss	None	Rural Residential	0.58	0.00	0.58
24-038	BP High Meadow Ranch	None	High Meadow Ranch L P	389-061-05	10/22/2024	Loss	None	Single-Family Residential	0.97	0.00	0.97
24-037	BP High Meadow Ranch	None	High Meadow Ranch L P	389-061-04	10/22/2024	Loss	None	Single-Family Residential	1.01	0.00	1.01

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
24-027	BP High Meadow Ranch	None	HIGH MEADOW RANCH LP	389-061-42	10/9/2024	Loss	None	Single-Family Residential	0.74	0.00	0.74
24-022	BP High Meadow Ranch LP	None	High Meadow Ranch L P	389-062-02	9/25/2024	Loss	None	Single-Family Residential	0.41	0.00	0.41
24-039	BP HIGHWAY 8 BUSINESS LLC	None	HIGHWAY 8 BUSINESS L L C	398-260-14	10/29/2024	Loss	None	Commercial	0.97	0.00	0.97
24-031	BP Hillebrecht	None	Mary C Hillebrecht	241-041-10	10/15/2024	Loss	None	Agriculture	0.47	0.00	0.47
24-018	BP Jones Family Revocable Trust	None	Jones Family Revocable Trust 01-12-07	396-220-50	8/13/2024	Loss	None	Single-Family Residential	1.17	0.52	1.68
24-007	BP Kabellis	None	KABELLIS FAMILY TRUST 08-16-95	237-090-69	4/23/2024	Loss	None	Single-Family Residential	0.22	0.00	0.22
24-015	BP KLITZING & CONNOR	None	BRIAN KLITZING & KRISTIN CONNOR	272-252-63	4/30/2024	Loss	None	Single-Family Residential	0.01	0.13	0.14
24-025	BP Leeger	None	Bradford W and Lisa M Leeger	401-060-89	9/25/2024	Loss	None	Single-Family Residential	0.90	0.00	0.90
24-042	BP Loofbourrow Family Trust	None	Loofbourrow Family Trust 06-24-16	600-131-16	12/31/2024	Loss	None	Single-Family Residential	0.91	0.00	0.91
24-019	BP MA	None	SEI PING MA	519-141-01	8/22/2024	Loss	None	Single-Family Residential	0.00	4.45	4.45
24-034	BP Mansour	None	Jamel & Rand Mansour Family Trust 03-07-24	396-012-35	10/15/2024	Loss	None	Single-Family Residential	0.47	0.00	0.47
24-036	BP Marcos	None	Robert Marcos	508-261-06	10/22/2024	Loss	None	Single-Family Residential	0.58	0.21	0.79
24-006	BP MCILHENNEY FAMILY TRUST 02-15-21	None	MCILHENNEY FAMILY TRUST 02-15-21	402-340-28	4/23/2024	Loss	None	Single-Family Residential	0.86	0.00	0.86
24-012	BP MI CIELOS RSF LLC	None	MI CIELO RSF LLC	269-050-13	4/30/2024	Loss	None	Single-Family Residential	0.33	0.00	0.33
24-023	BP Morris Chad R Revocable Trust	None	Morris Chad R Revocable Trust 08-24-10	404-471-15	9/25/2024	Loss	None	Single-Family Residential	0.25	0.00	0.25
24-013	BP MUNOZ	None	HUMBERTO MUNOZ	522-120-18	4/30/2024	Loss	None	Single-Family Residential	0.00	2.22	2.22
24-011	BP PAGUS PROPERTIES 1 LLC	None	PAGUS PROPERTIES 1 LLC	375-050-22	4/30/2024	Loss	None	Single-Family Residential	1.05	0.00	1.05
24-033	BP Perry	None	Christopher & Allison Perry	504-390-52	10/15/2024	Loss	None	Single-Family Residential	0.23	0.00	0.23
24-001	BP PETERSON ROBERT&GWENDOLYN TRUST 07-08-05	None	PETERSON ROBERT&GWENDOLY N TRUST 07-08-05	404-360-24	4/23/2024	Loss	None	Single-Family Residential	0.90	0.00	0.90
24-017	BP Ross	None	Gregory A Ross	396-220-32	8/13/2024	Loss	None	Single-Family Residential	0.00	0.30	0.30
24-024	BP Route 66 Investment Group	None	Route 66 Investment Group Inc	268-290-20	9/25/2024	Loss	None	Single-Family Residential	1.81	0.00	1.81

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
24-040	BP Salmu	None	Sennan & Hadil Salmu	515-200-13	11/5/2024	Loss	None	Single-Family Residential	0.32	0.00	0.32
24-005	BP SAN NICOLAS	None	SAN NICOLAS P&SHAYNA	276-160-07	4/23/2024	Loss	None	Single-Family Residential	0.00	0.41	0.41
24-008	BP Smith Trust	None	SMITH TRUST 05-27-04	390-040-53	4/30/2024	Loss	None	Single-Family Residential	0.00	0.35	0.35
24-032	BP Yousif	None	Youliyan Yousif	519-282-09	10/15/2024	Loss	None	Single-Family Residential	1.18	0.01	1.19
24-046	COI Caratan	None	Lenny Caratan Grust 09-12-14	269-030-29	12/2/2024	Loss	None	Single-Family Residential	0.90	0.00	0.90
24-043	COI Cervantes	None	Cervantes Family Trust 01-16-01	239-151-47	11/25/2024	Loss	None	Single-Family Residential	0.74	0.00	0.74
24-045	COI Dahlberg	None	Gregory and Isabella Dahlberg	596-290-02	11/25/2024	Loss	None	Single-Family Residential	2.00	0.00	2.00
24-044	COI Roach	None	Nicholas and Anna-Marie Roach	512-180-36	11/25/2024	Loss	None	Single-Family Residential	1.14	0.00	1.14
24-047	COI Route 66 Investment Group	None	Route 66 Investment Group Inc	268-290-20	12/2/2024	Loss	None	Single-Family Residential	1.96	0.00	1.96
Total for Agency: County of San Diego									**100.53**	**9.76**	**110.29**

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APPENDIX F

Summary of Habitat Losses and Gains

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Summary of Habitat Losses and Gains

Plan: MSCP South San Diego County

Date Range: 1/1/2024 - 12/31/2024

Project Gain Status: Gain

Project Loss Status: Loss

County of San Diego

		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	
Habitat Type	**Target Cons.**	**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	1.88	783.83	583.76	31,153.87	72.67 %	5.65	1,472.25	297.75	8,425.66	7.53	2,256.09	881.51	39,579.53
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	6.31	328.12	229.23	34,830.42	87.36 %	2.94	3,025.18	240.03	10,380.71	9.25	3,353.30	469.26	45,211.12
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 %	1.36	144.55	0.00	1,114.62	1.36	156.95	0.00	2,123.56
Grassland	3,171	0.00	62.23	72.26	2,029.35	64.00 %	2.92	1,284.25	68.39	1,032.14	2.92	1,346.48	140.66	3,061.49
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	0.29	30.63	183.34	78.68 %	0.00	4.56	17.62	80.14	0.00	4.84	48.25	263.48
Riparian Forest	348	0.00	0.45	0.07	311.80	89.60 %	0.00	2.88	0.13	76.45	0.00	3.33	0.20	388.25
Oak Riparian Forest	2,192	0.00	33.99	18.19	1,037.03	47.31 %	0.20	51.48	0.00	476.56	0.20	85.47	18.19	1,513.59
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	0.73	123.68	32.29 %	0.02	17.08	0.18	78.66	0.02	24.66	0.91	202.34
Oak Woodland	2,211	1.25	52.80	0.00	1,165.00	52.69 %	1.12	173.89	0.00	543.17	2.37	226.69	0.00	1,708.17
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	5,605.24	100.29 %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,605.24
Eucalyptus Woodland	105	0.00	9.06	0.03	46.03	43.84 %	1.16	416.74	0.01	68.20	1.16	425.80	0.04	114.23
Open Water	149	0.00	0.50	0.67	39.60	26.58 %	0.00	6.41	0.00	38.30	0.00	6.91	0.67	77.90
Disturbed Wetland	90	0.00	1.99	0.00	78.99	87.77 %	0.14	16.38	0.00	26.00	0.14	18.38	0.00	104.99
Natural Floodchannel	225	0.00	0.45	0.00	34.07	15.14 %	0.00	0.00	0.00	4.83	0.00	0.45	0.00	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	0.04	119.16	8.07	476.95		1.35	752.07	15.57	391.54	1.40	871.23	23.63	868.49
Agriculture	0	0.28	120.52	4.83	555.38		68.58	1,881.15	15.65	2,357.94	68.86	2,001.66	20.48	2,913.32
Urban/Developed	0	0.00	45.07	3.09	77.70		15.08	2,174.33	9.18	635.39	15.08	2,219.39	12.27	713.09
Agency Total:		**9.76**	**1,580.36**	**951.56**	**78,777.97**		**100.53**	**11,434.58**	**664.51**	**25,767.66**	**110.29**	**13,014.94**	**1,616.06**	**104,545.63**

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

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APPENDIX G

Habitat Conservation Accounting Model

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Habitat Conservation Accounting Model

MSCP South San Diego County

From 1/1/2024 To 12/31/2024

Project Gain Status: Gain

Project Loss Status: Loss

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**
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	12,897.40	3,494.25	7.53	-
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	14,494.27	2,810.10	9.25	-
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	1.36	-
Grassland	2,145	1,741	404	4.31	1,086.58	267.33	2.92	-
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	963.89	0.52	0.20	-
Riparian Woodland	6	6	0	0.00	4.24	0.00	0.00	n/a
Riparian Scrub	298	298	0	0.00	56.85	0.00	0.02	+
Oak Woodland	2,355	1,912	443	4.32	1,049.58	263.16	2.37	-
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	13.52	4.76	1.16	-
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	0.14	+
Natural Floodchannel	197	197	0	0.00	12.92	0.00	0.00	n/a
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	253.78	0.00	1.40	+
Agriculture	1,608	0	1,608	0.00	485.16	0.00	7.10	+

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	33.39	0.00	9.96	+
Total Acres for Agency: County of San Diego					**32,334.21**		**43.41**	

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

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	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	80.3	0	72.5	409.2
Used	2.85	126.59	6.215	0	0.35	7.63	0.51	6.215	0	16.72	160.865
Remaining	1.95	99.61	74.085	0	2.05	11.97	2.89	74.09	0	55.78	**248.34**
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**	**168.959**	**74.085**	**0**	**7.24**	**41.29**	**2.99**	**74.77**	**0.14**	**55.78**	**353.119**

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APPENDIX I

COIs Issued for Agricultural Clearing

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	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, 243-150-05, 244-020-04	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**

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APPENDIX J

Species and Habitat Conservation in County Preserves

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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
El 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
El 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 *6 County Preserves*	✓	✓	• Dictionary Hill Preserve[a] • Furby-North Preserve • Lusardi Creek Preserve • Otay Ranch Preserve • Tijuana River Valley Regional Park • Los Peñasquitos Canyon Preserve
Coast wallflower			
Coastal (Shaw's) agave			
Coastal Dunes Milkvetch			
Dehesa beargrass			
Del Mar manzanita *1 County Preserve*	✓		• Lusardi Creek Preserve
Del Mar Mesa sandaster			
Dunn's mariposa lily *1 County Preserve*	✓		• Otay Ranch Preserve
Encinitas Baccharis *1 County Preserve*	✓		• Del Dios Highlands Preserve
Felt-leaved monardella *3 County Preserves*	✓		• Boulder Oaks Preserve • El Capitan Preserve • Otay Ranch Preserve
Fire (Dense) redgrass			
Gander's butterweed			
Gander's pitcher sage *1 County Preserve*	✓		• Otay Ranch Preserve
Heart-leaf pitcher sage *1 County Preserve*	✓		• Iron Mountain Preserve[a]
Lakeside ceanothus *4 County Preserves*	✓		• Boulder Oaks Preserve • El Capitan Preserve • Louis A. Stelzer Park • Oakoasis Preserve
Nevin's barberry			
Orcutt's bird's beak *2 County Preserves*	✓		• 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 *4 County Preserves*	✓		• Boulder Oaks Preserve • Los Peñasquitos Canyon Preserve • Otay Ranch Preserve • Santa Fe Valley Preserve
Otay manzanita *1 County Preserve*	✓		• Otay Ranch Preserve
Otay mesa mint *2 County Preserves*	✓		• Otay Lakes County Park • Otay Ranch Preserve
Otay tarplant *3 County Preserves*	✓		• Furby-North Preserve • Otay Ranch Preserve • Otay Valley Regional Park
Palmer's goldenbush (Palmer's ericameria) *2 County Preserves*	✓		• 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 *3 County Preserves*	✓		• Louis A. Stelzer Park • Otay Ranch Preserve • Otay Valley Regional Park • Los Peñasquitos Canyon Preserve
San Diego goldenstar *5 County Preserves*	✓		• Dictionary Hill Preserve • Los Peñasquitos Canyon Preserve • Louis A. Stelzer Park • Otay Ranch Preserve • Sycamore Canyon and Goodan Ranch Preserve
San Diego mesa mint *1 County Preserve*	✓		• Los Peñasquitos Canyon Preserve
San Diego thornmint *1 County Preserve*	✓		• Sycamore Canyon and Goodan Ranch Preserve
San Miguel savory *2 County Preserves*	✓		• Boulder Oaks Preserve • Otay Ranch Preserve
Short-leaf dudleya			
Slender-pod jewelflower (California mustard)			

MSCP Covered Species	Documented in County Preserves		County Preserve or Park
	GIS source	Other Source	
Small-leaved rose			
Snake cholla *2 County Preserves*	✓	✓	• Furby-North Preserve[a] • Otay Ranch Preserve
Spreading (Prostrate) navarretia *1 County Preserve*	✓		• Otay Ranch Preserve
Sticky dudleya			
Tecate cypress *1 County Preserve*	✓		• Otay Ranch Preserve
Thread-leaf brodiaea			
Torrey pine *1 County Preserve*		✓	• Tijuana River Valley Regional Park[a] (planted)
Variegated dudleya *6 County Preserves*	✓		• 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 *2 County Preserves*	✓		• Del Dios Highlands Preserve • Tijuana River Valley Regional Park
Willowy monardella *2 County Preserves*	✓		• Otay Ranch Preserve • Sycamore Canyon and Goodan Ranch Preserve
Invertebrates			
Riverside fairy shrimp			
San Diego fairy shrimp *1 County Preserve*	✓		• Otay Ranch Preserve
Thorne's hairstreak butterfly *1 County Preserve*	✓		• 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 *15 County Preserves*	✓	✓	• Barnett Ranch Preserve • Boulder Oaks Preserve[a] • Del Dios Highlands Preserve[a] • Dictionary Hill Preserve[a] • El Capitan Preserve • Furby-North Preserve • 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 *16 County Preserve*	✓	✓	• Barnett Ranch Preserve • Boulder Oaks Preserve [a] • Del Dios Highlands Preserve [a] • Dictionary Hill Preserve • El Capitan Preserve [a] • Furby-North Preserve[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 *2 County Preserves*	✓	✓	• Otay Ranch Preserve • Sycamore Canyon and Goodan Ranch Preserve[a]
California brown pelican			
California least tern			
Canada goose *1 County Preserve*	✓		• Tijuana River Valley Regional Park
Coastal (San Diego) Cactus wren *7 County Preserves*	✓	✓	• El Capitan Preserve[a] • Furby-North Preserve • Lakeside Linkage Preserve • Otay Ranch Preserve • Otay Valley Regional Park • Sweetwater Regional Park • Tijuana River Valley Regional Park
Coastal California gnatcatcher *15 County Preserves*	✓		• Boulder Oaks Preserve • Del Dios Highlands Preserve • Dictionary Hill Preserve • Furby-North Preserve • 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 *15 County Preserves*	✓	✓	• 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 *1 County Preserve*		✓	• Del Dios Highlands Preserve[a]
Golden eagle *6 County Preserves*	✓	✓	• 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 *8 County Preserves*	✓		• Furby-North Preserve • 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 *1 County Park*	✓		• 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 *8 County Preserves*	✓	✓	• Del Dios Highlands Preserve • Furby-North Preserve[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 *4 County Preserves*	✓	✓	• Del Dios Highlands • Peutz Valley Preserve • Otay Ranch Preserve • Tijuana River Valley[a]
Reddish egret			
Southern California rufous-crowned sparrow *16 County Preserves*	✓	✓	• 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 amd Goodan Ranch Preserve[a] Tijuana River Valley Regional Park[a]
Southwestern willow flycatcher *1 County Preserve*	✓		• Tijuana River Valley Regional Park
Swainson's hawk *1 County Preserve*		✓	• Barnett Ranch Preserve[a]
Tricolored blackbird *2 County Preserves*	✓	✓	• 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 *10 County Preserves*	✓	✓	• 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			•
White-faced ibis *2 County Preserve*	✓	✓	• Del Dios Highlands Preserve[a] • Tijuana River Valley Regional Park
Mammals			
American badger			
Mountain lion *6 County Preserves*	✓	✓	• 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 *14 County Preserves*	✓	✓	• 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

Environmental Science Associates. 2025. Targeted Monitoring Plan Resource-Specific Monitoring & Management. Annual Report. February.

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	*10 MSCP covered species*
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	*12 MSCP covered species*
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	*15 MSCP covered species*
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	*8 MSCP covered species*
Plants	Coast (San Diego) barrel cactus[a]
	San Diego goldenstar
	Variegated 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	*11 MSCP covered species*
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	*3 MSCP covered species*
Birds	Southern California rufous-crowned sparrow[a]
	Western bluebird[a]
Mammals	Southern mule deer[a]
Furby-North Preserve	*10 MSCP covered species*
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]
Lakeside Linkage County Preserve	*8 MSCP Covered Species*
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	*8 MSCP covered species*
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	*4 MSCP covered species*
	Orcutt's brodiaea
	San Diego button-celery
	San Diego goldenstar
Plants	San Diego mesa mint
Birds	Least Bell's vireo
Louis A. Stelzer County Park	*8 MSCP covered species*
Plants	Lakeside ceanothus
	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]

County Preserves	MSCP Covered Species Documented
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
	Orcutt's brodiaea
	Otay manzanita
	Otay mesa mint
	Otay tarplant
	Palmer's goldenbush
	San Diego button-celery

County Preserves	MSCP Covered Species Documented
	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
	Willowy 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	*7 MSCP covered species*
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
Ramona Grasslands County Preserve	*4 MSCP covered species*
Reptiles	Belding's orange-throated whiptail
	Blainville's (Coast, San Diego) horned lizard
Birds	Golden eagle
Mammals	Southern mule deer
Santa Fe Valley Preserve	*2 MSCP covered species*
Plants	Orcutt's brodiaea

County Preserves	MSCP Covered Species Documented
Birds	Coastal California gnatcatcher
Stoneridge County Preserve	*7 MSCP covered species*
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	*3 MSCP covered species*
Birds	Coastal (San Diego) cactus wren
	Coastal California gnatcatcher
	Least Bell's vireo
Sycamore Canyon and Goodan Ranch County Preserve	*15 MSCP covered species*
Plants	San Diego goldenstar
	San Diego thornmint
	Variegated dudleya
	Willowy 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	*17 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]

County Preserves	MSCP Covered Species Documented
Birds	Canada goose
	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.

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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

Environmental Science Associates. 2025. Targeted Monitoring Plan Resource-Specific Monitoring & Management. Annual Report. February.

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

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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	47 trees planted • coast live oak Seeds dispersed • California buckwheat	22 dead trees removed • coast live oak	• brittlebush • Italian thistle • mustard	Installed four interpretive signs, barbed wire fencing, and two gates. County Park Rangers have continued to educate visitors in order to prevent off-trail activity.	Firebreak maintained.	One Ranger-led Discovery Table (28 visitors).
Boulder Oaks Preserve	Closed	71 trees planted • coast live oak • Engelmann oak	34 dead trees removed • coast live oak • Engleman n oak	• mustard • Dyer's rocket • milk thistle • puncture vine	Split rail fencing repaired. Trespassers addressed and compliance achieved through education.	Firebreak maintained along entry road. Fire fuel reduction with help from California Conservation Corps.	--
Cactus Park	Open	--	3 diseased trees removed • pepper	• castor bean	Illegal dumping continues to be an ongoing issue.	Firebreak maintained.	--
Christopher Hill Preserve		Service road trimmed	--	• bull thistle • mustard	--	--	--
Damon Lane Park	Open	4 trees planted • coast live oak	3 non-native trees removed • Mexican fan palm	• castor bean • Russian thistle • giant reed • mustard	Two new signs restricting dumping, off-leash dogs, and smoking installed.	Firebreak maintained.	One Ranger-led hike (12 visitors).
Del Dios Highlands Preserve	Open	--	--	• black mustard • castor bean • tree tobacco	One interpretive sign and concrete split rail fencing repaired. Game cameras installed. Coordination with the San Diego Police Department to address reports of vehicle break-ins.	Firebreak maintained along SDGE trail and Mt. Israel Road.	--
Dictionary Hill Preserve	Open	Ongoing restoration across four acres to benefit gnatcatcher, Quino checkerspot, and monarch butterfly	--	• mustard • stinkwort • fountain grass • puncture vine	Five fence posts installed. Daily ranger patrols, litter removal, and graffiti abatement.	Firebreak maintained.	Ranger-led hikes and events (183 visitors in total). Distribution of flyers about coyotes throughout the Preserve.

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	167 trees planted • coast live oak • Engelmann oak • incense cedar • Chinese pistache	40 dead trees removed • coast live oak	• mustard	Six signs installed. Instances of campers littering and damaging trees reported. Regular patrols conducted.	Firebreak maintained.	Multiple events, including guided hikes, live animal presentations, Discovery Tables, a tree planting event, a scavenger hunt, and a Junior Ranger event (400 visitors).
El Capitan Preserve	Open	--	--	• pampas grass	Repaired one concrete fence. Increased patrols in response to illegal trail creation.	Firebreak maintained.	County Park Rangers guided “warrior hikes” on Memorial Day and Veteran’s Day. 500 visitors attended.
El Monte Park	Open	145 trees planted • coast live oak • sycamore • Fremont cottonwood • incense cedar • Torrey pine • Italian stone pine 50 shrubs planted • toyon • elderberry • lemonadeberry	4 diseased and hazardous trees removed • carob • pepper • coast live oak	• Mexican fan palm • Russian thistle • tree tobacco	Four new signs and two new swing gates installed. One barb-wire fence repaired. Ranger patrols increased to prevent unauthorized trails use, graffiti, and other unauthorized activities.	Firebreak around perimeter of park.	Hawk Talks and flume hikes (1,150 visitors).
Flinn Springs Park	Open	38 trees planted • coast live oak • Engelmann oak • madrone 54 native shrubs planted • toyon • sugar bush • lemonadeberry	4 non-native trees removed • pepper • Mexican fan palm	• giant reed • mustard • castor bean • Russian thistle	Two new interpretive signs installed. Instances of illegal dumping, off-leash dogs, and smoking reported.	Firebreak maintained.	Multiple events through the Discovery Program and a Ranger-led hike (270 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	--	--	--	Fencing, gates, and large boulders added to deter illegal trails and offroad activity. No dumping enforcement signs installed along Otay Mesa Road.	--	--
Holly Oaks County Park	Open	4 trees planted • coast live oak	4 dead trees removed • incense cedar	• mustard • puncture vine • eucalyptus • fennel	One sign installed. Repaired split rail fencing. Replaced a section of rotten wood fencing. Off-leash dog enforcement.	Firebreak maintained.	--
Iron Mountain Preserve	Closed	--	--	• black mustard	No signs of illegal activities observed during patrols.	--	--
Lakeside Linkage Preserve	Open	--	--	• tamarisk	One new sign installed to deter illegal off-road activity. Ranger presence increased to address unauthorized vehicle activity and illegal dumping.	Firebreak maintained.	Multiple outreach events, including two school field trips, a Women in the Wild hike, and Santee Discovery Days event (180 visitors).
Lawrence and Barbara Daley Preserve	Closed	--	--	• castor bean	Courtesy notices issued for illegal parking. Removed litter and dumped items.	Firebreak maintained.	--
Los Peñasquitos Canyon Preserve	Open	86 trees planted • coast live oak • cottonwood	19 dead trees removed • coast live oak • Canary island palm	• fennel • Russian thistle • stinkwort	Installation and repair of 12 signs. Repair of the Preserve's entrance gate. Ranger patrols continued to prevent unauthorized use of motor vehicles.	Firebreak maintained.	Numerous events, including a Discovery Program event, Ranger-led and scout-led hikes, history tours, and story times (over 1,600 visitors).
Louis A. Stelzer Park	Open	100 wildflowers and succulents planted. 10 check dams built.	--	• stinkwort • mustard • poison oak	Alarm system installed at the Park entrance.	Firebreak maintained in collaboration with the California Department of Forestry and Fire Protection.	Multiple tree planting events (150 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	--	--	• poison oak • mustard • Italian thistle	One new trail sign installed.	Firebreak maintained.	Rangers-led trail dedication event (45 visitors).
Lusardi Creek Preserve	Open	--	--	• Pampas grass	Two new signs installed. One new fence and gate installed.	--	--
Mission Trails Park	Open	--	--	• Pampas grass	Five signs repaired. Increased Ranger patrols in response to graffiti, vandalism, and other illegal activities.	Firebreak maintained.	--
Oakoasis Preserve	Open	100 trees planted • coast live oak • Engelmann oak	60 dead trees removed • coast live oak	• stinkwort • poison oak • mustard	--	Firebreak maintained in collaboration with the California Department of Forestry and Fire Protection.	Two tree planting events (75 visitors).
Old Ironsides County Park	Open	20 trees planted • coast live oak • Engelmann oak 14 native shrubs planted • white sage • sugar bush • toyon Irrigation system installed	3 non-native trees removed • Mexican fan palm	• mustard • castor bean • giant reed	One new sign installed. Requested extra patrols from County Sheriff in response to alcohol consumption.	Fire fuels reduction throughout Park.	Two Discovery Program events (45 visitors).
Otay Lakes Park	Open	10 trees planted coast live oak				Firebreak maintained.	Natural history and Park conservation events (415 visitors). I Love a Clean SD event (26 visitors). Trail maintenance and trash clean-up project (40 student volunteers).

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
Otay Ranch Preserve	Open	Monitoring activities: • focused rare plant surveys • Quino checkerspot butterfly surveys • vegetation mapping and photographic monitoring • coastal cactus wren 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 • western spadefoot surveys • golden eagle camera surveys • vernal pool plant monitoring • wet season fairy shrimp surveys • seed collection and redistribution • vegetation rapid assessment monitoring Grant-funded management projects	--	• short-pod mustard • tocalote • stinkwort • oats • bromes • filaree • fennel • black mustard • prickly sow-thistle • annual rye grass • crete weed • fescue • false hawkbit • annual beard grass • hyssop loosestrife • tree tobacco • golden-top • prickly lettuce • gum tree • Peruvian pepper tree • Selective thinning/removal of shrubs from existing coast cholla patches	Installation of vertical mulch and coast cholla. Installation of T-posts with concrete along fencing. Installation of fencing, repair of fencing, rock barrier installation, installation of 14 signs, repair of 2 signs, and replacement of 3 signs. Off-site access control within adjacent City of San Diego and CDFW property.	Weed control and implementation of shrub thinning to help reduce the amount of fuel available to carry fire within the Preserve.	--

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
Otay Valley Regional Park	Open	Maintained patrols and managed trails to exclude motor vehicles		various non-native species	Maintined “no off-roading” signs and four metal gates installed Patrols increased to prevent unauthorized use of motorized vehicles	Firebreak maintained.	7 ranger led hikes (165 visitors).
Peutz Valley Preserve	Closed	--	3 non-native trees removed • Mexican fan palm	• mustard • castor bean • giant reed	One new sign installed. Increased patrols to prevent illegal trash dumping.	Firebreak maintained.	--
Ramona Grasslands Preserve	Open	7 trees planted • coast live oak • Engelmann oak Native plant hydroseeding Grazing lease management to reduce non-native plant cover and improve habitat for sensitive wildlife species. Bullfrog eradication implementation (silt fencing installed at the Santa Maria Creek).	--	• tree tobacco • tamarisk • Russian thistle • milk thistle • artichoke thistle	Peeler log, barbed wire, and concrete split rail fencing repaired. One metal hinge gate repaired. Increased patrols and education. Game cameras maintained. Continuation of Responsible Photography campaign. Spur trails blocked with brush piles. Continuation of seasonal closure and limits on user numbers and days for trail near golden eagle nest.	Firebreak maintained.	Multiple events including school field trips, a Pedal at the Preserve event, an Acorns 101 event, and Discovery Program events (over 1,000 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
Santa Fe Valley Preserve	N/A	--	--	• Bull thistle • Giant reed (partnership with The Nature Collective to perform foliar treatment with herbicide approved for use in riparian habitat)	--	--	--
Skyline Preserve	Closed	--	--	• non-native grasses and weeds	--	Firebreak cleared along the Preserve's fence line.	--
Stoneridge Preserve	Closed	12 native shrubs planted • white sage • sugar bush • toyon	2 non-native trees removed • Mexican fan palm	• castor bean • giant reed • mustard	Two new signs installed. Increased patrols to prevent illegal dumping.	Firebreak maintained.	--
Sweetwater Regional Park	Open	23 trees planted • olive • crape myrtle • gold medallion 131 native shrubs planted • California sagebrush • San Diego snapdragon • White sage Grant-funded restoration of coastal sage scrub and riparian habitat	--	• tree of heaven	Lodgepole fencing repaired.	Firebreak maintained.	Various nature hikes, Native American programs, and Discovery Program events (225 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
Sycamore Canyon/ Goodan Ranch Preserve	Open	200 trees planted • coast live oak • 20 native shrubs planted • white sage • lemonadeberry Restoration of unauthorized trail. Installation of toad fencing.	6 dead shrubs removed • lemonade berry	• Sahara mustard • artichoke thistle	4 new signs installed. Wire fencing repaired. Patrol increased to prevent illegal access and off-road vehicle use.	--	Multiple events, including interpretive hikes, tree planting events, interpretive programs, star parties, and an Archipelago Ride (275 visitors).
Tijuana River Valley Regional Park	Open	23 trees planted • coast live oak Several grant-funded management projects, including the Smuggler's Gulch Dredging and Improvement Projects, the Invasive Species Removal and Restoration Plan, and the Brown Property Fill Removal/ Restoration Project.	2 trees removed • eucalyptus • sycamore	• Russian thistle • castor bean • tree tobacco • nasturtium • crown daisy • giant reed • non-native grasses	50 new informational and directional signs installed to prevent off-trail activity. Fencing repaired. One gate repaired. Daily patrols conducted to prevent illegal access and dumping.	Firebreak maintained.	Multiple programs, including nature hikes, snake presentations, animal touch tables, a bird talk, and a Hawktober event (251 visitors).

APPENDIX L

Private Mitigation Land Monitoring and Maintenance in Reporting Year

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	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	December	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 2024.
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 **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 west of Four Gee Road. The property consists mostly of coastal sage scrub with some freshwater marsh, southern willow scrub, and non-native grassland.								
2	PDS2008-3914-99-001	4S Ranch, Ralphs Family Preserve	Sep-1999	Joaquin Meza	July	Report new invasive plants population	Built-out	2023-2024 report was submitted and reviewed by county staff, no major concerns.
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 **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.								
3	PDS2012-3914-99-002-02	4S Ranch, Specific Plan Preserve	Sep-1999	Habitat Restoration Sciences	July	Report new invasive plants populations	Built-out	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: *Lusardi Creek Portion* (south) 312-284-01, 312-285-01, 312-150-04; *North* 678-050-49, 678-030-08, 678-050-51 **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.								
4	PDS2008-3914-99-003	Golem, East Gorge	Jan-2000	San Dieguito River Valley Joint Powers Authority	December	CAGN (twice annually)	Built-out	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: 678-020-02, -03, 678-021-02, -03, 265-320-03 **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. The site consists of mostly of southern mixed chaparral.								

	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	January	Sensitive Species (annually)	Built-out	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: *Open Space 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, *Open Space II* Portions of 267-190-32, 267-290-35, 267-180-72, 267-191-01, -02, -11 **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. The open space consists of mostly Diegan coastal sage scrub with some southern mixed chaparral, chamise chaparral, coast live oak woodland, freshwater marsh, non-native grassland, and eucalyptus woodland.							
6	PDS2008-3914-99-005	Woodridge	Updated-2016	Center For Natural Lands Management	December	CSS (2 out of 5 years) CAGN (2 out of 5 years) Delicate Clarkia (1 out of 5 years)	Built-out	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: 395-151-69, -70, 395-432-23, -24, -30, -31 **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 50 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.							
7	PDS2008-3914-01-001	Blossom Valley	Updated-2012	Center for Natural Lands Management	December	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	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: 390-061-03, -04 **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.								

	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	January	Sensitive Species (annually)	Partially built- out	The County provided a PAR for the developer to review. Discussions with the developer will continue in 2024.
APNs: 265-320-25, 267-060-48, -49 **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.								
9	PDS2008-3914-02-003	Maranatha Chapel	Oct-2002	None	December	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 2024.
APN: 267-060-37, Portion of 267-060-38 **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.								
10	PDS2008-3914-03-002	El Apajo	Jun-2003	None	December	Avian and Amphibian (annually) Floral Inventory (every 5 years)	Built-out	Discussions with County Counsel regarding enforcement options will continue in 2024.
APN: 268-360-15 **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.								
11	PDS2010-3914-05-004	Greenhills Ranch	Sep-2006	Habitat Restoration Sciences	January	CAGN (every 2 years) San Diego Cactus Wren (every 2 years)	Built-out	2023-2024 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. A majority of the site is Diegan coastal sage scrub habitat. The Preserve supports the San Diego cactus wren, California gnatcatcher, southern California rufous-crowned sparrow, and southern mule deer.								
12	PDS2009-3914-06-005	Artesian Trail	Apr-2007	San Dieguito River Park Conservancy	September	Thread-leaf Brodiaea (annually)	Built-out	Discussions with County Counsel regarding enforcement options will continue in 2024.
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*).								

	RMP Number	RMP Name	RMP Date	Habitat Manager	Annual Report Due	Surveys[1]	Project Status	Monitoring/Maintenance Status
13	PDS2012-3914-11-002	Lonestar	Dec-2011	San Diego Habitat Conservancy	February	Sensitive Plant Species (every 5 years) CAGN (2 out of every 5 years) Fairy Shrimp (2 out of every 5 years)	Built-out	2023-2024 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:** The Lonestar biological open space is comprised of approximately 62 acres and is located in the northwest corner of the intersection at Lonestar Road and Harvest Road, just east of State Route 125 in Otay Mesa. It consists of about 59 acres of non-native grassland and 3 acres of Diegan coastal sage scrub in East Otay Mesa. The open space supports the Otay tarplant and the burrowing owl.								
14	PDS2014-RMPM-10-003	East Otay Mesa	Feb-2012	Open Space Management, Inc.	January	CAGN (every 3 years) BUOW (annually) Raptor (annually) QCB (every 3 years) Sensitive Plant (every 3 years)	Built-out	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: 648-050-20, 648-011-06, Portions 648-040-31, 648-040-55, 648-040-57 **Habitat Conservation Area Description:** The East Otay Mesa biological open space is comprised of 92 acres located on the west and east sides of Alta Road north of Calzada de la Fuente in East Otay Mesa. It includes 55 acres of Diegan coastal sage scrub, 23 acres of non-native grassland, as well as chaparral and some disturbed habitat. The open space supports the San Diego barrel cactus, coastal California gnatcatcher, southern California rufous-crowned sparrow, norther harrier, California horned lark, and southern mule deer.								
15	PDS2015-RMPM-12-002	Sloane Canyon	Nov-2013	Open Space Management, Inc.	February	Plant and Animal Spec*ies (every 3 years)*	Built-out	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APN: 521-080-11 **Habitat Conservation Area Description:** The Sloane Canyon open space is comprised of 39.18 acres on Sloane Canyon Road in Jamul. It includes approximately 5 acres of riparian woodland, 5 acres of Diegan coastal sage scrub, 10 acres of Diegan coastal sage scrub/chaparral, 17 acres of southern mixed chaparral, and 1 acre of disturbed habitat. The open space supports the orange-throated whiptail.								
16	PDS2015-RMPM-12-003	High Meadow Ranch (Trevi Hills)	Feb-2013	Open Space Management, Inc.	February	Lakeside Ceanothus (every 5 years)	In process	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: 389-071-17, 389-101-01, -02, -03, 389-072-03, 389-102-01, -02, 389-020-12 **Habitat Conservation Area Description:** The open space is approximately 350 acres off Muth Valley Road and High Meadow Road. It consists of 166.4 acres of Diegan coastal sage scrub, 162 acres of southern mixed chaparral, 2.3 acres of scrub oak chaparral, 25 acres of coast live oak woodland, 1.3 acres of oak riparian forest, and 0.5 acres of disturbed/developed habitat. The open space provides for the long-term conservation of intact southern mixed chaparral habitat and the Lakeside ceanothus or Lakeside wild lilac (*Ceanothus cyaneus*), as well as the coastal California gnatcatcher, norther harrier, golden eagle, southern California rufous-crowned sparrow, San Diego horned lizard, orange-throated whiptail, southern mule dee, and Cooper's hawk.								

	RMP Number	RMP Name	RMP Date	Habitat Manager	Annual Report Due	Surveys[1]	Project Status	Monitoring/Maintenance Status
17	PDS2016-RMP-16-004	Otay Crossings Commerce Park	Aug-2017	San Diego Habitat Conservancy	January	BUOW (annually) QCB (every 3 years) Fairy Shrimp (2 out of every 5 years) Sensitive Plant (varies)	In process	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: 648-071-15, 648-080-31, 648-080-32 **Habitat Conservation Area Description:** The Otay Crossing Commerce Park on-site biological open space is comprised of 24.3 acres and is located southeast of the intersection of Otay Mesa and Alta Road, just north of the U.S./Mexico border. 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. The open space supports the Otay tarplant, San Diego barrel cactus, variegated dudleya, San Diego fairy shrimp, Riverside fairy shrimp, burrowing owl, and norther harrier.								
18	PDS2019-RMP-19-004	OMC	Mar-2019	Urban Corps of San Diego County	January	Burrowing Owl (annually)	Graded	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: 646-080-34 **Habitat Conservation Area Description:** This preserve is comprised of 16.08 acres and is located north of Otay Mesa Road and west of Alta Road. It consists of non-native grassland and supports the Otay tarplant.								
19	PDS2018-RMP-18-002	Sweetwater Vistas	May-2021	San Diego Habitat Conservancy	January	CAGN (every 5 years) LBV (every 5 years)	Time Extension – In Review	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: 505-672-07, 09, 10 and partial of 505-672-03,23,37 **Habitat Conservation Area Description:** The Sweetwater Vistas biological open space is comprised of 28.8 acres and is located north of Sweetwater Reservoir. It includes 0.02 acres of disturbed wetland, 1.17 acres of cismontane alkali marsh, 0.03 acres of freshwater marsh, 0.33 acres of mule fat scrub, 3.75 acres of southern willow scrub, 0.22 acres of tamarisk scrub, 0.31 acres of non-native riparian, 0.49 acres of Arundo-dominated riparian, 16.8 acres of Diegan coastal sage scrub, 2.7 acres of non-native grassland, 0.8 acres of disturbed, 0.6 acres of eucalyptus woodland, 1.4 acres of non-native vegetation, and <0.1 acres of urban/developed habitat. The open space supports the Copper's hawk, California gnatcatcher, least Bell's vireo, and the northern harrier.								

	RMP Number	RMP Name	RMP Date	Habitat Manager	Annual Report Due	Surveys[1]	Project Status	Monitoring/Maintenance Status
20	PDS2016-RMP-16-005	Otay Crossings Off-Site (Lonestar Ridge)	Aug-2017	San Diego Habitat Conservancy	December	QCB (1 out of every 3 years) QCB Host Plant (1 out of every 3 years) BUOW (annually) Fairy Shrimp (annually) Otay tarplant (annually) Variegated dudleya (twice annually) San Diego button-celery (twice annually) Decumbent goldenbush (every 5 years) Graceful tarplant (every 5 years) San Diego barrel cactus (every 5 years)	Built-out	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: 646-030-26, 646-070-38 **Habitat Conservation Area Description:** The biological open space is 82 acres and is located in the northern portion of Otay Mesa. It consists of 74.5 acres of non-native grassland, 7.2 acres of coastal sage scrub, 0.24 acres of vernal pools, and 0.07 acres pond. The site supports San Diego button-celery, Otay tarplant, variegated dudleya, San Diego barrel cactus, San Diego fairy shrimp, burrowing owl, and Quino checkerspot butterfly.								
21	PDS2021-RMP-21-003	Hillside Meadows	Sept-2022	Urban Corps of San Diego County	January	None	In Process	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: 379-030-31 (partial) **Habitat Conservation Area Description:** The biological open space is 3.13 acres and is located in Lakeside. It consists of 1.35 acres of southern willow scrub/mulefat scrub, 0.75 acres of wet meadow, 0.66 native upland buffer, and 0.18 acres of freshwater marsh habitat. The site supports the Cooper's hawk, California rufous-crowned sparrow, California gnatcatcher, and orange throated whiptail.								
22	PDS2021-RMP-21-005	International Industrial Park Upland	Jul-2022	Urban Corps of San Diego County	December	BUOW (annually)	In Process	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: 648-040-20, -25, 646-080-34, -35 **Habitat Conservation Area Description:** The biological open space is 5 acres and is located north of Otay Mesa Road and west of Alta Road. It is dominated by non-native grassland habitat with remnant trails and scattered patches of exotic forbs present. The site has the potential to support the burrowing owl and northern harrier.								

	RMP Number	RMP Name	RMP Date	Habitat Manager	Annual Report Due	Surveys[1]	Project Status	Monitoring/Maintenance Status
23	PDS2021-RMP-21-005	International Industrial Park Wetland	Jul-2022	Urban Corps of San Diego County	January	None	In Process	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: 648-040-20, -25, 646-080-34, -35 **Habitat Conservation Area Description:** The biological open space is 8.4 acres and is located north of Otay Mesa Road and west of Alta Road. It consists of unvegetated streambed/channel, non-native tamarisk scrub habitat, non-native grassland, and disturbed habitat areas. This site has the potential to support the northern harrier.								
24	PDS2022-RMP-22-001	Pinnacles at Santa Fe Valley Preserve	Jan-2023	Endangered Habitats Conservancy	January	CAGN (every 5 years)	In Process	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: 678-020-25, 678-060-41, -42 **Habitat Conservation Area Description:** The biological open space is 26.04 acres and is located on unincorporated lands within the Lake Hodges area. It includes 20.93 acres of Diegan coastal sage scrub, 2.63 acres of chamise chaparral, 2.14 acres of southern mixed chaparral, 0.13 acres of mulefat scrub, 0.11 acres of freshwater marsh, and 0.09 acres of disturbed habitat. The site supports the wart-stemmed ceanothus, San Diego barrel cactus, and the California gnatcatcher.								
25	PDS2022-RMP-22-004	Hawano	Dec-2022	San Diego Habitat Conservancy	January	BUOW (3 times annually)	In Process	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: 646-080-20, -21 **Habitat Conservation Area Description:** The biological open space is 33.1 acres and is located on Otay Mesa, east of State Route 125 and north of Otay Mesa Road. It includes 32.3 acres of non-native grassland and 0.8 acres of disturbed habitat. The site supports Parry's tetracoccus, San Diego fairy shrimp, burrowing owl, San Diego ringneck snake, southern California rufous-crowned sparrow, northern harrier, and Thorne's hairstreak.								
26	PDS2023-RMP-23-001	Quail Canyon	Feb-2023	Habitat Restoration Sciences	January	None	In Process	2023-2024 report was submitted and reviewed by county staff, no major concerns.
APNs: 393-022-15 **Habitat Conservation Area Description:** The Quail Canyon biological open space is comprised of 171.64 acres and is located on the north side of a low ridge that forms the south side of the San Diego River Valley. It includes 171.64 acres of Diegan coastal sage scrub, 0.90 acres of coastal sage-chaparral scrub, 4.13 acres of Southern coastal live oak riparian forest, 5.02 coast live oak woodland, and 18.03 other and blue line stream. The site supports rufous-crowned sparrow, Cooper's hawk, coast horned lizard, orange-throated whiptail, and northern harrier.								

	RMP Number	RMP Name	RMP Date	Habitat Manager	Annual Report Due	Surveys[1]	Project Status	Monitoring/Maintenance Status

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

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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		• Less than 1/2 acres Artichoke thistle	• Weekly patrolling • Minimal trash removal		
4S Ranch Specific Plan	Reporting		• Fennel • Artichoke Thistle • Tamarisk • Stinkwort • Pampas grass • Black mustard • Tree tobacco • Eucalyptus • Castor bean	• Regular trash removal • Repaired/replaced signs and fencing • Vandalism was reported and addressed by the property manager		
Golem	Reporting	• Native forests in riparian areas • Sticky dudleya seed will be planted	Coastal Sage/Riparian • Weed removal Floodplain • Fountain grass • Eucalyptus has been eradicated	• Almost daily patrols • Daily security guard at front entrance • Graffiti removal • Closed illegal access to CAGN habitat		• Engaged 98 students • Outreach with trail users
Starwood (Crosby)	Reporting	Upland Habitat • Half the planted native plants survived from previous years Chaparral Habitat • Native plants from previous years showed signs of healthy growth	• Perennial Weed • American Bullfrog • Brown-headed cowbird	• Coordination with Sheriff departments to address increased unauthorized use and vandalism • Trash removed	• Defensible space maintained	• Regular website updates • Presented at the California Society for Ecological Restoration

Preserve	Status	Habitat Restoration	Invasive Species Control	Access Control, Trail and Infrastructure Installation and Maintenance	Fire Management	Environmental Education
Woodridge	Reporting	• 50 cholla and 40 coastal prickly pears propagated in pots	• 1,000 shortpod mustard • Several stinkwort • 18 olive trees • 1 tamarisk tree • 200 brittlebush	• Weekly to bi-weekly patrols to prevent vandalism and illegal activities • Repaired off-trail damage • Installed fencing and signs • Minimal trash removed	• Fuel zones maintained and thinned no more than 50%	• Kiosk materials updated periodically • Outreach with trail users
Blossom Valley	Reporting		• 100 tree tobacco • 200 Sahara mustard • 50 Russian thistle • Several fountain grass and natal	• Biweekly patrols • Minimal trash removed		• Outreach with trail users • Kiosk at Flume Trail
McCrink Ranch	Non-Reporting					
Maranatha Chapel	Non-reporting					
El Apajo	Non-reporting					
Greenhills Ranch	Reporting		• Non-native annual grasses • Mustard • Tocalote	• Quarterly patrols • 7 maintenance visits • Minimal trash removed • 4 trespassing signs installed		• Coordination with HOA
Artesian Trail	Non-reporting					

Preserve	Status	Habitat Restoration	Invasive Species Control	Access Control, Trail and Infrastructure Installation and Maintenance	Fire Management	Environmental Education
Lonestar	Reporting	• Coordination with the Native Seed Bank and San Diego Zoo Wildlife Alliance to improve habitat for Otay tarplant • Line trimming and mowing to improve burrowing owl habitat	• Black mustard • Milk thistle • Tocalote • Fennel • Prickly lettuce	• Monthly visits • Found damaged fencing • Trash removed along eastern edge		• Attended the San Diego County Burrowing Owl Management meeting • Coordination with San Diego Zoo Wildlife Alliance for burrowing owl management
East Otay Mesa	Reporting		• Pampas grass • Fennel • Artichoke thistle	• 12 site visits • Fencing was repaired and new signage was added • Minimal trash removed		• Communication with adjacent property owner regarding encroachments
Sloane Canyon	Reporting		• Monitoring of invasives: Arundo	• Biannual patrols • Minimal trash removed		• Communication with adjacent property owner regarding brush clearing limits
High Meadow Ranch (Trevi Hills)	Reporting		• Tamarisk • Stinkwort • Mustard • Tocalote	• Patrolled quarterly • 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		• Australian saltbrush • Black mustard • Cheeseweed • Non-native grasses • Shortpod mustard • Fennel • Crown daisy • Milk thistle • Pricky lettuce • Sow thistle • Tocalote • Russian thistle • Ice plant	• Monthly patrols • Minimal trash removed • Fencing repaired on the north parcel		
OMC	Reporting		• Australian saltbush • Black mustard • Artichoke thistle • Fennel • Shortpod mustard • Russian thistle • Tree tobacco	• 12 general site visits • Coordinated with the San Diego County's Sheriff's Off-Road Enforcement team • Large trash items removed		
Sweetwater Vistas	Reporting		• Mustard • Castor bean • Fountain grass • Salt cedar • Fennel • Palm seedlings	• Monthly patrols • Removed trash • Graffiti on rocks		

Preserve	Status	Habitat Restoration	Invasive Species Control	Access Control, Trail and Infrastructure Installation and Maintenance	Fire Management	Environmental Education
Otay Crossings Off-Site (Lonestar Ridge)	Reporting		• Invasive grasses • Tocalote • Shortpod • Black mustard • Russian thistle • Stinkwort • Tree tobacco • Fennel	• Monthly visits • Repaired fencing along the southern boundary		
Hillside Meadows	Reporting		• Crown daisy • Shortpod mustard	• Quarterly visits • Off-road vehicle activity • 2 extra site visits to remove trash		
International Industrial Park Upland	Reporting		• Non-native grasses • Black mustard • Artichoke thistle • Shortpod mustard • Russian thistle • Tree tobacco	• Monthly site visits • Trash was removed		
International Industrial Park Wetland	Reporting		•	• Quarterly visits		
Pinnacles at Santa Fe Valley	Reporting		• 8 acres of artichoke thistle eradicated • Russian thistle • Tocalote • Black mustard • Scarlet pimpernel • Stinkwort	• Replaced fencing along eastern border • New signage added • Removed trash • 1 off-road motorcyclist and 2 dog walkers		

Preserve	Status	Habitat Restoration	Invasive Species Control	Access Control, Trail and Infrastructure Installation and Maintenance	Fire Management	Environmental Education
Hawano	Reporting	• Selective mowing around the 12 artificial burrows	• Black mustard • Sweetclover • Australian saltbush • Bristly ox-tongue • Fennel • Garland daisy • Horehound • Russian thistle • Shortpod mustard • Stinkwort • Tocalote	• Monthly site visits • Illegal dumping along the two roads along the boundary		• Coordination is planned for the adjacent landowners and residents • Interns from UC San Diego, San Diego State University, and Mira Costa College, and volunteers removed invasive plants and trash
Quail Canyon	Reporting		• Invasive and non-native plant species	• Ongoing unauthorized access and gates will be installed		

APPENDIX N

Annual Report for the Otay Ranch Preserve, Johnson Canyon Otay Tarplant Preserve, and Piper Ranch

January 1 – December 31, 2024

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Annual Report for the Otay Ranch Preserve, Johnson Canyon Otay Tarplant Preserve and Piper Ranch
January 1–December 31, 2024

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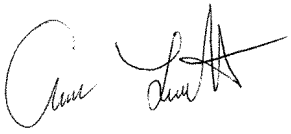

Anna Leavitt, Senior Biologist

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Acronyms and Abbreviations

APN	assessor parcel number
ATV	all-terrain vehicle
BHCO	Brown-headed cowbird
Cal-IPC	California Invasive Plant Council
CACW	coastal cactus wren
CAGN	coastal California gnatcatcher
CDFW	California Department of Fish and Wildlife
CFD	Community Facilities District
City	City of Chula Vista
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	County of San Diego
DTSC	California Department of Toxic Substances Control
EMP	Environmental Mitigation Program
FUDS	Formerly Used Defense Site
FY	Fiscal Year
GPS	global positioning system
GSOB	gold-spotted oak borer
IMG	Inspect and Manage
ISHB	Invasive shot hole borer
LBVI	least Bell's vireo
MSP	Management and Monitoring Strategic Plan
MSCP	Multiple Species Conservation Program
Plan	Habitat Restoration Plan
POM	Preserve Owner/Manager (City and County)
Preserve	Otay Ranch Preserve
project	Otay Ranch Preserve Enhancement Project
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
SDMMP	San Diego Management and Monitoring Program
SDNHM	San Diego Natural History Museum
SR-125	State Route 125
USDC	U.S. Department of Commerce
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
V8E	Village 8 East
YBCU	yellow-billed cuckoo

1.0 Introduction

The purpose of the 2024 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 2024 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. No activities were performed on the Piper Ranch parcels during 2024. 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, 2024, 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 parcel number (APN) 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. No new parcels were conveyed in 2024.

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, 2024 and December 31, 2024.

Table 1 Conveyed Preserve Parcels, Assessor's Parcel Numbers, and Acreages as of December 2024		
Parcel(s)	Assessor Parcel Number (APN)	Acreage
Bonita Glen	598-080-10[a]	2.189
Dulzura	598-160-17, 598-170-18, 647-050-06, 647-060-03, 647-060-05[b]	801.018
Salt Creek	643-070-08, 643-070-16[c], 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[d]	275.286
Ridge	598-140-04, 598-140-05	270.000
Jamul Mountains	598-070-08, 598-070-10[e]	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[f]	160.000
Northern Salt Creek	643-070-14	149.758[g]
Northern San Ysidro	647-090-07[h]	118.500
Proctor Valley (North)	597-150-16[i]	82.381
Proctor Valley (South)	598-020-05	40.000
Western Wolf Canyon	644-313-13, 644-313-14[j], 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[l]	21.500
Piper Ranch[m]	646-030-27, 646-030-33	11.900
TOTAL		**4,373.428**

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.

[a]Previous APN 598-080-05.
[b]Previous APNs 598-160-14, 598-170-04, 647-050-04, 647-060-01.
[c]Previous APN 643-070-10.
[d]Previous APN 598-08-002.
[e]Previous APNs 598-070-05, 598-070-06.
[f]Previous APNs 647-110-01, 647-120-01.
[g]Northern Salt Creek total acreage increased by 1.161 acres due to conveyance of Parcels A through E within the Parcel during 2022.
[h]Previous APN 647-090-04.
[i]Previous APN 597-150-06.
[j]Previous APN 646-030-31.
[k]Previous APN 644-313-12.
[l]The current APN is provided along with the original grant deed acreage from APN 644-313-07.
[m]A separate CFD will be established in the future.

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**

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.

[1]Funded by CFD 11M. Management and monitoring activities performed in accordance with the Otay Ranch Resource Management Plan (Helix Environmental Planning 2003).

Conveyed Land Under POM Management

FIGURE 1
Regional Location of Otay Ranch Preserve, Johnson Canyon Otay Tarplant Preserve, and Piper Ranch

RECON

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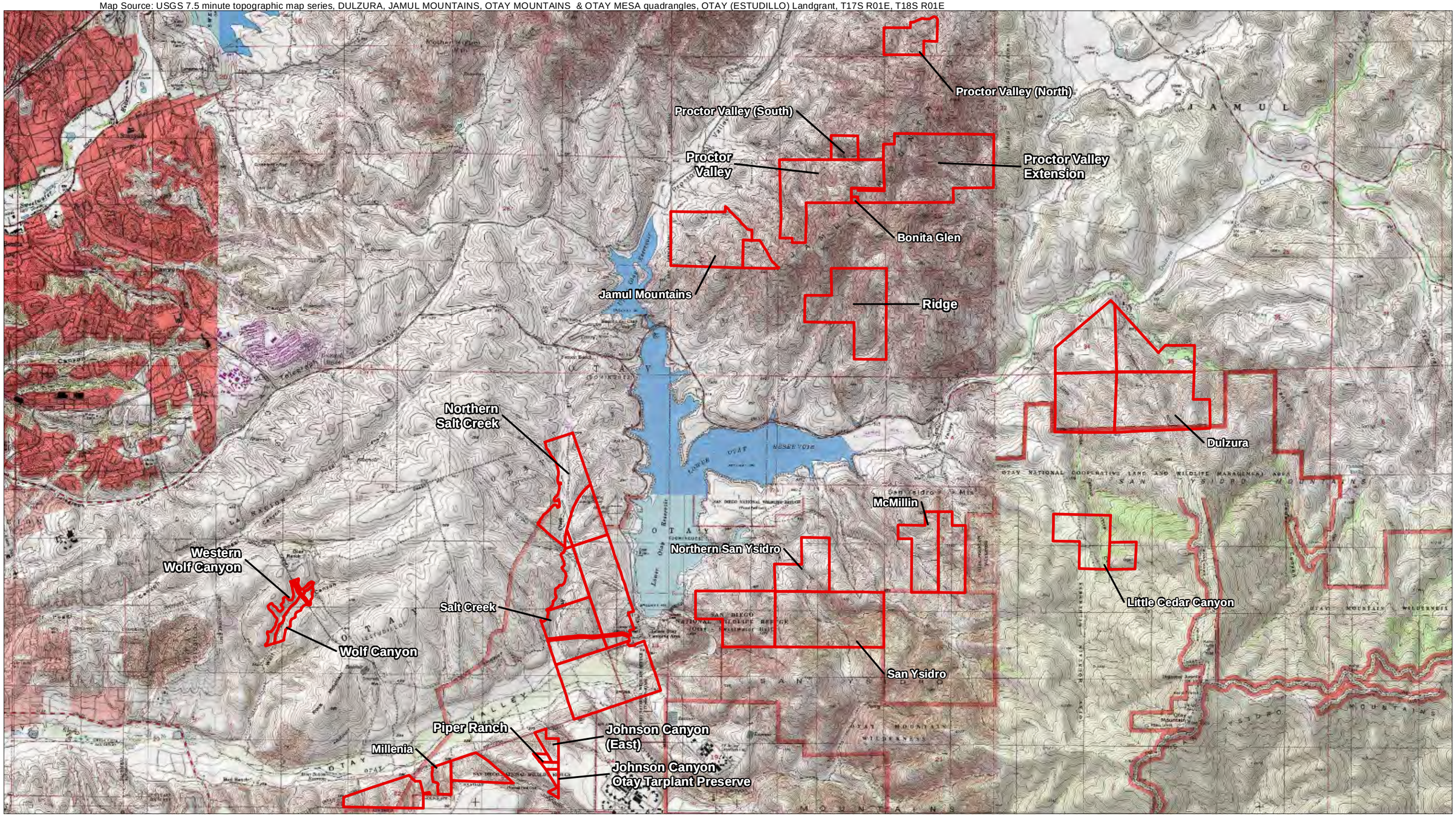
Map Source: USGS 7.5 minute topographic map series, DULZURA, JAMUL MOUNTAINS, OTAY MOUNTAINS & OTAY MESA quadrangles, OTAY (ESTUDILLO) Landgrant, T17S R01E, T18S R01E



Conveyed Land Under POM Management

FIGURE 2
Otay Ranch Preserve, Johnson Canyon Otay Tarplant Preserve, and Piper Ranch Location on USGS Map

RECON

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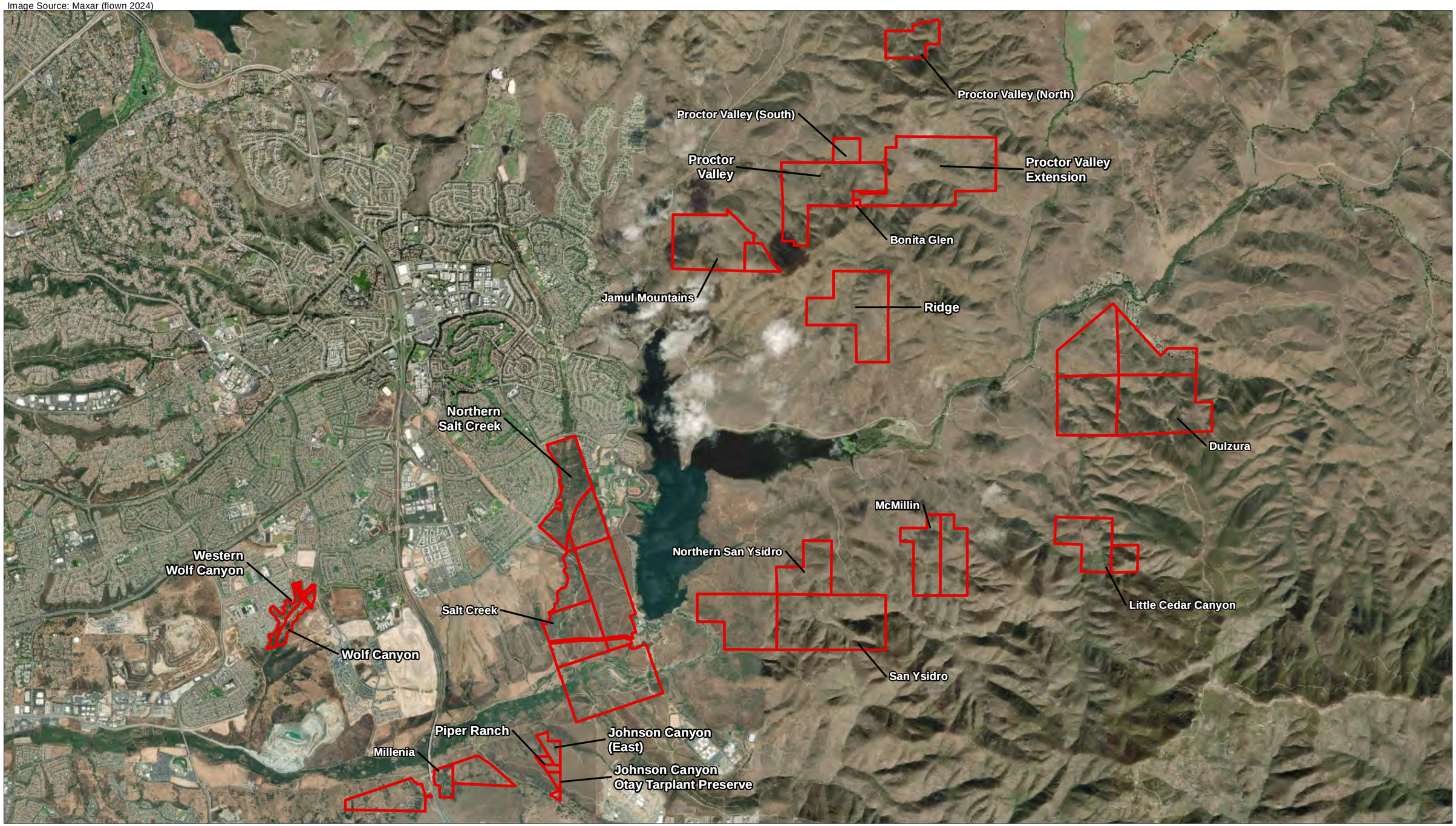
Image Source: Maxar (flown 2024)



0 Feet 4,000

Conveyed Land Under POM Management

RECON

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FIGURE 3
Otay Ranch Preserve, Johnson Canyon Otay Tarplant Preserve, and Piper Ranch on Aerial Photograph

2.0 Preserve Monitoring

This chapter describes Preserve monitoring tasks that occurred between January 1 and December 31, 2024. These Preserve monitoring tasks were proposed in the Fiscal Year (FY) 2023–24 annual work plan and FY 2024–25 annual work plan (RECON 2023a and 2024a). The headings used within this annual report match the associated task numbers in the FY 2023–24 and FY 2024–25 annual work plans. Attachment 1 includes Figures 4 through 57. Attachment 2 includes Photographs 1 through 57.

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): seed collection and redistribution, Hermes copper butterfly (*Lycaena hermes*) surveys, invasive shot hole borer (*Euwallacea* sp.; ISHB) tree health surveys and native shrub dieback surveys, wet season fairy shrimp surveys, focused rare plant surveys, golden eagle (*Aquila chrysaetos*) camera surveys, Quino checkerspot butterfly (*Euphydras editha quino*; QCB) surveys, vegetation mapping, photographic monitoring, coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*) surveys, vegetation rapid assessment monitoring, vernal pool plant monitoring, least Bell's vireo (*Vireo bellii pusillus*; LBVI) and yellow-billed cuckoo (*Coccyzus americanus occidentalis*; YBCU) surveys, gold-spotted oak borer (*Agrilus auroguttatus*) monitoring, and western spadefoot (*Spea hammondii*) surveys. The Preserve monitoring tasks also included land stewardship consisting of site visits, meetings and coordination, and reporting.

2024 Weather Summary

The total rainfall for the 2023-2024 season was higher than normal by 4.39 inches. Between July 1, 2023, and June 30, 2024, rainfall at Brown Field (the closest reporting station) was 14.62 inches (Table 3 and Graph 1; U.S. Department of Commerce [USDC] 2024a). At Brown Field, normal rainfall during this time period is approximately 10.23 inches based on rainfall data collected between 1991 and 2020 (USDC 2024b). The entire rainy season (October 2023 through April 2024) was higher than normal with rainfall of approximately 12.84 inches. According to the U.S. National Weather Service (2025), January 22, 2024 ranked as the wettest day on record in January and the fourth overall wettest day on record in San Diego with 2.73 inches recorded. San Diego's Lindbergh reporting station recorded 1.26 inches of rain on March 30, 2024 breaking the old wettest day on record for March of 1.00 inch in 1946. The above-average rain events from January through March 2024 resulted in high germination rates of annual species during spring.

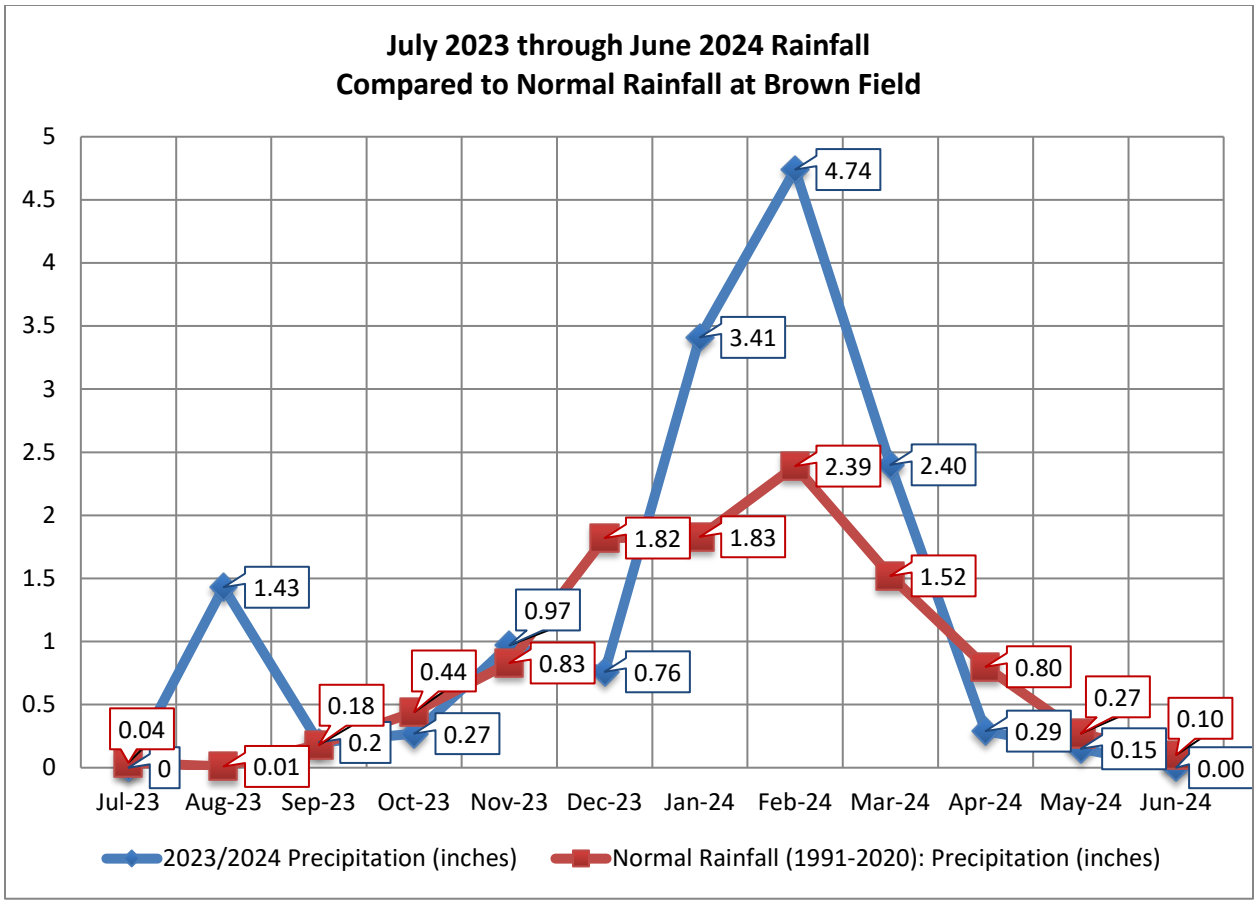
Temperatures were above normal during 6 of 12 months between July 2023 and June 2024 (Table 4; Graph 2). Of those months that had above average maximum temperatures, three months were above average by 2.2 (July), 4.5 (November), and 3.8 (December) degrees Fahrenheit (see Table 4 and Graph 2). Generally, it was warmer at Brown Field between June 2023 and December 2023 and cooler between January 2024 and May 2024 compared to the normal maximum temperature based on data collected between 1991-2020 (USDC 2024b). In 2024, February and March were below average at least 2.0 degrees Fahrenheit. The above average rainfall and generally lower than average temperatures from January through May led to favorable conditions for extended vernal pool

ponding and unfavorable conditions for late blooming species such as Otay tarplant (*Deinandra conjugens*) during the spring and summer of 2024.

Table 3
July 2023 through June 2024 Rainfall
Compared to Normal Rainfall

Month	Precipitation (inches)[1]	Normal Rainfall: Precipitation (inches)[2]	Difference (inches)
2023			
July	0	0.04	-0.04
August	1.43	0.01	+1.42
September	0.2	0.18	+0.02
October	0.27	0.44	-0.17
November	0.97	0.83	+0.14
December	0.76	1.82	-1.06
2024			
January	3.41	1.83	+1.58
February	4.74	2.39	+2.35
March	2.40	1.52	+0.88
April	0.29	0.8	-0.51
May	0.15	0.27	-0.12
June	0.00	0.1	-0.10
GRAND TOTAL	**14.62**	**10.23**	**+4.39**

[1]SOURCE: USDC 2024a.
[2]SOURCE: USDC 2024b. Average based on Period of Record from 1991-2020.

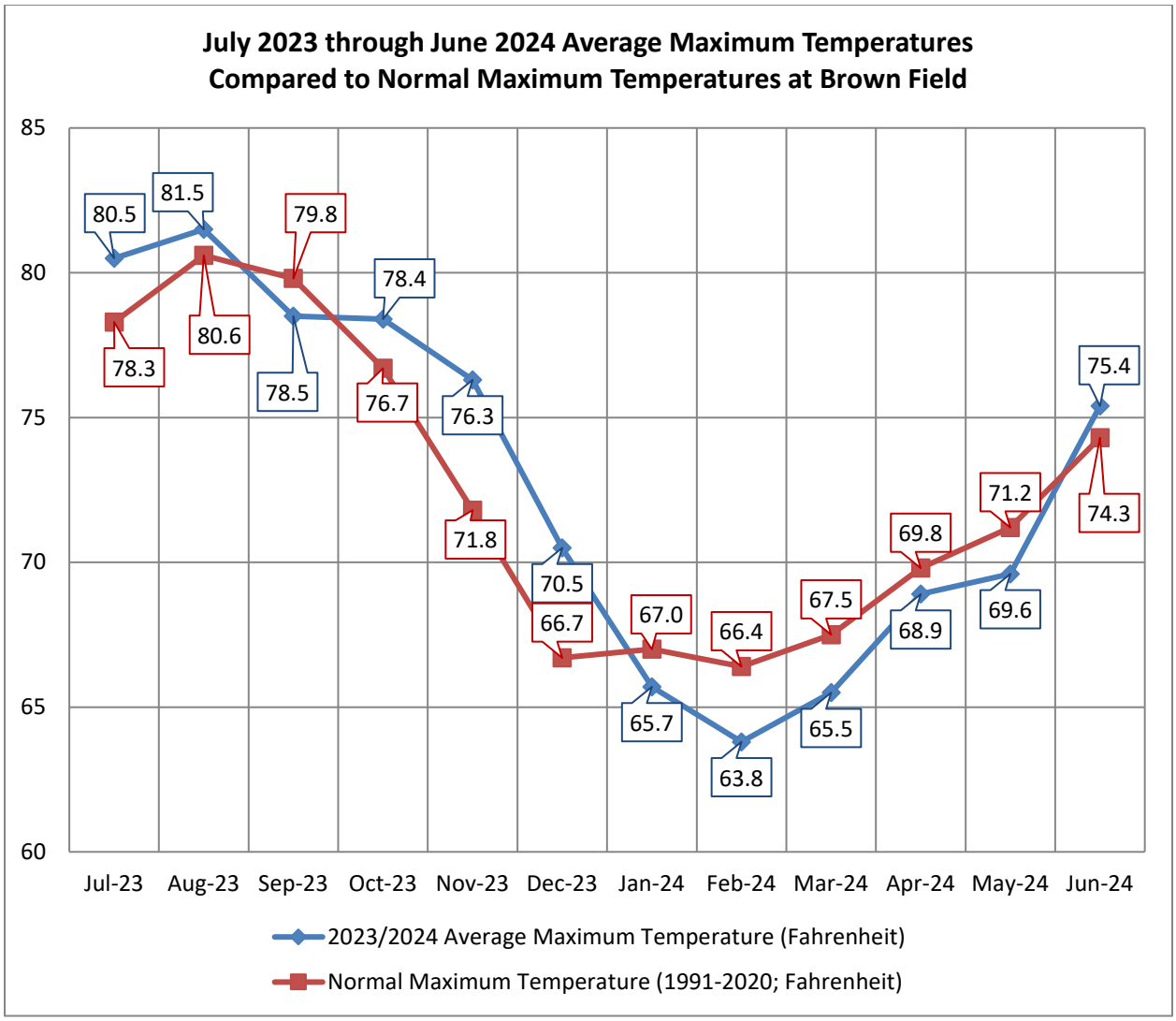


GRAPH 1
July 2023 through June 2024 Rainfall Compared to Normal Rainfall at Brown Field

Table 4
July 2023 through June 2024 Average Maximum Temperatures
Compared to Normal Maximum Temperatures

Month	Average Maximum Temperature (Fahrenheit)[1]	Normal Maximum Temperature (Fahrenheit)[2]	Difference (Fahrenheit)
2023			
July	80.5	78.3	+2.2
August	81.5	80.6	+0.9
September	78.5	79.8	-1.3
October	78.4	76.7	+1.7
November	76.3	71.8	+4.5
December	70.5	66.7	+3.8
2024			
January	65.7	67.0	-1.3
February	63.8	66.4	-2.6
March	65.5	67.5	-2.0
April	68.9	69.8	-0.9
May	69.6	71.2	-1.6
June	75.4	74.3	+1.1

[1]SOURCE: USDC 2024a.
[2]SOURCE: USDC 2024b.



GRAPH 2
July 2023 through June 2024 Average Maximum Temperatures
Compared to Normal Maximum Temperatures at Brown Field

Task 1: Surveys

Surveys conducted between January 1, 2024 and December 31, 2024 are discussed in the subtask sections below. The results of the QCB surveys, wet season fairy shrimp surveys, brown-headed cowbird trapping, and LBVI and YBCU surveys, are summarized in Section 4, Subtasks 4i (FY 2023-24), 4j (FY 2023-24), 4a (FY 2024-25), and 4c (FY 2024-25).

Subtask 1a. (FY 2023-24 and FY 2024-25) Seed Collection and Redistribution

On January 26 and 31, seed from QCB non-listed nectar plant species common goldfields (*Lasthenia gracilis*) was dispersed within suitable habitat on open mesa tops at Salt Creek parcels (Figure 4). On May 1, seed from non-listed host plant species purple owl's clover (*Castilleja exserta* ssp. *exserta*) was collected from Salt Creek parcels for future redistribution at Millenia parcels. On December 23, seed from common goldfields, purple owl's clover, and dot-seed plantain (*Plantago erecta*) was dispersed/redistributed within suitable habitat on open mesa tops at the Millenia parcels (see Figure 4).

On May 13 and June 4 and 14, seed from non-listed plant species needle grass (*Stipa* spp.) and cryptantha (*Cryptantha* sp.) that support prey arthropod species for coastal cactus wren, as well as California centaury (*Zeltnera venusta*), was collected from Salt Creek parcels for future redistribution within select coastal cactus wren habitat at Salt Creek parcels. On December 20, seed from non-listed plant species, including needle grass, littleseed muhly (*Muhlenbergia microsperma*), and wild-heliotrope (*Phacelia distans*), were dispersed/redistributed at Salt Creek parcels within suitable habitat for coastal cactus wren (see Figure 4).

On September 23, Otay tarplant seed was collected from Millenia parcels and stored in paper bags for later dispersal at Johnson Canyon Otay Tarplant Preserve. On December 9, Otay tarplant seed was dispersed at Johnson Canyon Otay Tarplant Preserve within suitable habitat, adjacent to previous Otay tarplant observed locations (see Figure 4).

Subtask 1b. (FY 2023-24) Hermes Copper Butterfly (*Lycaena hermes*)

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 Jamul Mountains, Little Cedar Canyon, McMillin, Northern San Ysidro, Proctor Valley Extension, Proctor Valley (North), Proctor Valley (South), Ridge, Salt Creek, and San Ysidro parcels. The PSB visited select areas within previously mapped host plant spiny redberry locations, mapped additional observations of spiny redberry, and recorded the proximity to California buckwheat (*Eriogonum fasciculatum*) on the dates and locations listed in Table 5. Spiny redberry locations mapped in 2024 are shown on Figures 5 and 6. No Hermes copper butterfly was detected during the surveys. Survey dates, personnel, and weather conditions are shown in Table 5.

Table 5
Hermes Copper Butterfly Survey Dates, Personnel, Times, and Conditions for the Otay Ranch Preserve–Jamul Mountains, Little Cedar Canyon, McMillin, Northern San Ysidro, Proctor Valley Extension, Proctor Valley (North), Proctor Valley (South), Ridge, Salt Creek, and San Ysidro Parcels

Date	Parcel(s)	Surveyors	Beginning Conditions	Ending Conditions
06/05/2024	Jamul Mountains	J. Sundberg K. Valenti	12:40 p.m.; 85°F; 5% cc; winds 2-6 mph	3:00 p.m.; 80°F; 0% cc; winds 0-3 mph
06/07/204	Proctor Valley Extension	K. Valenti A. Leavitt	11:20 a.m.; 76°F; 5% cc; winds 0-4 mph	1:50 p.m.; 80°F; 5% cc; winds 1-4 mph
06/07/204	Proctor Valley (South)	K. Valenti A. Leavitt	1:55 p.m.; 80°F; 5% cc; winds 1-4 mph	2:10 p.m.; 80°F; 5% cc; winds 1-4 mph
06/14/2024	Salt Creek	J. Sundberg M. Mangrich	09:20 a.m.; 75°F; 0% cc; winds 0-1 mph	1:30 p.m.; 76°F; 0% cc; winds 5-10 mph
06/14/2024	Little Cedar Canyon	C. Defrenne E. Jones	10:00 a.m.; 71°F; 0% cc; winds 0-1 mph	3:00 p.m.; 80°F; 0% cc; winds 2-5 mph
06/17/2024	McMillin	J. Sundberg D. Gadia	9:40 a.m.; 74°F; 0% cc; winds 0 mph	2:30 p.m.; 82°F; 0% cc; winds 0-1 mph
06/18/2024	San Ysidro Northern San Ysidro	J. Sundberg D. Gadia	9:30 a.m.; 69°F; 5% cc; winds 0-4 mph	2:00 p.m.; 75°F; 0% cc; winds 4-8 mph
06/19/2024	Proctor Valley (North)	C. Thomson D. Gadia	9:00 a.m.; 66°F; 0% cc; winds 0-1 mph	3:30 p.m.; 78°F; 0% cc; winds 2-6 mph
06/20/2024	Ridge	J. Sundberg M. Mangrich	8:45 a.m.; 65°F; 5% cc; winds 4-6 mph	2:00 p.m.; 76°F; 0% cc; winds 2-5 mph

°F = degrees Fahrenheit; mph = miles per hour; % = percent; cc = cloud cover

Subtask 1d. (FY 2023-24) and Subtask 1c (FY 2024-25) Invasive Shot Hole Borer (*Euwallacea* sp.; ISHB) Tree Health Surveys & Native Shrub Dieback Surveys

Tree health surveys were conducted to document the effects of ISHB within riparian vegetation at the Northern Salt Creek, Salt Creek, and Wolf Canyon parcels, totaling a 61.19-acre survey area (Figure 7). Surveys were conducted at the end of spring as any lack of vigor would be obvious in the tree crown, and signs of the ISHB would be fresh and easier to see. Seven photo monitoring points established at Northern Salt Creek and Salt Creek parcels in 2021 within riparian areas with willow stands were revisited in February and May 2024. One riparian photo monitoring location with two photos facing opposite directions was established at Wolf Canyon in 2023 and was revisited in February and May 2024. Photograph 1 shows a representative riparian photo monitoring location. Tree health surveys consisted of a visual inspection of all willow trees for signs of ISHB and Fusarium Dieback such as ISHB entry/exit holes, frass, bark staining, sugary exudate, gumming, and branch die

back. Any trees with visible signs of potential ISHB infestation and/or potential Fusarium Dieback were mapped with a global positioning system (GPS) unit. No ISHB sign was observed, and no samples were collected in 2024. Table 6 lists the dates, parcels, tasks, and notes.

Table 6
Shot Hole Borer Tree Health Surveys and Native Shrub Dieback Surveys
Dates, Parcels, Task, and Notes

Date	Parcel(s)	Task	Notes
02/15/2024	Northern Salt Creek, Salt Creek, Wolf Canyon	Repeat photo monitoring	N/A
05/21/2024	Wolf Canyon	Tree health surveys and repeat photo monitoring	Beetles were collected for identification from one willow that did not exhibit die back. No ISHB sign observed.
05/21/2024	Wolf Canyon	Native shrub dieback survey	Dieback was observed on three different lemonade berry shrubs.
05/23/2024	Northern Salt Creek, Salt Creek	Tree health surveys; repeat photo monitoring; and native shrub dieback survey	No ISHB sign observed.

In addition, in May native shrub dieback surveys were conducted at the Northern Salt Creek, Salt Creek, and Wolf Canyon parcels. Figure 7 shows the monitoring location and three locations where dieback of three lemonade berry (*Rhus integrifolia*) shrubs was observed, two of which had cankers at Wolf Canyon parcels. Photograph 2 demonstrates the lemonade berry dieback observation. Table 6 above lists the survey dates and notes.

Subtask 1e. (FY 2023-24) Wet Season Fairy Shrimp Surveys

The PSB conducted protocol wet season fairy shrimp surveys in accordance with the U.S. Fish and Wildlife Service (USFWS) guidelines (USFWS 2017) under USFWS permit TE-797665 and in accordance with USFWS's approval for RECON's proposed deviation methods (RECON 2023b). Surveys were conducted with the assistance of RECON biologists Jade Woll and Chelsea Polevy, and City of San Diego biologist Frank Santana (Table 7). A hydrology check was conducted on January 25, 2024, following the first significant rainfall event, to determine the appropriate time to conduct the surveys. During the hydrology visit, 45 ponding features were mapped within the Millenia and Johnson Canyon (East) parcels. Surveys were initiated on February 16 following somewhat consecutive rainfall events that occurred up through February 10. The surveys continued weekly until all five surveys were conducted. Since the surveys are meant to inform future Otay Ranch Preserve management decisions and were not conducted in association with any proposed development or impacts, the surveys were terminated after five visits. Figures 8 and 9 show the ponding areas where surveys were conducted. Photograph 3 shows a ponded area at Millenia parcels.

Table 7
2023–2024 Wet Season Survey Dates, Personnel, Times, and Conditions for the Otay Ranch Preserve – Millenia and Johnson Canyon (East) Parcels

Parcel	Survey Visit Number	Date	Personnel	Time	Weather Conditions[1]
Millenia	1	02/16/2024	Kayo Valenti Anna Leavitt	9:30 a.m.–12:15 p.m.	60-63°F air temperature, 30-60% cloud cover, 0-6 mph winds
Johnson Canyon (East)	1	02/16/2024	Kayo Valenti Anna Leavitt	1:15 p.m.–3:15 p.m.	63-65°F air temperature, 30-60% cloud cover, 2-8 mph winds
Johnson Canyon (East)	2	02/23/2024	Kayo Valenti Jade Woll[2]	10:15 a.m.–1:00 p.m.	68-73°F air temperature, 15% cloud cover, 4-5 mph winds
Johnson Canyon (East)	2	02/23/2024	Anna Leavitt Frank Santana[3] Chelsea Polevy[4]	10:15 a.m.–1:00 p.m.	68-73°F air temperature, 15% cloud cover, 4-5 mph winds
Millenia	2	02/23/2024	Anna Leavitt	2:00 p.m.–3:40 p.m.	71-75°F air temperature, 10-20% cloud cover, 6-7 mph winds
Millenia	2	02/23/2024	Kayo Valenti	2:00 p.m.–3:40 p.m.	71-75°F air temperature, 10-20% cloud cover, 6-7 mph winds
Johnson Canyon (East)	3	03/01/2024	Kayo Valenti J.R. Sundberg	9:45 a.m.–11:45 a.m.	60-64°F air temperature, 10-15% cloud cover, 2-6 mph winds
Millenia	3	03/01/2024	Kayo Valenti J.R. Sundberg	12:10 p.m.–1:50 p.m.	65-66°F air temperature, 10-15% cloud cover, 6-8 mph winds
Millenia and Johnson Canyon (East)	4	03/08/2024	J.R. Sundberg	9:45 a.m.–3:00 p.m.	MD[5] air temperature, 5% cloud cover, 0-1 mph winds
Johnson Canyon (East)	5	03/15/2024	Kayo Valenti	11:00 a.m.–12:00 noon	61-62°F air temperature, 45% cloud cover, 0-2 mph winds
Millenia	5	03/15/2024	Kayo Valenti	1:00 p.m.–2:15 p.m.	63°F air temperature, 60-75% cloud cover, 0-6 mph winds

[1]°F = degrees Fahrenheit; % = percent; mph = miles per hour.
[2]RECON biologist Jade Woll assisted with the survey under direct supervision of the permitted biologist.
[3]City of San Diego biologist Frank Santana assisted with the survey under direct supervision of the permitted biologist.
[4]RECON biologist Chelsea Polevy assisted with the survey under direct supervision of the permitted biologist.
[5]MD = Missing data.

Subtask 1f. (FY 2023-24) Focused Rare Plant Surveys

Rare plant surveys focusing on annual and herbaceous and conspicuous perennial species were conducted in spring 2024, as well as baseline rare plant surveys at Bonita Glen. Rare plant monitoring was conducted in accordance with the Management and Monitoring Strategic Plan (MSP) using the Inspect and Manage (IMG) protocol for species identified by the MSP IMG management group as

priority species. Rare plant monitoring included conducting MSP IMG rare plant surveys, non-IMG rare plant census surveys, and baseline rare plant surveys (Table 8).

Table 8
Rare Plant Surveys
Dates, Locations, and Survey Type

Date	Location (Parcels)	Survey Type and Species
04/23/2024	Jamul Mountains	IMG – San Diego goldenstar
04/25/2024	Bonita Glen	Baseline Rare Plant Survey
04/25/2024	Dulzura	IMG – San Diego goldenstar
04/29/2024	Ridge	IMG – San Diego goldenstar
04/30/2024	Dulzura	IMG – San Diego goldenstar
05/02/2024	McMillin	IMG – San Diego goldenstar
05/03/2024	Salt Creek	IMG – San Diego goldenstar
05/07/2024	Proctor Valley (North)	Census Survey – Gander's pitcher sage
05/08/2024	Dulzura	IMG – San Diego goldenstar
05/09/2024	Little Cedar Canyon	IMG – San Diego goldenstar
05/09/2024	San Ysidro	IMG – San Diego goldenstar
05/10/2024	McMillin	IMG – San Diego goldenstar
05/14/2024	Northern Salt Creek	Census Survey – Snake Cholla
05/14/2024	San Ysidro	IMG – San Diego goldenstar
05/17/2024	Proctor Valley (North)	Census Survey – Dunn's mariposa lily
05/20/2024	Dulzura	IMG – San Diego goldenstar
05/21/2024	San Ysidro	IMG – San Diego goldenstar
05/24/2024	San Ysidro, Little Cedar Canyon	IMG – San Diego goldenstar
05/31/2024	San Ysidro	Census Survey – Dunn's mariposa lily
06/03/2024	Western Wolf Canyon	IMG – Otay tarplant
06/04/2024	Northern Salt Creek	IMG – Otay tarplant
06/06/2024	Millenia	IMG – Otay tarplant
06/07/2024	Proctor Valley	Census Survey – Gander's pitcher sage
IMG = Inspect and Manage		

Results of the 2024 MSP IMG rare plant surveys are shown in Table 9 and Figures 10 through 16. Representative photos are shown in Photographs 4 and 5.

Table 9
2024 Management Strategic Plan Inspect and Manage Rare Plant Survey Results

Common Name	Scientific Name	Parcel(s)	Estimated Number of Individuals	MSP IMG
San Diego goldenstar	*Bloomeria clevelandii*	DLZ	401,105	BLCL_3DUPA002_1
				BLCL_3DUPA002_2
				BLCL_3DUPA002_3
		JM	801	BLCL_3PRVA027_1
				BLCL_3PRVA027_2
		LCC	7,691	BLCL_3LCCP003_1
				BLCL_3LCCP003_2
		MCM	21,871	BLCL_3OTMT030_1
		RDG	10,122	BLCL_3ORPR040_1[a]
		SC	8,827	BLCL_3ORVA026_1
		SY	34,129	BLCL_3SYPA010_1
		SY	29,741	BLCL_3SYPA028_1
		SY	4,406	BLCL_3SYPA029_1
Otay tarplant	*Deinandra conjugens*	JCOTP	0	-[b]
		NSC	102	DECO13_3SCPA016_1
		WWC & WC	47	DECO13_3ORVA018_1
		MLLN	3	DECO13_3ORPR035_1
		MLLN	521	DECO13_3ORPR037_1

DLZ = Dulzura
JM = Jamul Mountains
JCOTP = Johnson Canyon Otay Tarplant Preserve
LLC = Little Cedar Canyon
MCM = McMillin
MLLN = Millenia
NSC = Northern Salt Creek
RDG = Ridge
SC = Salt Creek
SY = San Ysidro
WC = Wolf Canyon
WWC = Western Wolf Canyon
[a]Established Inspect and Manage (IMG) occurrence in 2024.
[b]An IMG plot was not established as no individuals were observed.

Non-IMG surveys focused on the Priority Group 1 species detailed in the work plan (FY 2023-24). Priority Group 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 (CNDDB) 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 (*Dudleya variegata*), 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 10 shows the results of the non-IMG focused rare plant surveys for Priority

Group 1 species. The focused rare plant survey results, including incidental rare plant observations, are shown in Figures 17 through 20. Representative photos are shown in Photographs 6 and 7.

Table 10
Non-IMG Focused Rare Plant Survey Results for Priority Group 1 Species

Parcel(s)	Priority Group	Common Name	Scientific Name	Number of Individuals
Northern Salt Creek	1	Snake cholla	*Cylindropuntia californica* var. *californica*	5
Proctor Valley	1	Gander's pitcher sage	*Lepechinia ganderi*	2
Proctor Valley (North)	1	Dunn's mariposa lily	*Calochortus dunnii*	228
		Gander's pitcher sage	*Lepechinia ganderi*	236
San Ysidro	1	Dunn's mariposa lily	*Calochortus dunnii*	357

The results of the rare plant survey at Bonita Glen are shown on Figure 19 and Table 11. The results supplemented the initial baseline survey results. Additional sensitive species that were incidentally observed are included in Table 11 and Figures 18 through 21.

Table 11
Incidental Rare Plant Observations*

Parcel(s)	Priority Group	Common Name	Scientific Name	Number of Individuals
Bonita Glen	4	San Diego viguiera	*Bahiopsis laciniata*	5
Dulzura	1	Variegated dudleya	*Dudleya variegata*	70
		Dunn's mariposa lily	*Calochortus dunnii*	173
		Gander's pitcher sage	*Lepechinia ganderi*	23
	4	Chaparral rein-orchid	*Piperia cooperi*	4
Jamul Mountains	3	Munz's sage	*Salvia munzii*	18
Little Cedar Canyon	4	Golden-ray pentachaeta	*Pentachaeta aurea* ssp. *aurea*	400
Millenia	4	San Diego needle grass	*Stipa diegoensis*	20
Proctor Valley	1	Variegated dudleya	*Dudleya variegata*	50
	4	California adder's-tongue	*Ophioglossum californicum*	4
Ridge	2	San Diego barrel cactus	*Ferocactus viridescens*	21
Salt Creek	1	Otay mesa mint	*Pogogyne nudiuscula*	5
	2	San Diego barrel cactus	*Ferocactus viridescens*	2
	4	Palmer's grapplinghook	*Harpagonella palmeri*	3
San Ysidro	1	Variegated dudleya	*Dudleya variegata*	1
	4	Golden-ray pentachaeta	*Pentachaeta aurea* ssp. *aurea*	110

*Observed incidentally during rare plant surveys, other focused surveys, or site visits and maintenance visits.

Subtask 1g. (FY 2023-24) and Subtask 1f. (FY 2024-25) Golden Eagle (Aquila *chrysaetos*) 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 12. In 2024, three cameras at Dulzura, seven cameras at McMillin, and two cameras at Ridge were left in place and monitored (Figure 22). In 2024, all cameras were monitored every two to three months until they were replaced with cellular service-connected solar powered wildlife cameras. Servicing cameras included checking on placement angles, checking for theft, and replacing SIM cards and batteries. In addition, the area in front of the cameras would be hand-weeded, as needed, to reduce excess photographs triggered by the wind. Two cameras were replaced with back-up cameras where they were previously observed missing and anti-theft cables and locks were added to the two cameras to secure them from theft at the McMillin parcels. Wildlife signs stating "Wildlife Study in Progress" were prepared and attached on the T-post of each camera to deter tampering of cameras. In 2024, all battery-operated cameras were replaced with cellular service-connected solar-powered wildlife cameras. Photographs 8 through 10 demonstrate the camera set up at a few different locations. Following replacement with cellular service-connected cameras, camera visits were conducted to hand weed the area or service the cameras, as needed. The photos were monitored remotely through the Reveal Tactacam smart phone app and/or Tactacam Reveal's web portal. All data was reviewed for golden eagle presence, behavior, ID tags, age, prey items, and human presence.

Table 12
Golden Eagle Camera Survey
Dates, Locations, and Tasks

Date	Location (Parcels)	Task[1]
01/18/2024	McMillin	Service cameras and attach wildlife signs to three of seven T-posts below cameras. 03MCM and 04MCM were missing and presumed stolen.
01/29/2024	Ridge	Service cameras
02/13/2024	Dulzura	Service cameras. Replace two battery-operated cameras (01DLZ and 03DLZ) with cell service and solar-powered cameras. Attach wildlife signs to the T-posts below all three cameras.
03/12/2024	Dulzura	Service cameras.
03/13/2024	McMillin	Service cameras. Two cameras (03MCM and 04MCM) were replaced at the locations where cameras were previously observed missing and were presumed stolen; locks and cables were added.
04/29/2024	Ridge	Service cameras.
05/06/2024	McMillin	Service cameras. 05MCM had fallen off the mount due to cracked mounting hardware.
05/10/2024	McMillin	Service cameras. Replacement of 05MCM camera that had cracked mounting hardware.
07/01/2024	McMillin	Service cameras. Attach a wildlife sign to the T-post below one camera.
07/29/2024	Ridge	Service cameras.
08/07/2024	Dulzura	Service cameras.
08/28/2024	McMillin	Service cameras.
10/21/2024	McMillin	Replace seven battery-operated cameras (01MCM through 07MCM) with cell service and solar-powered cameras. Attached two wildlife signs to the T-posts below the cameras. Locks and cables were reused on two cameras.

Table 12 Golden Eagle Camera Survey Dates, Locations, and Tasks		
Date	Location (Parcels)	Task[1]
10/30/2024	Ridge	Replace two battery-operated cameras (06RDG and 07RDG) with cell service and solar-powered cameras.
12/10/2024	McMillin	Service 07MCM that had been tilted. Solar panel was missing and presumed stolen.
12/18/2024	McMillin	Service 07MCM and 04MCM. Replace the missing solar panel and add a cable lock on the panel and camera. Hand weeding was conducted at 04MCM.
[1]Cameras were serviced to replace SD cards and replace batteries, as needed. Camera positions were adjusted, as needed. Cameras were resecured, as needed. Hand weeding was conducted, as needed. Solar panels were cleaned, as needed.		

Table 13 presents the golden eagle observations on the wildlife cameras within the Preserve during 2024. Photograph 11 shows a golden eagle image that was captured by a wildlife camera at the McMillin parcels during 2024.

Table 13 Golden Eagle Observations within Otay Ranch Preserve		
Date	Camera Name	Number of Eagles
1/21/2024	02MCM	1
1/21/2024	05MCM	1
2/2/2024	05MCM	1
3/14/2024	05MCM	2
	07MCM	
4/18/2024	01MCM	1
	02MCM	
11/1/2024	05MCM	1
	06MCM	
	07MCM	
MCM= McMillin		

Table 14 presents all wildlife species that were documented on the wildlife cameras.

Table 14
Wildlife Species Documented on Wildlife Cameras

Species	Camera Location											
	01MCM	02MCM	03MCM	04MCM	05MCM	06MCM	07MCM	06RDG	07RDG	01DLZ	02DLZ	03DLZ
Priority Group 1												
bald eagle (*Haliaeetus leucocephalus*)											X	
golden eagle (*Aquila chrysaetos*)	X	X			X, P	X	X, P					
northern harrier (*Circus hudsonius*)	X			X	X							
Priority Group 2												
Cooper's hawk (*Accipiter cooperii*)	X	X			X							
southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)					X							
southern mule deer (*Odocoileus hemionus fuliginata*)	X		X							X	X	X
Priority Group 4												
loggerhead shrike (*Lanius ludovicianus*)					X							
Species Evaluated But No Longer Considered Sensitive												
red-tailed hawk (*Buteo jamaicensis*)	X	X			X	X	X	X	X	X	X	X
American kestrel (*Falco sparverius*)					X		X					
American barn owl (*Tyto furcata*)					X			X				
great horned owl (*Bubo virginianus*)	X	X			X	X	X	X			X	
Common Wildlife												
honey bee (*Apis mellifera*)	X											
California quail (*Callipepla californica*)								X	X			
turkey vulture (*Cathartes aura*)	X			X					X	X	X	
mourning dove (*Zenaida macroura*)	X	X			X							
greater roadrunner (*Geococcyx californianus*)	X	X	X		X	X	X	X	X			X
common raven (*Corvus corax*)	X	X			X	X	X	X	X	X	X	
hummingbird sp (*Calypte* sp.)	X			X	X				X			
rock wren (*Salpinctes obsoletus*)					X							
northern mockingbird (*Mimus polyglottos*)		X	X		X							
California thrasher (*Toxostoma redivivum*)					X							
California towhee (*Melozone crissalis*)	X				X	X			X			
western meadowlark (*Sturnella neglecta*)					X							
desert cottontail (*Sylvilagus audubonii*)		X										
California ground squirrel (*Otopermophilus beecheyi*)	X	X	X		X	X				X		
dusky-footed woodrat (*Neotoma fuscipes*)		X			X							
coyote (*Canis latrans*)		X	X	X	X					X		X
common gray fox (*Urocyon cinereoargenteus*)	X	X	X							X	X	X
striped skunk (*Mephitis mephitis*)									X			
western spotted skunk (*Spilogale gracilis*)						X						
bobcat (*Lynx rufus*)		X						X				
human	X[1]	X[1,2]	1	X[1,3]	X[1]	X[1]	X[1]					X[1]

NOTES: P=pair;
[1]on foot
[2]hunter
[3]motor bike

The following is a summary of the photo data captured from January through December 2024. Photographs 12 through 18 include wildlife bycatch from the cameras.

- McMillin: Golden eagle was observed on five dates during fall and spring of 2024. This species was captured on five different cameras within the McMillin parcels (see Table 13). McMillin continues to have human foot traffic with observations on six of the seven cameras. In 2024, there were also several observations of hunters passing by. 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 such as California ground squirrel (*Otopermophilus beecheyi*) and passerines were observed. Three cameras ("05MCM through 07MCM") monitor the same large set of boulders which has evidence of large raptor use (whitewash, bones, and feathers). On October 21, 2024, the seven cameras were replaced with solar-powered cellular trail cameras and all photos are currently being monitored remotely.

- Dulzura: No golden eagles were photographed at the Dulzura camera locations in 2024. On February 13, 2024, the remaining two of three cameras were replaced with solar-powered cellular trail cameras and photos and videos are being monitored remotely. Many common gray fox, American crow, common raven, red-tailed hawk (*Buteo jamaicensis*), and southern mule deer (*Odocoileus hemionus fuliginata*) were observed. One person was observed on one date.

- Ridge: No golden eagles were photographed at the Ridge camera locations in 2024. Five golden eagle cameras (01RDG-05RDG) were previously removed from service in March and April 2023 and two cameras (06RDG and 07RDG) were installed in new locations in a very remote area in the northwestern section of the parcels in November 2023. On October 30, 2024, these two active cameras were replaced with solar-powered cellular trail cameras and all photos have been monitored remotely. Great horned owl, common barn owl (*Tyto alba pratincola*), American crow, common raven, turkey vulture (*Cathartes aura*), bobcat, coyote, and other small mammals and passerines were observed. No human activity was observed.

Subtask 1h. (FY 2023-24) Quino Checkerspot Butterfly (*Euphydras editha quino*; QCB) Surveys

QCB surveys were conducted on the Proctor Valley parcels (Figure 23). Five adult flight surveys were conducted between March 19 and April 18, 2024, on 12.3 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 USFWS 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 2024b).

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 15. Host plants observed during the surveys are shown in Photographs 19 and 20. On March 5, QCB larvae were incidentally observed off-site adjacent to the Otay Ranch Preserve Little Cedar Canyon parcels. On March 13, QCB adults were incidentally observed within and adjacent to the Otay Ranch Preserve McMillin parcels. On March 14, USFWS provided approval via email to begin the QCB flight surveys on March 14.

Table 15
Quino Checkerspot Butterfly Survey Dates
Proctor Valley Parcel

Date	Survey Type
02/15/2024	Habitat Assessment
03/19/2024	Survey 1
03/28/2024	Survey 2
04/03/2024	Survey 3
04/11/2024	Survey 4
04/18/2024	Survey 5

Subtask 1i. (FY 2023-24) Vegetation Mapping

The vegetation maps prepared in 2014 within the Millenia and Proctor Valley (South) parcels were updated in spring 2024 (Figures 24 and 25). 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 2014 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 16. A crosswalk to the Holland (1986) classification system as modified by Oberbauer et al. (2008) has been prepared and is included in Tables 17 and 18 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 16
Vegetation Mapping Survey
Dates and Locations

Date	Location (Parcels)
04/11/2024	Millenia
04/18/2024	Millenia
04/23/2024	Millenia
04/26/2024	Millenia
04/30/2024	Proctor Valley (South)
05/02/2024	Millenia

Table 17 Vegetation Communities within the Millenia 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)	*Artemisia californica–Eriogonum fasciculatum–Opuntia littoralis/Dudleya (edulis)* Association	17.87	I	I
	Simmondsia chinensis-Bahiopsis laciniata Association	7.68		
Native Grassland (42100)	*Nassella* [=*Stipa*] *pulchra* Association	56.41		
Diegan Coastal Sage Scrub (32500)	*Artemisia californica* Association	5.25	II	II
	Artemisia californica–Eriogonum fasciculatum–Malosma laurina Association	3.77		
	Bahiopsis laciniata–Artemisia californica–Eriogonum fasciculatum Association	2.95		
	Encelia californica-Artemisia californica Association	5.81		
	Rhus integrifolia Association	34.22		
Non-native Grassland (42200)	*Avena* (*barbata, fatua*) Semi-natural Stands	39.18	III	III
	Brachypodium distachyon Semi-Natural Stand Type	4.95		
	Brassica nigra Semi-natural Stand Type	2.74		
	Bromus diandrus Semi-natural Stand Type	5.94		
	Lolium perenne Semi-Natural Stand Type	2.37		
Alkali Seep (45320)	*Iva hayesiana* Special Stands	1.04	I	N/A[1]
N/A (Agriculture)	N/A (Agriculture)	1.38	N/A	N/A
N/A (Unvegetated)	N/A (Unvegetated)	0.27	N/A	N/A
GRAND TOTAL		191.82		

MSCP = Multiple Species Conservation Program; N/A = Not Applicable

[1]Wetlands 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 18 Vegetation Communities within the Proctor Valley (South) 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
Native Grassland (42100)	*Nassella* [=*Stipa*] *pulchra* Association	0.08	I	I
Coastal Scrub (32000)	*Malosma laurina* Shrubland Alliance	1.15	II	II
Diegan Coastal Sage Scrub (32500)	*Artemisia californica–Eriogonum fasciculatum–Malosma laurina* Association	2.29		
	Bahiopsis laciniata–Artemisia californica–Eriogonum fasciculatum Association	30.86		
Southern Mixed Chaparral (37120)	*Adenostoma fasciculatum-Xylococcus bicolor* Association	0.18	III	III
Non-native Grassland (42200)	*Lolium perenne* Semi-Natural Stands	0.23	III	III
Non-native Riparian (65000)	Naturalized Warm-Temperate Riparian and Wetland Semi-Natural Stands	0.64	I	N/A[1]
N/A (Unvegetated)	N/A (Unvegetated)	0.03	N/A	N/A
GRAND TOTAL		35.45		

MSCP = Multiple Species Conservation Program; N/A = Not Applicable

[1]Wetlands 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.

Subtask 1j. (FY 2023-24) Photographic Monitoring

In 2014, 54 photo monitoring points were established at the Millenia parcels and 15 photo monitoring points were established at the Proctor Valley (South) parcels. In 2024, the photo monitoring locations were revisited using a hand-held 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 19. Representative repeat landscape photographs are shown in Photographs 21 and 22.

Table 19 Photographic Monitoring Dates and Locations	
Date	Location (Parcels)
04/11/2024	Millenia
04/18/2024	Millenia
04/23/2024	Millenia
04/26/2024	Millenia
04/30/2024	Proctor Valley (South)
05/02/2024	Millenia

Subtask 1k. (FY 2023-24) Coastal Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*; CACW) Surveys

Focused surveys were conducted to detect occupancy by coastal cactus wren (CACW) in suitable habitat at the Salt Creek and Millenia parcels in 2024. In 2024, the survey effort was made in conjunction with the regional wide CACW surveys being conducted by USGS. To avoid duplicating survey efforts, the PSB only surveyed areas within Salt Creek that were not included in the USGS surveys. In addition, USGS conducted CACW surveys at Western Wolf Canyon in 2024 and the PSB did not. Photo monitoring locations that had been established in 2010 at the Salt Creek parcels and 2015 at the Millenia parcels were revisited. Photographs demonstrating the habitat within the parcels are shown in Photographs 23 and 24. Photographs of CACW individuals and a nest observed at Salt Creek parcels are shown on Photographs 25 through 28. The results of the CACW surveys conducted by the PSB are discussed below. The results of the USGS CACW surveys will be included in their forthcoming 2024 annual report.

Salt Creek Parcels

The PSB conducted focused surveys for CACW as well as repeat photographic monitoring on March 26 and April 10, 2024, within the Salt Creek parcels. The 2024 cactus wren survey areas at Salt Creek consisted of two areas surveyed in 2021 and all past survey areas were managed by USGS.

The PSB surveyed two south-facing slopes, dominated by coast cholla (*Cylindropuntia prolifera*), within the south-central portion of the Salt Creek parcels and identified the locations of CACW individuals, CACW nests, and collected data as to the pair status, extent of use area observed, size and height of cholla patch the nest was in, height of nest from the ground, and any ancillary nest information, as available. The PSB took notes on locations to potentially expand the survey area in future years. One nest was mapped within this potential future survey area. The primary goal of these surveys was to gain information about the locations of nests and birds, size of use areas, and whether this species is still successfully breeding within the Preserve. The results for 2024 are shown on Figure 28 and displayed below in Table 20. Figure 28 also shows incidental detections of coastal cactus wren at the Salt Creek parcels. These incidental detections are from multiple dates and the number of detections is not the number of pairs or individuals present within the parcels.

Table 20
2024 Coastal Cactus Wren Results for the Salt Creek Parcels

Year Observed	Number of Families	Number of Pairs	Number of Individuals	Number of Nests
2024	0	1	0	4

In addition to the focused surveys, the average coast cholla height within 20.4 acres of previously planted areas was recorded. In general, coast cholla height was observed to be on average 2.5-3.5 feet tall and up to 4-5 feet tall within the coast cholla height survey area.

The PSB also revisited the 19 CACW photographic monitoring point locations that had been established in 2013 as part of the Otay Ranch Coastal Cactus Wren Habitat Restoration and

Enhancement Program (SANDAG Grant Number 5001970; Figure 28). Prominent features had been mindfully placed in each photo to make relocating the exact location easier in future years. The prominent features were chosen so that changes to the landscape (i.e., fire or weed encroachment) would minimize change to the visibility of the feature. The purpose of the photo monitoring points is to detect changes in habitat quality (i.e., weed invasion, shrub encroachment, or coast cholla growth) over time.

Millenia Parcels

The PSB conducted focused surveys for CACW as well as repeat photographic monitoring on March 8 and April 9, 2024, within the Millenia parcels. Three CACW individuals were detected within and directly adjacent to the eastern half of the parcels within and directly adjacent to a designated survey area. The observations in the southern portion of the parcels occur within an area currently being treated for weeds by the PSB to benefit CACW. No incidental detections were made at the Millenia parcels in 2024. Results from 2024 are shown in Table 21. The PSB also revisited the 18 CACW photographic monitoring point locations that were established within the Millenia parcels in 2015 (Figure 29).

Table 21
2024 Coastal Cactus Wren Results for the Millenia Parcels

Year Observed	Number of Families	Number of Pairs	Number of Individuals	Number of Nests
2024	0	0	3[a]	1

[a]Includes observations within and directly adjacent to the parcels during one survey date.

Subtask 1l. (FY 2023-24) Vegetation Rapid Assessment (Potential SANDAG TransNet EMP Grant Matching/Complementary Work)

On June 28, rapid assessment surveys were conducted within the hydroseed, hand-seed, and container plant areas as matching/complementary work for the SANDAG TransNet Environmental Mitigation Program (EMP) grant for QCB short-term threat reduction project. Figure 30 shows the 0.69-acre quantitative monitoring area within the Dulzura parcels. Repeat photographs were taken at eight 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: container plants area and seeded by hand (Areas 1 and 2). The California Department of Fish and Wildlife-California Native Plant Society (CDFW-CNPS) Protocol for the Combined Vegetation Rapid Assessment and Relevé Field Form (CNPS 2024) was followed for this effort. Tables 22 through 24 present the results of the survey in June 2024, following restoration, compared to conditions in September 2023, prior to implementation.

Table 22 Container Plants Area Rapid Assessment Results for the Dulzura Parcels				
Vegetation Type	September 12, 2023 Absolute	June 28, 2024 Absolute	September 12, 2023 Relative (vegetation only)	June 28, 2024 Relative (vegetation only)
Average Total Cover (Shrub & Herbaceous)	2.56%	2.28%	100%	100%
Average Native Plant Cover	0.08%	2.18%	3.1%	95.6%
Average Invasive Non-native Plant Cover	2.48%	0.10%	96.9%	4.4%
Average Bare Ground	97.44%	97.72%	Not Applicable	Not Applicable

Table 23 Seeded by Hand – Area 1 Rapid Assessment Results for the Dulzura Parcels				
Vegetation Type	September 12, 2023 Absolute	June 28, 2024 Absolute	September 12, 2023 Relative (vegetation only)	June 28, 2024 Relative (vegetation only)
Average Total Cover (Shrub & Herbaceous)	8.34%	10.54%	100%	100%
Average Native Plant Cover	5.70%	7.88%	68.3%	74.8%
Average Invasive Non-native Plant Cover	2.64%	2.66%	31.7%	25.2%
Average Bare Ground	91.69%	89.46%	Not Applicable	Not Applicable

Table 24 Seeded by Hand – Area 2 Rapid Assessment Results for the Dulzura Parcels				
Vegetation Type	September 12, 2023 Absolute	June 28, 2024 Absolute	September 12, 2023 Relative (vegetation only)	June 28, 2024 Relative (vegetation only)
Average Total Cover (Shrub & Herbaceous)	13.84%	9.14%	100%	100%
Average Native Plant Cover	2.72%	4.88%	19.7%	53.4%
Average Invasive Non-native Plant Cover	11.12%	4.26%	80.3%	46.6%
Average Bare Ground	86.16%	90.86%	N/A	N/A

Subtask 1m. (FY 2023-24) Baseline Surveys

The Eastlake Self-Storage parcel was not conveyed before March 1, 2024. No baseline surveys were conducted in 2024.

Subtask 1n. (FY 2023-24) Vernal Pool Plant Monitoring

Focused vernal pool plant surveys were conducted at the Millenia and Johnson Canyon (East) parcels on March 1 and May 2, 2024. Surveys occurred within 5 and 23 ponding areas observed to be inundated within the Millenia and Johnson Canyon (East) parcels, respectively. Surveys were conducted one time when the features were ponded and one time after the features were dry. Surveys consisted of identifying and recording plant species present in the features. Sensitive plants were identified, and the locations and number of individuals were documented using a CNDDB data dictionary in a sub-meter-accurate GPS unit.

Federally and state listed plant species, Otay Mesa mint (*Pogogyne nudiuscula*), and San Diego button-celery (*Eryngium aristulatum var. parishii*), germinated and set seed during the 2024 growing season. Otay Mesa mint was observed within two ponded areas at Millenia. San Diego button-celery was observed within three ponded areas at Millenia. Table 25 shows the number of individuals observed of Otay Mesa mint and San Diego button-celery. Additional non-listed vernal pool indicator species observations included: flowering-quillwort *(Triglochin scilloides*), American pillwort (*Pilularia americana*), water-starwort (*Callitriche* sp.), short-seed waterwort (*Elatine brachysperma*), and pale spike-rush (*Eleocharis macrostachya).* In addition to the vernal pool indicator species, 16 other plant species were observed. Attachment 3 provides a comprehensive list of plant species observed during the vernal pool plant surveys. Figure 31 shows the federally and state listed vernal pool plant species locations and number of individuals. Figure 32 shows where non-listed vernal pool indicator species were observed. Photograph 29 demonstrates Otay mesa mint and San Diego button-celery at the Millenia parcels.

Table 25
Vernal Pool Plant Survey Results for the Millenia Parcels*

Species	Number of Individuals
Otay Mesa mint (*Pogogyne nudiuscula*)	20
San Diego button-celery (*Eryngium aristulatum*)	134

*Seeds of Otay Mesa mint were collected from the southern vernal pool mesa within the Salt Creek parcels and distributed into two pools at the Millenia parcels east of State Route 125 in the summer of 2023.

Subtask 1o. (FY 2023-24) and Subtask 1b. (FY 2024-25) Least Bell's Vireo (*Vireo bellii pusillus*; LBVI) & Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*; YBCU) 2024 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 33 and 34; 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 24, 2024 and August 5, 2024 according to established protocol (see Figure 33; Halterman et al. 2015).

Subtask 1p. (FY 2023-24) 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 May 24, 2024. No signs of GSOB were observed. The GSOB monitoring location is shown on Figure 35.

Subtask 1e. (FY 2024-25) Western Spadefoot (*Spea hammondii*) Surveys

Western spadefoot presence surveys were initiated with the installation of adult acoustic data loggers (i.e., AudioMoths). The acoustic data loggers were placed on rebar with wildlife signs attached below at specific locations within the parcels based on ponding observed from February 2024 Google Earth aerial imagery (Figure 36). The location was adjusted as needed in the field during placement. Photographs 30 and 31 demonstrate the setup of an Audiomoth at two locations. Table 26 includes the dates and locations that the acoustic data loggers were installed. The acoustic data loggers will be used to detect calling adult male western spadefoot during the breeding season. They will be left on-site during the breeding season. The data will be reviewed through a web portal to detect the presence of western spadefoot.

Table 26
Western Spadefoot Surveys
Dates, Locations, and Tasks

Date	Location (Parcels)	Task(s)
12/09/2024	Millenia	Installation of 1 Audiomoth
12/09/2024	Johnson Canyon Otay Tarplant Preserve	Installation of 1 Audiomoth
12/09/2024	Salt Creek	Installation of 1 Audiomoth
12/10/2024	Northern San Ysidro	Installation of 2 Audiomoths
12/10/2024	McMillin	Installation of 1 Audiomoth
12/12/2024	Jamul Mountains	Installation of 1 Audiomoth
12/12/2024	Dulzura	Installation of 2 Audiomoths
12/18/2024	Little Cedar Canyon	Installation of 1 Audiomoth
12/18/2024	Proctor Valley (South) and Proctor Valley	Installation of 1 Audiomoth
12/20/2024	Northern Salt Creek	Installation of 1 Audiomoth

Task 2: Land Stewardship

Subtask 2a. (FY 2023-24 and FY 2024-25) Site Visits

Regularly scheduled site visits were conducted January 1 through December 31, 2024 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 27.

Table 27
Site Visit Dates and Locations

Date	Location (Parcels)[1]
01/10/2024	Salt Creek, Northern Salt Creek, Millenia, Wolf Canyon, Western Wolf Canyon
01/11/2024	Northern San Ysidro, San Ysidro, McMillin
01/12/2024	Jamul Mountains, Dulzura
01/18/2024	Salt Creek, Wolf Canyon, Western Wolf Canyon, McMillin
01/19/2024	Dulzura
01/24/2024	Salt Creek, Wolf Canyon, Western Wolf Canyon
01/25/2024	Millenia, Jamul Mountains, Johnson Canyon (East), Dulzura
01/26/2024	Salt Creek
01/29/2024	Ridge, Northern Salt Creek
01/31/2024	Salt Creek
02/12/2024	Northern Salt Creek
02/13/2024	Dulzura
02/15/2024	Proctor Valley, Salt Creek, Northern Salt Creek, Wolf Canyon, Western Wolf Canyon
02/16/2024	Millenia
02/21/2024	Dulzura
02/23/2024	Johnson Canyon (East), Millenia, Jamul Mountains
02/26/2024	Salt Creek, Northern San Ysidro, San Ysidro
02/27/2024	Salt Creek
02/28/2024	Salt Creek, Northern Salt Creek
02/29/2024	Salt Creek, Wolf Canyon, Western Wolf Canyon
03/01/2024	Millenia, Salt Creek, Johnson Canyon Otay Tarplant Preserve, Johnson Canyon (East)
03/05/2024	Proctor Valley (North), Little Cedar Canyon, Dulzura
03/06/2024	Salt Creek
03/08/2024	Proctor Valley Extension, Bonita Glen, Proctor Valley (South), Bonita Glen, Millenia, Johnson Canyon (East)
03/12/2024	Dulzura, Millenia
03/13/2024	McMillin
03/14/2024	Jamul Mountains, Proctor Valley
03/15/2024	Johnson Canyon (East)
03/19/2024	Salt Creek, Proctor Valley, Little Cedar Canyon, Millenia
03/21/2024	Dulzura
03/22/2024	Salt Creek
03/26/2024	Salt Creek, Dulzura
03/28/2024	Proctor Valley, Salt Creek, Jamul Mountains
03/29/2024	Northern San Ysidro

Table 27 Site Visit Dates and Locations	
Date	Location (Parcels)[1]
04/02/2024	Dulzura
04/03/2024	Salt Creek, Proctor Valley
04/04/2024	Salt Creek, Northern Salt Creek, Millenia, Wolf Canyon, Western Wolf Canyon
04/09/2024	Salt Creek, Northern San Ysidro, San Ysidro
04/10/2024	Little Cedar Canyon, Salt Creek
04/12/2024	Salt Creek
04/15/2024	Jamul Mountains, Millenia
04/16/2024	Millenia, Salt Creek
04/18/2024	Proctor Valley, Millenia
04/22/2024	San Ysidro, Northern San Ysidro
04/23/2024	Millenia, Jamul Mountains
04/25/2024	Dulzura, Bonita Glen, Proctor Valley
04/26/2024	Millenia
04/29/2024	Ridge
04/30/2024	Dulzura, Proctor Valley (South), Proctor Valley
05/01/2024	Salt Creek
05/02/2024	Johnson Canyon (East), Millenia, McMillin
05/03/2024	Salt Creek
05/06/2024	McMillin
05/07/2024	Proctor Valley (North)
05/08/2024	Dulzura
05/09/2024	Little Cedar Canyon, San Ysidro, Salt Creek, Johnson Canyon Otay Tarplant Preserve
05/10/2024	McMillin, Jamul Mountains
05/14/2024	San Ysidro, Northern San Ysidro, Northern Salt Creek, Salt Creek
05/17/2024	Proctor Valley (North)
05/20/2024	Dulzura
05/21/2024	San Ysidro, Western Wolf Canyon, Wolf Canyon, Millenia
05/22/2024	Western Wolf Canyon
05/23/2024	Salt Creek, Northern Salt Cree
05/24/2024	San Ysidro, Little Cedar Canyon, Dulzura, Jamul Mountains
05/29/2024	Dulzura
05/31/2024	San Ysidro
06/03/2024	Western Wolf Canyon, Wolf Canyon
06/04/2024	Salt Creek, Northern Salt Creek
06/05/2024	Jamul Mountains, Dulzura
06/06/2024	Millenia
06/07/2024	Proctor Valley, Proctor Valley (South), Proctor Valley Extension
06/10/2024	Salt Creek
06/12/2024	Salt Creek, Northern Salt Creek
06/13/2024	Johnson Canyon Otay Tarplant Preserve
06/14/2024	Salt Creek, Northern Salt Creek, Little Cedar Canyon
06/17/2024	McMillin
06/18/2024	San Ysidro, Northern San Ysidro
06/19/2024	Proctor Valley (North)

Table 27 Site Visit Dates and Locations	
Date	Location (Parcels)[1]
06/20/2024	Ridge
06/21/2024	Jamul Mountains, Dulzura
06/28/2024	Dulzura
07/01/2024	McMillin
07/12/2024	Millenia, Salt Creek, Northern Salt Creek
07/15/2024	Jamul Mountains, Dulzura
07/16/2024	Wolf Canyon, Western Wolf Canyon, Salt Creek, Northern Salt Creek
07/26/2024	Jamul Mountains, Dulzura, Salt Creek
07/29/2024	Ridge, Salt Creek
07/30/2024	San Ysidro, Northern San Ysidro, Jamul Mountains
08/02/2024	Salt Creek, Northern Salt Creek, Millenia
08/07/2024	Dulzura
08/09/2024	Dulzura
08/20/2024	Salt Creek, Northern Salt Creek, Millenia
08/21/2024	Wolf Canyon, Western Wolf Canyon, Jamul Mountains
08/28/2024	McMillin
08/29/2024	Dulzura
09/05/2024	Jamul Mountains
09/10/2024	Proctor Valley (North
09/11/2024	Salt Creek, Northern Salt Creek
09/12/2024	Millenia, Johnson Canyon Otay Tarplant Preserve, Johnson Canyon (East)
09/13/2024	Dulzura, San Ysidro, Northern San Ysidro
09/17/2024	Salt Creek, Proctor Valley Extension, Proctor Valley, Proctor Valley (South). Bonita Glen
09/19/2024	Wolf Canyon, Western Wolf Canyon, Jamul Mountains
09/23/2024	Millenia
09/25/2024	McMillin, Dulzura, Salt Creek
10/03/2024	Salt Creek, Northern Salt Creek
10/07/2024	Salt Creek, Northern Salt Creek
10/08/2024	Northern San Ysidro
10/10/2024	Salt Creek, Northern Salt Creek, Millenia
10/11/2024	Dulzura, Jamul Mountains
10/15/2024	San Ysidro
10/16/2024	Wolf Canyon, Western Wolf Canyon
10/18/2024	Salt Creek, Northern Salt Creek, McMillin, Dulzura
10/21/2024	McMillin
10/22/2024	Northern Salt Creek
10/24/2024	Dulzura, Jamul Mountains, Salt Creek
10/30/2024	Ridge
10/31/2024	Millenia
11/01/2024	Salt Creek, Northern Salt Creek
11/06/2024	Dulzura, Jamul Mountains
11/12/2024	Northern San Ysidro, San Ysidro
11/14/2024	Millenia, Salt Creek, Northern Salt Creek
11/15/2024	Dulzura, Jamul Mountains

Table 27 Site Visit Dates and Locations	
Date	Location (Parcels)[1]
11/18/2024	Wolf Canyon, Western Wolf Canyon
11/26/2024	Salt Creek, Northern Salt Creek, Millenia
11/27/2024	Dulzura, Jamul Mountains
12/02/2024	Proctor Valley (North)
12/05/2024	Millenia, Dulzura
12/09/2024	Millenia, Johnson Canyon Otay Tarplant Preserve, Johnson Canyon (East), Salt Creek
12/10/2024	Northern San Ysidro, San Ysidro, McMillin
12/11/2024	Salt Creek, Northern Salt Creek
12/12/2024	Wolf Canyon, Western Wolf Canyon, Jamul Mountains, Dulzura
12/18/2024	McMillin, Little Cedar Canyon, Proctor Valley Extension, Proctor Valley, Proctor Valley (South), Bonita Glen
12/20/2024	Northern Salt Creek, Salt Creek
12/23/2024	Millenia, Salt Creek
12/26/2024	Jamul Mountains, Dulzura
[1]Includes site visits conducted in conjunction with other scheduled monitoring and/or maintenance tasks.	

Noteworthy events documented from site visits are described below for each parcel set within Tables 28 through 43. Figures 37 through 46 show noteworthy data collected in 2024. Photographs 32 through 35 show noteworthy observations during site visits. Rare plants that were incidentally observed are included in Table 11, Subtask 1f above. In response to access issues documented during site visits, management actions are included in the tables below and further discussed in Subtask 5b, below.

Bonita Glen

Table 28 Noteworthy Events Documented from Site Visits at Bonita Glen Date, Observations, and Corresponding Figure			
Type	Date	Observations	Figure(s)
Plants	04/25/2024	Approximately 67 purple owl's-clover (*Castilleja exserta* ssp. *exserta*) individuals were mapped. Purple owl's-clover is a host plant for QCB.	37

Dulzura Parcels

Table 29
Noteworthy Events Documented from Site Visits at Dulzura
Date, Observations, Management Actions, and Corresponding Figure

Type	Date	Observations	Management Actions	Figure(s)
Access Issues	03/21/2024	Bivouac sites were noted.	Trash was removed as part of an additional habitat restoration project within the Preserve, see Section 6.0.	38
	06/21/2024	Two all-terrain vehicle (ATV) routes were observed bypassing existing fencing along Minnewawa truck trail.	Subtask 5b below includes fence installation in response to this.	
	09/13/2024	It was observed that 10 linear feet of fencing was cut across an unauthorized truck route.	Subtask 5b below includes fence repair in response to this.	
	09/25/2024	A motor bike route off Minnewawa truck trail was mapped.	Subtask 5b below includes fence installation to block access to this route.	
	10/11/2024	It was observed that 20 linear feet of fencing was cut across an unauthorized truck route.	Subtask 5b below includes fence repair in response to this.	
	11/06/2024	It was observed that 5 linear feet of fencing was cut across an unauthorized truck route.	Subtask 5b below includes fence repair in response to this.	
Obser-vations	11/27/2024	It was observed that approximately 470 linear feet of a dirt road was ripped within the parcels and 460 linear feet of a dirt road was ripped within USWFS property. This activity is a part of an additional habitat restoration project within the Preserve. Additional information is included in Section 6.0.		
Plants	04/25/2024	Common plant observations included 2 red-flower onion (*Allium peninsulare* var. *peninsulare*) individuals.		
	05/08/2024	Common plant observations included 1 common goldenstar (*Allium peninsulare* var. *peninsulare*) individuals.		
	11/06/2024	Invasive plant stinkwort (*Dittrichia graveolens*; California Invasive Plant Council [CAL-IPC] Rating: Moderate/Alert) was observed outside of but directly adjacent to the parcels.		

Table 29 Noteworthy Events Documented from Site Visits at Dulzura Date, Observations, Management Actions, and Corresponding Figure				
Type	Date	Observations	Management Actions	Figure(s)
Wildlife	11/06/2024	One Blainville's horned lizard (*Phrynosoma blainvilii*; Priority Group 2) observation was made directly adjacent to the parcels.		

Jamul Mountains Parcels

Table 30 Noteworthy Events Documented from Site Visits at Jamul Mountains Date, Observations, Management Actions, and Corresponding Figure				
Type	Date	Observations	Management Actions	Figure(s)
Access Issues	01/12/2024	A frequently used unauthorized mountain bike route that circumvents a previously installed fence was mapped. It was noted the shrubs were crushed.	Subtask 5b below includes placement of vertical mulch, sign installation, and coordination with the City of San Diego in response to this.	39
	Multiple dates between 04/23/2024 & 10/24/2024	It was observed that the cut branches and grass that had been placed on the unauthorized bike route as vertical mulch had been removed from the route and placed on the side of the route. The sign and fence were intact.	Subtask 5b below includes placement of the vertical mulch back on the route on multiple dates in response to this.	
	06/05/2024	It was observed that five linear feet of fencing were cut across the unauthorized bike route.	Subtask 5b below includes fence repair and sign installation in response to this.	
	09/19/2024	It was noted that a recently installed sign on City of San Diego property was removed.	Subtask 5b below includes sign replacement in response to this.	
	10/24/2024	It was noted that two signs were marked with graffiti.	Graffiti was cleaned off two preserve signs with acetone and a shop towel. It was effective in removing the graffiti without damaging the sign.	

Table 30 Noteworthy Events Documented from Site Visits at Jamul Mountains Date, Observations, Management Actions, and Corresponding Figure				
Type	Date	Observations	Management Actions	Figure(s)
Plants	06/05/2024	Fourteen artichoke thistle (*Cynara cardunculus* ssp. *flavenscens*; 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 2024).	Noted for future potential treatment	
	09/05/2024	Ten fennel (*Foeniculum vulgare*; Cal-IPC Rating: Moderate) individuals were observed.	Noted for future potential treatment	
Wildlife	04/23/2024	One Crotch's bumble bee (*Bombus crotchii*; Priority Group 1) observation was made.		
	05/10/2024	One Blainville's horned lizard (Priority Group 2) observation was made adjacent to the parcels.		
	09/14/2024	One coastal California gnatcatcher (CAGN; Priority Group 1) detection was made adjacent to the parcels.		

Johnson Canyon Otay Tarplant Preserve

Table 31 Noteworthy Events Documented from Site Visits at Johnson Canyon Otay Tarplant Preserve Date, Observations, and Corresponding Figure			
Type	Date	Observations	Figure(s)
Ponding	02/16/2024	Two ponding locations were noted.	40
Plants	03/15/2024	500 individuals of dot-seed plantain (*Plantago erecta*), a QCB host plant, were observed.	
	06/13/2024	15 individuals of invasive plant stinkwort (CAL-IPC Rating: Moderate/Alert) were observed.	
Wildlife	03/15/2024	One San Diego black-tailed jackrabbit (Priority Group 3) detection was made. San Diego black-tailed jackrabbit is being mapped to track prey sources for golden eagle.	

Little Cedar Canyon Parcels

Table 32 Noteworthy Events Documented from Site Visits at Little Cedar Canyon Date, Observations, and Corresponding Figure			
Type	Date	Observations	Figure(s)
Plants	04/10/2024	Mexican fan palm (*Washingtonia robusta*; Cal-IPC Rating: Moderate/Alert)	41
Wildlife	06/14/2024	One Crotch's bumble bee (Priority Group 1) observation was made (see Photograph 32).	

McMillin Parcels

Table 33 Noteworthy Events Documented from Site Visits at McMillin Date, Observations, Management Actions, and Corresponding Figure				
Type	Date	Observations	Management Actions	Figure(s)
Access Issues	09/25/2024	ATV tracks were observed going around a fence to access an unauthorized route through QCB and San Diego goldenstar habitat.	Subtask 5b below includes fence and sign installation in response to this.	41
General Observation	01/11/2024	The PSB noted that brush was trimmed along the dirt road to allow vehicle access to the southern portion of the parcels.		
Trash Removal	05/06/2024	Trash consisting of food wrappers, clothing, and personal hygiene items were observed near the golden eagle camera stations. Trash may encourage the presence of ravens which can deter golden eagle use.	Three large garbage bags were filled and disposed of off-site.	
Wildlife	05/06/2024	One Crotch's bumble bee (Priority Group 1) observation was made north of the parcels (see Photograph 33).		

Millenia Parcels

Table 34
Noteworthy Events Documented from Site Visits at Millenia
Date, Observations, Management Actions, and Corresponding Figure

Type	Date	Observations	Management Actions	Figure(s)
Access Issues	04/04/2024	Burned wooden pallets from a bonfire were observed in a clay lens where Otay tarplant occurs.	The trash was removed, fencing was repaired, and a sign was installed in response to this, see Subtask 5b below.	42
	07/12/2024	A one-time use mountain bike route was mapped. The route contained flagging.	The flagging that marked the route was removed and rocks were placed to block access to the route.	
Wildlife	01/10/2024	One detection of coastal California gnatcatcher (Priority Group 1) was made.		
	02/16/2024	One northern harrier (Priority Group 1) detection was made.		
	03/08/2024	One Cooper's hawk (*Accipiter cooperii*; Priority Group 2) detection was made.		
	03/08/2024	One southern mule deer (*Odocoileus hemionus fuliginata*; Priority Group 2) family of 6 individuals were observed.		

Northern Salt Creek Parcels

Table 35
Noteworthy Events Documented from Site Visits at Northern Salt Creek
Date, Observations, Management Actions, and Corresponding Figure

Type	Date	Observations	Management Actions	Figure(s)
Access Issues	02/28/2024	Frequent motor bike activity within the dirt road was evidenced by tire tracks	Subtask 5b below includes fence repairs in response to this.	43
Plants	05/14/2024	Approximately 20 common plant coast cholla (*Cylindropuntia prolifera*) individuals were observed.	Noted for potential cactus wren habitat restoration.	
	05/13/2024	Common plant cryptantha (*Cryptantha* spp.) was mapped.	Noted for potential seed collection.	
	09/25/2024	One individual pampas grass (*Cortaderia selloana*; Cal-IPC Rating: High) was mapped.	Noted for potential future treatment.	

Table 35 Noteworthy Events Documented from Site Visits at Northern Salt Creek Date, Observations, Management Actions, and Corresponding Figure				
Type	Date	Observations	Management Actions	Figure(s)
	10/18/2024	Approximately 200 individuals of stinkwort (CAL-IPC Rating: Moderate/Alert) were mapped for future treatment.	The individuals were hand-removed within a few weeks of the initial observation.	
Wildlife	06/04/2024 10/18/2024	Two CAGN (Priority Group 1) detections were made.		
	05/14/2024	One LBVI (Priority Group 1) detection was made.		

Northern San Ysidro Parcel

Table 36 Noteworthy Events Documented from Site Visits at Northern San Ysidro Date, Observations, Management Actions, and Corresponding Figure				
Type	Date	Observations	Management Actions	Figure(s)
Access Issues	01/11/2024	A new unauthorized motor bike route was mapped.	Subtask 5b below includes sign installation in response to this.	44
	04/09/2024	A motor bike route was observed to be actively used.	Subtask 5b below includes fence installation and coordination with CDFW in response to this.	

Proctor Valley Parcels

Table 37 Noteworthy Events Documented from Site Visits at Proctor Valley Date, Observations, Management Actions, and Corresponding Figure				
Type	Date	Observations	Management Actions	Figure(s)
Plants	03/28/2024	One individual common plant, chocolate lily (*Fritillaria biflora*), was mapped.		37
	03/14/2024	One individual crimson fountain grass (*Pennisetum setaceum*; Cal-IPC Rating: Moderate) individual was mapped.	Noted for potential future treatment	
Wildlife	03/19/2024 03/28/2024 04/18/2024 04/25/2024	Four Blainville's [=coast] horned lizard (*Phrynosoma blainvilii*; Priority Group 2) observations were made.		

Table 37 Noteworthy Events Documented from Site Visits at Proctor Valley Date, Observations, Management Actions, and Corresponding Figure				
Type	Date	Observations	Management Actions	Figure(s)
	04/18/2024	One southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*; Priority Group 2) detection was made.		
	04/30/2024	One LBVI (Priority Group 1) detection was made.		
	04/18/2024	One common animal, yellow-faced bumble bee (*Bombus vosnesenskii*), detection was made.		

Proctor Valley (North) Parcel

Table 38 Noteworthy Events Documented from Site Visits at Proctor Valley (North) Date, Observations, Management Actions, and Corresponding Figure			
Type	Date	Observations	Figure(s)
Wildlife	05/17/2024	Two detections were made of Bell's sage sparrow (*Artemisiospiza belli belli*; Priority Group 3).	45

Proctor Valley (South) Parcel

Table 39 Noteworthy Events Documented from Site Visits at Proctor Valley (South) Date, Observations, and Corresponding Figure			
Type	Date	Observations	Figure(s)
General Observations	03/08/2024	The former cattle pond was observed to be inundated with water from recent rainfall (see Photograph 34). The cattle pond provides a water source for wildlife.	
Plants	04/30/2024	Approximately 25 purple owl's-clover (*Castilleja exserta* ssp. *exserta*) individuals were mapped. Purple owl's-clover is a host plant for QCB.	
Wildlife	03/08/2024	One two-striped gartersnake (*Thamnophis hammondii;* Priority Group 3) was observed at the edge of the cattle pond.	37

Ridge Parcels

Table 40 Noteworthy Events Documented from Site Visits at Ridge Date, Observations, and Corresponding Figure			
Type	Date	Observations	Figure(s)
Wildlife	06/20/2024 07/29/2024	Two CAGN (Priority Group 1) detections were made.	39

Salt Creek Parcels

Table 41 Noteworthy Events Documented from Site Visits at Salt Creek Date, Observations, Management Actions, and Corresponding Figure				
Type	Date	Observations	Management Actions	Figure(s)
Access Issues	01/10/2024	An abandoned vehicle that had rolled down a steep hill was observed within the parcels.	The PSB submitted a service request report through the City of Chula Vista. The vehicle was extracted by 1/31/2024. Minor remaining trash and debris were picked up by the RECON crew shortly after.	43
	01/18/2024	A new ATV route was mapped. The route was not established yet.	Subtask 5b below includes installation of cholla plantings to block access to the new route.	
	01/29/2024	It was observed that two feet of the boundary fencing was cut.	Subtask 5b below includes fence repair in response to this.	
	04/03/2024	The lock on the red gate west of Wueste Road was observed to have been cut.	The lock was replaced and the gate was secured on the same date.	
	06/04/2024	An ATV route was mapped through coastal cactus wren habitat between an SDG&E road and the vernal pool mesa.	T-post barbless fencing was installed on 07/26/24 to prevent access to the unauthorized route (see Subtask 5b, below).	
	07/12/2024	It was observed that the boundary fencing was cut at two locations to allow vehicle access to the parcels.	Subtask 5b below includes fence repair in response to this.	
	09/11/2024	The red gate off Wueste Road was observed to be open.	The gate was secured.	
	10/03/2024	It was observed that three feet of the boundary fencing was cut.	Subtask 5b below includes fence repair in response to this.	

Table 41 Noteworthy Events Documented from Site Visits at Salt Creek Date, Observations, Management Actions, and Corresponding Figure				
Type	Date	Observations	Management Actions	Figure(s)
	12/11/2024	The red gate off Wueste Road was open and could not be secured.	The gate was noted as already secured on 12/13/2024.	
	12/20/2024	The chain link with locks on the gate off Wueste Road was observed to be cut at two locations.	A City of Chula Vista combo lock was added, and the gate was secured.	
General Observations	01/26/2024	The PSB noted seedlings of species that were recently hand-broadcasted onto the vernal pool mesa site.		
Common Plants	05/01/2024	Common plant, dot-seed plantain (*Plantago erecta*) was mapped for future seed collection.		
	05/01/2024	Common plant chaffweed (*Lysimachia minima*) was mapped within the vernal pool mesa.		
	05/01/2024	Purple owl's-clover was mapped during seed collection.		
	05/03/2024	Common plant, common goldenstar (*Bloomeria crocea*), was mapped where it was observed adjacent to sensitive plant, San Diego goldenstar.		
	05/13/2024	Cryptantha (*Cryptantha* sp.) was mapped and seed was collected for future redistribution.		
	06/04/2024 06/14/2024	Common plant, needle grass (*Stipa* spp.), was mapped and seed was collected for future redistribution.		
	06/14/2024	Common plant, California centaury (*Zeltnera venusta*), was mapped and seed was collected for future redistribution.		
Invasive Plants	01/26/2024	Non-native tocalote (*Centaurea melitensis*) was noted for potential future treatment.		
	06/03/2024	One location with invasive plant, mayweed (*Anthemis cotula*), was mapped.	The observation was provided to the Otay River Valley restoration project manager for treatment.	

Table 41 Noteworthy Events Documented from Site Visits at Salt Creek Date, Observations, Management Actions, and Corresponding Figure				
Type	Date	Observations	Management Actions	Figure(s)
	07/12/2024 06/12/2024 08/20/2024 10/18/2024	Approximately 131 individuals of stinkwort (CAL-IPC Rating: Moderate/Alert) were mapped for future treatment.	The individuals were hand-removed within one month of the initial observation.	
	09/11/2024	Gum tree was noted for future treatment.	Subtask 6a includes treatment of this species.	
	10/07/2024	Willow acacia (*Acacia salicina*) was noted for potential future treatment.		
Wildlife	Multiple dates between 01/18/2024 & 09/25/2024	14 CAGN (Priority Group 1) detections were made (see Photograph 35).		
	01/26/2024	Immature fairy shrimp (*Branchinecta* sp.) and amphibian egg masses were mapped within the vernal pool mesa site.		
	02/08/2024	One red diamond rattlesnake (Priority Group 3) detection was made		
	05/01/2024	One San Diego black-tailed jackrabbit (Priority Group 3) detection was made.	San Diego black-tailed jackrabbit is being mapped to track prey sources for golden eagle.	
	06/10/2024 08/20/2024	5 LBVI (Priority Group 1) detections were made.		
	09/25/2024	One white-tailed kite (*Elanus leucurus*; Priority Group 4) detection was made with 10 individuals observed in one gum tree.		
	10/07/2024	One Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*; Priority Group 2) observation was made.		
	04/04/2024 06/10/2024	Common animal, greater roadrunner, was observed on two occasions.		

San Ysidro Parcels

Table 42
Noteworthy Events Documented from Site Visits at San Ysidro
Date, Observations, Management Actions, and Corresponding Figure

Type	Date	Observations	Management Actions	Figure(s)
Access Issues	01/11/2024	A new unauthorized motor bike route was mapped within an open area.	Subtask 5b below includes sign installation in response to this.	44
	01/11/2024	The PSB noted that existing motor bike routes appear heavily used.	Subtask 5b below includes fence installation and coordination with CDFW in response to this.	
	04/09/2024	ATV and motor bike routes were noted as actively used.	Subtask 5b below includes fence installation and coordination with CDFW in response to this.	
	11/12/2024	An ATV route was mapped through San Diego goldenstar habitat.	Subtask 5b below includes sign installation in response to this.	
	11/12/2024	A truck route was mapped.	Subtask 5b below includes sign installation in response to this.	
Plants	05/21/2024	Common plant, common goldenstar (*Bloomeria crocea*), was mapped where it was observed adjacent to sensitive plant, San Diego goldenstar.		
Wildlife	05/09/2024 05/21/2024	Two Blainville's horned lizard (Priority Group 2) detections were made. One was a juvenile noted to be roadkill on a dirt road.		
	05/14/2024	One two-striped gartersnake (Priority Group 3) was observed.		
	05/14/2024	Common animal, Gabb's checkerspot (*Chlosyne gabbii*) was observed.		

Wolf Canyon and Western Wolf Canyon Parcels

Table 43
Noteworthy Events Documented from Site Visits at Western Wolf Canyon and Wolf Canyon
Date, Observations, and Corresponding Figure

Type	Date	Observations	Figure(s)
Plants	05/20/2024	Hollow-stem asphodel (*Asphodelus fistulosus*; Cal-IPC Rating: Moderate, Alert) individuals were noted for potential future treatment.	46
	08/01/2023	Two Peruvian pepper trees (*Schinus molle*; Cal-IPC Rating: Limited) were noted for potential future treatment.	
	07/16/2024	Two tree tobacco (Cal-IPC Rating: Moderate) individuals were noted for potential future treatment.	
Wildlife	05/22/2024	2 CAGN (Priority Group 1) detections were made.	
	01/10/2024	One coastal cactus wren (Priority Group 1) detection was made.	
	10/18/2024	One Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*; Priority Group 2) observation was made.	

Task 3: Meetings and Coordination

The PSB attended various land manager meetings and workshops through December 31, 2024. Meeting topics and dates are described in detail below.

Subtask 3a. (FY 2023-24 and FY 2024-25) SDMMP & MSP Meetings

The PSB attended monthly San Diego Management and Monitoring Program (SDMMP) meetings to assure consistency with regional conservation efforts and plans. An SDMMP meeting was not held in November. On November 12, the PSB attended an in-person wildlife camera Artificial Intelligence workshop hosted by USGS. Table 44 provides a list of the meetings attended and dates meeting notes were submitted.

Table 44 San Diego Management and Monitoring Program, SANDAG, and Management and Monitoring Strategic Plan Meetings: January 1, 2024 through December 31, 2024				
Meeting Date	Meeting	Presenter	Topic	Meeting Note Submittal Date
01/24/2024	SDMMP	Robert Fisher (USGS)	Golden Eagle Management Plan Update	01/30/2024
02/28/2024	SDMMP	Diane Brand Ramirez (AECOM) Jessie Vinje (SageVinje Biological) Margie Mulligan (Mulligan Biological Consulting)	A summary of the SDMMP Rare Plant Regional Discovery Surveys, post-fire Valley Fire Botanical Surveys, and the Annual IMG Update	02/29/2024
03/27/2024	SDMMP	Trish Smith (The Nature Conservancy) Emily Perkins (SDMMP)	Regional Linkage Evaluation and Prioritization	04/02/2024
04/24/2024	SDMMP	Carlton Rochester (USGS) Kaili Gregory (University of Georgia – PhD student)	Photo Processing AI Project Predicting extinction risk for northwestern and southwestern pond turtles	04/24/2024
05/22/2024	SDMMP	Mark Berninger (City of San Diego, Parks and Recreation Department)	Five years into the Vernal Pool Habitat Conservation Plan; Adaptive Management and Lessons Learned	05/22/2024
06/26/2024	SDMMP	Sarah Hutmacher (San Diego River Park Foundation) Mark Berninger (Natural Resources Manager for City of San Diego, Parks and Recreation Department)	San Diego River Restoration and Homelessness San Diego River Estuary and SD River Restoration Project	06/26/2024
07/24/2024	SDMMP	Barbara Kus (USGS) and Kristine Preston (SDMMP and USGS)	Coastal Cactus Wren Habitat Conservation and Management Plan for Conserved Lands in Western San Diego County	07/24/2024

Table 44 San Diego Management and Monitoring Program, SANDAG, and Management and Monitoring Strategic Plan Meetings: January 1, 2024 through December 31, 2024				
Meeting Date	Meeting	Presenter	Topic	Meeting Note Submittal Date
08/28/2024	SDMMP	Sam Lee Rapp (Point Blue Conservation Science & USDA-NRCS) Jennifer Price (County of San Diego Parks and Recreation)	NRCS Working Lands for Wildlife - Southwestern Willow Flycatcher (SWFL) Fund Pool County of San Diego Department of Parks and Recreation Targeted Monitoring Plan and Habitat Restoration	
09/25/2024	SDMMP	Felix Ratcliff (Rangeland Conservation Science) and the UC Berkeley Grazing Research Team	Ranch-scale Approaches for Conservation Grazing. An Update from the SANDAG Grazing Study	09/25/2024
10/23/2024	SDMMP	Diana Brand Ramirez (AECOM) and John Walker (AECOM)	2024 Vegetation Monitoring Project Results	

Table 44 San Diego Management and Monitoring Program, SANDAG, and Management and Monitoring Strategic Plan Meetings: January 1, 2024 through December 31, 2024				
Meeting Date	Meeting	Presenter	Topic	Meeting Note Submittal Date
12/03/2024	SDMMP End-of-Year	Candace Wo (The San Diego Foundation)	San Diego Foundation and 50th Anniversary Overview	
		Ida KallerVincent (Earth Discovery Institute)	Urban Monarch Waystations - Creating Butterfly Havens in Home Gardens	
		Ann Baldridge (Resource Conservation District of Greater San Diego)	Hermes Copper Project and Otay Valley Regional Park Connections Project	
		Jeff Rangitsch (County of San Diego, Parks and Recreation)	Active Habitat Restoration Projects	
		Clayton Tshudy (San Diego Canyonlands)	Urban Fire Resiliency, Helicopter Operations, and Canyonlands' Conservation Workforce	
		Mark Berninger (City of San Diego, Parks and Recreation Department)	Ocean Beach Estuary Enhancement Project	
		Natalie Borchardt (San Diego River Park Foundation) and Sebastian Farjado (UC Davis)	*Ceanothus cyaneus* dieback on El Capitan Mountain, San Diego	
		Kim Smith (SANDAG)	EMP Highlights in 2024 – What's next?	
		Annabelle Bernabe, Chris Brown, Emily Perkins, Jordyn Ochoa, Kris Preston, and Sarah McCutcheon (SDMMP)	Resources for Land Managers and Program Forecast	

Subtask 3b. (FY 2023-24 and FY 2024-25) 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:

- The PSB prepared for and presented at a City of Chula Vista and Wildlife Agency coordination meeting on April 10.
- The PSB prepared for and presented at the MSCP annual workshop on November 22.

Subtask 3c. (FY 2023-24 and FY 2024-25): Meeting Notes

Meeting notes were prepared for submittal to the POM for SDMMP meetings described under Subtask 3a.

Subtask 3d. (FY 2023-24 and FY 2024-25): POM

The POM and PSB coordinated Preserve monitoring and management tasks via phone, email, and meetings. Coordination included topics such as access issues, monitoring and management tasks, future conveyed lands, and proposed projects within Otay Ranch Preserve.

Task 4: Reporting

The following section describes reports that were submitted to the POM in support of the FY 2023–24 and FY 2024–25 annual work plans.

Subtask 4b. (FY 2023-24) and Subtask 4b. (FY 2024-25) Database Management and Contributions

Management and monitoring data collected between January 1, 2023 and December 31, 2023 were submitted to CNDDB, San Diego Biological Information and Observation System, and South Coast Multi-taxa Database on February 29, 2024.

Wildlife data collected between January 1, 2024 and June 30, 2024 was submitted to CNDDB on October 7, 2024.

MSP IMG field forms, photographs, and spatial data collected in 2024 were finalized and uploaded onto the SDMMP website by September 25, 2024. The website notifies the SDMMP group once files have been uploaded.

Subtask 4f. (FY 2023-24) Annual Report

The 2023 Annual Report for the Otay Ranch Preserve was submitted to the POM on January 22, 2024 (RECON 2024c). The annual report summarized all Preserve monitoring and operations/

maintenance tasks performed between January 1 and December 31, 2023. The County included the 2023 Otay Ranch Preserve annual report as an attachment to their 2023 MSCP annual report. The County MSCP annual report with the 2023 Otay Ranch Preserve annual report attached was submitted to USFWS and CDFW on May 22, 2024. The City of Chula Vista MSCP annual report includes a summary of the 2023 annual report for the Preserve and was submitted by the City to USFWS and CDFW on September 5, 2024. USFWS and CDFW provided comments on the City's MSCP annual report on November 20, 2024. Comments from USFWS and CDFW that were directed at the Otay Ranch Preserve annual report were addressed in this 2024 Otay Ranch Preserve annual report.

Subtask 4g. (FY 2023-24) FY 2024–25 Annual Work Plan

The FY 2024–25 Annual Work Plan was submitted to the POM on February 7, 2024 (RECON 2024a). The work plan proposed Preserve monitoring and operations/maintenance tasks to be performed between July 1, 2024 and June 30, 2025. The FY 2024–25 Annual Work Plan was submitted to the CDFW and USFWS on February 14, 2024. USFWS provided comments on March 5, 2024, which have been addressed during 2024 and will be included in the next work plan.

Subtask 4h. (FY 2023-24) Quino Checkerspot Butterfly Pre-survey Notification Letter

The PSB submitted the QCB pre-survey notification letter to USFWS and the POM on February 12, 2024 (RECON 2024b). USFWS approved of the proposed deviation on February 13. QCB surveys were conducted according to USFWS protocol (USFWS 2014) except where deviations were approved.

Subtask 4i. (FY 2023-24) Quino Checkerspot Butterfly Post-survey Report

The PSB submitted the QCB post-survey report to USFWS and the POM on May 29, 2024 (RECON 2024d). Figure 47 shows the QCB host and nectar plants mapped in 2024. All incidental QCB larva and adult observations made between March 5 and March 13, 2024 are shown on a USGS 7.5-minute topographic map on Figure 48. See Photograph 36 for a representative photograph from the surveys.

Host plants dot-seed plantain and purple owl's-clover were found to occur within the Proctor Valley parcels (see Figures 47). A total of 89 butterfly and skipper observations were made during the focused surveys, representing 9 species (and 2 unidentified species) (RECON 2024d). Unidentified species included those that could not be identified to a species level when the individual flew by. These unidentified fly-bys included a lady butterfly (*Vanessa* sp.) and a duskywing skipper (*Erynnis* sp.). The most common butterfly species observed were Behr's metalmark (*Apodemia mormo virgulti*), Pacific Sara orangetip (*Anthocharis sara sara*), and common California ringlet (*Coenonympha california california*). Photograph 37 includes a California patch that was observed during surveys. No QCB observations were made during focused surveys. Prior to initiating the flight surveys, the biologists incidentally observed QCB larvae and QCB adults (see Figure 48):

- During the flight season surveys at Proctor Valley parcels:
  - 0 QCB adult observations were made within the parcels.
- Prior to initiating flight surveys:
  - 6 QCB larva incidental observations were made off-site outside of the Preserve;
  - 16 QCB adult incidental observations were made within the Preserve; and
  - 4 QCB adult incidental observations were made off-site outside of the Preserve (Photograph 38).

Subtask 4j. (FY 2023-24) 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 19, 2024 (RECON 2024e). The PSB submitted the fairy shrimp voucher specimens for accessioning at the Los Angeles Natural History Museum as required by the surveyors' USFWS permit on September 12. Photograph 39 demonstrates a San Diego fairy shrimp voucher specimen. The results of the wet season fairy shrimp surveys are shown on Figures 49 and 50 and in Table 45. In summary:

- Federally endangered San Diego fairy shrimp were identified in 4 of the 28 ponding areas surveyed.
- Western spadefoot (*Spea hammondii*) egg masses and tadpoles, a CDFW species of special concern, were observed in 1 of the 28 ponding areas during the surveys.

Table 45
2023–2024 Wet Season Survey Results

Ponding Area Number	San Diego Fairy Shrimp (*Branchinecta sandiegonensis*)	Versatile Fairy Shrimp (*Branchinecta lindahli*)	Immature Fairy Shrimp (*Branchinecta* sp.)	Western Spadefoot (*Spea hammondii*)
MLLN W1	Observed	-	-	-
MLLN W2	-	-	-	-
MLLN E1	Observed	-	-	Observed
MLLN E2	-	-	-	-
MLLN E3	-	-	-	-
JCE 1	-	-	-	-
JCE 2	-	-	-	-
JCE 3	-	-	-	-
JCE 4	Observed	-	-	-
JCE 5	Observed	-	-	-
JCE 6	-	-	-	-
JCE 7	-	-	-	-
JCE 8	-	-	-	-
JCE 9	-	-	-	-
JCE 10	-	-	-	-
JCE 11	-	-	-	-
JCE 12	-	-	-	-
JCE 13	-	-	-	-
JCE 14	-	-	-	-
JCE 15	-	-	-	-

Table 45 2023–2024 Wet Season Survey Results				
Ponding Area Number	San Diego Fairy Shrimp (*Branchinecta sandiegonensis*)	Versatile Fairy Shrimp (*Branchinecta lindahli*)	Immature Fairy Shrimp (*Branchinecta* sp.)	Western Spadefoot (*Spea hammondii*)
JCE 16	-	-	-	-
JCE 17	-	-	-	-
JCE 18	-	-	-	-
JCE 19	-	-	-	-
JCE A	-	-	-	-
JCE B	-	-	-	-
JCE C	-	-	-	-
JCE D	-	-	-	-

Subtask 4k. (FY 2023-24) Baseline Survey Reports

No baseline surveys were conducted in 2024, as Eastlake Self-Storage parcel was not conveyed by March 1, 2024. No baseline survey reports were prepared.

Subtask 4a. (FY 2024-25) Brown-headed Cowbird (*Molothrus ater*; BHCO) 2024 Trapping Report

One report detailing 2024 brown-headed cowbird (*Molothrus ater*; BHCO) removal activities was submitted to the POM on August 21, 2024 (SDNHM 2024a). The PSB reviewed the document prior to submittal. The 2024 mist netting locations are shown on Figure 51.

Six male and seven female cowbirds were captured at the Preserve in 2024. This compares to five male and six female cowbirds captured at the Preserve in 2023; sixteen cowbird captures, including seven females, during netting in 2022; 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. In 2024, all six males were banded and released. All seven females were euthanized and taken to the SDNHM to be accessioned into the research collection (SDNHM 2024a).

Two of the 56 LBVI nests were parasitized by cowbirds within the study area in 2024, for a rate of 3.57 percent (SDNHM 2024a). One of the nests impacted by cowbirds occurred in Salt Creek, and one occurred in Otay River, while no nests in Wolf Canyon were parasitized. This compares to rates of 4.26 percent in 2023 and 11.6 percent in 2022 where targeted cowbird removals occurred, and 53 percent in 2021 when no cowbird removals occurred. Therefore, targeted cowbird removals through mist-netting is an effective method for minimizing cowbird parasitism in the area (SDNHM 2024a).

Subtask 4c. Least Bell's Vireo and Yellow-billed Cuckoo 2024 Post-survey Report

A post-survey report detailing the results of the 2024 LBVI survey and nest monitoring and YBCU survey was submitted to the POM on November 25, 2024 (SDNHM 2024b). The PSB reviewed the document prior to submittal. Figure 51 shows 2024 LBVI observations. Table 46 shows the 2024 LBVI survey results. YBCU was not observed in 2024 (SDNHM 2024b).

Table 46
2024 LBVI Survey Results: Salt Creek, Northern Salt Creek, Otay River Restoration Area, and Wolf Canyon

Locations	Pairs	Individuals	Transient	Undeter-mined	Territories	Total Completed Nests	Successful Nests
Northern Salt Creek and Salt Creek Parcels	17	-	-	3	20	23	10
Wolf Canyon Parcel	3	-	-	1	4	1	1

3.0 Operations/Maintenance

This chapter describes operations/maintenance tasks that occurred between January 1 and December 31, 2024. These tasks were proposed in the FY 2023–24 and FY 2024-25 annual work plans (RECON 2023a and 2024a).

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 2023-24 and FY 2024-25) U.S. Customs and Border Protection/Agency Access Meetings & Coordination

- In January, the PSB emailed the POM and agencies regarding an area where unauthorized trucks continue to access the Dulzura parcels.
- On January 18, the PSB submitted a code enforcement report regarding an abandoned vehicle within Salt Creek parcels. On January 30, the PSB received an email from the City of Chula Vista Police Department notifying the PSB that the abandoned vehicle had been impounded and the issue was closed. On January 31, the PSB confirmed that the vehicle was extracted.

- In January, the PSB coordinated with CDFW for approval to use dirt roads on CDFW property to access the Proctor Valley Extension parcels. On January 26, Nicholas (Nick) Aponte (CDFW South San Diego Reserve Manager) provided the PSB with an access letter to cross through Rancho Jamul Ecological Reserve. The access letter expired December 31, 2024.
- The PSB coordinated with the City of San Diego to request signs to deter use of an unauthorized mountain bike route that starts on City of San Diego property and continues onto the Jamul Mountains parcels. On February 23, a PSB picked up six signs provided by the City of San Diego. The signs stated Keep Out- Area Closed for Habitat Restoration. The PSB provided the POM and the City of San Diego with a summary and photographs demonstrating the sign installation and use of vertical mulch to curtail use of this unauthorized route.
- On March 15, the PSB notified staff from San Diego County Water Authority, City of San Diego, Otay Water District, U.S. Customs and Border Protection, City of Chula Vista, and County of San Diego that the chain of locks on the gate south of Hunte Parkway had been removed by an unknown source and was not secured. The PSB coordinated with staff to place locks on a new chain to secure the gate.
- The PSB coordinated with Nick Aponte (CDFW) to install a City of Chula Vista lock on the gate west of the Dulzura parcels.
- In March, the PSB coordinated with Nick Aponte (CDFW) regarding installing fencing to block an unauthorized motor bike route that starts on CDFW property and continues onto the Northern San Ysidro and San Ysidro parcels. On March 14, the PSB and Nick Aponte conducted a site visit to review the proposed fence installation. The PSB provided the POM with a summary and photographs demonstrating the fence installation to curtail use of these unauthorized routes.
- On June 6, the PSB sent an email to Nick Aponte (CDFW) to coordinate a potential road closure at the McMillin parcels to protect QCB.

Subtask 5b. (FY 2023-24 and FY 2024-25) Fence and Sign Installation and Repair

Throughout 2024, the PSB observed a similar amount of trespass and habitat damage compared to past years. The following parcels have continued observations of trespass and habitat damage in 2024: Dulzura, Jamul Mountains, McMillin, Millenia, Salt Creek, Northern Salt Creek, Northern San Ysidro, and San Ysidro. As discussed in Subtask 2a above, native vegetation was damaged at Dulzura with all-terrain vehicle (ATV) and motor bike use; at Jamul Mountains with new mountain bike routes; at McMillin due to ATV use; at Millenia with mountain bike use; at Salt Creek and Northern Salt Creek due to unauthorized ATV use; and at Northern San Ysidro and San Ysidro due to off-road truck, ATV, and motor bike use (see Figures 38, 39, 41, 42, 43, and 44, respectively). See below for management actions addressed in 2024 in response to these observations. Habitat damage was also observed due to an increased amount of trash deposited within primarily Dulzura and Little Cedar Canyon parcels. Trash was removed from Dulzura and Little Cedar Canyon parcels as part of an additional habitat restoration project within the Preserve, see Section 6.0.

During 2024:

- The PSB examined the geocache database and coordinated with geocache staff to document geocache locations found within the preserve. Forms were submitted to both Geocaching.com and AllTrails.com requesting the removal of geocaches and trails from within the Preserve. Responses were received from both Headquarters teams. The PSB is waiting for a follow-up response from the geocache team, which should help guide the next steps for the geocache issues. For AllTrails the next steps for the PSB will be to update a separate database that AllTrails uses, which creates the black dashed trail lines in AllTrails. The black dashed trail lines come from a database called OSM. The verified trails in AllTrails are the green ones that have more information. There appear to be no "Verified Trails" that go through any of the Preserves. Most of the trails within the Preserve are the black dashed trails. The trails cannot be deleted from the AllTrails dataset.
- The PSB secured gates, as needed.
- The PSB reviewed recent Google Earth imagery and mapped obvious unauthorized routes. The routes were verified in the field and the type of trespass was noted.
- The PSB purchased the following signs for the Preserve:
  - 10 aluminum signs stating "Dead end ahead. Area closed to vehicles." Several signs were installed at Dulzura parcels.
  - 10 aluminum signs stating "Habitat restoration in progress. Please keep out." Several signs were installed at Jamul Mountains parcels.
  - 20 Dibond signs stating "Wildlife study in progress. Please do not damage equipment." Several signs were installed adjacent to acoustic data loggers for western spadefoot monitoring.
  - 32 Polyair signs stating "Habitat restoration in progress. Please keep out." These signs include the County of San Diego penal codes. Several signs were installed at San Ysidro and Northern San Ysidro parcels.

Access control issues were addressed through December 31, 2024. Tables 47 through 54 summarize access control measures that were implemented per parcel between January 1 and December 31, 2024. Access control issues are described below the tables. Photographs 40 through 45 are representative photographs from access control activities. The following bullet points provide a summary of total POM property installations/repairs for fences, signs, and gates, and the total off-site adjacent to the Preserve repairs conducted during 2024:

- Total POM property installations/repairs conducted during 2024 include: 1,691 linear feet of fencing installed, 195 linear feet of fencing repaired, 14 signs installed, 3 signs replaced, and 2 signs repaired. Gates were secured as needed. Additional access control included T-post installation with concrete along 101 linear feet of fencing, rock barrier installation, 627 linear feet of vertical mulch placement, and installation of 0.14 acre of coast cholla.
- Total off-site (adjacent to the Preserve Jamul Mountains parcels) City of San Diego property installations/repairs conducted during 2024 include: 2 signs installed, 2 signs replaced, and 665 linear feet of vertical mulch placement.

  Total off-site (adjacent to the Preserve Northern San Ysidro parcels) CDFW and City of San Diego property installations/repairs conducted during 2024 include: 141 linear feet of fencing installed, 2 signs installed, and 1 sign replaced.

Table 47
Dulzura Parcels: Fencing, Sign, and Gate Installation and Repairs[1]

Parcel	Date	Fencing Installed (linear feet)[2]	Fencing Repaired (linear feet)[2]	Signs Installed	Signs Replaced	Signs Repaired	Gate Repaired	Other Access Control Installed
Dulzura	05/20/2024 05/21/2024	801	-	-	-	-	-	-
	07/26/2024	79	12	-	-	-	-	T-posts installed with concrete along 12 linear feet of fencing
	10/18/2024	-	33	1	-	-	-	T-posts installed with concrete along 10 linear feet of fencing
	11/15/2024	90	9	3	-	-	-	T-posts installed with concrete along 5 linear feet of fencing
TOTAL (POM Property)		**970**	**54**	**4**	**-**	**-**	**-**	**T-posts installed with concrete along 27 linear feet of fencing**

[1]Figure 38 shows access control data collected in 2024 at Dulzura Parcels.
[2]Ground length, not total materials used for repair.

Table 48
Jamul Mountain Parcels: Fencing, Sign, and Gate Installation and Repairs[1]

Parcel	Date	Fencing Installed (linear feet)[2]	Fencing Repaired (linear feet)[2]	Signs Installed	Signs Replaced	Signs Repaired	Gate Repaired	Other Access Control Installed
Jamul Mountains (Within the parcels)	04/15/2024	-	10	-	-	-	-	Placed approximately 627 linear feet of vertical mulch
Jamul Mountains (Off-site City of San Diego property)	04/15/2024	-	-	1	-	-	-	Placed approximately 665 linear feet of vertical mulch
Jamul Mountains (Within the parcels and off-site on City of San Diego property)	06/05/2024	-	-	-	-	-	-	Replaced approximately 665 linear feet of vertical mulch
Jamul Mountains (Within the parcels)	06/05/2024	-	-	-	-	-	-	Replaced approximately 627 linear feet of vertical mulch

Table 48
Jamul Mountain Parcels: Fencing, Sign, and Gate Installation and Repairs[1]

Parcel	Date	Fencing Installed (linear feet)[2]	Fencing Repaired (linear feet)[2]	Signs Installed	Signs Replaced	Signs Repaired	Gate Repaired	Other Access Control Installed
Jamul Mountains (Off-site City of San Diego property)	07/26/2024	-	-	-	1	-	-	-
Jamul Mountains (Within the parcels)	10/24/2024	-	-	-	-	-	-	Replaced approximately 627 linear feet of vertical mulch
Jamul Mountains (Off-site on City of San Diego property)	10/24/2024	-	-	-	-	-	-	Replaced approximately 665 linear feet of vertical mulch
Jamul Mountains (Off-site City of San Diego property)	11/15/2024	-		1	1	-	-	-
Jamul Mountains (Within the parcels)	11/15/2024	-	5	1	-	-	-	-
Jamul Mountains (Within the parcels)	11/27/2024	-	-	-	1	2	-	-
TOTAL (POM Property)		**-**	**15**	**1**	**1**	**2**	**-**	**Vertical mulch placed for 627 linear feet**
TOTAL (Off-site City of San Diego Property)		**-**	**-**	**2**	**2**	**-**	**-**	**Vertical mulch placed for 665 linear feet**

[1]Figure 39 shows access control data collected in 2024 at Jamul Mountains Parcels.
[2]Ground length, not total materials used for repair.

Table 49
McMillin Parcels: Fencing, Sign, and Gate Installation and Repairs[1]

Parcel	Date	Fencing Installed (linear feet)[2]	Fencing Repaired (linear feet)[2]	Signs Installed	Signs Replaced	Signs Repaired	Gate Repaired	Other Access Control Installed
McMillin	01/11/2024	-	-	2	-	-	-	Vertical mulch
	10/18/2024	65	-	1	-	-	-	-
TOTAL (POM Property)		**65**	**-**	**3**	**-**	**-**	**-**	**Vertical mulch placed**

[1]Figure 41 shows access control data collected in 2024 at McMillin Parcels
[2]Ground length, not total materials used for repair.

Table 50
Millenia Parcels: Fencing, Sign, and Gate Installation and Repairs[1]

Parcel	Date	Fencing Installed (linear feet)[2]	Fencing Repaired (linear feet)[2]	Signs Installed	Signs Replaced	Signs Repaired	Gate Repaired	Other Access Control Installed
Millenia	04/16/2024	-	74	1	-	-	-	T-posts installed with concrete along 74 linear feet of fencing
	07/12/2024	-	-	-	-	-	-	Rock barrier placed
TOTAL (POM Property)		**-**	**74**	**1**	**-**	**-**	**-**	**T-posts installed with concrete along 74 linear feet of fencing and rock barrier placed**

[1]Figure 42 shows access control data collected in 2024 at Millenia Parcels
[2]Ground length, not total materials used for repair.

Table 51
Northern Salt Creek Parcels: Fencing, Sign, and Gate Installation and Repairs[1]

Parcel	Date	Fencing Installed (linear feet)[2]	Fencing Repaired (linear feet)[2]	Signs Installed	Signs Replaced	Signs Repaired	Gate Repaired	Other Access Control Installed
Northern Salt Creek	10/03/2024	-	15	-	-	-	-	-
TOTAL (POM Property)		**-**	**15**	**-**	**-**	**-**	**-**	**-**

[1]Figure 43 shows access control data collected in 2024 at Northern Salt Creek Parcels
[2]Ground length, not total materials used for repair.

Table 52
Northern San Ysidro Parcels and Adjacent CDFW Property: Fencing, Sign, and Gate Installation and Repairs[1]

Parcel	Date	Fencing Installed (linear feet)[2]	Fencing Repaired (linear feet)[2]	Signs Installed	Signs Replaced	Signs Repaired	Gate Repaired	Other Access Control Installed
Northern San Ysidro (Off-site CDFW and City of San Diego property)	03/29/2024	-	-	2	-	-	-	-
Northern San Ysidro (Off-site CDFW property)	04/22/2024	141	-	-	-	-	-	-
Northern San Ysidro (Within the parcels)	04/22/2024 04/23/2024	253	-	-	-	-	-	-
Northern San Ysidro (Within the parcels)	12/10/2024	-	-	1	-	-	-	-
Northern San Ysidro (Off-site City of San Diego property)	12/10/2024	-	-	-	1	-	-	-
TOTAL (POM Property)		**253**	**-**	**1**	**-**	**-**	**-**	**-**
TOTAL (Off-site CDFW and City of San Diego Property)		**141**	**-**	**2**	**1**	**-**	**-**	**-**

[1]Figure 44 shows access control data collected in 2024 at Northern San Ysidro Parcels
[2]Ground length, not total materials used for repair.

Table 53
Salt Creek Parcels: Fencing, Sign, and Gate Installation and Repairs[1]

Parcel	Date	Fencing Installed (linear feet)[2]	Fencing Repaired (linear feet)[2]	Signs Installed	Signs Replaced	Signs Repaired	Gate Repaired	Other Access Control Installed
Salt Creek	01/24/2024	85	-	-	-	-	-	-
	01/29/2024	-	2	-	-	-	-	-
	06/12/2024	-	-	2	-	-	-	-
	07/26/2024	90	-	-	-	-	-	-
	07/29/2024	-	32	-	-	-	-	-
	10/03/2024	20	3	-	-	-	-	-
	11/1/2024	-	-	-	-	-	-	0.14 acre of coast cholla cuttings
	ongoing	-	-	-	-	-	-	Gates secured, as needed.
TOTAL (POM Property)		**195**	**37**	**2**	**-**	**-**	**-**	**0.14 acre of coast cholla cuttings**

[1]Figure 43 shows access control data collected in 2024 at Salt Creek Parcels
[2]Ground length, not total materials used for repair.

Table 54
San Ysidro Parcels: Fencing, Sign, and Gate Installation and Repairs[1]

Parcel	Date	Fencing Installed (linear feet)[2]	Fencing Repaired (linear feet)[2]	Signs Installed	Signs Replaced	Signs Repaired	Gate Repaired	Other Access Control Installed
San Ysidro	04/22/2024	208	-	-	-	-	-	-
San Ysidro	12/10/2024	-	-	2	2	-	-	-
TOTAL (POM Property)		**208**	**-**	**2**	**2**	**-**	**-**	**-**

[1]Figure 44 shows access control data collected in 2024 at San Ysidro Parcels
[2]Ground length, not total materials used for repair.

Dulzura Parcels

Figure 38 shows access control data collected in 2024.

- On May 20 and 21, 801 linear feet of barbless wire T-post fencing were installed to protect QCB and the surrounding habitat.

- On July 26, 12 linear feet of barbless wire T-post fence were repaired along the northern boundary and the T-posts were embedded in concrete. Along Minnewawa truck trail, 40 linear feet of barbless wire T-post fence was installed to prevent ATV from bypassing the pipe fencing. At another location along Minnewawa truck trail, 39 linear feet of barbless wire T-post fence was installed.

- On October 18, 10 linear feet of barbless wire T-post fence was repaired, the T-posts were embedded in concrete, and one sign stating "No Trespassing, Otay Ranch Preserve" was installed on the fence to protect QCB and the surrounding habitat. In addition, 20 linear feet of barbless wire T-post fence were repaired along the northwest boundary. Along Minnewawa truck trail, 3 linear feet of barbless wire T-post fence was repaired.

- On November 15, three signs stating "Dead End, Area Closed to Vehicles" were installed to deter truck use through the parcels and provide warning the route is closed off at the boundary. In addition, 5 linear feet of barbless wire T-post fence was repaired along the northern boundary and the T-post was embedded in concrete. Four linear feet of barbless wire T-post fence was repaired along the northwest boundary. Along Minnewawa truck trail, 90 linear feet of barbless wire T-post fence was installed to block a new motor bike route.

Jamul Mountains Parcels

Figure 39 shows access control data collected in 2024.

- On April 15, near the Jamul Mountains parcels one sign stating "Keep Out-Area Closed for Habitat Restoration" was placed on City of San Diego property at the entrance to an unauthorized bike route that leads onto the Jamul Mountains parcels. Approximately 665 linear feet of cut branches and grass thatch were placed on the unauthorized bike route to cover the route from future use on City of San Diego property. An additional 627 linear feet of cut branches and grass thatch were placed on POM property to cover the unauthorized bike route. Ten linear feet of barbless wire T-post fence was repaired to further block the unauthorized bike route.

- On June 5, approximately 665 linear feet of native shrub branches previously cut were replaced to cover an unauthorized bike route off-site on City of San Diego property adjacent to the Jamul Mountains parcels. In addition, approximately 627 linear feet of native shrub branches previously cut were replaced to cover an unauthorized bike route on the parcels.

- On July 26, one sign was replaced on City of San Diego property at the entrance to an unauthorized bike route that leads onto the Jamul Mountains parcels.

- On October 24, approximately 627 linear feet of native shrub branches previously cut were replaced to cover an unauthorized bike route on the parcels. In addition, approximately 665 linear feet of native shrub branches previously cut were replaced to cover an unauthorized bike route off-site on City of San Diego property adjacent to the Jamul Mountains parcels.

- On November 15, one sign was replaced on City of San Diego property at the entrance to an unauthorized bike route that leads onto the Jamul Mountains parcels. An additional habitat restoration sign was placed on the same signpost. In addition, five linear feet of barbless wire T-post fence was repaired, and one habitat restoration sign was placed on the fence at the opposite end of the bike route, within the parcels.

- On November 27, one preserve sign stating "No Trespassing" was attached to an existing T-post along the southwestern parcel boundary. Graffiti was removed from two signs.

McMillin Parcels

Figure 41 shows access control data collected in 2024.

- On January 11, two signs stating "Off-road Activity Prohibited" were installed at the southeast corner of the McMillin parcels to block use of an unauthorized ATV route. Vertical mulch was placed adjacent to the signs.

- On October 18, 65 linear feet of barbless wire T-post fence was installed, extended from existing fencing, to block an unauthorized ATV route through QCB habitat. One sign stating "Sensitive Environmental Resources, Disturbance Beyond this Point is Restricted", was installed on the fence.

Millenia Parcels

Figure 42 shows access control data collected in 2024.

- On April 16, 74 linear feet of T-post barbless wire fencing were repaired to protect Otay tarplant, and the T-posts were embedded in concrete. One sign stating "No Trespassing, Otay Ranch Preserve" was installed on a signpost.

- On July 12, flagging was removed that marked an unauthorized mountain bike route. A rock barrier was placed to block the entrance to the route.

Northern Salt Creek Parcels

Figure 43 shows access control data collected in 2024.

- On October 3, 15 linear feet of barbless wire T-post fencing were repaired along the northern boundary of the parcels to prevent unauthorized truck access into the preserve.

Northern San Ysidro Parcels

Figure 44 shows access control data collected in 2024.

- On March 29, two No Trespassing signs were installed along an unauthorized road leading to a high quality QCB occupied ridge top at the Northern San Ysidro parcels.
- On April 22 and 23, 253 linear feet of barbless wire T-post fencing were installed to protect QCB and the surrounding habitat. An additional 141 linear feet of T-post barbless wire fence was installed on CDFW property at the other end of the unauthorized route.
- On December 10, one No Trespassing sign was installed within the parcels, and one No Trespassing sign was replaced north of the parcels at an unauthorized road leading to a high quality QCB occupied ridge top at the Northern San Ysidro parcels.

Salt Creek Parcels

Figure 43 shows access control data collected in 2024.

- Gates were secured ongoing throughout 2024, as needed.
- On January 24, 85 linear feet of T-post barbless wire fence were installed near the gate off Wueste Road to block an unauthorized ATV route.
- On January 29, 2 linear feet of T-post barbless wire fence was repaired next to the gate off Wueste Road.
- On June 12, two No Trespassing signs on rebar were installed at the entrance to ATV routes.
- On June 25, the PSB placed a lock on the gate off Hunte Parkway to secure the gate.
- On July 26, 90 linear feet of T-post barbless wire fence were installed to protect coastal cactus wren and QCB habitat.
- On July 29, 32 linear feet of T-post barbless wire fence were repaired at two different locations north of the gate off Wueste Road.
- On October 3, the PSB repaired 3 linear feet of T-post barbless wire fence next to the gate off Wueste Road. In addition, 20 linear feet of T-post barbless wire fence were installed, extended from existing fencing, to protect coastal cactus wren and QCB habitat.
- On November 1, approximately 0.14 acre of cholla cuttings was planted to close an unauthorized ATV route.
- On December 20, the PSB placed a lock on the gate off Wueste Road to secure the gate.

San Ysidro Parcels

Figure 44 shows access control data collected in 2024.

- On April 22, 208 linear feet in length of T-post barbless wire fencing were installed to protect QCB and the surrounding chaparral and coastal sage scrub habitat.

Task 6: Invasive Species Treatment

Subtask 6a. (FY 2023-24 and FY 2024-25) Vegetation Treatment and Removal

Vegetation treatment and removal occurred January through December 2024. 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 and QCB host and nectar plants were flagged for avoidance prior to applying herbicide. Weeds within vernal pool basins were removed with hand tools. Weed species treated with glyphosate herbicide included primarily short-pod mustard (*Hirschfeldia incana;* California Invasive Plant Council [Cal-IPC] Rating: Moderate), black mustard (*Brassica nigra*; Cal-IPC Rating: Moderate), tocalote (*Centaurea melitensis*; Cal-IPC Rating: Moderate), non-native annual grasses (*Bromus* spp., *Festuca* spp., and *Avena* spp.; Cal-IPC Rating: Moderate to High), and filaree (*Erodium* sp.). Non-native plants removed by line trimmer consisted primarily of mustards (*Hirschfeldia incana* and *Brassica nigra*), tocalote, oats (*Avena* sp.), and other various non-native grasses. Stinkwort (*Dittrichia graveolens*) and false hawkbit (*Urospermum picroides*) were 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 55 provides a summary of the total vegetation treatment acreage at each parcel per focal sensitive species resource. Table 56 lists vegetation treatment and removal dates, locations, and focal species. Vegetation treatment and removal areas are shown in Figures 52 through 57. Photographs 46 through 50 are representative photographs from vegetation treatment and removal activities. No new weed species that have not been previously observed on the Preserve were observed within the Preserve in 2024.

The PSB coordinated with Target Specialty Products for a renewed Pest Control Adviser Recommendation as requested by the County of San Diego Department of Parks and Recreation Agricultural Scientist. The Pest Control Adviser was submitted to the POM on January 11, 2024.

Table 55 Otay Ranch Preserve 2024 Vegetation Treatment Locations by Parcel, Acreage, and Focal Sensitive Species Resource			
Parcel(s)	Acreage	Focal Sensitive Species Resource	Focal Plant Species Treated
Salt Creek	0.25	Vernal pool habitat	Annual beard grass (*Polypogon monspeliensis*), fascicled tarplant (*Deinandra fasciculata*), hyssop loosestrife (*Lythrum hyssopifolium*), perennial rye grass (*Festuca perenne*), tocalote (*Centaurea melitensis*)
Millenia	12.38	Vernal pool & Potential QCB habitat	Tocalote, rattail sixweeks grass (*Festuca myuros)*, oats (*Avena* sp.), crete weed (*Hedypnois cretica*), filaree (*Erodium* sp.), brome (*Bromus* sp.), perennial rye grass
Northern Salt Creek	2.36	CACW	Broom baccharis (*Baccharis sarothroides*), California buckwheat (*Eriogonum fasciculatum*), short-pod mustard (*Hirschfeldia incana*), black mustard (B*rassica nigra*), tocalote, non-native grasses, filaree, stinkwort (D*ittrichia graveolens*), fennel (*Foeniculum vulgare*), tree tobacco (*Nicotiana glauca*)
Salt Creek	17.25	CACW	Broom Baccharis, California buckwheat, short-pod mustard, tocalote, non-native grasses, filaree, California sagebrush (*Artemisia californica*)
Millenia	1.47	CACW	Black mustard, short-pod mustard, brome, tocalote
Salt Creek	14.28	QCB	Black mustard, short-pod mustard, tocalote, brome, purple false brome (*Brachypodium distachyon*), annual beard grass, fascicled tarplant, hyssop loosestrife, perennial rye grass
Dulzura	0.73	QCB	Short-pod mustard, filaree, brome, tocalote, fescue (*Festuca* sp.), golden-top (*Lamarckia aurea*), oats
Millenia	4.36	Otay tarplant	Black mustard, tocalote, stinkwort, purple false brome, prickly lettuce (*Lactuca serriola*), brome, oats
Western Wolf Canyon	1.64	Otay tarplant	Tocalote, short-pod mustard, black mustard
Johnson Canyon Otay Tarplant Preserve	0.19	Otay tarplant	Spiny sowthistle (*Sonchus asper*), tocalote, prickly lettuce, oats
Salt Creek	0.73 and TWE	Various	Stinkwort
Northern Salt Creek	TWE	Various	Stinkwort
Millenia	TWE	Various	Stinkwort
Dulzura	TWE	Various	Stinkwort

Table 55 Otay Ranch Preserve 2024 Vegetation Treatment Locations by Parcel, Acreage, and Focal Sensitive Species Resource			
Parcel(s)	Acreage	Focal Sensitive Species Resource	Focal Plant Species Treated
Northern San Ysidro and San Ysidro	3.51	Various	Stinkwort
Little Cedar Canyon	TWE	Various	False hawkbit (*Urospermum picroides*)
Dulzura	0.47	Coastal sage scrub	Short-pod mustard, filaree, tocalote, brome, fescue
Salt Creek	1.89	Various	Gum tree (*Eucalyptus* spp.), Peruvian pepper tree (*Schinus molle*), Saltcedar (*Tamarix ramosissima*)
TWE = Treated when encountered			

Table 56
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage

Parcel(s)	Polygon Number	Treatment Type	Treatment Date(s)	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
County APN 646-010-06	County_1	N/A	N/A	5004730	8116	Otay River Valley Cactus Wren EMP Grant	Fall 2018	3 years	Coastal cactus wren	N/A. No treatment needed.
Dulzura	DLZ_1	Herbicide application, Removed by hand	04/24/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal sage scrub/Erosion Control	Short-pod mustard (*Hirschfeldia incana*), filaree (*Erodium* spp.), tocalote (*Centaurea melitensis*), brome (*Bromus* spp.)
Dulzura	DLZ_2	Cut with line trimmers	04/24/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal sage scrub/Erosion Control	Tocalote, brome, fescue (*Festuca* sp.)
Dulzura	DLZ_3	Cut with line trimmers, Cut by hand	04/24/2024 05/30/2024 05/31/2024	557744	10055	Otay Ranch Preserve Enhancement Project	Fall 2024	1 year	Quino checkerspot butterfly	Short-pod mustard, filaree, brome, tocalote, fescue, golden-top (*Lamarckia aurea*), oats (*Avena* sp.)
Dulzura	DLZ_4	Cut with line trimmers, Herbicide application, Cut by hand	04/24/2024 05/30/2024 05/31/2024	557744	10055	Otay Ranch Preserve Enhancement Project	Fall 2024	1 year	Quino checkerspot butterfly	Short-pod mustard, filaree, brome, tocalote, fescue, oats
Dulzura	DLZ_4	Watered	08/16/2024 08/26/2024 09/13/2024 09/23/2024 10/08/2024 11/14/2024 11/25/2024 12/11/2024 12/18/2024	557744	10055	Otay Ranch Preserve Enhancement Project	Fall 2024	1 year	Quino checkerspot butterfly	N/A. Watered previously installed plants.
Dulzura	DLZ_5	Cut with line trimmers, Herbicide application, Cut by hand	04/24/2024 05/30/2024 05/31/2024	557744	10055	Otay Ranch Preserve Enhancement Project	Fall 2024	1 year	Quino checkerspot butterfly	Tocalote, fescue, brome, oats, golden-top, short-pod mustard
Dulzura	DLZ_6	Cut with line trimmers, Herbicide application	04/24/2024	557744	10055	Otay Ranch Preserve Enhancement Project	Fall 2024	1 year	Quino checkerspot butterfly	Brome, filaree, fescue, tocalote, golden-top

Table 56
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage

Parcel(s)	Polygon Number	Treatment Type	Treatment Date(s)	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
Dulzura	DLZ_7	Cut with line trimmers, Herbicide application, Cut by hand	04/24/2024 05/30/2024 05/31/2024	557744	10055	Otay Ranch Preserve Enhancement Project	Fall 2024	1 year	Quino checkerspot butterfly	Fescue, brome, tocalote, golden-top, oats, brome
Dulzura	DLZ_Dittrichia	Remove by hand	09/25/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort (*Dittrichia graveolens*)
Johnson Canyon Otay Tarplant Preserve	JCOTP_1	Cut with line trimmers, Herbicide application	05/09/2024	N/A	5256	Johnson Canyon Otay Tarplant Preserve	N/A	N/A	Otay Tarplant	Spiny sowthistle (*Sonchus asper*), tocalote, prickly lettuce (*Lactuca serriola*), oats
Little Cedar Canyon	LLC_ Urospermum	Remove by hand	04/10/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	False hawkbit
Millenia	MLLN_1	Line trim, Herbicide application	03/12/2024 03/18/2024 12/06/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Otay tarplant	Black mustard (*Brassica nigra*), tocalote, stinkwort, purple false brome (*Brachypodium distachyon*), prickly lettuce
Millenia	MLLN_2	Line trim	03/06/2024 12/05/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Otay tarplant	Black mustard, purple false brome, prickly lettuce
Millenia	MLLN_2.1	Line trim, Herbicide application, Collect cuttings by hand, Plant cholla cuttings	03/06/2024 03/12/2024 04/16/2024 04/17/2024 04/23/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal cactus wren	Black mustard, short-pod mustard, brome
Millenia	MLLN_3	N/A	N/A	N/A	5256	Otay Ranch Preserve	N/A	N/A	Potential Quino checkerspot butterfly and potential vernal pool habitat	N/A. No treatment needed.
Millenia	MLLN_4	Line trim, Herbicide application	03/04/2024 03/05/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Potential Quino checkerspot butterfly and potential vernal pool habitat	Tocalote, rattail sixweeks grass *(Festuca myuros)*, oats, brome

Table 56
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage

Parcel(s)	Polygon Number	Treatment Type	Treatment Date(s)	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	MLLN_5	Cut with line trimmers, Herbicide application	04/29/2024	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	Black mustard, tocalote
Millenia	MLLN_6	Cut with line trimmers Herbicide application	04/30/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Otay tarplant	Brome, purple false brome, oats
Millenia	MLLN_7	N/A	N/A	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	N/A. No treatment needed.
Millenia	MLLN_8	Cut with line trimmers	05/01/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Potential Quino checkerspot butterfly and potential vernal pool habitat	Oats, Crete weed (*Hedypnois cretica*), filaree, brome, perennial rye grass (*Festuca perenne*)
Millenia	MLLN_9	N/A	N/A	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	N/A. No treatment needed.
Millenia	MLLN_Dittrichia	Remove by hand	07/12/2024 09/23/2024 10/10/2024 11/14/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Millenia	MLLN_Oncosiphon	N/A	N/A	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	N/A. No treatment was necessary
Northern Salt Creek	NSC_1	Line trim, Herbicide application, Shrub thinning	01/24/2024 01/25/2024 01/26/2024 12/11/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal cactus wren	Broom Baccharis (*Baccharis sarothroides*), California buckwheat (*Eriogonum fasciculatum*), short-pod mustard, black mustard, tocalote, non-native grasses, filaree, stinkwort, fennel
Northern Salt Creek	NSC_1.1	Remove by hand	09/25/2024	N/A	10013.2	Otay Ranch Preserve Habitat Restoration Project	Spring 2024	2 months	Coastal cactus wren	Tree tobacco

Table 56
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage

Parcel(s)	Polygon Number	Treatment Type	Treatment Date(s)	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	NSC_Dittrichia	Remove by hand	06/12/2024 09/11/2024 09/25/2024 10/07/2024 10/18/2024 10/22/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Northern Salt Creek and Salt Creek	NSC_SC_1	Line trim, Herbicide application, Shrub thinning	01/24/2024 01/25/2024 01/26/2024 01/29/2024 01/30/2024 01/31/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal cactus wren	Broom Baccharis, California buckwheat, short-pod mustard, tocalote, non-native grasses, filaree
Salt Creek	SC_1	Line trim, Herbicide application, Shrub thinning	01/24/2024 01/25/2024 01/26/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal cactus wren	Broom Baccharis, California buckwheat, short-pod mustard, tocalote, non-native grasses, filaree
Salt Creek	SC_2	Cut by hand, herbicide application	02/26/2024 02/28/2024 02/29/2024 03/01/2024	5001133	N/A	Salt Creek Coastal Cactus Wren Habitat Restoration Project (County of San Diego Parks and Recreation Department & Merkel & Associates)	Summer 2014	5 years	Coastal cactus wren	Short-pod mustard, California buckwheat, tocalote, broom baccharis, brome, California sagebrush
Salt Creek	SC_3	Line trim, Herbicide application, Shrub thinning	01/29/2024 01/30/2024 01/31/2024	5004943	8340	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	18 months	Coastal cactus wren	Broom Baccharis, California buckwheat, short-pod mustard, tocalote, non-native grasses, filaree
Salt Creek	SC_3.3	Drill and herbicide application	09/25/2024	N/A	10013.2	Otay Ranch Preserve Habitat Restoration Project	Spring 2024	2 months	Various	Gum tree
Salt Creek	SC_4	Line trim, Herbicide application, Shrub thinning	01/29/2024 01/30/2024 01/31/2024	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	Broom Baccharis, California buckwheat, short-pod mustard, tocalote, non-native grasses, filaree
Salt Creek	SC_5	Line trim, Herbicide application, Shrub thinning	01/29/2024 01/30/2024 01/31/2024	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	Broom Baccharis, California buckwheat, short-pod mustard, tocalote, non-native grasses, filaree

Table 56
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage

Parcel(s)	Polygon Number	Treatment Type	Treatment Date(s)	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	SC_6	N/A	N/A	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_7	N/A	N/A	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_8	Line trim, Herbicide application, Shrub thinning	01/29/2024 01/30/2024 01/31/2024	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	Broom Baccharis, California buckwheat, short-pod mustard, tocalote, non-native grasses, filaree
Salt Creek	SC_8.1	Drill and herbicide application	09/25/2024	N/A	10013.2	Otay Ranch Preserve Habitat Restoration Project	Spring 2024	2 months	Various	Gum tree
Salt Creek	SC_9	Line trim, Herbicide application, Shrub thinning	01/24/2024 01/25/2024 01/26/2024	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	Broom Baccharis, California buckwheat, short-pod mustard, tocalote, non-native grasses, filaree
Salt Creek	SC_10a	Line trim, Herbicide application, Shrub thinning	01/24/2024 01/25/2024 01/26/2024	5004943	8340	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	18 months	Coastal cactus wren	Broom Baccharis, California buckwheat, short-pod mustard, tocalote, non-native grasses, filaree
Salt Creek	SC_10b	Line trim, Herbicide application, Shrub thinning	01/24/2024 01/25/2024 01/26/2024	5004943	8340	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	18 months	Coastal cactus wren	Broom Baccharis, California buckwheat, short-pod mustard, tocalote, non-native grasses, filaree
Salt Creek	SC_11	N/A	N/A	5004943	8340	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	18 months	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_12	N/A	N/A	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_13	N/A	N/A	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	N/A. No treatment needed.

Table 56
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage

Parcel(s)	Polygon Number	Treatment Type	Treatment Date(s)	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	SC_14	Line trim, Herbicide application, Shrub thinning	01/24/2024 01/25/2024 01/26/2024	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	Broom Baccharis, California buckwheat, short-pod mustard, tocalote, non-native grasses, filaree
Salt Creek	SC_15	Line trim, Herbicide application, Shrub thinning	01/24/2024 01/25/2024 01/26/2024	5004943	8340	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	18 months	Coastal cactus wren	Broom Baccharis, California buckwheat, short-pod mustard, tocalote, non-native grasses, filaree
Salt Creek	SC_16	Cut with line trimmers, Herbicide application, Cut by hand	05/10/2024 05/13/2024 05/14/20240 6/07/2024 06/10/2024 06/11/2024 06/12/2024 06/13/2024	N/A	7754	Quino Checkerspot Butterfly Recovery Program	Summer 2016	1 year	Quino checkerspot butterfly Vernal Pools	Black mustard, short-pod mustard, tocalote, brome, purple false brome, annual beard grass (*Polypogon monspeliensis*), fascicled tarplant (*Deinandra fasciculata*), hyssop loosestrife (*Lythrum hyssopifolium*), perennial rye grass
Salt Creek	SC_17	N/A	N/A	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_18	N/A	N/A	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_18.1	Drill and herbicide application	09/25/2024	N/A	10013.2	Otay Ranch Preserve Habitat Restoration Project	Spring 2024	2 months	Various	Gum tree, Peruvian pepper tree, Saltcedar,
Salt Creek	SC_19	N/A	N/A	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_20	N/A	N/A	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	Coastal cactus wren	N/A. No treatment needed.

Table 56
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage

Parcel(s)	Polygon Number	Treatment Type	Treatment Date(s)	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	SC_21	N/A	N/A	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_22	N/A	N/A	5001970	6649	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Summer 2015	3 years	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_23	N/A	N/A	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_24	N/A	N/A	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_24.1	N/A	N/A	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_25	N/A	N/A	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_26	N/A	N/A	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_27	N/A	N/A	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_28	N/A	N/A	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_29	N/A	N/A	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_30	N/A	N/A	5004731	7682	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	3 years	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_31	N/A	N/A	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal cactus wren	N/A. No treatment needed.

Table 56
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage

Parcel(s)	Polygon Number	Treatment Type	Treatment Date(s)	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	SC_32	N/A	N/A	5004943	8340	Otay Ranch Coastal Cactus Wren Habitat Restoration and Enhancement Program	Fall 2018	18 months	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_33	N/A	N/A	N/A	5256	Otay Ranch Preserve	N/A	N/A	Coastal cactus wren	N/A. No treatment needed.
Salt Creek	SC_Charco	Cut by hand	06/07/2024 06/10/2024 06/11/2024 06/12/2024 06/13/2024	N/A	7754	Quino Checkerspot Butterfly Recovery Program	Summer 2016	1 year	QCB Vernal Pools	Annual beard grass, fascicled tarplant, hyssop loosestrife, perennial rye grass, tocalote
Salt Creek	SC_Dittrichia	Remove by hand	06/12/2024 07/12/2024 09/11/2024 09/25/2024 10/07/2024 10/10/2024 10/18/2024 10/24/2024 11/01/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Salt Creek	SC_Oncosiphon	N/A	N/A	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	N/A. No treatment was necessary
San Ysidro	SY_1	N/A	N/A	CDFW Local Area Assistance Grant	8406	Quino Checkerspot Butterfly Habitat Restoration and Enhancement Project	Spring 2019	2 years	Quino checkerspot butterfly	N/A. No treatment needed.
San Ysidro	SY_2	N/A	N/A	CDFW Local Area Assistance Grant	8406	Quino Checkerspot Butterfly Habitat Restoration and Enhancement Project	Spring 2019	2 years	Quino checkerspot butterfly	N/A. No treatment needed.
San Ysidro and Northern San Ysidro	SY_NSY_Dittrichia	Remove by hand	10/08/2024 10/15/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	Stinkwort
Western Wolf Canyon	WWC_1	N/A	N/A	N/A	3173	Otay Ranch Habitat Restoration/Wolf Canyon Habitat Restoration	Summer 2009	10 years	Coastal cactus wren	N/A. No treatment needed.
Western Wolf Canyon	WWC_2	Cut with line trimmers, Herbicide application	05/21/2024 05/22/2024 12/12/2024	N/A	3173	Otay Ranch Habitat Restoration/Wolf Canyon Habitat Restoration	Summer 2009	10 years	Otay tarplant	Tocalote, mustard

Table 56
Otay Ranch Preserve Vegetation Treatment Locations, Treatment Dates, and Acreage

Parcel(s)	Polygon Number	Treatment Type	Treatment Date(s)	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	WWC_3	N/A	N/A	N/A	3173	Otay Ranch Habitat Restoration/Wolf Canyon Habitat Restoration	Summer 2009	10 years	Coastal cactus wren	N/A. No treatment needed.
Western Wolf Canyon	WWC_4	Cut with line trimmers, Herbicide application	05/15/2024 05/22/2024 12/12/2024	N/A	3173	Otay Ranch Habitat Restoration/Wolf Canyon Habitat Restoration	Summer 2009	10 years	Otay tarplant	Tocalote, mustard
Western Wolf Canyon	WWC_5	Cut with line trimmers, Herbicide application	05/15/2024 05/22/2024 12/13/2024	N/A	3173	Otay Ranch Habitat Restoration/Wolf Canyon Habitat Restoration	Summer 2009	10 years	Otay tarplant	Tocalote, mustard
Western Wolf Canyon	WWC_6	N/A	N/A	N/A	3173	Otay Ranch Habitat Restoration/Wolf Canyon Habitat Restoration	Summer 2009	10 years	Coastal cactus wren	N/A. No treatment needed.
Western Wolf Canyon	WWC_7	Cut with line trimmers	12/12/2024 12/13/2024	N/A	5256	Otay Ranch Preserve	N/A	N/A	Otay tarplant	Tocalote
Wolf Canyon	WC_Camino	N/A	N/A	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	N/A. No treatment needed.
Wolf Canyon	WC_Dittrichia	N/A	N/A	N/A	5256	Otay Ranch Preserve	N/A	N/A	Various	N/A. No treatment needed.

N/A = Not Applicable

Vernal Pool Habitat (Salt Creek and Millenia)

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 hyssop loosestrife (*Lythrum hyssopifolium*), tocalote, annual beard grass (*Polypogon monspeliensis*), perennial rye grass (*Festuca perenne*), as well as fascicled tarweed, 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 (see Figure 52).

Within the Millenia parcels, per the Work Plans (FY 23-24 and FY 24-25), various non-native grasses and annual weeds were cut with line trimmers and treated with herbicide within upland habitat in the Non-native Plant Treatment Area east of State Route 125 (SR-125; see Figure 53; MLLN_8) and west of SR-125 where there is potential vernal pool habitat (see Figure 53; MLLN_4). Approximately 12.38 acres of weeds were treated within the Millenia parcels potential vernal pool and QCB habitat.

Cactus Wren Habitat Enhancement (Salt Creek, Northern Salt Creek, and Millenia)

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. A total of 21.08 acres of cactus wren habitat was enhanced within Salt Creek, Northern Salt Creek, and Millenia parcels in 2024. Table 57 includes all the cactus wren habitat enhancement locations and acreages that were treated in 2024 (see Figures 52 and 53). Several areas required multiple treatments throughout the year. In 2024, vegetation within cactus wren habitat enhancement areas was treated with herbicide and removed by hand and line trimmer. Shrub thinning occurred within the treatment areas, as needed. In addition, weeds were treated and coast cholla cuttings were planted within 1.12 acres at Millenia parcels (see Figure 53; MLLN_2.1), per the FY23-24 Work Plan. Previous coastal cactus wren SANDAG grant areas have continued to be maintained through CFD 97-2 funding after the grant projects ended. The following species were treated within the cactus wren habitat enhancement areas: broom baccharis (*Baccharis sarothroides*), California buckwheat, California sagebrush (*Artemisia californica*), fennel (*Foeniculum vulgare*), tree tobacco (*Nicotiana glauca*), short-pod mustard (*Hirschfeldia incana*), black mustard, stinkwort (D*ittrichia graveolens*), tocalote, non-native grasses, and filaree. Additional cactus wren habitat restoration areas shown on the FY 2023-24 Work Plan (RECON 2024a) were assessed for weed treatment and no treatment was necessary in 2024.

Table 57
Cactus Wren Habitat Enhancement 2024 Summary Treatment Locations and Acreage

Treatment Locations	Acreage
MLLN_2.1	1.12
MLLN_5	0.35
NSC_1	0.82
NSC_1.1	1.36
NSC_SC_1	0.18

Table 57 Cactus Wren Habitat Enhancement 2024 Summary Treatment Locations and Acreage	
Treatment Locations	Acreage
SC_1	0.32
SC_2	1.15
SC_3	2.18
SC_4	1.84
SC_5	0.72
SC_8	0.74
SC_9	2.86
SC_10a	1.22
SC_10b	0.02
SC_14	4.11
SC_15	2.09
TOTAL	**21.08**

Quino Checkerspot Butterfly Habitat (Salt Creek and Millenia)

QCB habitat enhancement continued within approximately 14.28 acres at the Salt Creek parcels during 2024 (see Figure 52; SC_16). The primary plants removed were black mustard, short-pod mustard, tocalote, non-native grasses, and hyssop loosestrife (*Lythrum hyssopifolium*), as well as fascicled tarplant (*Deinandra fasciculata*).

QCB habitat enhancement continued within approximately 12.38 acres at the Millenia parcels during 2024 (see Figure 53; MLLN_4 and MLLN_8), per the Work Plan (FY23-24). This area overlaps with the vernal pool habitat restoration area. Primary weeds treated included tocalote, non-native annual grasses, crete weed (*Hedypnois cretica*), and filaree (*Erodium* sp.).

Quino Checkerspot Butterfly Habitat (SANDAG TransNet EMP Grant Matching/Complementary Work, Dulzura)

QCB habitat enhancement occurred within approximately 0.73 acre at the Dulzura parcels during 2024 (see Figure 54; DLZ_3, DLZ_4, DLZ_5, DLZ_6, and DLZ_7). The primary weeds treated were short-pod mustard, filaree, non-native grasses, and tocalote.

Otay Tarplant Habitat (Millenia, Western Wolf Canyon, and Johnson Canyon Otay Tarplant Preserve)

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. Black mustard, tocalote, stinkwort, prickly lettuce (*Lactuca serriola*), and non-native grasses were treated/removed within 4.36 acres of Otay tarplant habitat at MLLN_1, MLLN_2, and MLLN_6 within the Millenia parcels, in accordance with the Work Plan (FY 23-24) (see Figure 53). These areas required multiple treatments throughout the year.

Tocalote, short-pod mustard, and black mustard were removed within 1.64 acres of Otay tarplant habitat at WWC_2, WWC_4, WWC_5, and WWC_7 within the Western Wolf Canyon parcels, in accordance with the Work Plan (FY 23-24) (see Figure 55).

Spiny sowthistle (*Sonchus asper*), tocalote, prickly lettuce, and oats were removed within approximately 0.19 acres at Johnson Canyon Otay Tarplant Preserve, in accordance with the Work Plan (FY 23-24) (Figure 56; JCOTP_1).

Early Detection Rapid Response (Salt Creek, Northern Salt Creek, Millenia, Dulzura, Northern San Ysidro, San Ysidro, and Little Cedar Canyon)

Stinkwort (CAL-IPC Rating: Moderate/Alert) is sparsely distributed within the treatment survey areas at Salt Creek, Northern Salt Creek, Millenia, Dulzura, San Ysidro, and Northern San Ysidro. An 'Alert' designation indicates that it has high potential for invasion into wildlands (Cal-IPC 2024). Stinkwort is removed by hand where encountered on the Preserve. Stinkwort was treated when encountered throughout the 784.5-acre Salt Creek parcels and 148.6-acre Northern Salt Creek parcels, in accordance with the Work Plan (FY 23-24) (see Figure 52). Stinkwort was removed by hand at several locations within Millenia parcels, in accordance with the Work Plan (FY 23-24) (see Figure 53). Stinkwort was also removed by hand at one location within the Dulzura parcels (see Figure 54). Within the Northern San Ysidro and San Ysidro parcels, stinkwort was removed from within the 3.51-acre treatment survey area, in accordance with the Work Plan (FY 23-24) (see Figure 57).

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 Stinknet Survey Location on Figure 53). One individual was observed and removed from the Salt Creek parcels on April 29, 2019 (see Stinknet Survey Location on Figure 52). At both locations, the individuals were in flower and were removed prior to setting seed. This species typically germinates in spring and flowers from March through July (Jepson Flora Project 2024). On December 20 and 23, the previously mapped stinknet location at the Salt Creek parcels (SC_Oncosiphon) and at the Millenia parcels west of SR-125 (MLLN_Oncosiphon) were visited, respectively, per the Work Plan (FY 24-25). No stinknet individuals were observed at either location. Stinknet has not been observed within the Preserve since the initial observations, more than 9 years ago at Millenia parcels and more than 5 years ago at Salt Creek parcels. Sufficient time has passed to determine that a seed bank was not established.

Forty-seven individuals of false hawkbit (*Urospermum picroides*) were removed by hand on April 10, 2024 from the drainage within Little Cedar Canyon parcels. Photograph 51 demonstrates the individuals prior to removal. False hawkbit was documented in San Diego County for the first time in 2022. This species was first observed within the preserve in 2023. The location the species was observed was revisited at an appropriate time of the year in order to remove the individuals prior to setting seed and prevent the population from expanding.

Minnewawa Revegetation Area

Herbicide was applied to primarily short-pod mustard, filaree, tocalote, and non-native grasses within 0.47 acres of the Non-native Plant Treatment Areas to assist with erosion control within coastal sage scrub habitat at the Dulzura parcels (see Figure 54; DLZ_1 and DLZ_2).

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 2023-24) Brown-headed Cowbird 2024 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 2024, a 12-meter mist-net was used to trap BHCO at three locations (see Figure 51). Mist-netting started on April 15, 2024 and ended on June 24, 2024.

4.0 Future Tasks to be Performed

Anticipated tasks to occur between January 1 and June 30, 2025 are listed below (RECON 2024a). Tasks to be performed between July 1 and December 31, 2025 will be proposed in the draft FY 2025–26 Annual Work Plan, which will be submitted to the POM by February 1, 2025.

- Seed collection and redistribution to support QCB habitat within Millenia parcels and to support cactus wren habitat at Salt Creek, Northern Salt Creek, Millenia, and Western Wolf Canyon parcels (Subtask 1a).

- ISHB tree health surveys & native shrub dieback surveys at Salt Creek, Northern Salt Creek, and Wolf Canyon parcels (Subtask 1c).

- Focused rare plant surveys focusing on annual and herbaceous perennial species at Dulzura, Little Cedar Canyon, and Proctor Valley (Subtask 1d).

- Focused rare plant MSP IMG surveys at Dulzura, Jamul Mountains, Johnson Canyon (East), Johnson Canyon Otay Tarplant Preserve, Little Cedar Canyon, Millenia, Northern San Ysidro, Proctor Valley, Proctor Valley (North), Ridge, Northern Salt Creek, Salt Creek, San Ysidro, Western Wolf Canyon, Wolf Canyon (Subtask 1d).

- Western spadefoot surveys at Northern Salt Creek, Salt Creek, Millenia, Johnson Canyon Otay Tarplant Preserve, Jamul Mountains, Northern San Ysidro, McMillin, Little Cedar Canyon, Dulzura, Proctor Valley, and Proctor Valley (South) parcels (Subtask 1e).

- Golden eagle camera surveys at Ridge, McMillin, and Dulzura parcels (Subtask 1f).

- QCB surveys at San Ysidro parcels (Subtask 1g).
- Photographic monitoring at Dulzura parcels to continue previous work for the SANDAG TransNet EMP grant for QCB short-term threat reduction project (Subtask 1h).
- Vegetation rapid assessment at Dulzura parcels to continue previous work for the SANDAG TransNet EMP grant for QCB short-term threat reduction project (Subtask 1i).
- Baseline surveys at Rock Top parcels, if conveyed by March 1, 2025 (Subtask 1j).
- Gold-spotted oak borer monitoring at Dulzura parcels (Subtask 1k).

The following deliverables from the FY 2024–25 Annual Work Plan are anticipated to be submitted between January 1 and June 30, 2025:

- Database management and contributions for data collected between January 1, 2024 and December 31, 2024 (Subtask 4b).
- 2024 Annual report (Subtask 4d).
- FY 2025–26 annual work plan for all tasks to be completed within the Otay Ranch Preserve between July 1, 2025 and June 30, 2026 (Subtask 4e).
- QCB pre-survey notification letter (Subtask 4f).
- QCB post-survey report (Subtask 4g).

All Land Stewardship (Subtask 2a), Meetings and Coordination (Subtasks 3a–3d), Access Control (Subtasks 5a and 5b), and Invasive Species Treatment (Subtask 6a) tasks are considered ongoing and will continue through the end of FY 2024–25.

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 2024 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. Section 2.0 includes a weather summary for July 2023 through June 2024. The total rainfall for the 2023-2024 season was higher than normal by 4.39 inches. Overall, it was warmer at Brown Field between June 2023 and December 2023 and cooler between January 2024 and May 2024 compared to the normal maximum temperature based on data collected between 1991-2020 (USDC 2024b). With high germination rates of annual species during spring due to above average rainfall, vegetation treatments were targeted appropriately to protect sensitive resources such as habitat for coastal cactus wren and QCB, vernal pools, and Otay tarplant.

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 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 2024-25 work plan provides 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 2024a). The POM and PSB will coordinate with the SDMMP regarding these species and how Otay Ranch Preserve management and monitoring actions can support the SDMMP regional climate change goals and objectives.

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 of the FY 2024-25 Work Plan [RECON 2024a]).
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 The Nature Conservancy 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 58 identifies discrete tasks that were implemented between January 1 and December 31, 2024 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 2024 annual report to aid in determining how observed changes in species dominance, diversity, and distribution may relate to climate change.

Table 58 Cross-walk of 2024 Annual Report Tasks with Climate Change Adaptation Strategies	
Monitoring Task	Purpose
Botanical Resources	
Seed Collection and Redistribution (Task 1a)	Management actions, such as seed collection and redistribution, were used to improve the resiliency of populations of sensitive plants and animals that are vulnerable to climate change.
Repeat Vegetation Mapping, Photographic Monitoring, and Vegetation Rapid Assessment Monitoring (Tasks 1i, 1j, and 1l)	Vegetation rapid assessment monitoring, vegetation mapping, 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.
Focused Surveys for Rare Plants and Vernal Pool Plant Monitoring (Tasks 1f and 1n)	Focused surveys monitored the response of sensitive plant species populations and vernal pool plants that are susceptible to the effects of climate change (e.g., increased drought, proliferation of non-native plant species). The 2024 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 2024 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: Hermes Copper Butterfly, Fairy Shrimp, Golden Eagle, Quino Checkerspot Butterfly, Coastal Cactus Wren, Least Bell's Vireo, Yellow-billed Cuckoo, and Western Spadefoot (Tasks 1b, 1e, 1g, 1h, 1k, 1o, and 1e)	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 2024 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: Invasive Shot Hole Borer Monitoring, Native Shrub Dieback Surveys, Gold-spotted Oak Borer Monitoring, and Brown-headed Cowbird Trapping (Tasks 1d, 1p, and 6b)	Invasive species monitoring provided information regarding new and emerging threats to sensitive habitats and species. The 2024 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, 2024. These projects did not use funds generated by CFD 97-2.

6.1 Otay Ranch Preserve Enhancement Project at Otay Ranch Preserve Dulzura Parcels, County of San Diego Department of Parks and Recreation, SANDAG TransNet Program

The following is a summary from the Final Report for the Otay Ranch Preserve Enhancement Project at Otay Ranch Preserve Dulzura parcels (County of San Diego 2024).

The primary goal of the Otay Ranch Preserve Enhancement Project (project) was to restore and increase the quality of habitat for QCB near the Minnewawa Truck Trail through seasonal road closure when QCB larvae and adults are active, as well as seeding and planting host and nectar plant species within suitable QCB habitat. QCB is included in the SDMMP MSP as a Category SL (species at risk of loss from the MSP Area). This project addressed the immediate needs of QCB within the Otay Ranch Preserve Dulzura parcels, where loss and degradation of existing QCB habitat occurred due to vehicles, an increase of invasive plants, and drought. The objectives to reach these goals included: (1) container plant installation, (2) seeding, (3) watering, (4) erosion control, (5) removable bollard and sign installation, and (6) photo monitoring.

This project is consistent with the management and monitoring approach prescribed in the SDMMP's Management and Monitoring Strategic Plan (SDMMP and The Nature Conservancy 2017: MSP Vol. 2D, page V2D.2-6): "The overarching goal for Quino checkerspot is to protect, enhance, and restore occupied habitat and historically occupied habitat and the landscape connections between them to create resilient, self-sustaining populations that provide for persistence over the long term (>100 years)." This project is also consistent with the management objectives and actions prescribed in the Otay Ranch Resource Management Plan.

Final project results showed an increase in native plant cover, including QCB host and nectar plants, and a decrease in invasive non-native plant cover compared to the baseline conditions. The project successfully increased the quality of habitat for QCB in the project site through seasonal road closure, seeding, and planting.

During the post-grant period, the project site will be managed by the Otay Ranch Preserve Owner/Manager (City of Chula Vista and County of San Diego) for an additional four years. During the additional four-year maintenance and monitoring period the Otay Ranch Preserve fiscal year annual work plans will include invasive non-native plant treatment with herbicide and/or removal by hand, quantitative vegetation monitoring using the rapid assessment method, and repeat photographs. After the four-year maintenance and monitoring period, the project site will be assessed annually to determine when additional invasive non-native plant treatment is needed. Focused surveys for QCB, as described in the Otay Ranch Preserve RMP Phase 2 Update and repeat photo monitoring will be conducted concurrently every five years. Installation and removal of bollards will occur annually during and after seasonal closure for QCB. Fence, sign, and bollards will be repaired, as needed. All maintenance and monitoring will be reported in the Otay Ranch Preserve annual reports.

6.2 Otay Ranch Preserve Habitat Restoration Project at Otay Ranch Preserve, Salt Creek, Northern Salt Creek, Dulzura, and Little Cedar Canyon Parcels, County of San Diego Department of Parks and Recreation

The following is a summary from the Summary Report for the Otay Ranch Preserve Habitat Restoration Project at Otay Ranch Preserve, Salt Creek, Northern Salt Creek, Dulzura, and Little Cedar Canyon parcel sets (RECON 2024f).

The project included 11.4 acres of habitat enhancement for coastal cactus wren at seven polygons within the Salt Creek and Northern Salt Creek parcels, trash removal throughout 26.2 acres at Little Cedar Canyon and Dulzura parcels, and treatment of 1.9 acres of invasive non-native trees at three treatment polygons within Salt Creek parcels. Project activities began on February 12, 2024, and concluded on April 12, 2024. All restoration activities were planned and conducted in support of fire suppression within the Preserve.

RECON biologists conducted biological resources monitoring, nest surveys, routine site checks, photo point monitoring, and worked closely with restoration crews. RECON and Black Sage field crews performed 11.4 acres of habitat enhancement for coastal cactus wren, including shrub thinning, herbicide application, and cactus cutting installation. Habitat enhancement sites were supplemented with native plant seed species conducive to coastal cactus wren habitat.

Trash removal was prioritized within 26.2 acres of drainage courses within the Dulzura and Little Cedar Canyon parcel sets due to a high volume of trash deposited along the drainages. In addition, trash removal activities allowed for enhancement of the current habitat conditions for various rare plants and Harbison dun skipper (*Euphyes vestris harbisoni*) habitat. Black Sage field crews filled heavy-duty contractor trash bags by hand and hand carried the trash bags to the closest vehicle access point for proper disposal off-site. RECON biologists worked closely with Black Sage field crews to guide them to access points and heavy trash deposit locations. In total, approximately 7,850 gallons of trash were removed. Trash and debris primarily consisted of abandoned encampments, loose food and beverage containers, discarded clothing, trash bags, backpacks, and other debris. Photographs 52 though 57 demonstrates this trash removal effort.

LC Tree Service treated 55 eucalyptus trees, 9 Peruvian pepper trees (*Schinus molle*), 6 Canary Island date palms (*Phoenix canariensis*), and 4 salt cedar (*Tamarix ramosissima*) throughout 1.9 acres at three locations within the Salt Creek parcel set. Eucalyptus tree treatment occurred in support of fire prevention as the bark and oil is highly flammable. Due to location of and access to the trees, herbicide application without manual tree removal was deemed the most appropriate method of treatment. The trees were drilled or cut and immediately filled with herbicide. The trees were left to die in place which will continue to provide habitat for numerous wildlife species.

6.3 Final Habitat Restoration Plan for the 1418 Firebreak Road Improvements and Road Closure, San Diego County, California, U.S. Customs and Border Protection

The following is a summary from the Final Habitat Restoration Plan for the 1418 Firebreak Road Improvements and Road Closure Project. A portion of this project occurs within Otay Ranch Preserve, Dulzura parcels (RECON 2024g).

The Habitat Restoration Plan (Plan) was prepared to satisfy the requirements of the USFWS, Informal Section 7 Consultation for the 1418 Firebreak Road Improvement Project. The USFWS included several conservation measures to be implemented including restoring and closing unauthorized roads within the vicinity of Firebreak Road and restoring QCB/coastal California gnatcatcher (CAGN) habitat for the area. Closing off the entrance and exit points to each road proposed for restoration will aid in native vegetation recruitment and establishment, non-native invasive species removal, and erosion control. Customs and Border Protection will close 2.32 acres comprised of four disturbed, unauthorized roads and three areas along Firebreak Road in the vicinity of 1418 Firebreak Road utilizing restoration techniques to rehabilitate the area for QCB/CAGN habitat. Restoration tasks will focus on "ripping" the roads, installing fencing and signs to deter unauthorized access, adding vertical mulch to select areas, seeding, weeding, and erosion control, as needed.

Since preparation of the Plan, activities commenced at the end of 2024. Within the northwestern portion of the Dulzura parcels an unauthorized road within and adjacent to QCB habitat was decommissioned in November 2024. In December 2024, erosion control devices were installed, and the area was hand seeded. The seed mix applied to the decommissioned road within Dulzura parcels is included in Table 59 below.

Table 59
Seed Mix Applied by Hand

Scientific Name	Common Name
Salvia apiana	white sage
Antirrhinum coulterianum	Coulter's snapdragon
Antirrhinum nuttallianum	Nuttall's snapdragon
Castilleja exserta	purple owl's clover
Chaenactis glabriuscula	yellow pincushion
Lupinus bicolor	miniature lupine
Pectocarya spp.	pectocarya
Plagiobothrys spp.	popcorn flower
Plantago erecta	dot-seed plantain
Salvia columbariae	chia

6.4 Otay River Restoration

The Otay River Restoration Project is located in the lower Otay River Watershed within the San Diego County MSCP. The project includes three separate components which will ultimately form one contiguous restoration area. The first component is a 40-acre restoration area referred to as the pre-bank which also includes an additional mile of invasive species control below Savage Dam. The second is a pending 4-acre restoration area immediately downstream of the pre-bank referred to as the Village 8 East (V8E) restoration area. The pre-bank and V8E restoration areas are permittee-responsible mitigation areas used to compensate for impacts to aquatic resources caused by nearby residential development. The third component is the pending mitigation bank, which will restore an additional 200+ acres immediately downstream of the pre-bank and V8E restoration areas. The mitigation bank will offer mitigation credits for a series of public and private developments planned within the City and surrounding watersheds. The pre-bank, V8E restoration area, and mitigation bank all involve restoring a mosaic of floodplain, riparian, grassland, sage scrub, and vernal pool habitats. The Otay River Restoration Project furthers the goals and objectives of the San Diego County MSCP through restoration of riverine habitats for the federally endangered least Bell's vireo (*Vireo bellii pusillus*) and other listed species. The Otay River Restoration Project is also within the City's Greenbelt Master Plan and County's Otay Valley Regional Park and will design and implement more than five miles of these trail systems.

In 2024, activities were conducted for all three components of the Otay River Restoration Project including monitoring and maintenance of the pre-bank as well as various pre-construction activities for the V8E restoration area and mitigation bank aiming to advance the permitting and planning process for those components. The pre-bank concluded Year 5 of the post-restoration monitoring and maintenance program in July 2024. Site maintenance activities included trash removal, site protection through the installation and maintenance of fencing, American bullfrog (*Lithobates catesbeianus*) control, and non-native plant control through mechanical and chemical methods. Additionally, the pre-bank supplemental plants and seeds were installed within the areas of the pre-bank that remained low in plant cover in 2024. Over 6,000 container plants, 200 willow cuttings, and 65 pounds of seed were installed within the pre-bank in winter and spring of 2024. Monitoring within the pre-bank in 2024 included quantitative and qualitative site visits by SWCA restoration ecologists to evaluate the site's progress towards meeting success criteria and identify issues negatively impacting the success of the project. General wildlife use of restoration areas was monitored via camera traps, while bats and least Bell's vireo were monitored using formal protocol surveys. Least Bell's vireo have consistently established breeding territories within the pre-bank restoration areas over the past three seasons. Several notable wildlife observations in the pre-bank in 2024 included a family of the California species of special concern western red bat (*Lasiurus blossevillii*) roosting in a mule fat (*Baccharis salicifolia*) shrub as well as two new reptile species including southwestern threadsnake (*Rena humilis humilis*) and the California species of special concern Baja California coachwhip (*Coluber fuliginosus*). The pre-bank has concluded its five-year maintenance and monitoring program and is planned to enter long-term management pending sign-off by the appropriate agencies.

Considerable activities were undertaken in 2024 to advance the permitting and planning process for the V8E restoration area and mitigation bank. In particular, site surveys and analyses were conducted throughout the portion of the mitigation bank site that overlaps the Brown Field Formerly Used

Defense Site (FUDS) as part of the remediation review process administered through the California Department of Toxic Substances Control (DTSC). The mitigation bank sponsor entered a voluntary agreement with DTSC to evaluate risks to human health, safety, and the environment potentially posed by the FUDS site as well as overlapping historical agricultural areas and remediate any risks if necessary. Surveys that were conducted in 2024 include surface and subsurface surveys for munitions debris and munitions and explosives of concern as well as soil and water sampling to assess the presence of contaminants associated with munitions or pesticides. Prior surveys and historical records of the FUDS site indicate the site should pose minimal risks to human health, safety, or the environment. The remediation review process will continue through 2025 and should facilitate the approval and safe implementation of the mitigation bank.

7.0 References Cited

Bauder, Ellen T., and Scott McMillan
1998 Current Distribution and Historical Extent of Vernal Pools in Southern California and Northern Baja California, Mexico (Pages 56-70). In *Ecology, Conservation, and Management of Vernal Pool Ecosystems – Proceedings from a 1996 Conference*. California Native Plant Society, Sacramento, CA, edited by C. W. Witham, E. T. Bauder, D. Belk, W. R. Ferren, Jr., and R. Ornduff.

California Department of Fish and Wildlife (CDFW)
2023 Natural Diversity Database. RareFind Version 5.

California Invasive Plant Council (Cal-IPC)
2024 California Invasive Plant Inventory. https://www.cal-ipc.org/plants/.

California Native Plant Society
2001 CNPS Botanical Survey Guidelines. Revised June 2. https://cnps.org/wp-content/uploads/2018/03/cnps_survey_guidelines.pdf.

2024 CDFW-CNPS Protocol for the Combined Vegetation Rapid Assessment and Relevé Field Form. January 10.

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
2003 Biological Mitigation, Monitoring, and Reporting Program and Area-specific Management Directives.

Holland, R 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.)
2024 *Jepson eFlora,* http://ucjeps.berkeley.edu/IJM.html. Accessed January 5, 2023.

National Wildlife Federation
2014 Climate-Smart Conservation: Putting Adaptation Principles into Practice.

Oberbauer, Thomas, Meghan Kelly, and Jeremy Buegge
2008 Draft Vegetation Communities of San Diego County. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California," Robert F. Holland, Ph.D., October 1986. March.

RECON Environmental, Inc. (RECON)
2014 Annual Report for the Otay Ranch Preserve, January 1 – December 31, 2014.

2018 Otay Ranch Phase 2 Resource Management Plan Update. September.

2023a FY 2023–24 Annual Work Plan for the Otay Ranch Conveyed Lands Managed by the Otay Ranch Preserve Owner/Manager. February 1.

2023b Proposed Deviation Request and Pre-survey Notification for Wet Season Fairy Shrimp Surveys at Otay Ranch Preserve - Millenia and Johnson Canyon (East) Parcels. October 23.

2024a FY 2024–25 Annual Work Plan for the Otay Ranch Conveyed Lands Managed by the Otay Ranch Preserve Owner/Manager. February 7.

2024b Proposed Deviation Request and Pre-survey Notification for Focused Surveys for Quino Checkerspot Butterfly at Otay Ranch Preserve, San Diego County, California. February 12.

2024c Annual Report for the Otay Ranch Preserve, Johnson Canyon Otay Tarplant Preserve, and Piper Ranch, January 1–December 31, 2023. January 23.

2024d Otay Ranch Preserve – Proctor Valley Parcels: 2024 Quino Checkerspot Butterfly Survey Report. May 29.

2024e Post-Survey Report of 2023–2024 Wet Season Fairy Shrimp Surveys at Otay Ranch Preserve – Millenia and Johnson Canyon (East) Parcels, City of Chula Vista, San Diego County. June 19.

2024f Otay Ranch Preserve Habitat Restoration Project Summary Report (RECON Number 10013-2). April 26.

2024g Final Habitat Restoration Plan for the 1418 Firebreak Road Improvements and Road Closure, San Diego County, Californian (RECON Number 10216.3). August 8.

Rebman, Jon P., and Michael G. Simpson
2014 *Checklist of the Vascular Plants of San Diego County* (5th Edition). San Diego Natural History Museum and San Diego State University. https://www.sdnhm.org/science/botany/projects/checklist/.

San Diego, County of
1993 Otay Ranch Phase 1 Resource Management Plan. October 28.

2024 Otay Ranch Preserve Enhancement Project (SANDAG Contract Number S1125469). Department of Parks and Recreation. SANDAG EMP Land Management Grants. Final Report. September 23.

San Diego Management and Monitoring Program (SDMMP) and The Nature Conservancy
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.

San Diego Management and Monitoring Program (SDMMP)
2021 Climate Change. https://sdmmp.com/view_threat.php?threatid=TID_20160304_1450.

San Diego Natural History Museum (SDNHM)
2024a 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 21.

2024b Least Bell's Vireo (*Vireo bellii pusillus*) and Yellow-billed Cuckoo (*Coccyzus americanus*) 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 22.

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. Department of Commerce (USDC)
2024a NOWData - NOAA Online Weather Data. Brown Field Station. https://www.weather.gov/wrh/climate?wfo=sgx

2024b 1991-2020 Station Monthly Normals of Average Temperature, Precipitation, and Snowfall. Brown Field Station. National Centers for Environmental Information. National Oceanic and Atmospheric Administration. 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)
2001 Least Bell's Vireo Survey Guidelines. Carlsbad, California. January 19.

2014 Quino Checkerspot Butterfly Survey Protocol. February.

2017 Survey Guidelines for the Listed Large Branchiopods. Revised November 13.

U.S. National Weather Service
2025 Past Weather Records. National Oceanic and Atmospheric Administration. https://www.weather.gov/wrh/Climate?wfo=sgx.

ATTACHMENTS

ATTACHMENT 1

Figures 4–57

Image Source: Nearmap (flown 2024)

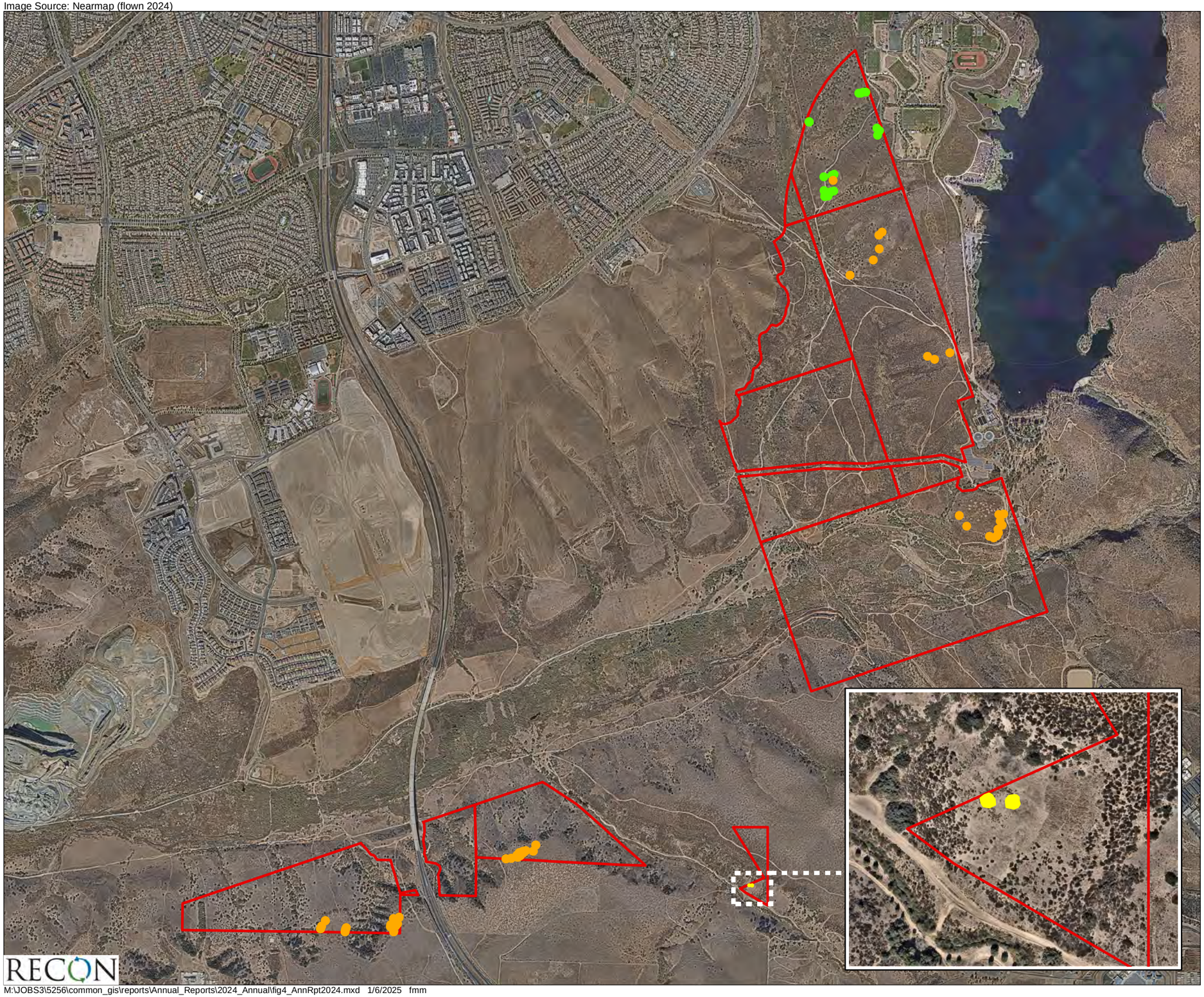


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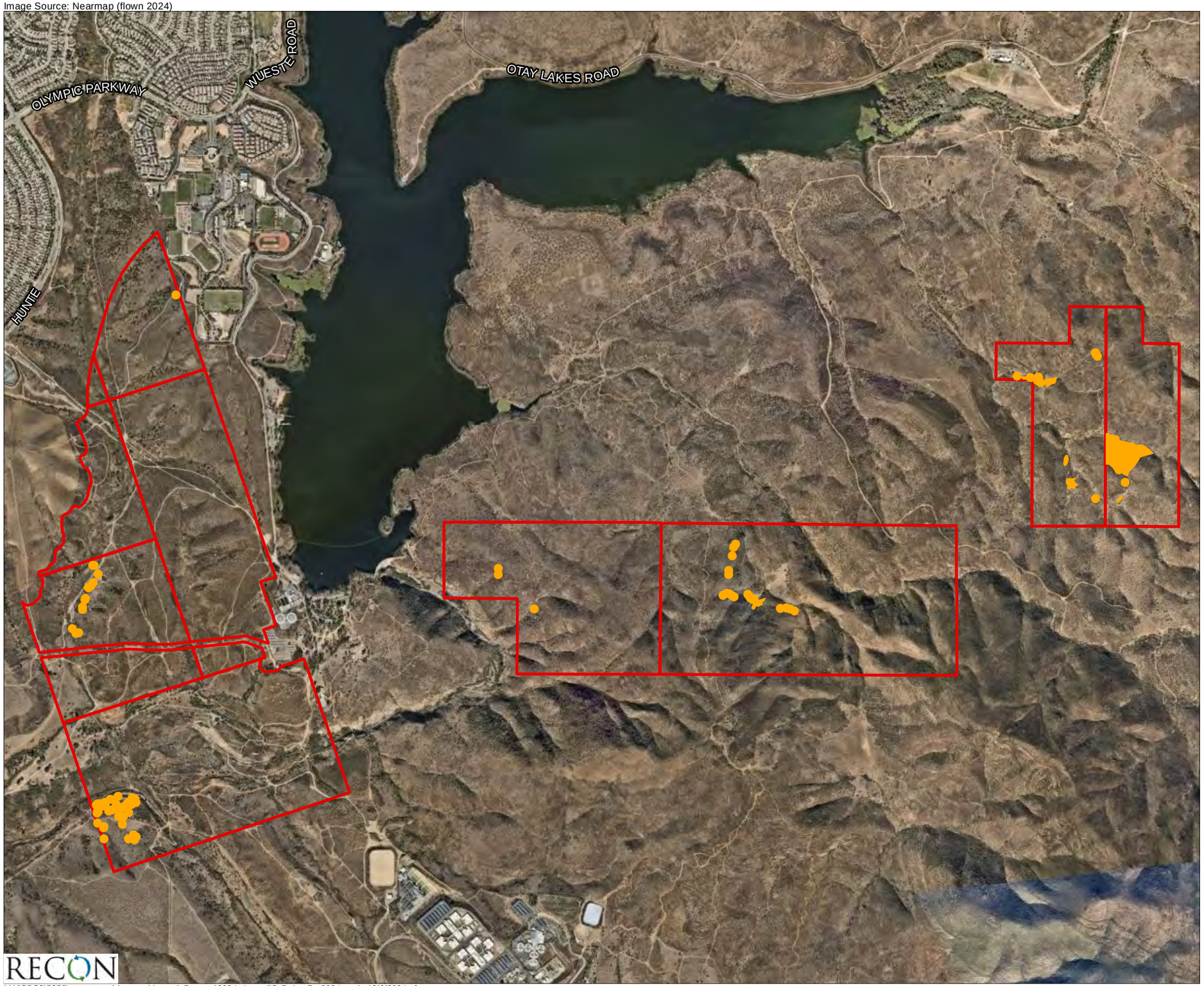
FIGURE 4

Seed Redistribution Locations, Millenia, Johnson Canyon Otay Tarplant Preserve, and Salt Creek Parcels

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Host Plant

Spiny Redberry (*Rhamnus crocea*)

0 Feet 1,500

RECON

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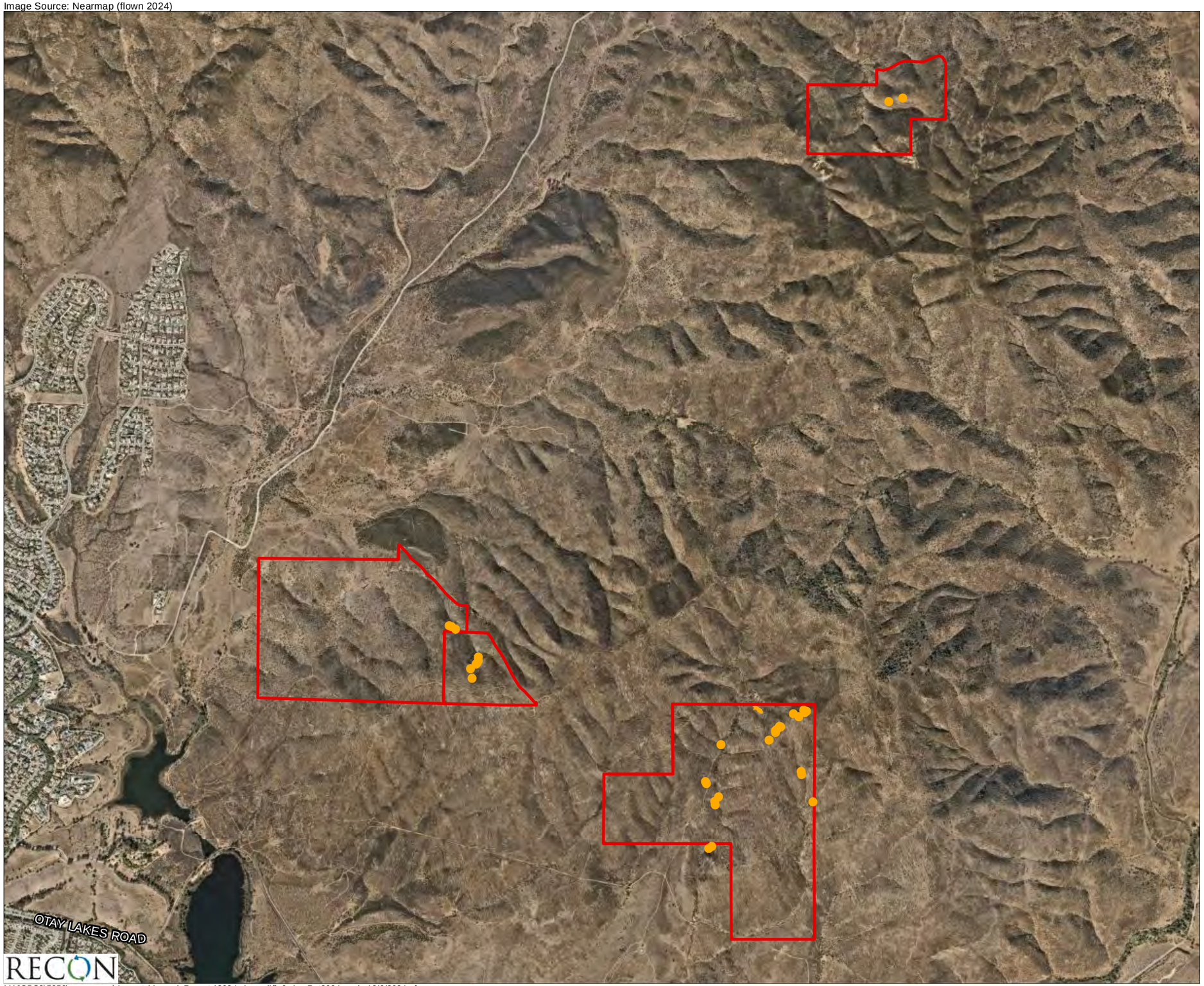
FIGURE 5

Spiny Redberry Locations Mapped in 2024, Salt Creek, San Ysidro, and McMillin Parcels

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Host Plant

Spiny Redberry (*Rhamnus crocea*)

0 Feet 1,500

FIGURE 6

Spiny Redberry Locations Mapped in 2024,
Jamul Mountains, Ridge,
Proctor Valley (North) Parcels

RECON

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Image source: Nearmap (flown 2024)

Conveyed Land Under POM Management

ISHB Tree Health & Native Shrub Dieback Survey Area*

Otay River Restoration Survey Area (SWCA) **

*Surveys were coordinated with Otay River Restoration Project being managed by SWCA.

**Not Part of the RECON Survey Area

Riparian Photo Monitoring Points

Native Shrub Dieback Observed Locations

RECON

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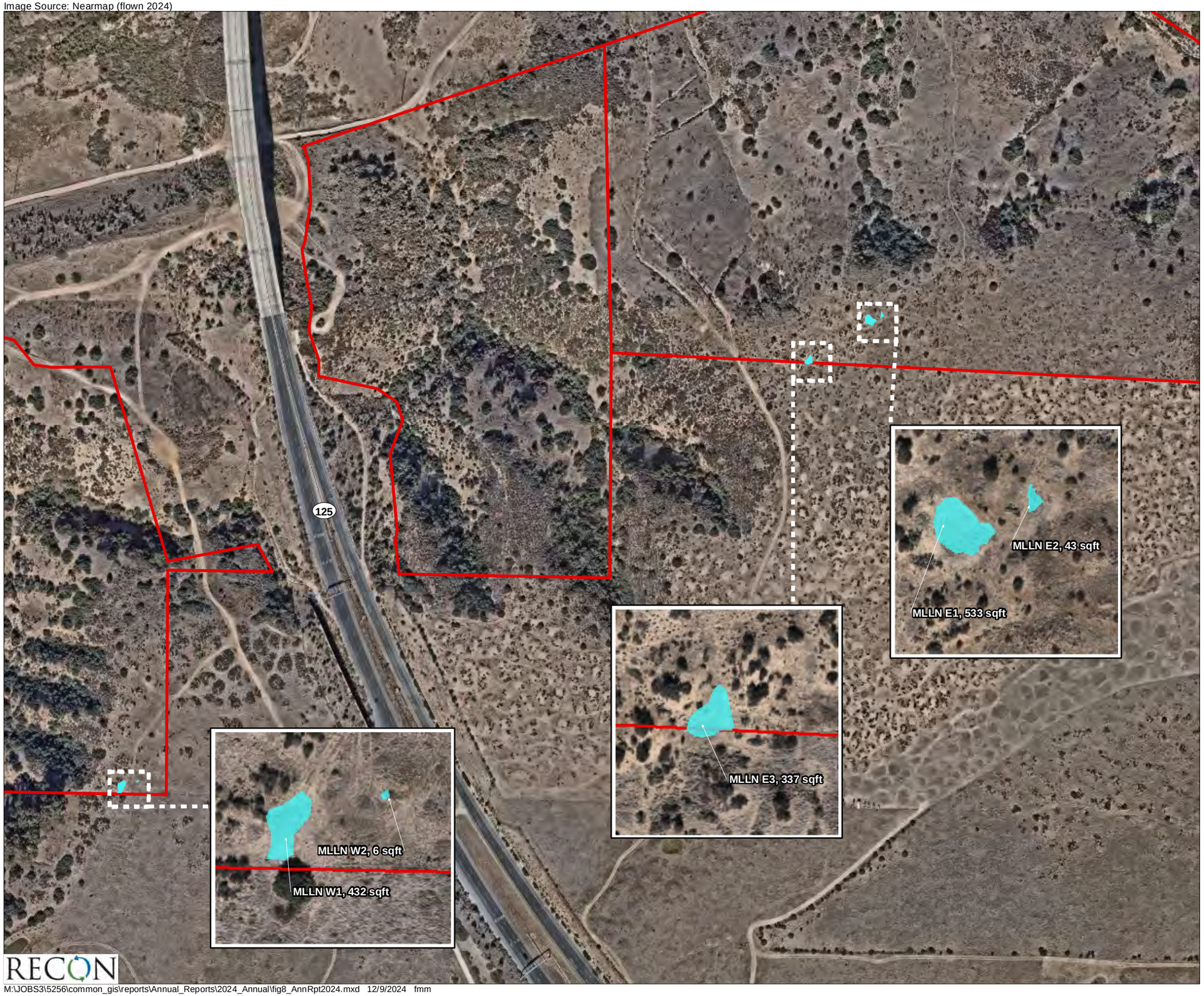
FIGURE 7

ISHB & Native Shrub Dieback Monitoring Location,
Salt Creek, Northern Salt Creek, and Wolf Canyon Parcels

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Ponding Areas

0 Feet 300

RECON

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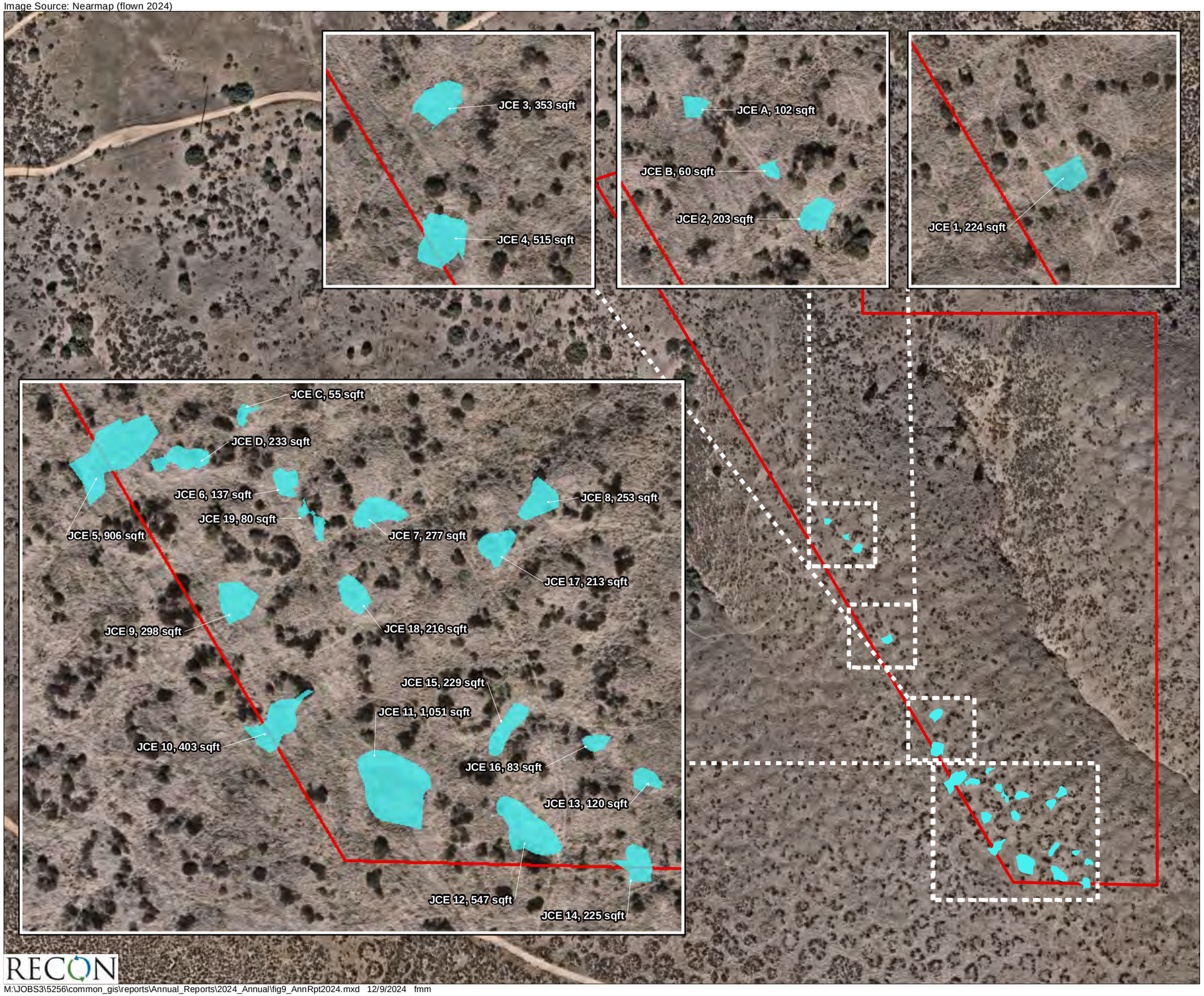
FIGURE 8

2024 Ponded Areas, Millenia Parcels

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Ponding Areas

0 Feet 200

RECON

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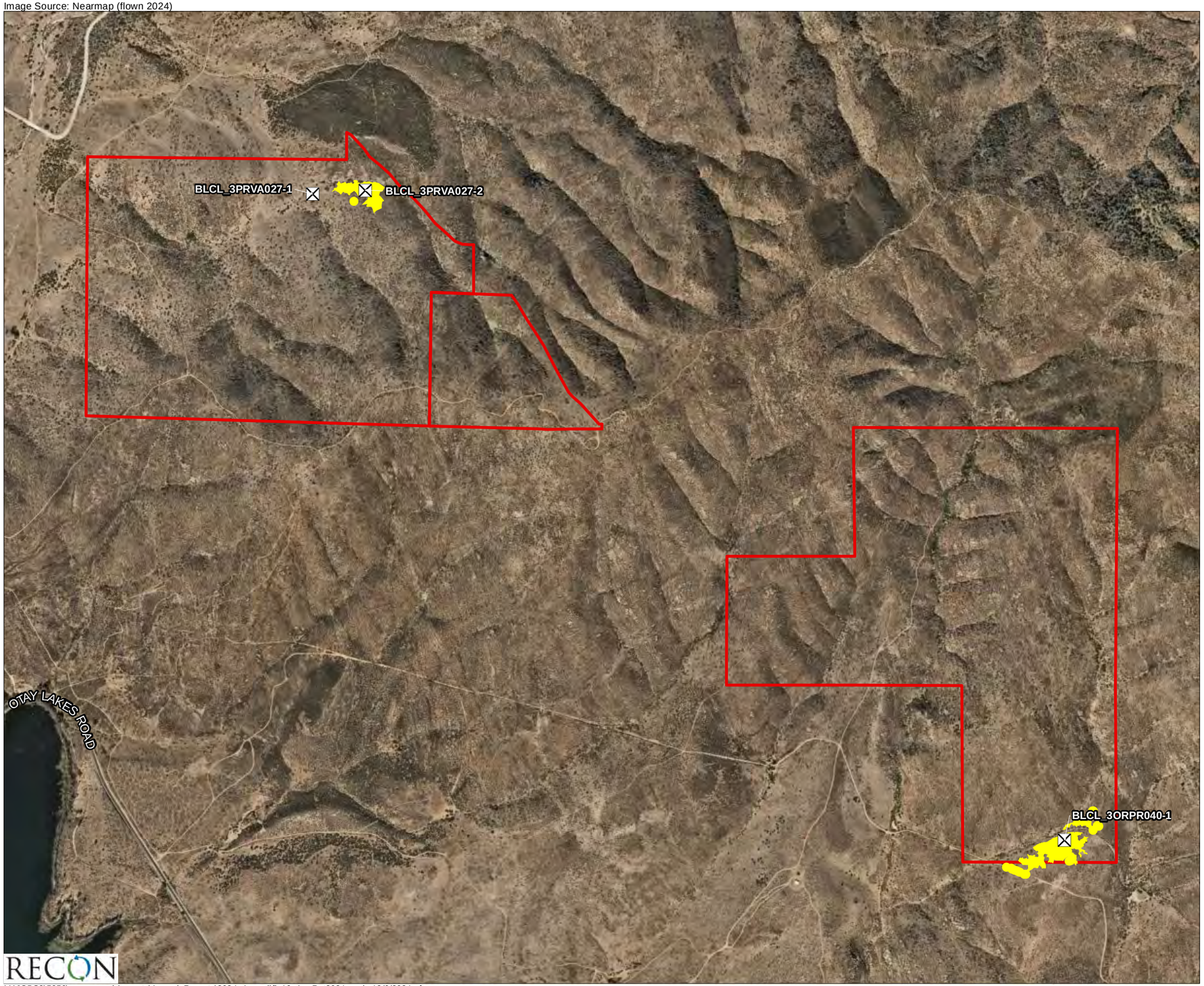
FIGURE 9

2024 Ponded Areas,
Johnson Canyon (East) Parcels

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

IMG Rare Plant Monitoring Locations

IMG MSP/Priority Group 1

San Diego Goldenstar (*Bloomeria clevelandii*)

0 Feet 1,000

RECON

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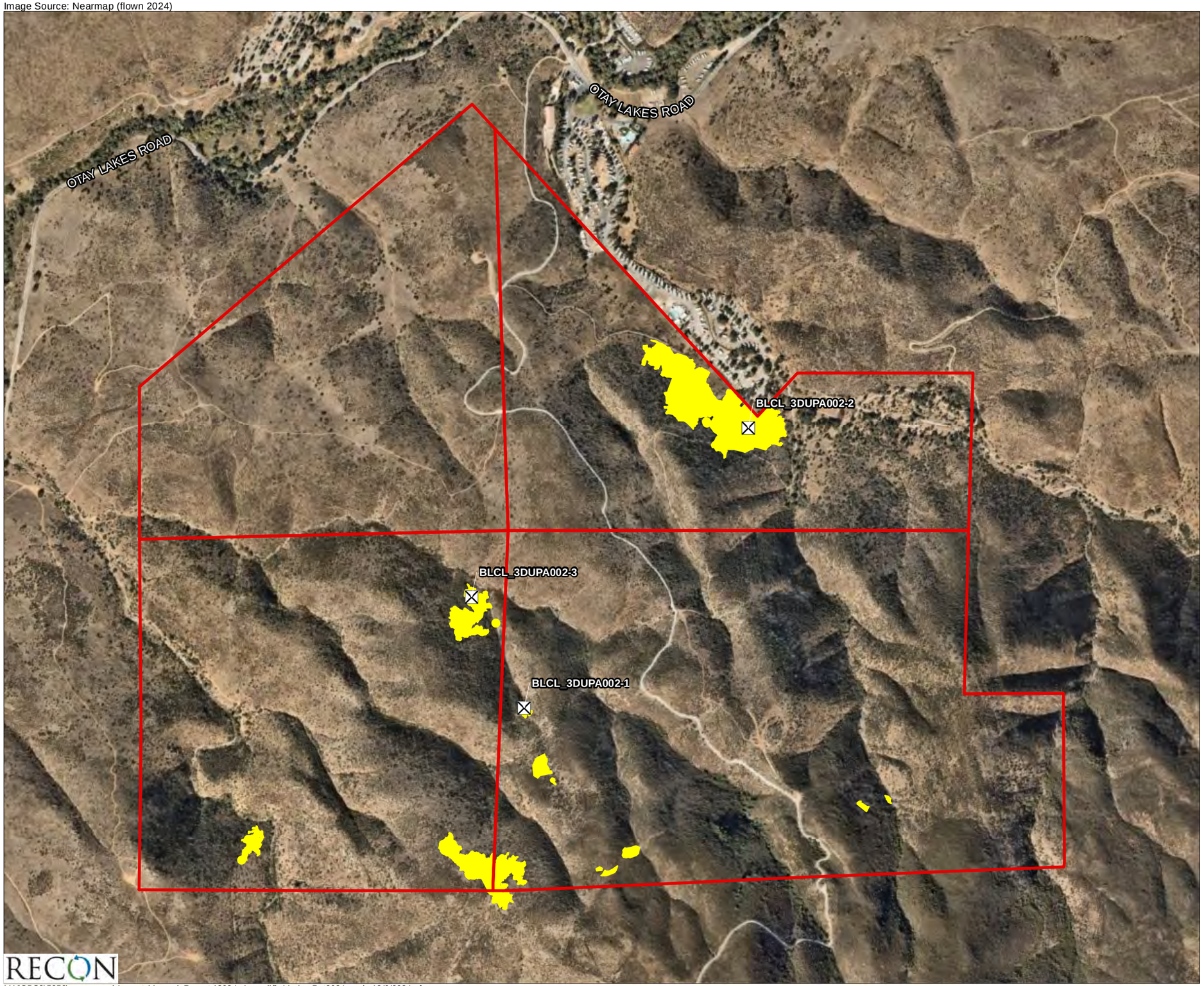
FIGURE 10

MSP IMG Rare Plant Survey Results,
Jamul Mountains and Ridge Parcels

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

IMG Rare Plant Monitoring Locations

IMG MSP/Priority Group 1

San Diego Goldenstar (*Bloomeria clevelandii*)

0 Feet 800

RECON

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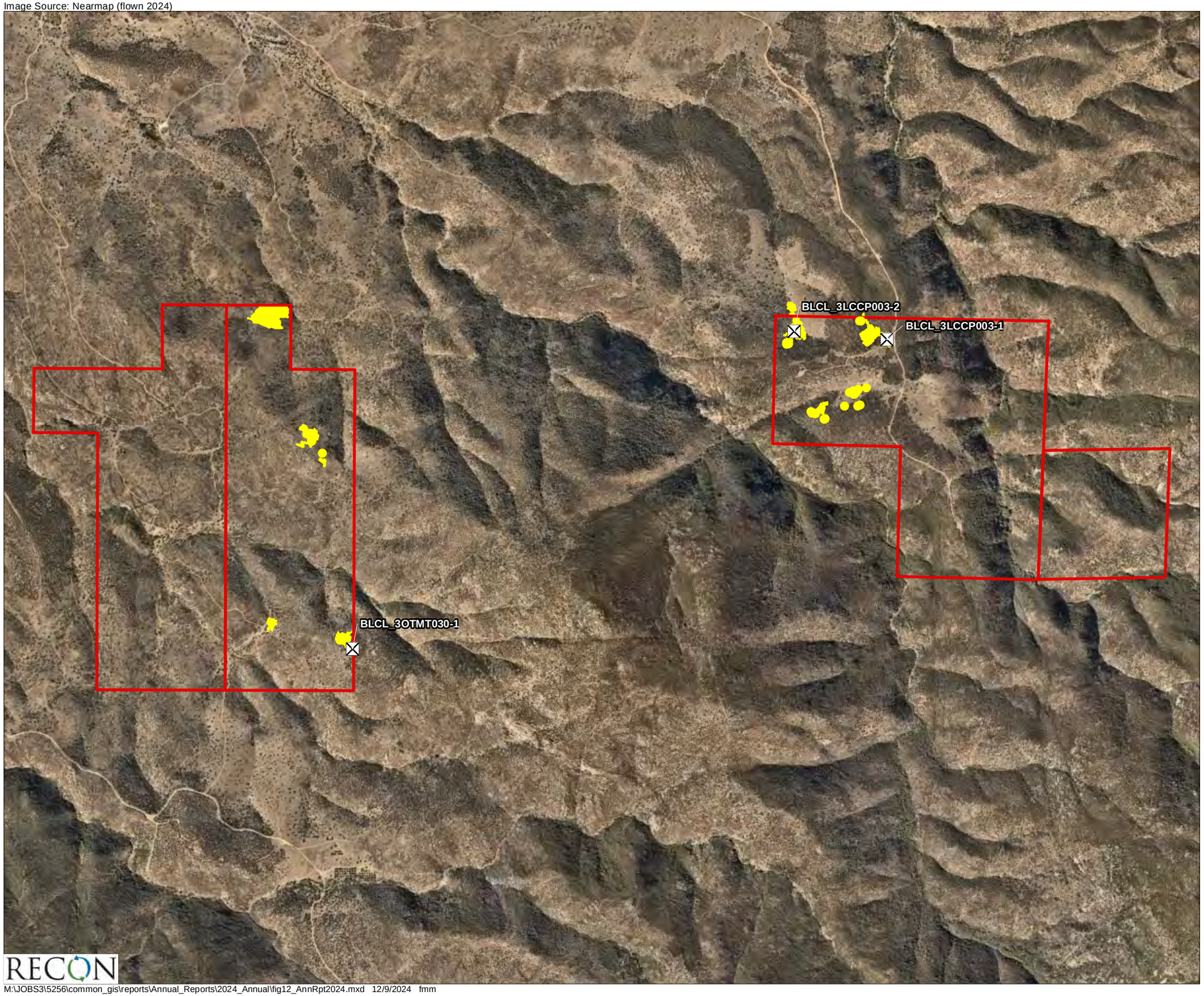
FIGURE 11

MSP IMG Rare Plant Survey Results,
Dulzura Parcels

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

IMG Rare Plant Monitoring Locations

IMG MSP/Priority Group 1

San Diego Goldenstar (*Bloomeria clevelandii*)

0 Feet 1,000

RECON

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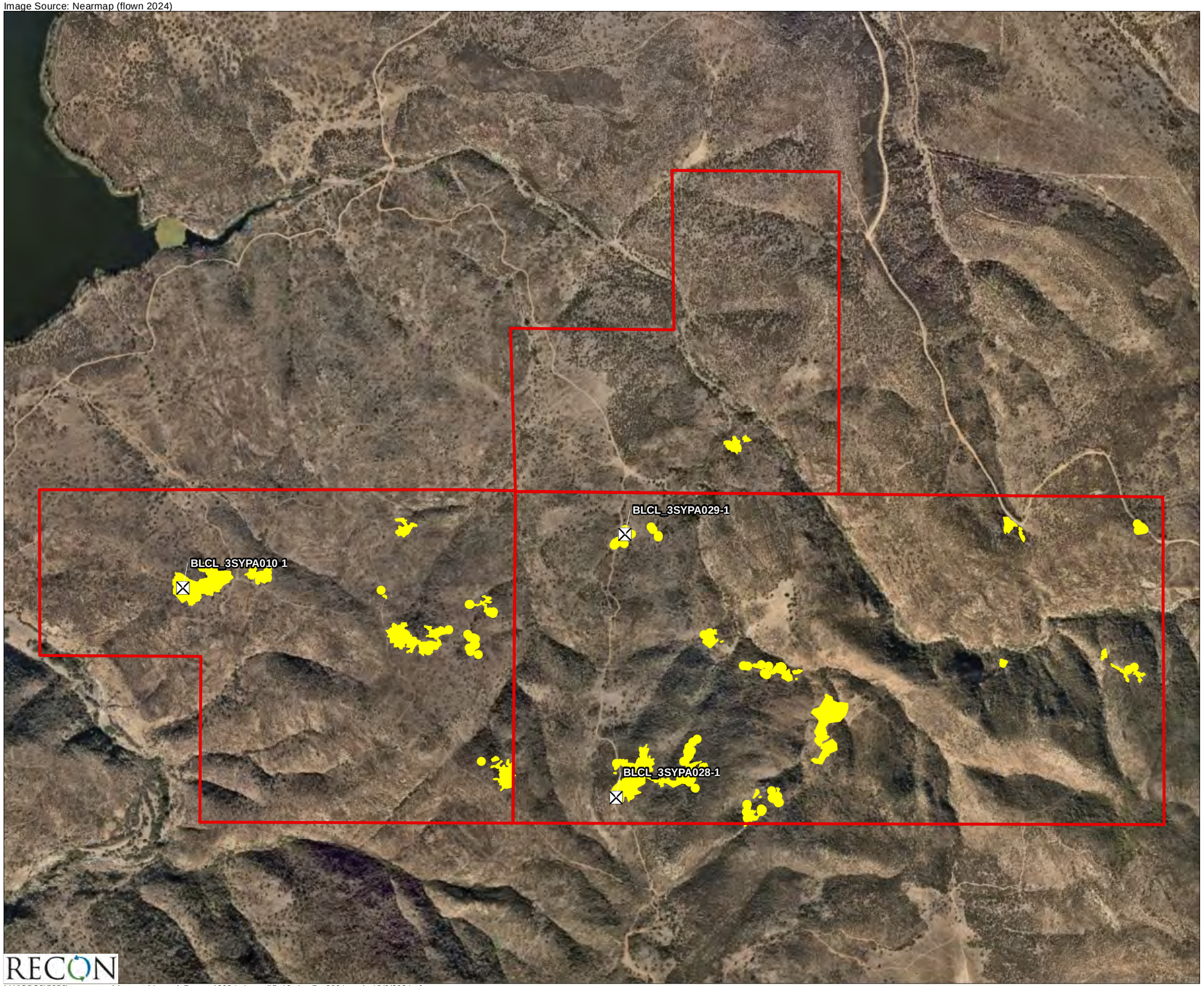
FIGURE 12

MSP IMG Rare Plant Survey Results,
McMillin and Little Cedar Canyon Parcels

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

IMG Rare Plant Monitoring Locations

IMG MSP/Priority Group 1

San Diego Goldenstar (*Bloomeria clevelandii*)

0 Feet 800

RECON

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FIGURE 13

MSP IMG Rare Plant Survey Results,
San Ysidro and Northern San Ysidro Parcels

Image source: Nearmap (flown 2024)

Conveyed Land Under POM Management

IMG Rare Plant Monitoring Locations

IMG MSP/Priority Group 1

San Diego Goldenstar (*Bloomeria clevelandii*)

Otay Tarplant (*Deinandra conjugens*)

FIGURE 14

MSP IMG Rare Plant Survey Results,
Salt Creek and Northern Salt Creek Parcels

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Image Source: Nearmap (flown 2024)

Conveyed Land Under POM Management

IMG Rare Plant Monitoring Locations

IMG MSP/Priority Group 1

Otay Tarplant (*Deinandra conjugens*)

0 Feet 800

FIGURE 15

MSP IMG Rare Plant Survey Results, Millenia Parcels

RECON

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Image Source: Nearmap (flown 2024)

Conveyed Land Under POM Management

IMG Rare Plant Monitoring Locations

IMG MSP/Priority Group 1

Otay Tarplant (*Deinandra conjugens*)

0 Feet 400

RECON

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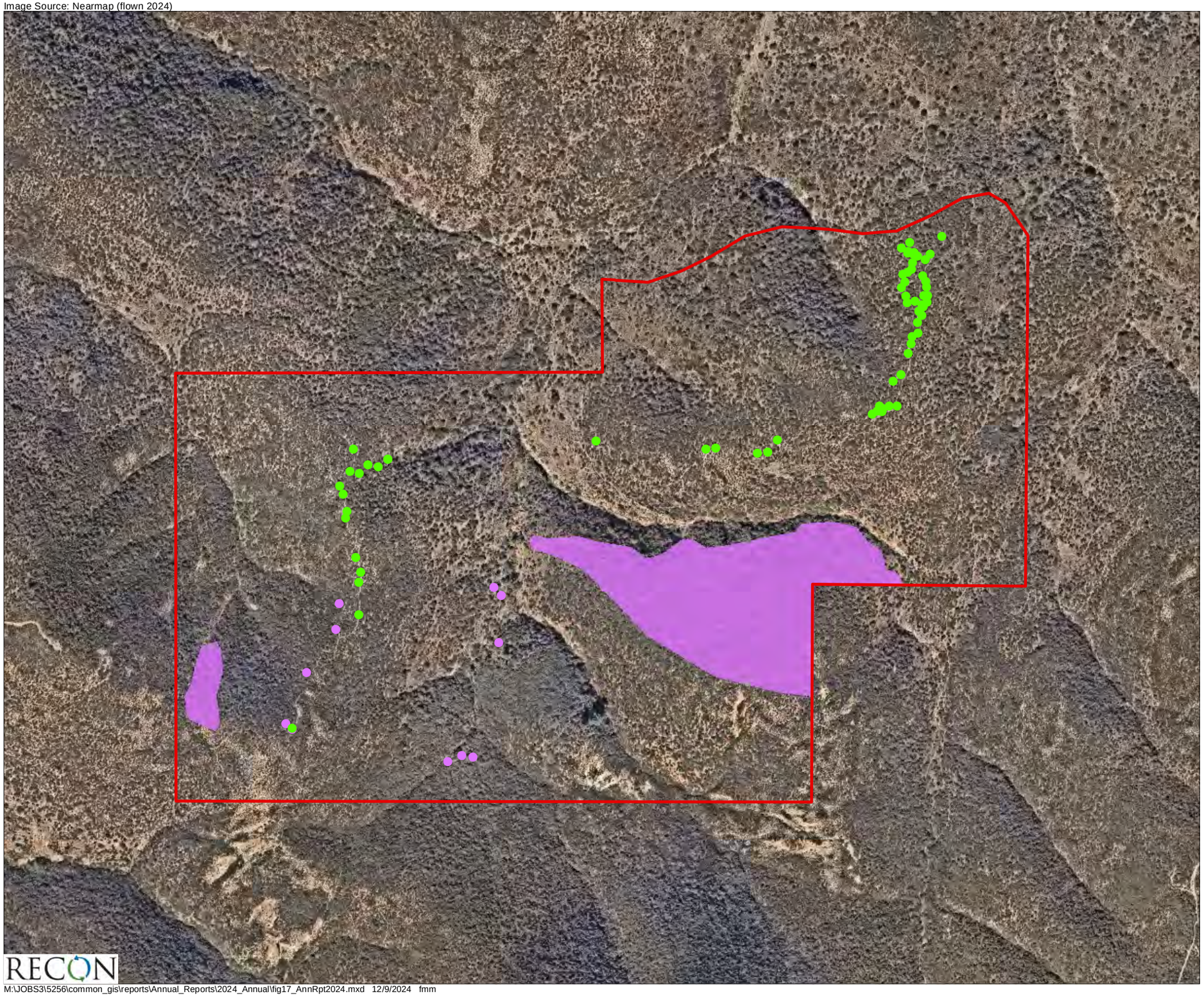
FIGURE 16

MSP IMG Rare Plant Survey Results, Wolf Canyon and Western Wolf Canyon Parcels

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Sensitive Plants

Priority Group 1

Dunn's Mariposa Lily
(*Calochortus dunnii*)

Gander's Pitcher Sage
(*Lepechinia ganderi*)

0 Feet 300

RECON

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FIGURE 17

Focused Rare Plant Survey Results,
Proctor Valley (North)

Image Source: Nearmap (flown 2024)

Conveyed Land Under POM Management

Sensitive Plants

Priority Group 1

- Snake Cholla (*Cylindropuntia californica* var. *californica*)
- Otay Mesa Mint (*Pogogyne nudiuscula*)

Priority Group 2

- San Diego Barrel Cactus (*Ferocactus viridescens*)

Priority Group 4

- Palmer's Grapplinghook (*Harpagonella palmeri*)
- San Diego Needle Grass (*Stipa diegoensis*)

0 Feet 2,000

FIGURE 18

Focused Rare Plant Survey Results and Incidental Rare Plant Observations, Northern Salt Creek, Salt Creek, and Millenia

RECON

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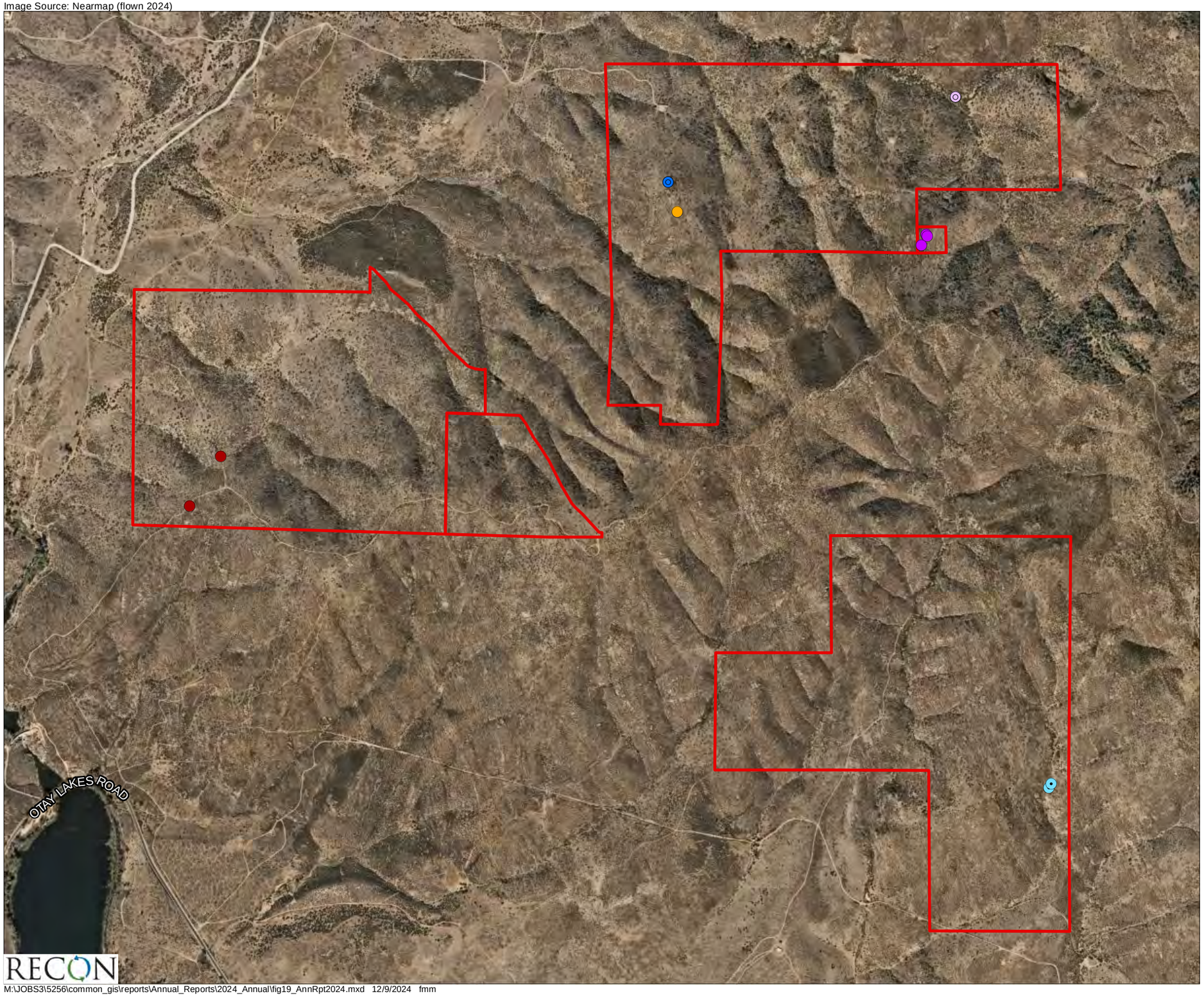
Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Sensitive Plants

Priority Group 1

- Variegated Dudleya (*Dudleya variegata*)
- Gander's Pitcher Sage (*Lepechinia ganderi*)

Priority Group 2

- San Diego Barrel Cactus (*Ferocactus viridescens*)

Priority Group 3

- Munz's Sage (*Salvia munzii*)

Priority Group 4

- San Diego Viguiera (*Bahiopsis laciniata*)
- California adder's-tongue (*Ophioglossum californicum*)

0 Feet 1,100

RECON

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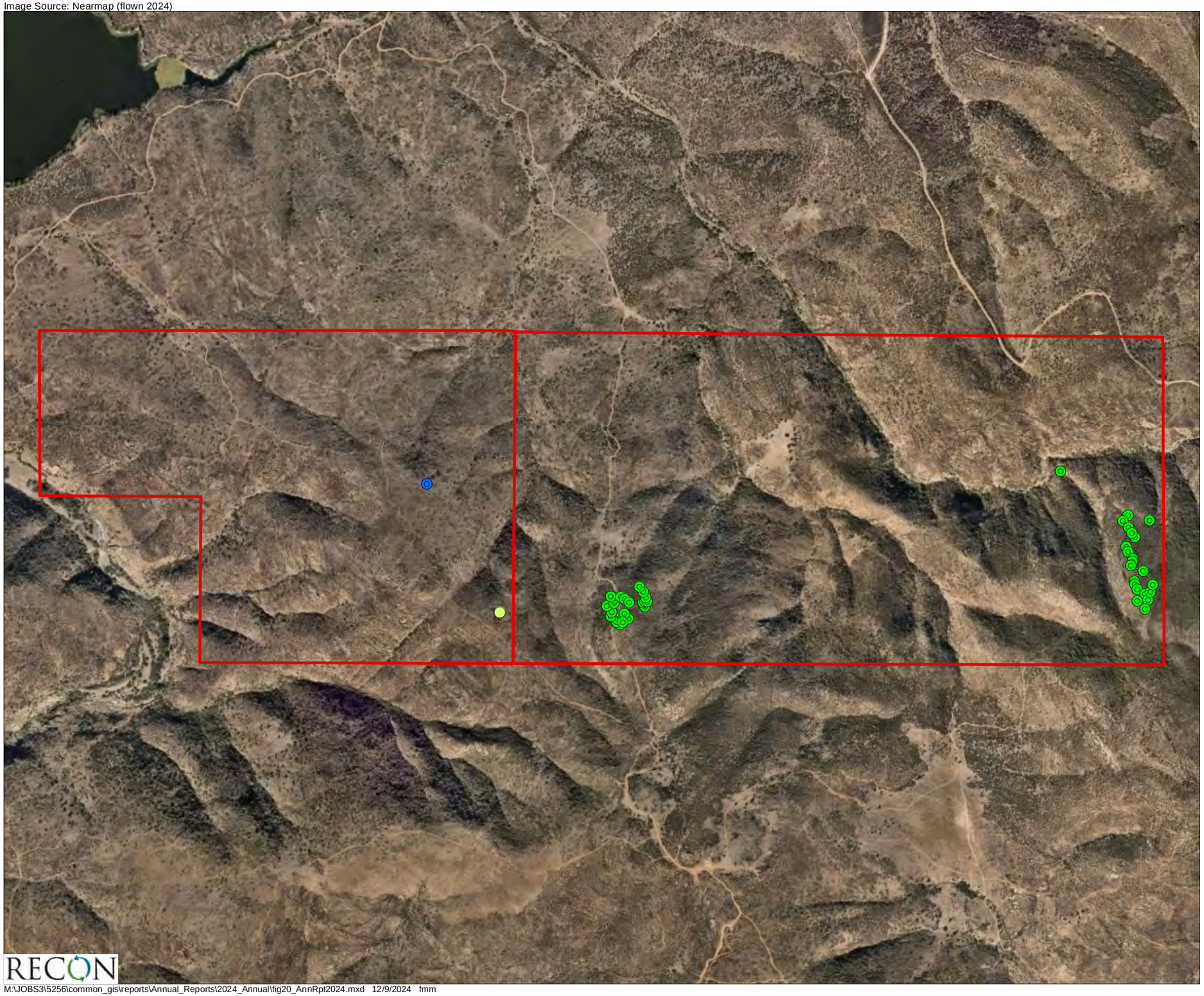
FIGURE 19

Focused Rare Plant Survey Results and Incidental Rare Plant Observations, Bonita Glen, Proctor Valley, Jamul Mountains, and Ridge

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Sensitive Plants

Priority Group 1

- Dunn's Mariposa Lily (*Calochortus dunnii*)
- Variegated Dudleya (*Dudleya variegata*)

Priority Group 4

- Golden-ray Pentachaeta (*Pentachaeta aurea* ssp. *aurea*)

0 Feet 800

FIGURE 20

Focused Rare Plant Survey Results and Incidental Rare Plant Observations, San Ysidro

RECON

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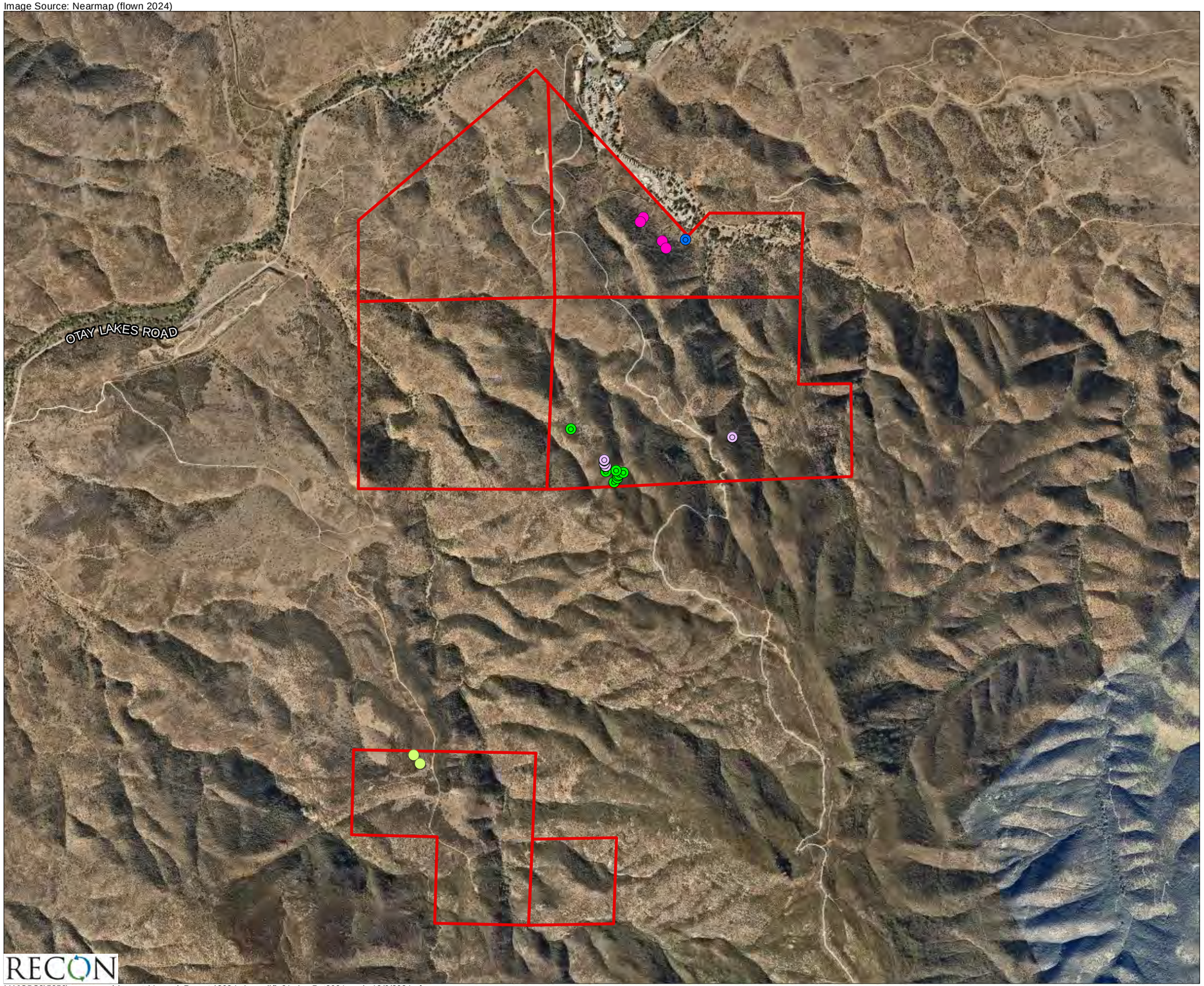
Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Sensitive Plants

Priority Group 1

- Dunn's Mariposa Lily (*Calochortus dunnii*)
- Variegated Dudleya (*Dudleya variegata*)
- Gander's Pitcher Sage (*Lepechinia ganderi*)

Priority Group 4

- Golden-ray Pentachaeta (*Pentachaeta aurea* ssp. *aurea*)
- Chaparral Rein-orchid (*Piperia cooperi*)

0 Feet 1,500

FIGURE 21

Incidental Rare Plant Observations, Dulzura and Little Cedar Canyon

RECON

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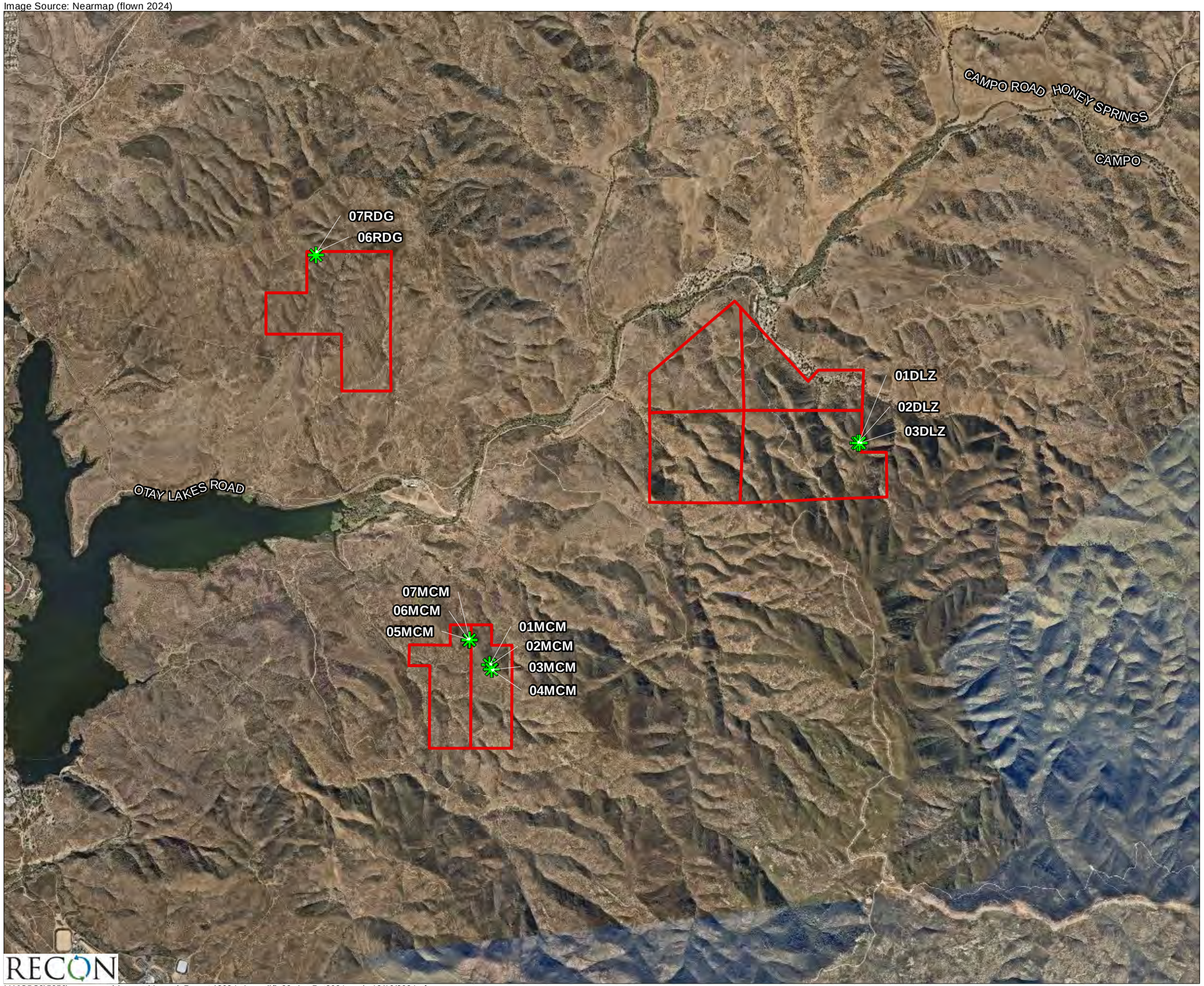
Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Golden Eagle Camera Locations

0 Feet 3,000

RECON

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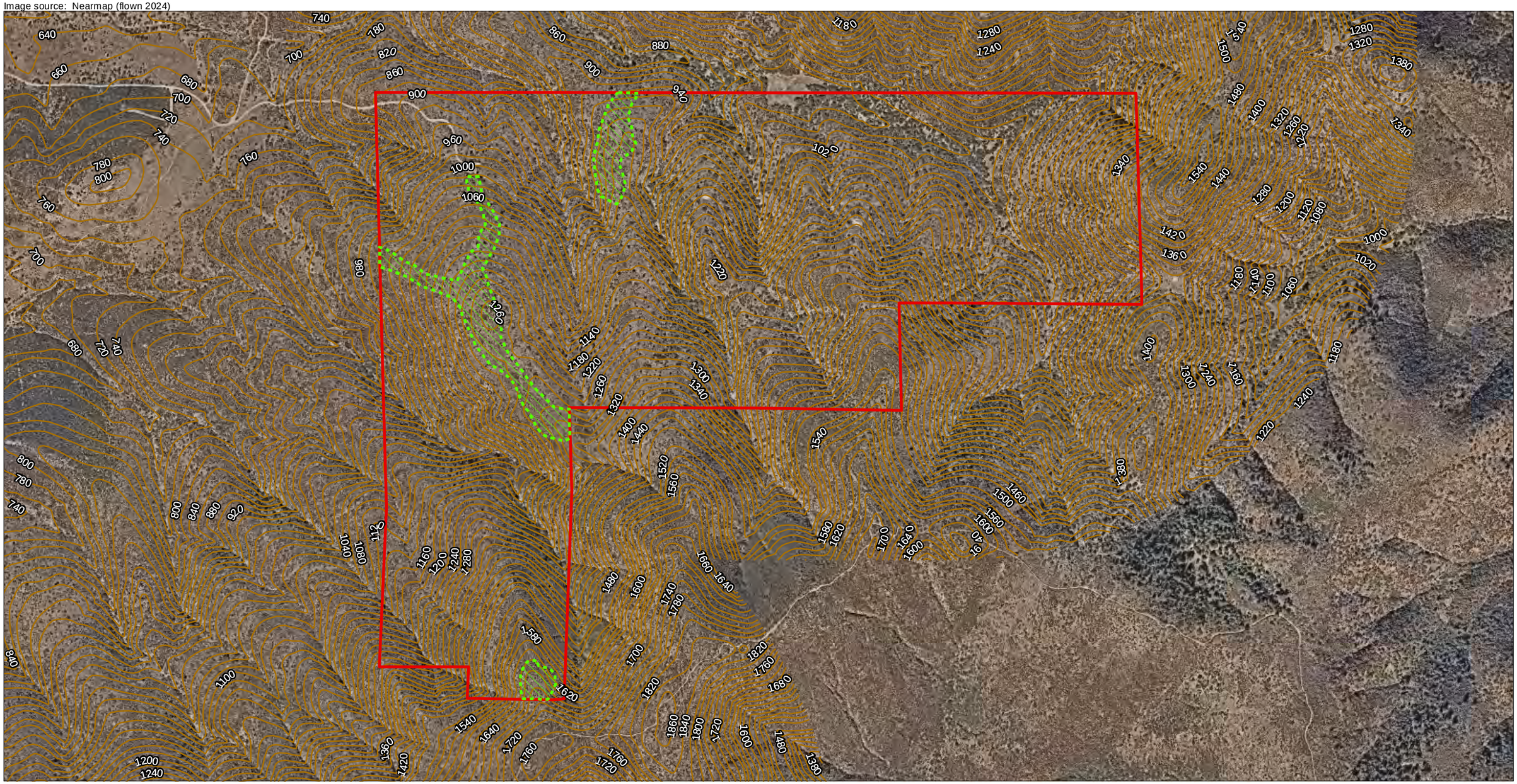
FIGURE 22

Golden Eagle Camera Survey Locations:
Ridge, McMillin, and Dulzura Parcels

Image source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Habitat Assessment: Proposed 2024 QCB Survey Area
per the Pre-survey Notification Letter Dated February 12, 2024

Contour Lines

FIGURE 23
2024 Focused QCB Survey Area,
Proctor Valley Parcels

RECON

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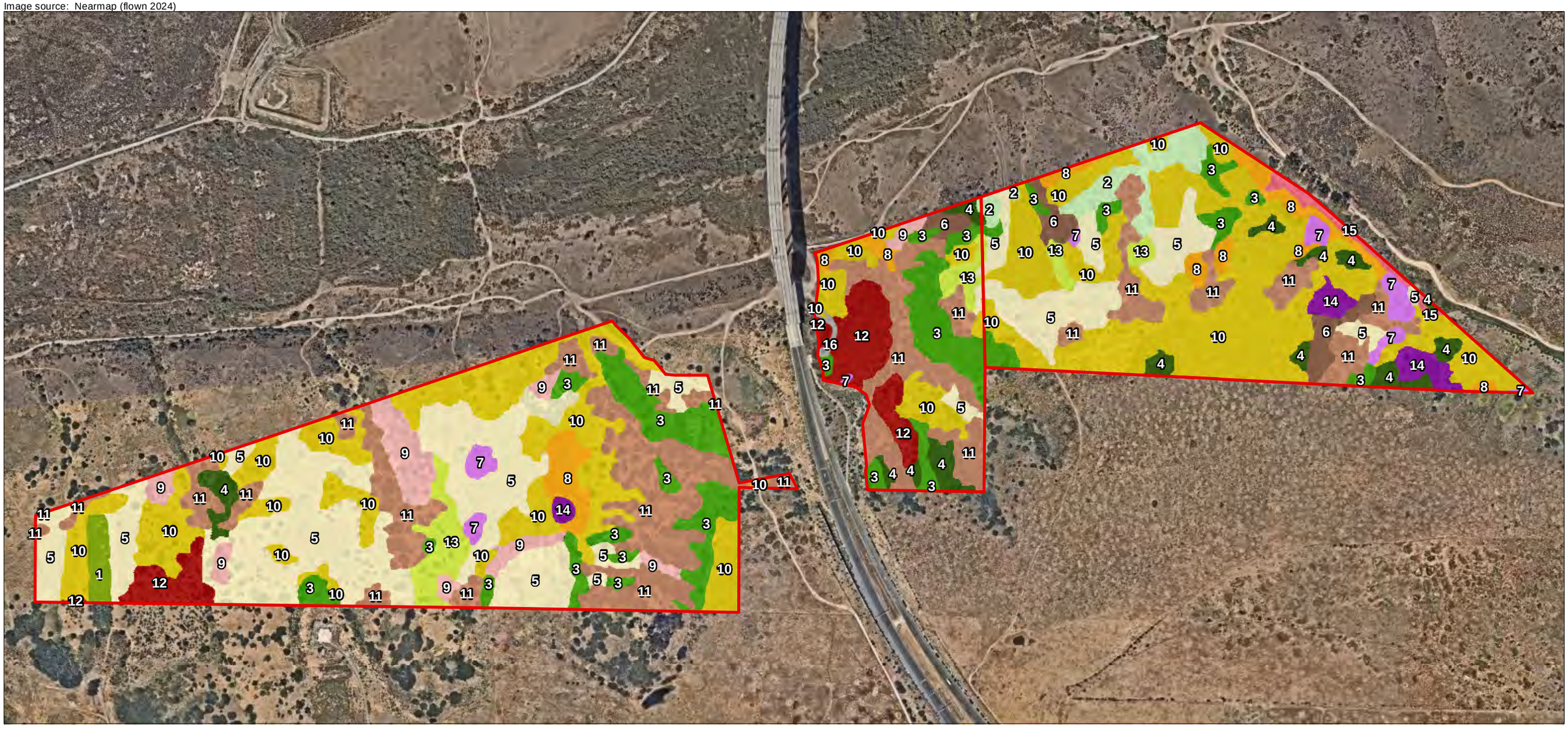
Image source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Vegetation Communities

1: Agriculture

2: *Artemisia californica-Eriogonum fasciculatum-Malosma laurina* Association

3: *Artemisia californica-Eriogonum fasciculatum-Opuntia littoralis/Dudleya (edulis)* Association

4: *Artemisia californica* Association

5: *Avena (barbata, fatua)* Semi-Natural Stands

6: *Bahiopsis laciniata-Artemisia californica-Eriogonum fasciculatum* Association

7: *Brassica nigra* Semi-natural Stand Type

8: *Bromus diandrus* Semi-natural Stand Type

9: *Encelia californica-Artemisia californica* Association

10: *Nassella pulchra* Association

11: *Rhus integrifolia* Association

12: *Simmondsia chinensis-Bahiopsis laciniata* Association

13: *Brachypodium distachyon* Semi-natural Stand Type

14: *Lolium perenne* Semi-natural Stands

15: *Iva haysiana* Special Stands

16: Unvegetated

0 Feet 550

FIGURE 24
Vegetation Communities,
Millenia Parcels

RECON

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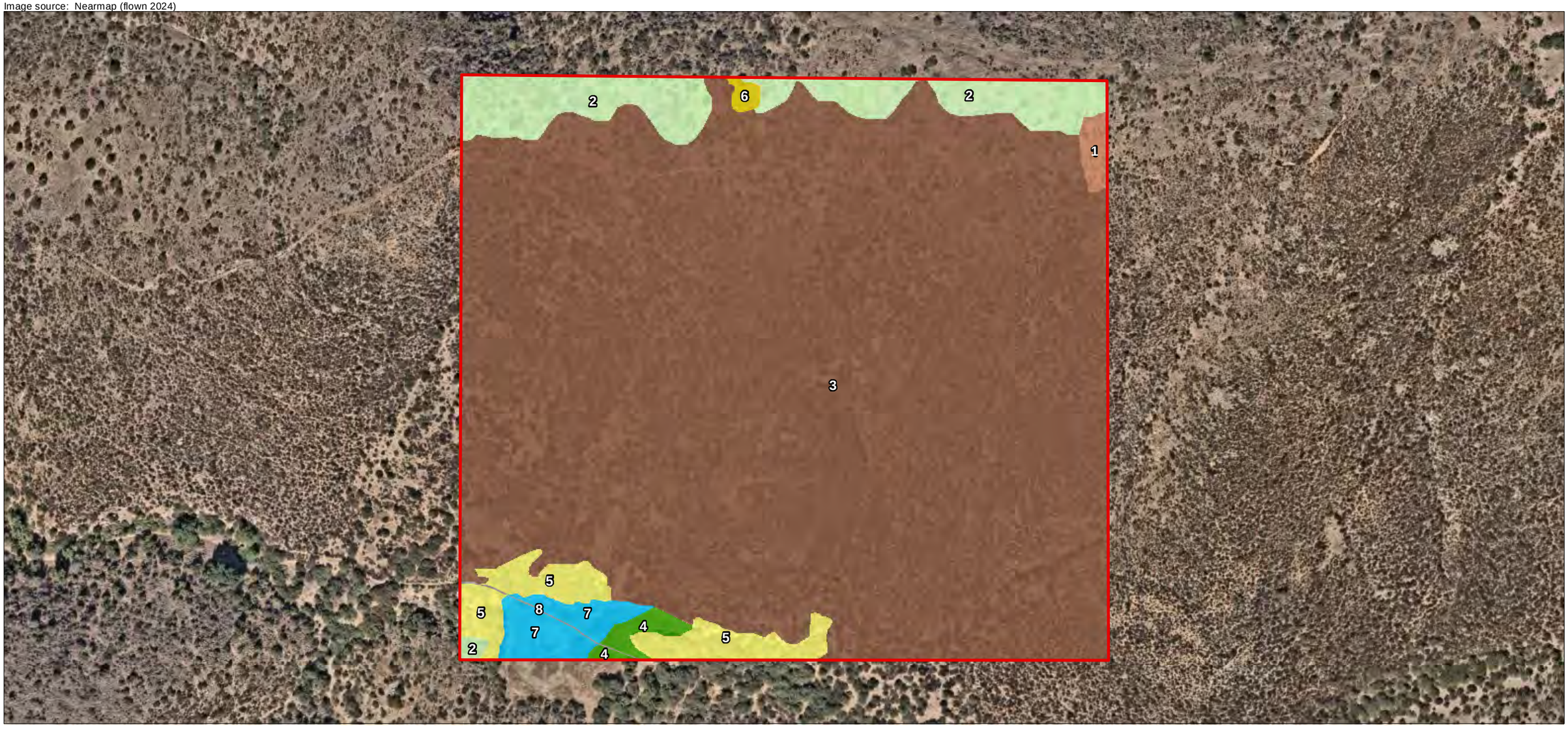
Image source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Vegetation Communities

- 1: *Adenostoma fasciculatum-Xylococcus bicolor* Association
- 2: *Artemisia californica-Eriogonum fasciculatum-Malosma laurina* Association
- 3: *Bahiopsis laciniata-Artemisia californica-Eriogonum fasciculatum* Association
- 4: *Lolium perenne* Semi-Natural Stands
- 5: *Malosma laurina* Alliance
- 6: *Nassella pulchra* Association
- 7: Naturalized Warm-Temperate Riparian & Wetland Semi-Natural Stand
- 8: Unvegetated

0 Feet 200

RECON

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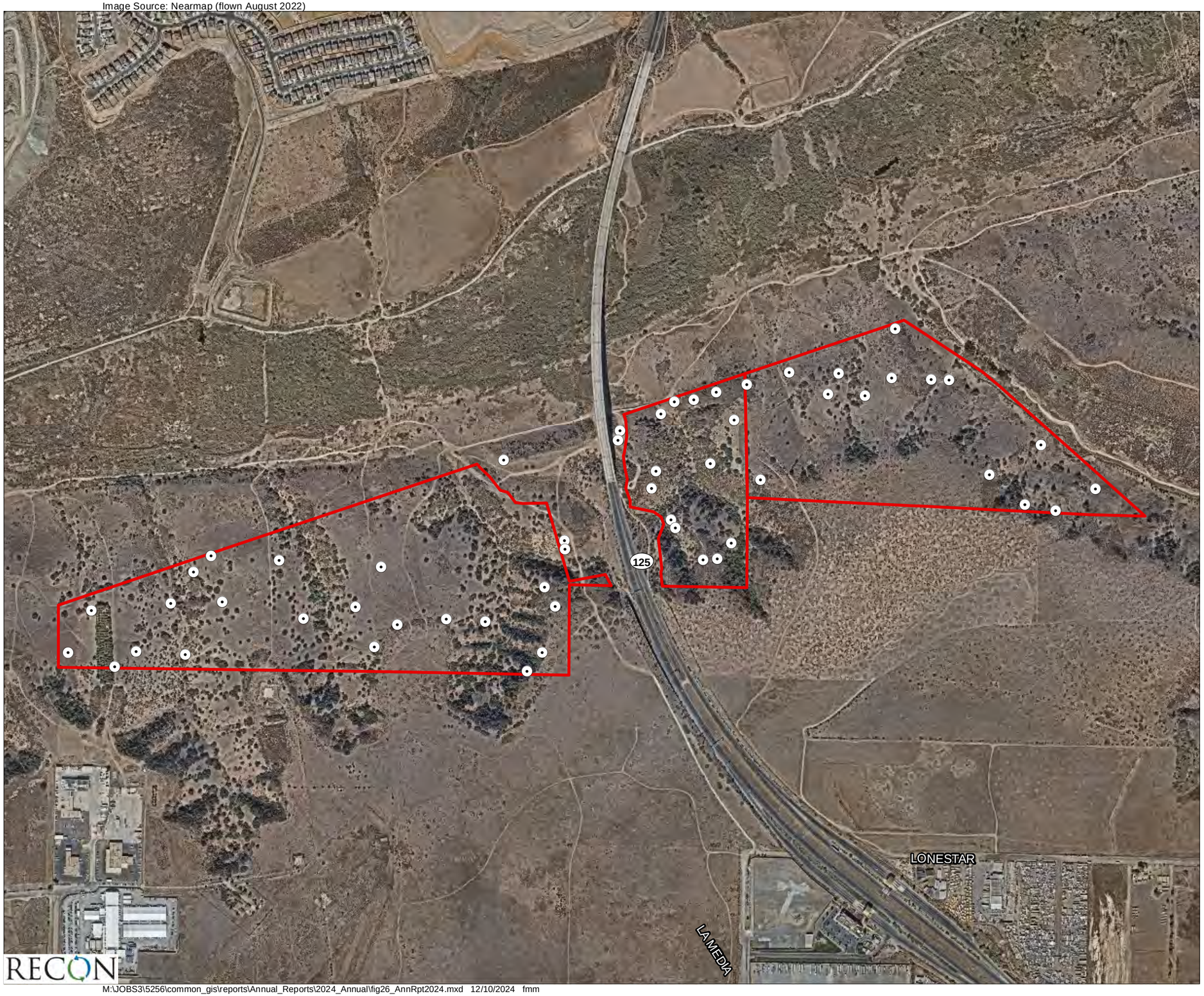
FIGURE 25
Vegetation Communities,
Proctor Valley (South) Parcel

Image Source: Nearmap (flown August 2022)



Conveyed Land Under POM Management

Photo Monitoring Points – Established in FY 2013-14. Repeated in 2024

0 Feet 700

RECON

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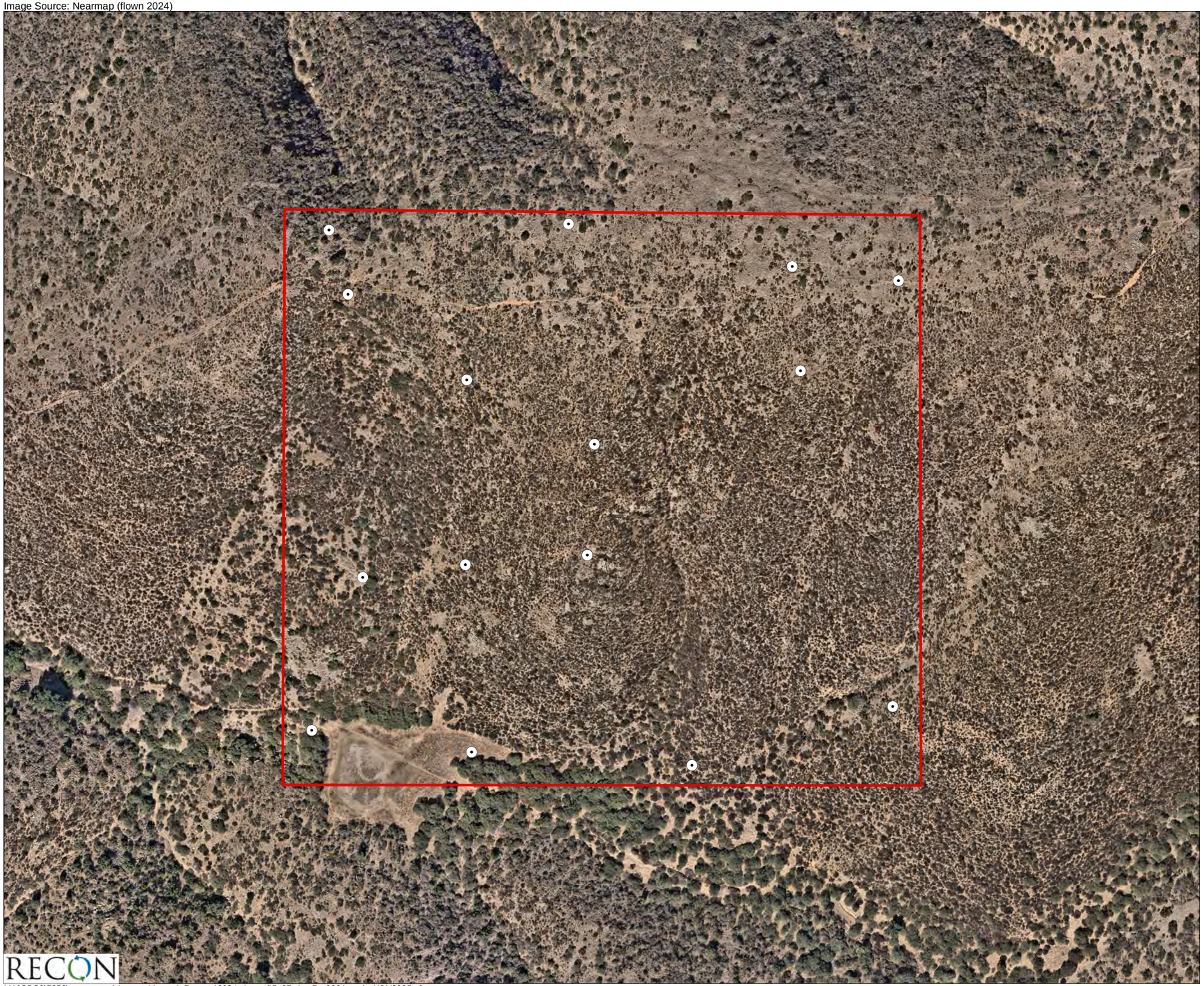
FIGURE 26

General Landscape Photographic Monitoring, Millenia Parcels

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Photo Monitoring Points – Established in FY 2013-14. Repeated in 2024

0 Feet 200

RECON

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FIGURE 27

General Landscape Photographic Monitoring, Proctor Valley (South) Parcel

Image source: Nearmap (flown 2021)

RECON

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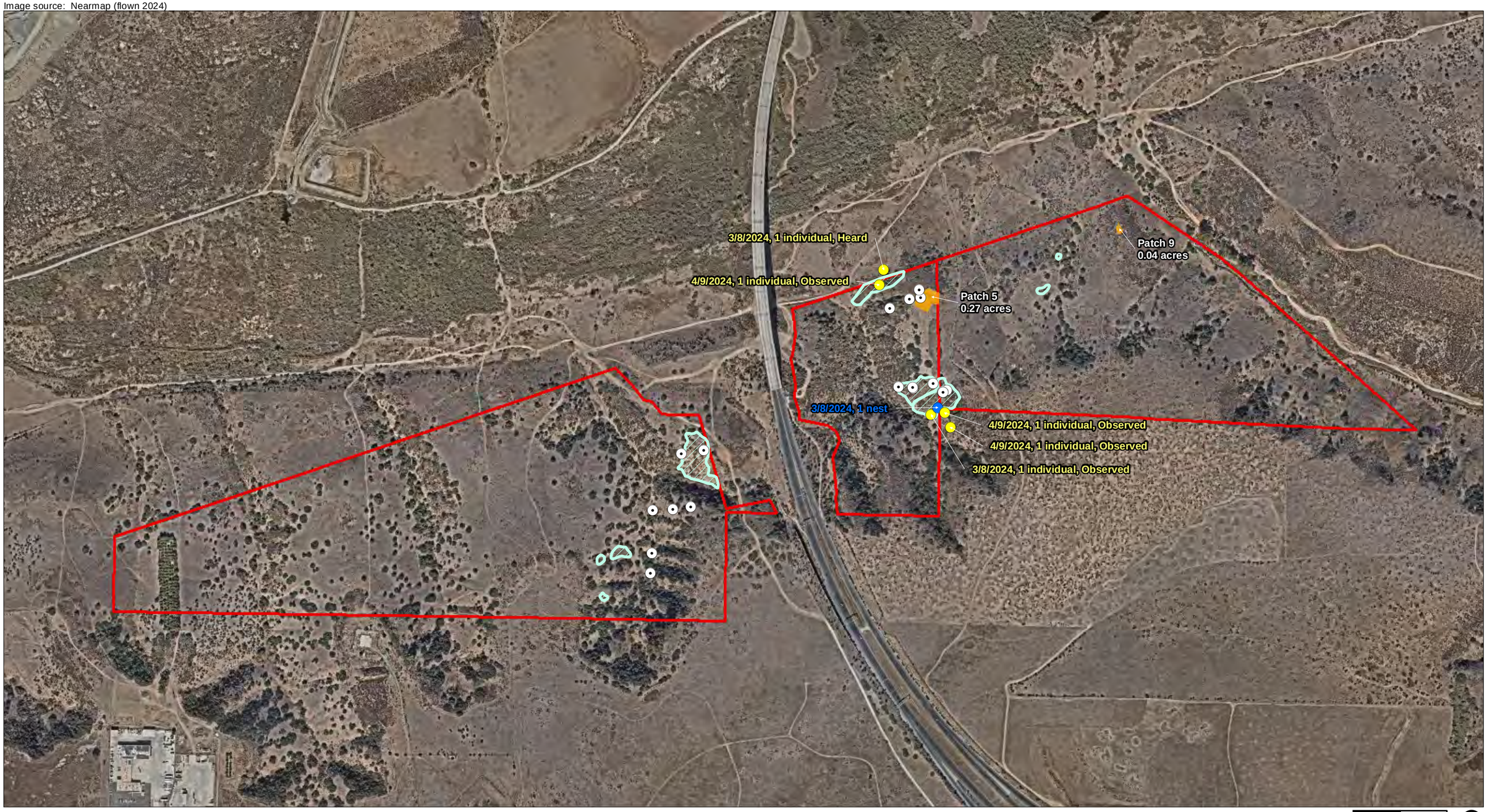
FIGURE 28

Focused CACW Survey Area, Salt Creek Parcels

Image source: Nearmap (flown 2024)



Conveyed Land Under POM Management

CACW Photographic Monitoring Points

CACW Survey Areas (3.48 acres)

Coast Cholla Height Survey Area

Coastal Cactus Wren

Coastal Cactus Wren Nest

0 Feet 600

RECON

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FIGURE 29
CACW Survey Area and Photographic Monitoring Locations,
Millenia Parcels

Image Source: NearMap (flown 2024)

Otay Ranch Preserve: Dulzura Parcels

Photo Monitoring Locations

Container Plants

Seeded by Hand

Matching: Weeding Treatment

0 Feet 150

FIGURE 30

Quantitative Monitoring Areas, Dulzura Parcels

RECON

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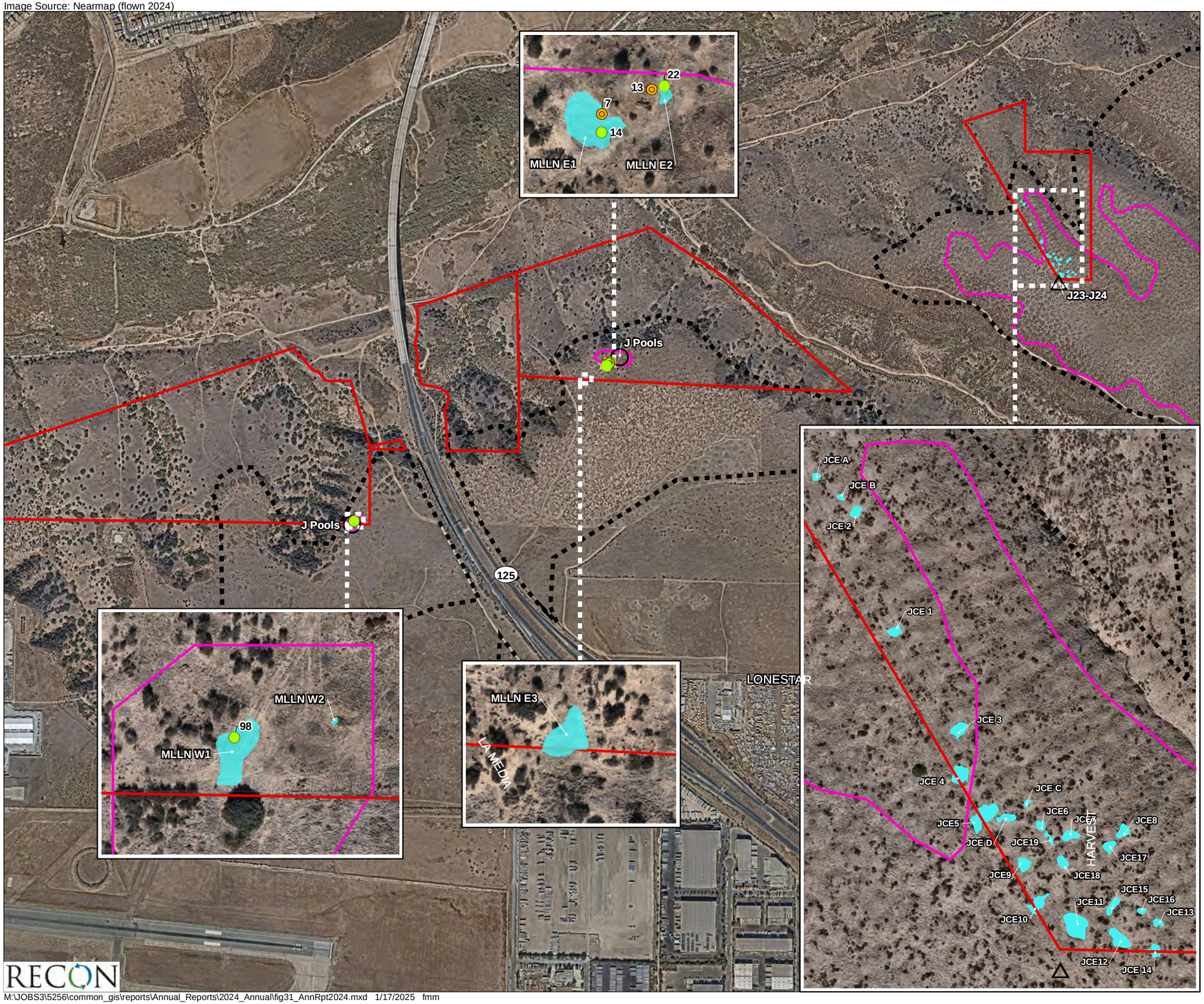
Image Source: Nearmap (flown 2024)



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)**

Ponded Areas

Sensitive Plants

Priority Group 1

San Diego Button-celery (*Eryngium aristulatum* var. *parishii*)

Otay Mesa Mint (*Pogogyne nudiuscula*)

\# Number of Individuals

*Source: Otay Ranch Phase 2 Resource Mangement Plan Update (RECON 2018)

**Source: Vernal Pool Management Plan for Otay Ranch (Dudek & Associates 1995)

0 Feet 900

RECON

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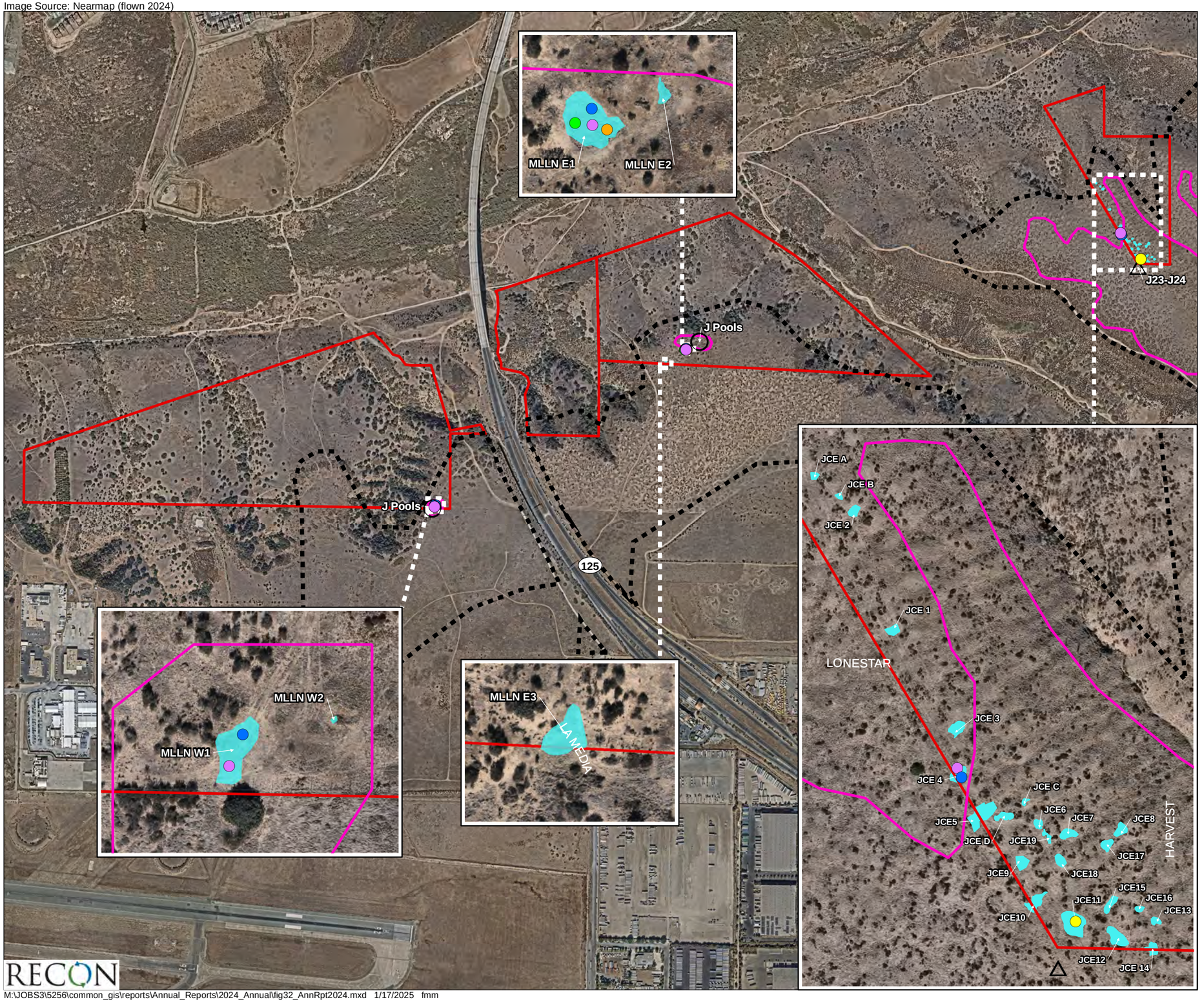
FIGURE 31

2024 Listed Vernal Pool Plant Species Results: Millenia and Johnson Canyon (East) Parcels

Image Source: Nearmap (flown 2024)



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)**

Ponded Areas

Non-listed Vernal Pool Indicator Species

- American Pillwort (*Pilularia americana*)
- Flowering-quillwort (*Triglochin scilloides*)
- Pale Spike-rush (*Eleocharis macrostachya*)
- Shortseed Waterwort (*Elatine brachysperma*)
- Water-starwort (*Callitriche* sp.)

*Source: Otay Ranch Phase 2 Resource Mangement Plan Update (RECON 2018)

**Source: Vernal Pool Management Plan for Otay Ranch (Dudek & Associates 1995)

0 Feet 900

RECON

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FIGURE 32

2024 Non-listed Vernal Pool Indicator Species Results: Millenia and Johnson Canyon (East) Parcels

Image source: Nearmap (flown 2024)

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

0 Feet 1,000

FIGURE 33

Focused LBVI and YBCU Survey Areas:
Salt Creek and Northern Salt Creek Parcels

RECON

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Image Source: Nearmap (flown 2024)

Conveyed Land Under POM Management

Least Bell's Vireo
(*Vireo bellii pusillus*; LBVI)
Survey Area

0 Feet 350

FIGURE 34
Focused LBVI Survey Area:
Wolf Canyon Parcels

RECON

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Image Source: Nearmap (flown 2024)

Conveyed Land Under POM Management

Gold-spotted Oak Borer
(*Agrilus auroguttatus*) Monitoring Site

Coast Live Oak
(*Quercus agrifolia*)

0 Feet 900

FIGURE 35
GSOB Monitoring Location:
Dulzura Parcels

RECON

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Map Source: USGS 7.5 minute topographic map series, DULZURA, JAMUL MOUNTAINS, OTAY MOUNTAINS & OTAY MESA quadrangles, OTAY (ESTUDILLO) Landgrant, T17S R01E, T18S R01E

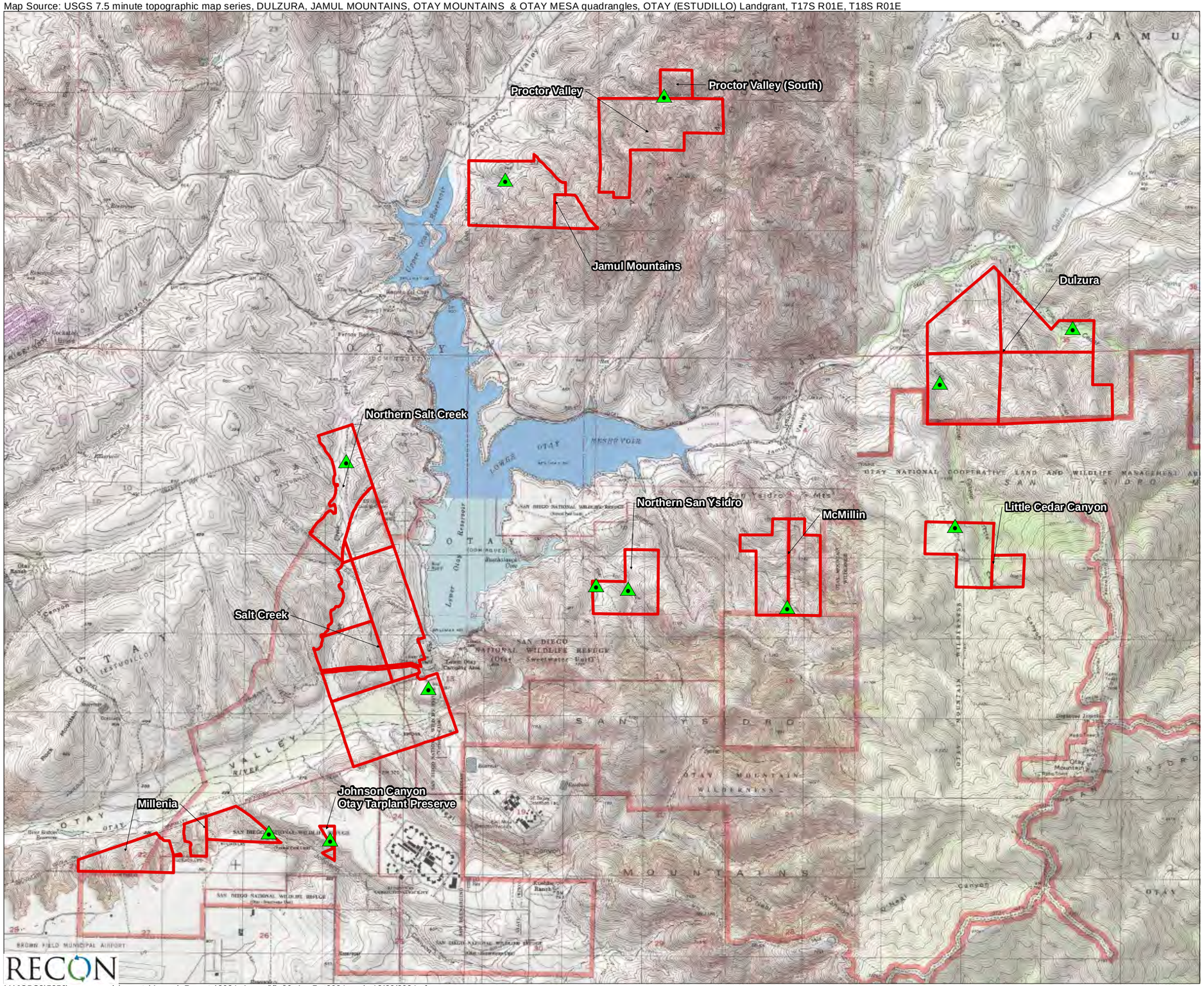

FIGURE 36
Acoustic Data Logger Monitoring Locations for Western Spadefoot Detection within the Preserve

RECON

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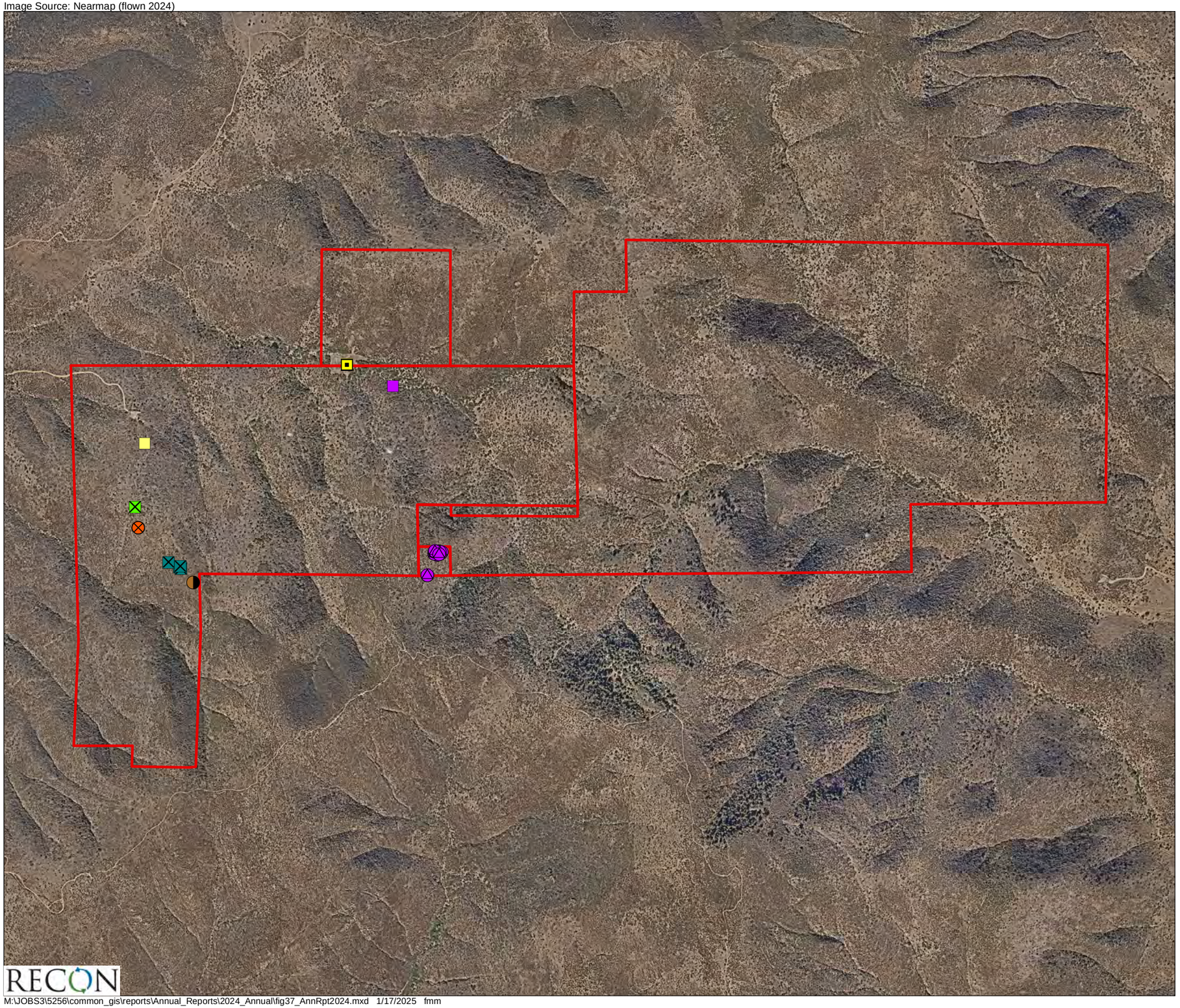
Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Wildlife

Priority Group 1

- Least Bell's Vireo (*Vireo bellii pusillus*)

Priority Group 2

- Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)
- Blainville's [=Coast] Horned Lizard (*Phrynosoma blainvillii*)

Priority Group 3

- Two-striped Gartersnake (*Thamnophis hammondii*)

Common Wildlife

- Yellow-faced Bumble Bee (*Bombus vosnesenskii*)

Noteworthy Plants

Host Plants

- Purple Owl's-clover (*Castilleja exserta*)

Common Plants

- Chocolate Lily (*Fritillaria biflora*)

Invasive Plants

- Crimson Fountain Grass (*Pennisetum setaceum*)

0 Feet 1,000

RECON

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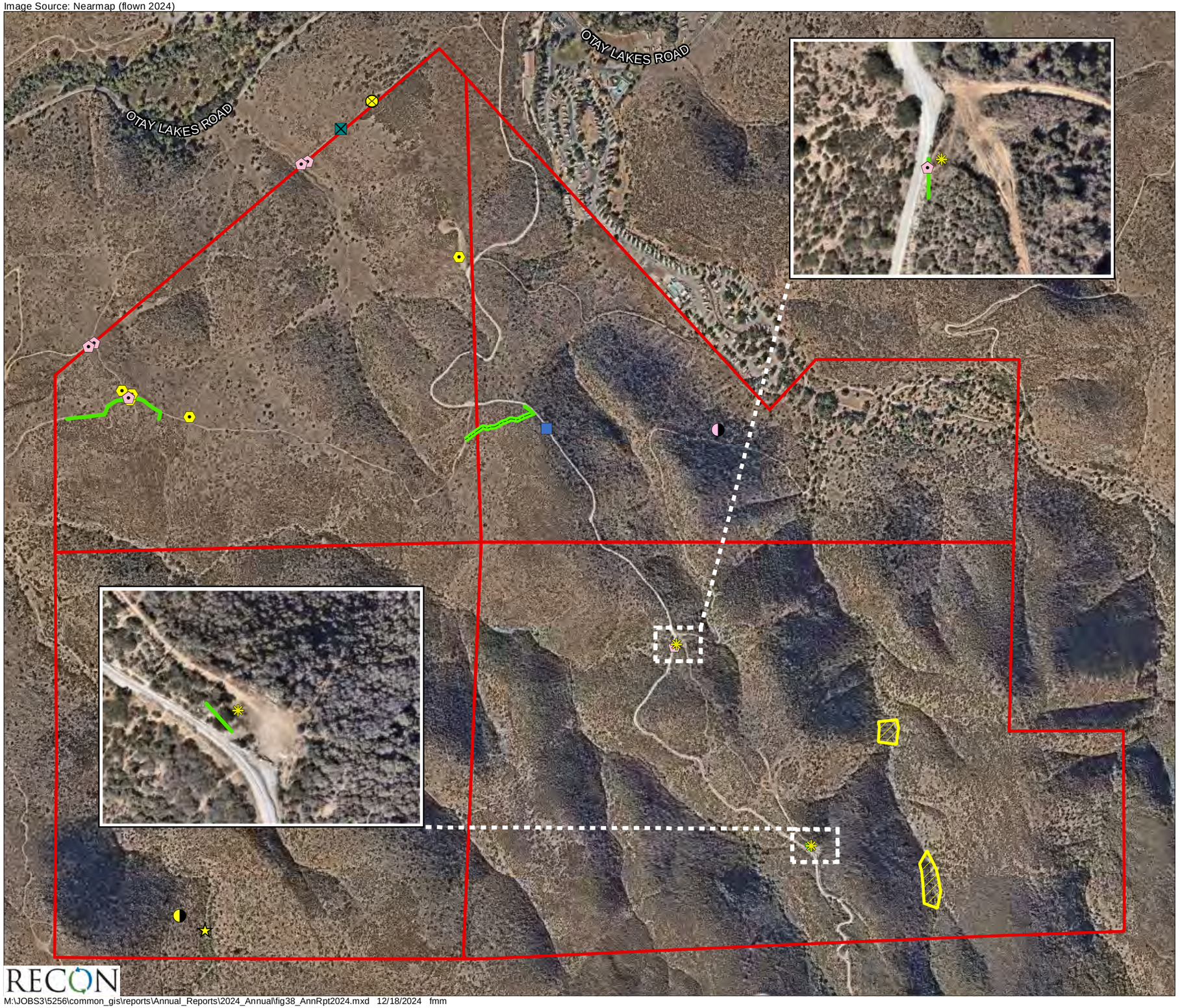
FIGURE 37

Noteworthy Plants and Wildlife,
Proctor Valley, Proctor Valley (South),
Proctor Valley Extension, and Bonita Glen Parcels

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Sensitive Wildlife

Priority Group 2

- Blainville's [=Coast] Horned Lizard (*Phrynosoma blainvillii*)

Common Wildlife

- Greater Roadrunner (*Geococcyx californianus*)

Noteworthy Plants

Common Plants

- Red-flower Onion (*Allium peninsulare* var. *peninsulare*)
- Common Goldenstar (*Bloomeria crocea*)

Invasive Plants

- Stinkwort (*Dittrichia graveolens*)

Unauthorized Routes

- Motor Bike
- ATV

Installed Fence

- T-post (barbless wire)

Repaired Fence

- T-post (barbless wire)
- Installed Sign
- Bivouac Site

0 Feet 700

FIGURE 38
Noteworthy Plants and Wildlife, and Access Issues, Dulzura Parcels

RECON

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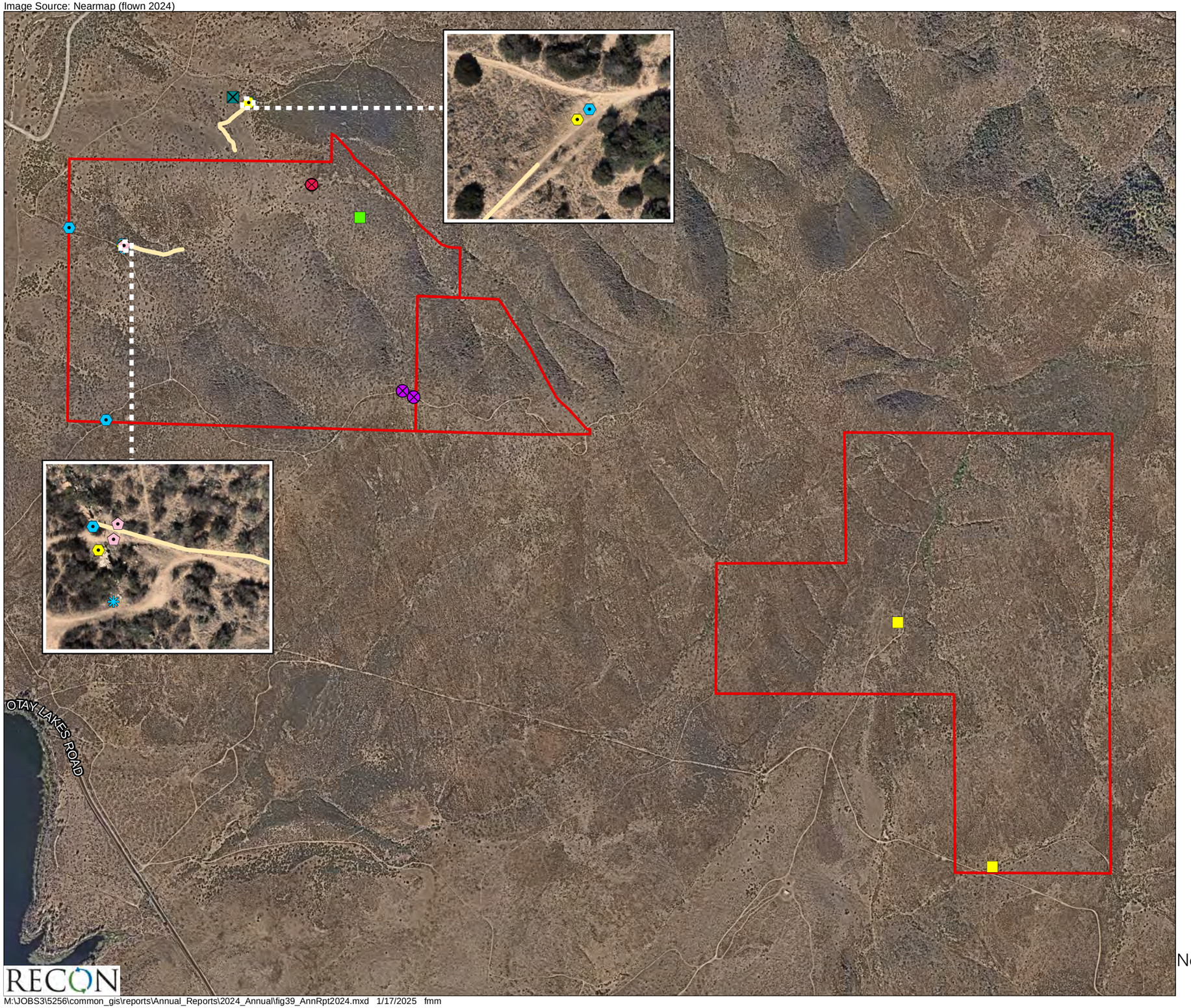
Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Sensitive Wildlife

Priority Group 1

- Crotch's Bumble Bee (*Bombus crotchii*)
- Coastal California Gnatcatcher (*Polioptila californica californica*)

Priority Group 2

- Blainville's [=Coast] Horned Lizard (*Phrynosoma blainvillii*)

Noteworthy Plants

Invasive Plants

- Fennel (*Foeniculum vulgare*)
- Cardoon (*Cynara cardunculus* ssp. *flavescens*)

Unauthorized Route

- Mountain Bike

Signs

- Installed
- Repaired

Installed Fence

- Vertical Mulch

Repaired Fence

- T-post (barbless wire)

0 Feet 1,000

RECON

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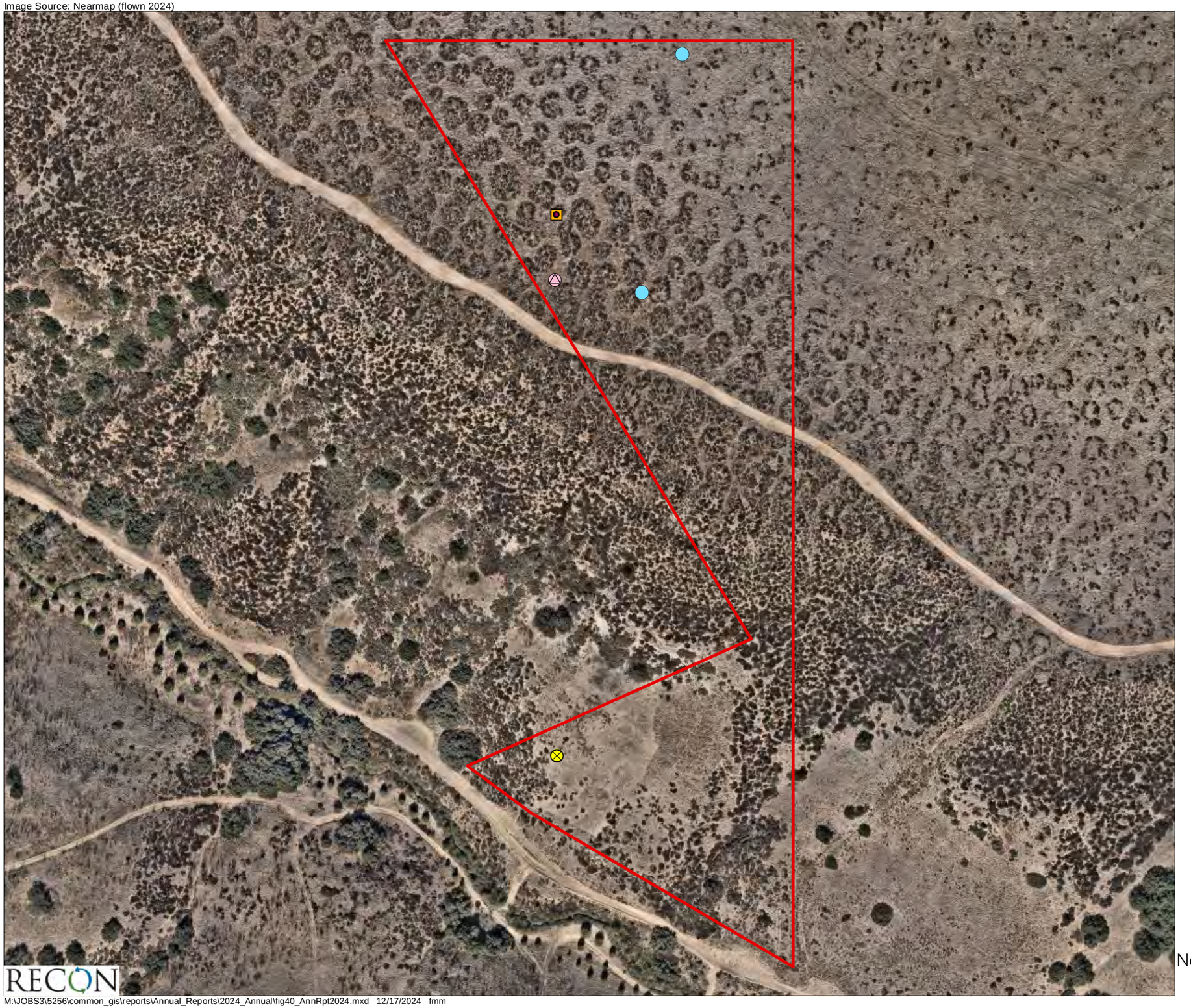
FIGURE 39
Noteworthy Plants and Wildlife, and Access Issues,
Jamul Mountains and Ridge Parcels

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Ponding

Sensitive Wildlife

Priority Group 3

San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)

Noteworthy Plants

Host Plants

Dot-seed Plantain (*Plantago erecta*)

Invasive Plants

Stinkwort (*Dittrichia graveolens*)

0 Feet 150

FIGURE 40

Noteworthy Plants and Wildlife, and Observations, Johnson Canyon Otay Tarplant Preserve

RECON

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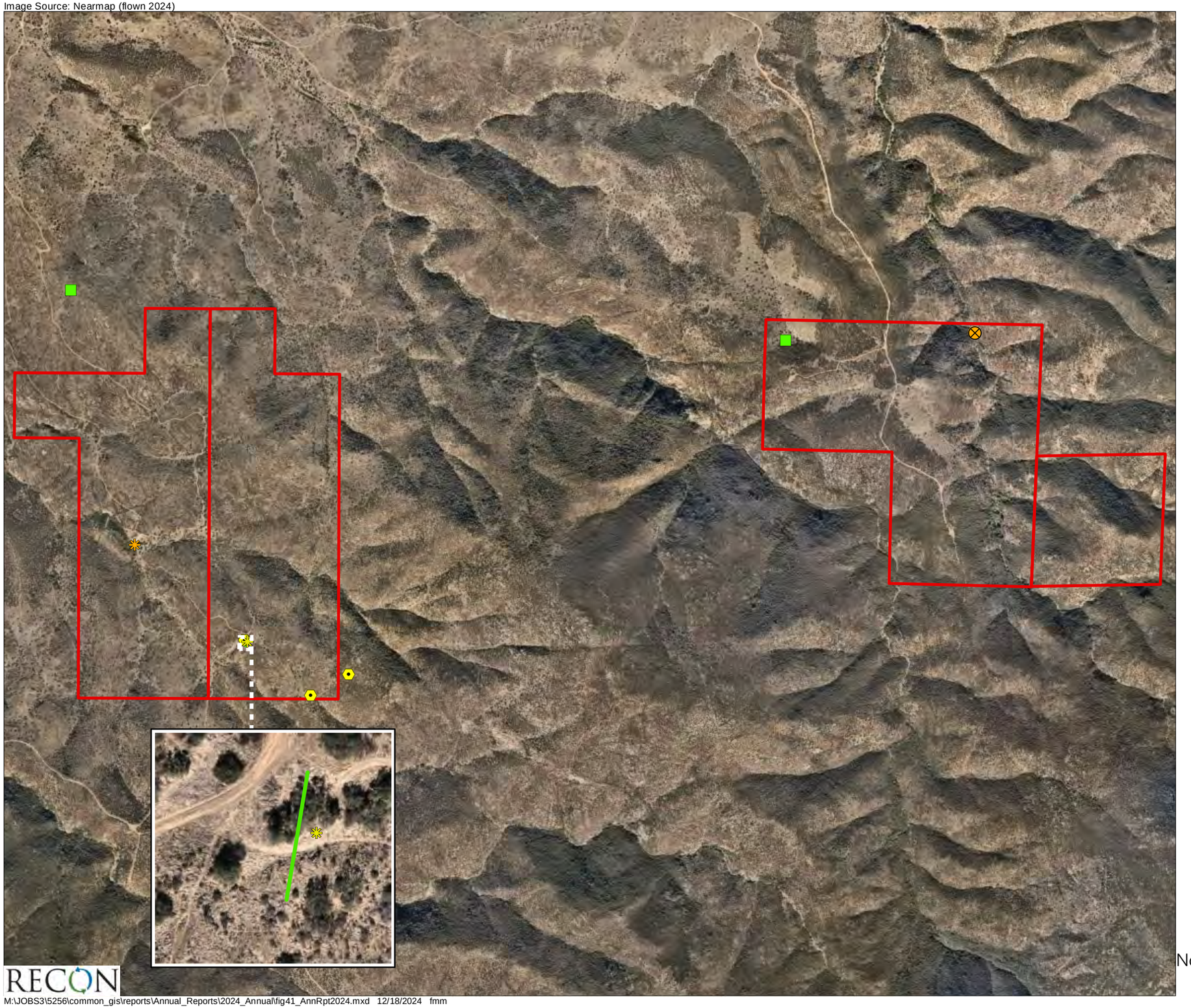
Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Sensitive Wildlife

Priority Group 1

Crotch's Bumble Bee (*Bombus crotchii*)

Noteworthy Plants

Invasive Plants

Mexican Fan Palm (*Washingtonia robusta*)

Unauthorized Route

ATV

Truck

Signs

Installed

Installed Fence

T-post (barbless wire)

0 Feet 1,000

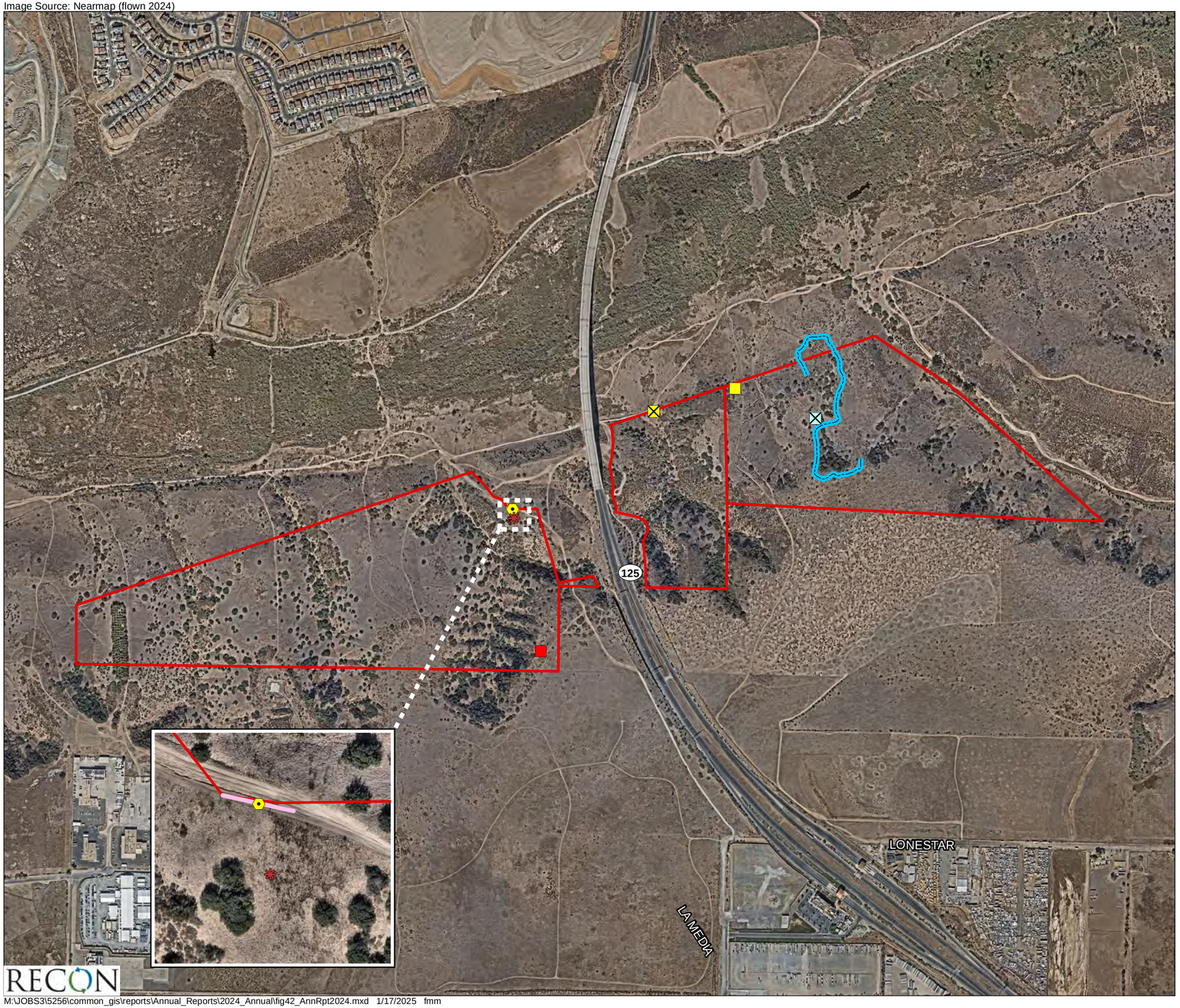
FIGURE 41

Noteworthy Plants and Wildlife, and Access Issues, Little Cedar Canyon and McMillin Parcels

RECON

M:\JOBS3\5256\common_gis\reports\Annual_Reports\2024_Annual\fig41_AnnRpt2024.mxd 12/18/2024 fmm

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Sensitive Wildlife

Priority Group 1

- Coastal California Gnatcatcher (*Polioptila californica californica*)
- Northern Harrier (*Circus hudsonius*)

Priority Group 2

- Cooper's Hawk (*Accipiter cooperii*)
- Southern Mule Deer (*Odocoileus hemionus fuliginata*)

Unauthorized Routes

- Mountain Bike
- Palette Fire

Signs

- Installed

Repaired Fence

- T-post (barbless wire)

0 Feet 800

RECON

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FIGURE 42
Noteworthy Wildlife and Access Issues,
Millenia Parcels

Image Source: Nearmap (flown 2024)

Conveyed Land Under POM Management

Noteworthy Plants

Common Plants

- California Centaury (*Zeltnera venusta*)
- Chaffweed (*Lysimachia minima*)
- Coast Cholla (*Cylindropuntia prolifera*)
- Common Goldenstar (*Bloomeria crocea*)
- Cryptantha (*Cryptantha* spp.)
- Needlegrass (*Stipa* spp.)

Host Plants

- Dot-seed Plantain (*Plantago erecta*)
- Purple Owl's-clover (*Castilleja exserta*)

Invasive Plants

- Mayweed (*Anthemis cotula*)
- Pampas Grass (*Cortaderia selloana*)
- Gum Tree (*Eucalyptus* sp.)
- Stinkwort (*Dittrichia graveolens*)
- Tocalote (*Centaurea melitensis*)
- Willow Acacia (*Acacia salicina*)

Sensitive Wildlife

Priority Group 1

- Coastal California Gnatcatcher (*Polioptila californica californica*)
- Least Bell's Vireo (*Vireo bellii pusillus*)

Priority Group 2

- Belding's Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)

Priority Group 3

- Red Diamond Rattlesnake (*Crotalus ruber*)
- San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)

Priority Group 4

- White-tailed Kite (*Elanus leucurus*)

Common Wildlife

- Greater Roadrunner (*Geococcyx californianus*)

Installed Fence

- Coast Cholla Installation
- T-post (barbless wire)
- Installed Sign

Repaired Fence

- T-post (barbless wire)
- T-post (barbless wire)
- Repaired Gate

Unauthorized Routes

- ATV
- ATV

0 Feet 1,000

FIGURE 43

Noteworthy Plants and Wildlife, and Access Issues, Northern Salt Creek and Salt Creek Parcels

RECON

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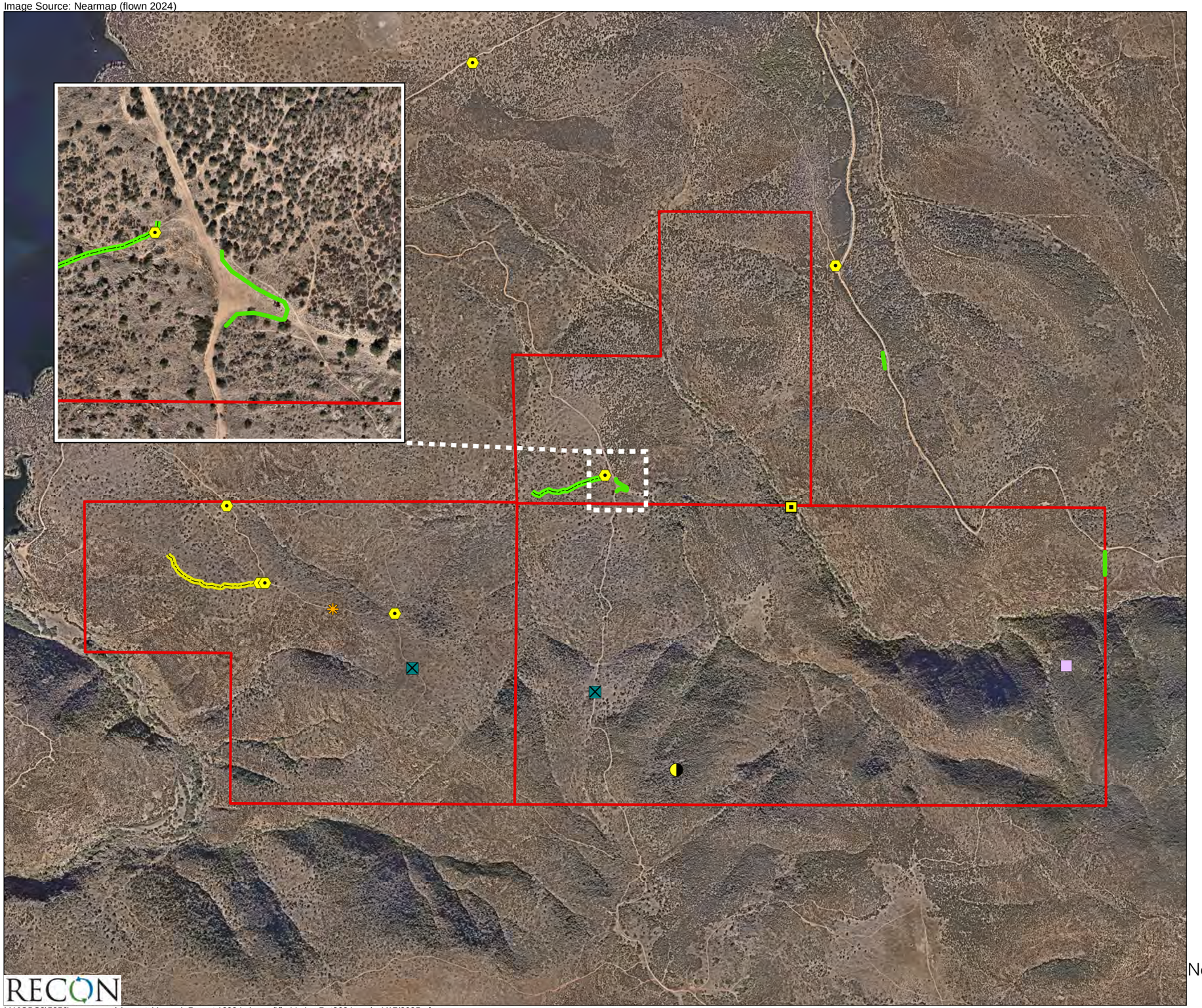
Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Sensitive Wildlife

Priority Group 2

Blainville's [=Coast] Horned Lizard (*Phrynosoma blainvillii*)

Priority Group 3

Two-striped Gartersnake (*Thamnophis hammondii*)

Common Wildlife

Gabb's Checkerspot (*Chlosyne gabbii*)

Noteworthy Plants

Common Plants

Common Goldenstar (*Bloomeria crocea*)

Unauthorized Routes

ATV

Motor Bike

Truck

Signs

Installed

Installed Fence

T-post (barbless wire)

0 Feet 900

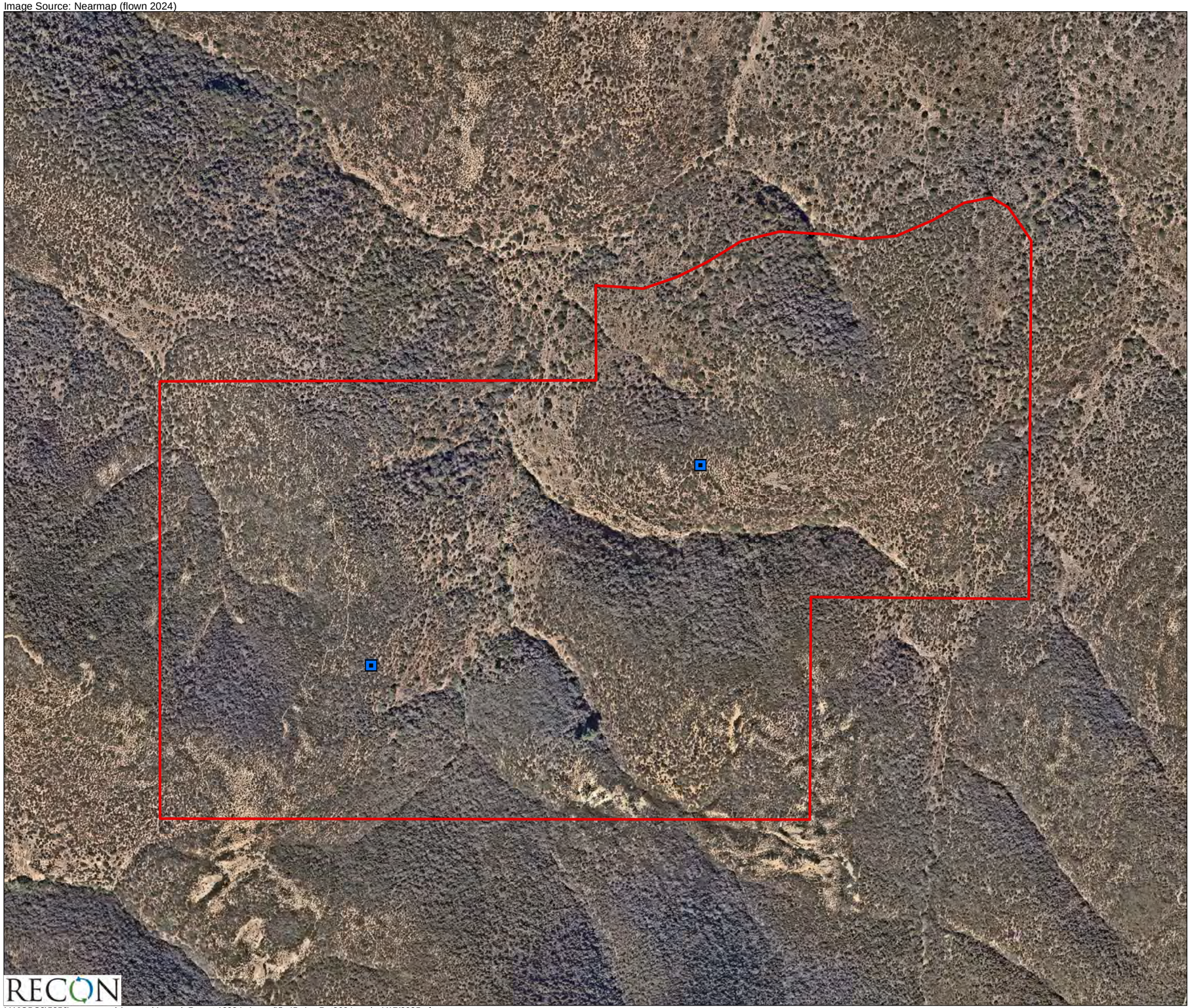
RECON

M:\JOBS3\5256\common_gis\reports\Annual_Reports\2024_Annual\fig44_AnnRpt2024.mxd 1/17/2025 fmm

FIGURE 44

Noteworthy Plants and Wildlife, and Access Issues, Northern San Ysidro and San Ysidro Parcels

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Sensitive Wildlife

Priority Group 3

Bell's Sage Sparrow
(*Artemisiospiza belli belli*)

0 Feet 300

FIGURE 45
Noteworthy Wildlife,
Proctor Valley (North) Parcels

RECON

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Image Source: Nearmap (flown 2024)

RECON

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Conveyed Land Under POM Management

Sensitive Wildlife

Priority Group 1

- Coastal Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*)
- Coastal California Gnatcatcher (*Polioptila californica californica*)

Priority Group 2

- Belding's Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)

Noteworthy Plants

Invasive Plants

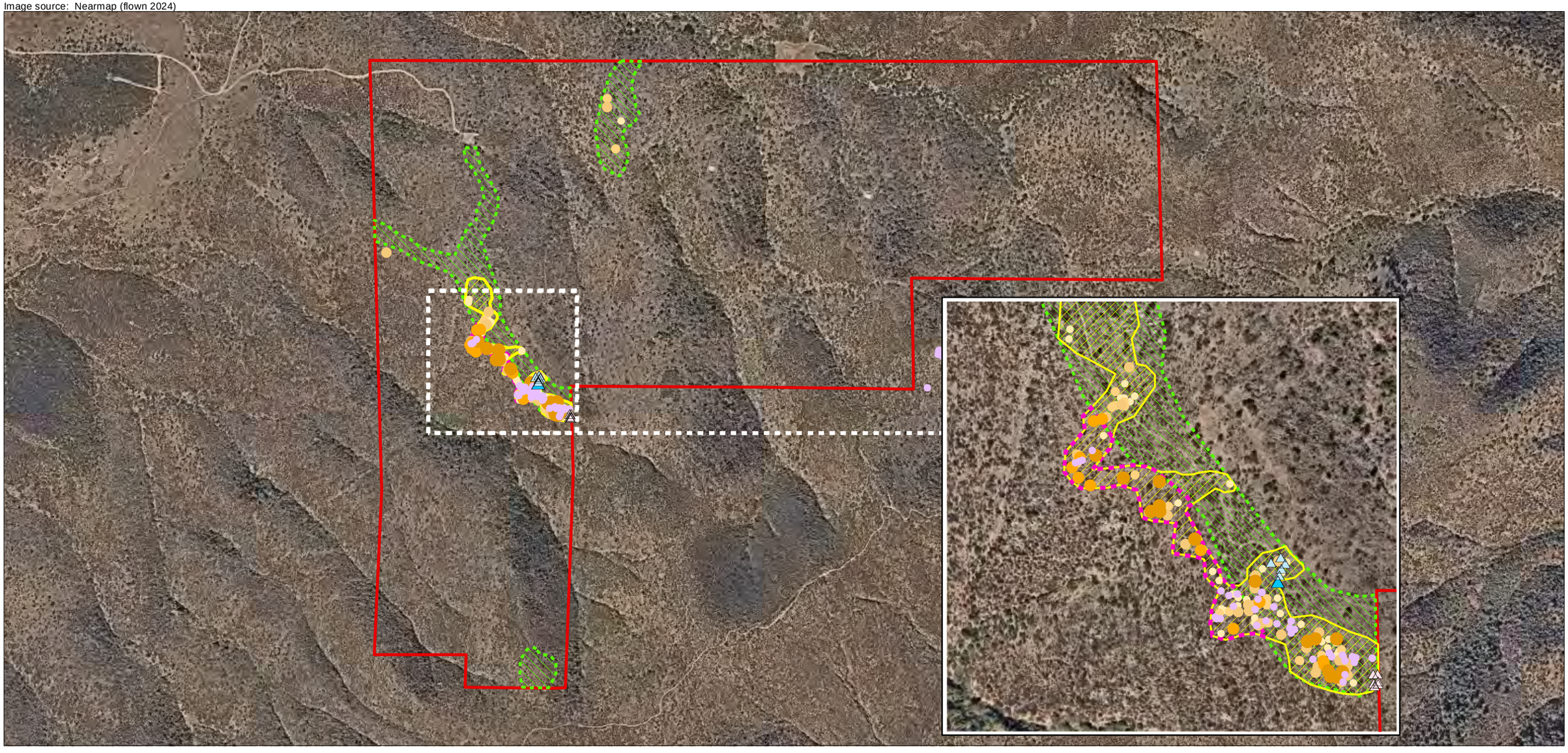
- Hollow-stem Asphodel (*Asphodelus fistulosus*)
- Peruvian Pepper Tree (*Schinus molle*)
- Tree Tobacco (*Nicotiana glauca*)

0 Feet 400

FIGURE 46

Noteworthy Plants and Wildlife,
Wolf Canyon and Western Wolf Canyon Parcels

Image source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Habitat Assessment: Proposed 2024 QCB Survey Area per the Pre-survey Notification Letter Dated February 12, 2024

Additional Habitat Assessment Area

Adult QCB Survey Area 2024

Host Plants

Dot-seed Plantain (*Plantago erecta*) 26,908 Individuals

- 1-49
- 50-99
- 100-499
- 500-999
- 1,000-4,999

Purple Owl's-clover (*Castilleja exserta* ssp. *exserta*) 134 Individuals

- 1-49

Nectar Plants

Common Goldfields (*Lasthenia gracilis*) 430 Individuals

- 1-49
- 100-499

Farinose Ground Pink (*Linanthus dianthiflorus*) 55 Individuals

- 1-49

0 Feet 450

FIGURE 47
QCB Host and Nectar Plants
Proctor Valley Parcels

RECON

M:\JOBS3\5256\common_gis\reports\Annual_Reports\2024_Annual\fig47_AnnRpt2024.mxd 12/17/2024 fmm

Map Source: USGS 7.5 minute topographic map series, DULZURA, JAMUL MOUNTAINS, OTAY MOUNTAINS & OTAY MESA quadrangles, OTAY (ESTUDILLO) Landgrant, T17S R01E, T18S R01E

Ridge

Dulzura

Northern Salt Creek

McMillin

Northern San Ysidro

Little Cedar Canyon

San Ysidro

Salt Creek

Conveyed Land Under POM Management

Quino Checkerspot (*Euphydryas editha quino*)

Larva

Adult

0 Feet 2,000

FIGURE 48

2024 QCB Locations on USGS 7.5' Topographic Map:
Otay Ranch Preserve

RECON

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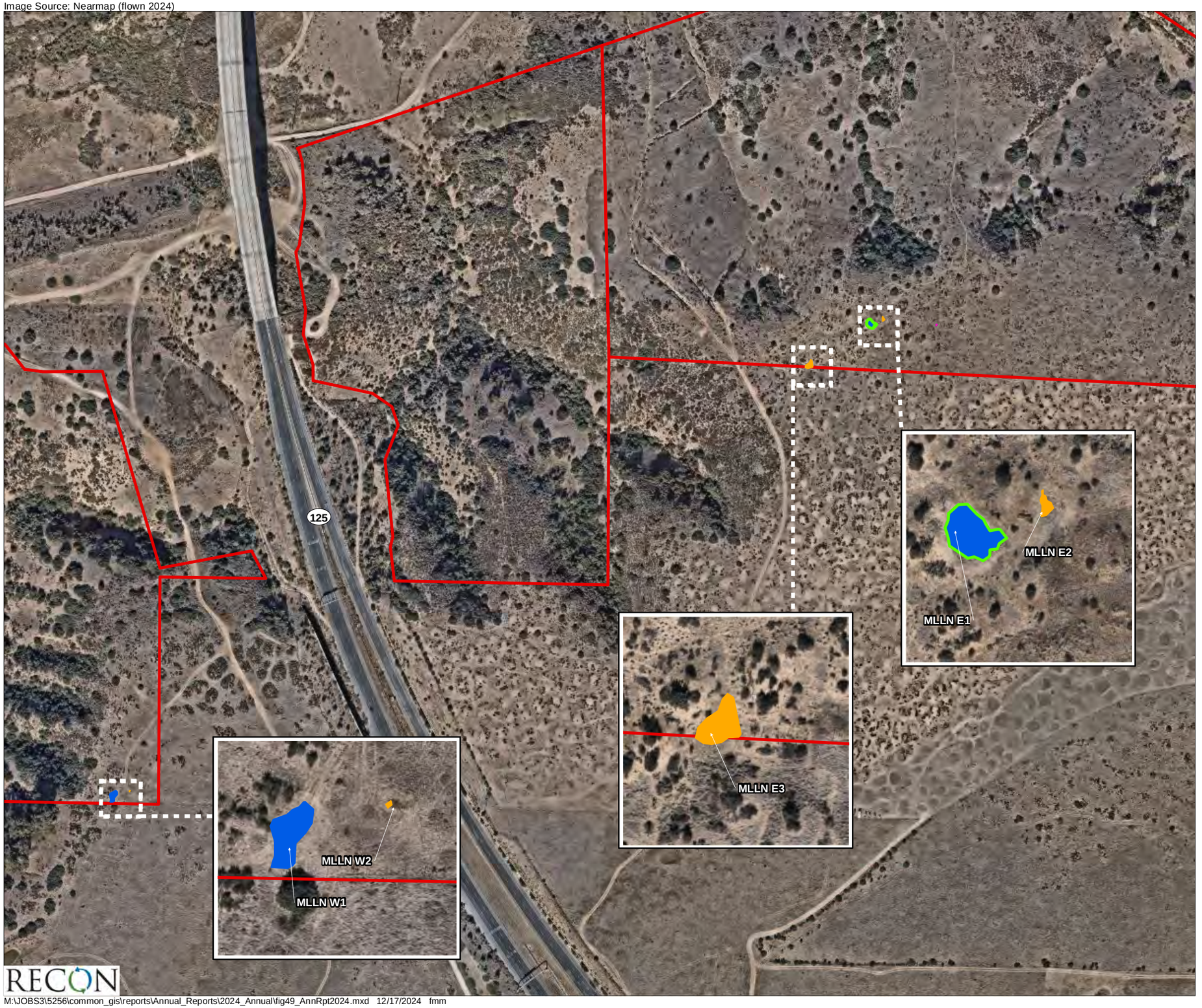
Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Survey Results

San Diego Fairy Shrimp Observed - 2 Ponding Areas

Ponded - No Fairy Shrimp or Western Spadefoot Observed - 3 Ponding Areas

Western Spadefoot Observed - 1 Ponding Area

0 Feet 300

RECON

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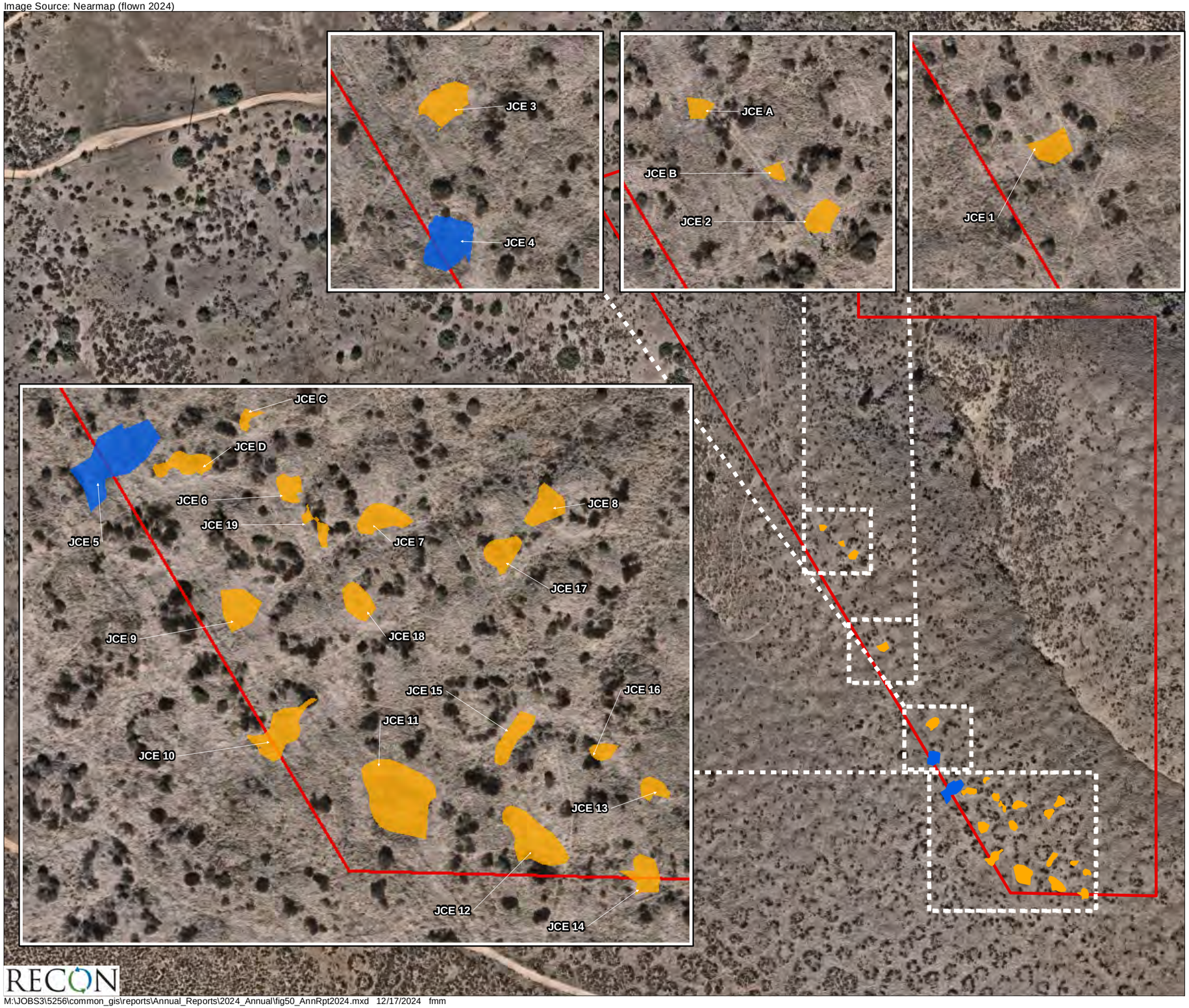
FIGURE 49

2024 Wet Season Fairy Shrimp Survey Results for Otay Ranch Preserve – Millenia Parcels

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Survey Results

San Diego Fairy Shrimp Observed - 2 Ponding Areas

Ponded - No Fairy Shrimp or Western Spadefoot Observed - 21 Ponding Areas

0 Feet 200

RECON

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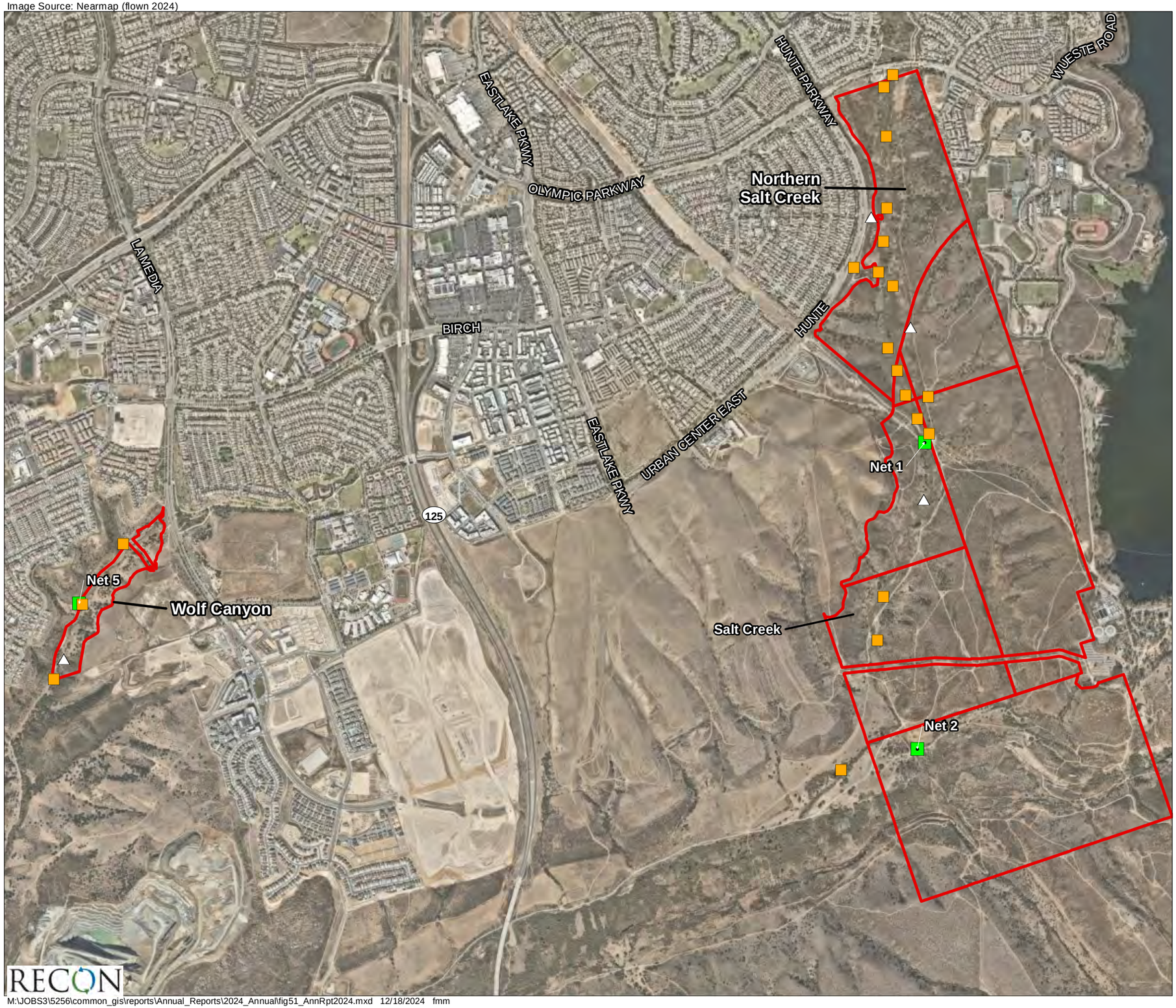
FIGURE 50

2024 Wet Season Fairy Shrimp Survey Results for Otay Ranch Preserve – Johnson Canyon (East)

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Brown-headed Cowbird Mist-Netting Stations

LBV Territories

Least Bell's Vireo (*Vireo bellii pusillus*) Pair

Least Bell's Vireo (*Vireo bellii pusillus*) Undetermined

0 Feet 2,000

RECON

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FIGURE 51

2024 BHCO Trapping and LBVI and YBCU Survey Results, Wolf Canyon, Northern Salt Creek, and Salt Creek

Image source: Nearmap (flown 2024)

Conveyed Land Under POM Management
Vernal Pools Established through Grading in 2015 (Previous RECON Project No. 7754) – 0.25 acre
QCB Habitat - Non-native Plant Treatment Area
Cactus Wren Habitat Restoration Area (County of San Diego Parks and Recreation Department EMP Grant 5001133; ended summer 2014)
Cactus Wren Habitat – Shrubs Thinned in January/February 2021 (Community Facility District 97-2 funded CACW habitat restoration)
Cactus Wren Habitat Restoration Area (City of Chula Vista EMP Grant 5004943; ended August 2018)
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 (County of San Diego Parks and Recreation Department; ended spring 2024)
Eucalyptus Tree Treatment Locations (County of San Diego Parks and Recreation Department; ended spring 2024)
Stinkwort (*Dittrichia graveolens*) Treatment Location
Stinknet (*Oncosiphon piluliferum*) Survey Location

Note: Surveys were coordinated with Otay River Restoration Project being managed by SWCA

FIGURE 52
2024 Vegetation Removal and Treatment Areas,
Salt Creek and Northern Salt Creek Parcels

RECON
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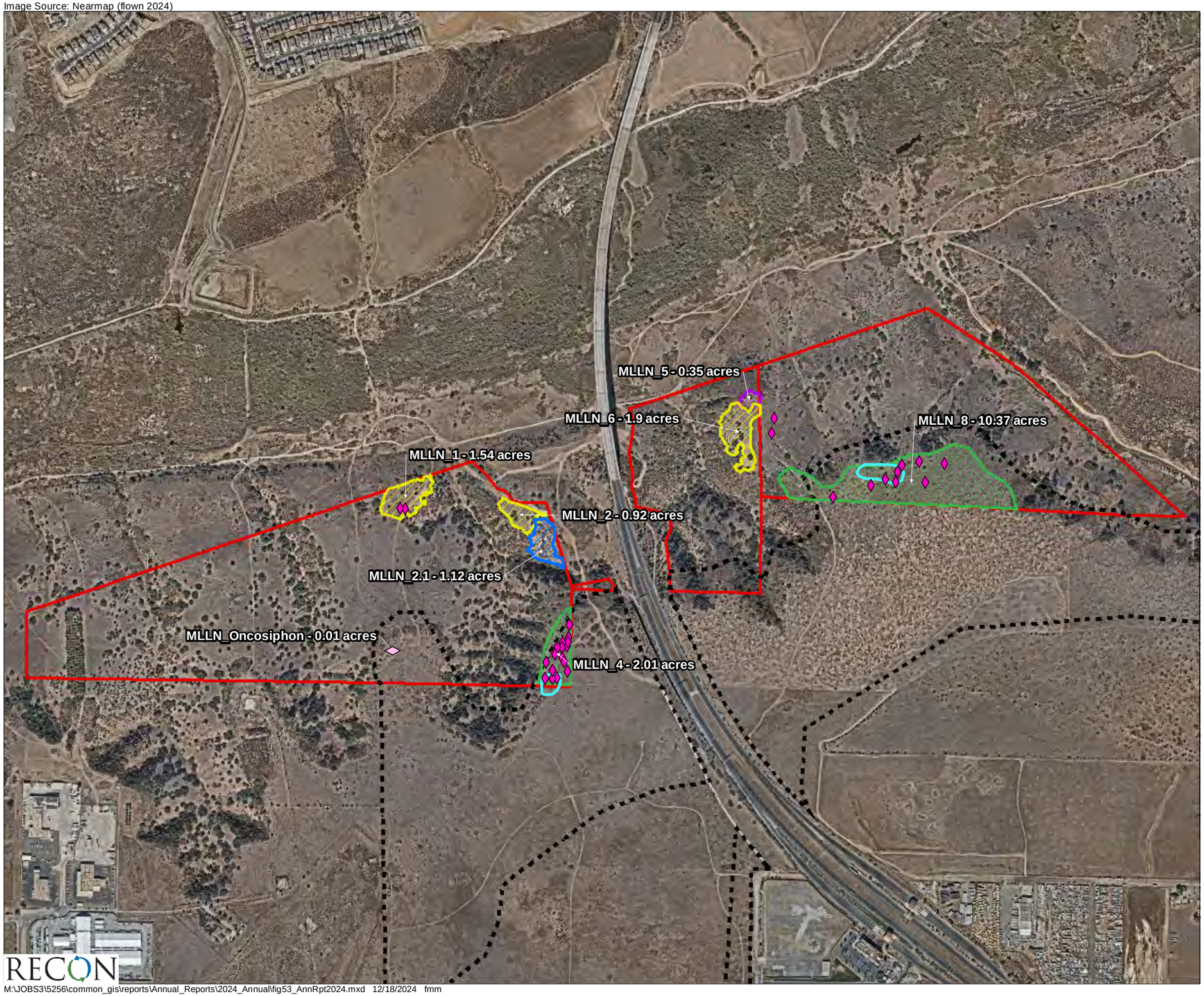
Image Source: Nearmap (flown 2024)



- Conveyed Land Under POM Management
- Non-native Plant Treatment Area
- Otay Tarplant Habitat – Non-native Plant Treatment Area
- Otay River Valley and Salt Creek Cactus Wren 3-year Project (City of Chula Vista EMP Grant 5004731; ended fall 2018)
- Stinknet (*Oncosiphon piluliferum*) Survey Location
- Stinkwort (*Dittrichia graveolens*) Treatment Locations
- Cactus Wren Habitat – Cholla Cactus Cuttings Planted in 2024 (Community Facility District 97-2 Funded CACW Habitat Restoration)
- Vernal Pool Preservation Area (2018)*
- Vernal Pool Complexes (1995)**

*Source: Otay Ranch Phase 2 Resource Mangement Plan Update (RECON 2018)

**Source: Vernal Pool Management Plan for Otay Ranch (Dudek & Associates 1995)

0 Feet 750

FIGURE 53
2024 Vegetation Removal and Treatment Areas, Millenia Parcels

RECON

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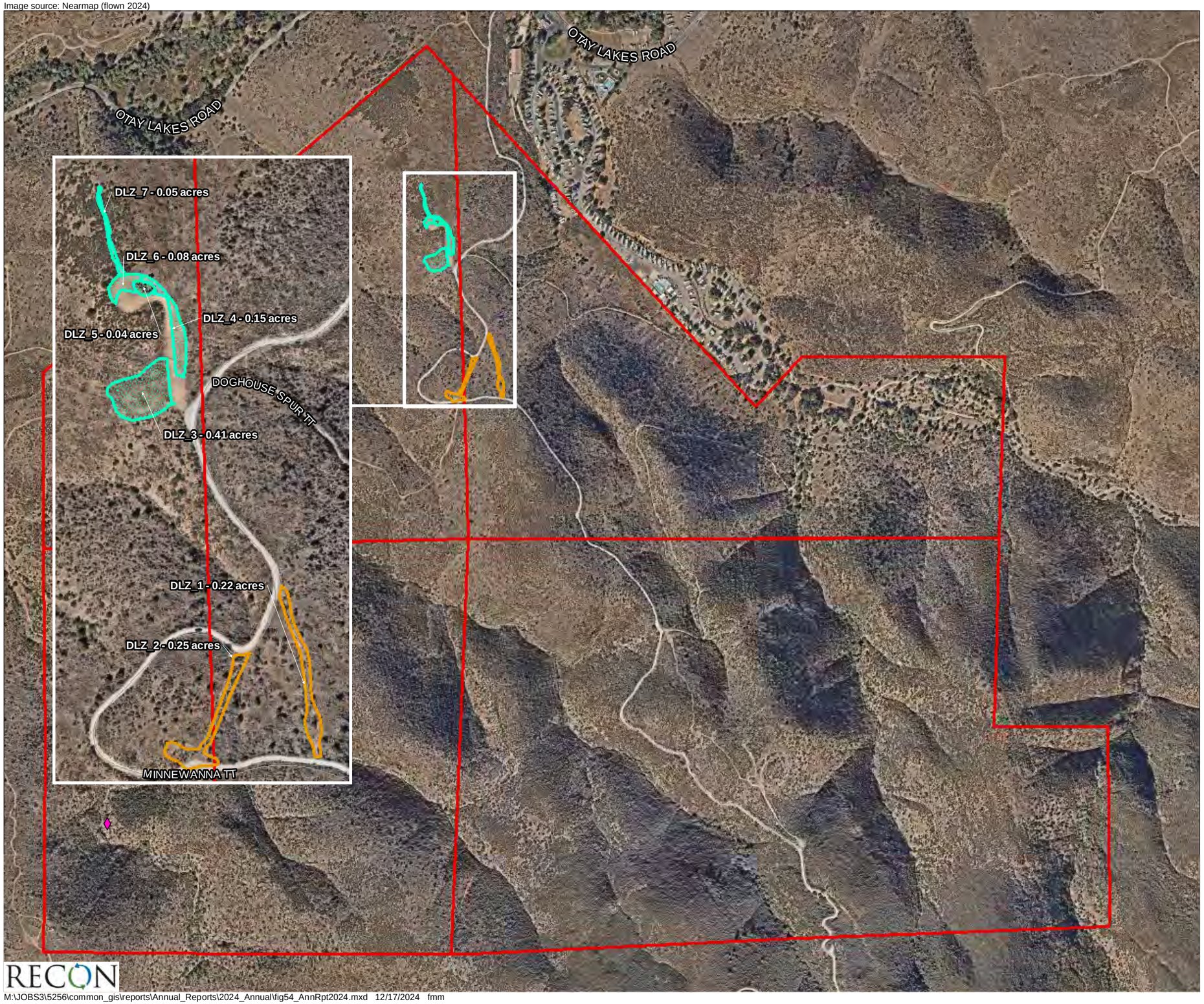
Image source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Non-native Plant Treatment Area

QCB Habitat Restoration Area (County of San Diego Department of Parks and Recreation EMP Grant 557744; ended fall 2024)

Stinkwort (*Dittrichia graveolens*) Treatment Locations

0 Feet 700

RECON

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FIGURE 54

2024 Vegetation Removal and Treatment Areas, Dulzura Parcels

Image Source: Nearmap (flown 2024)

Conveyed Land Under POM Management

Otay Tarplant Habitat –
Non-native Plnat Treatment Area

0 Feet 350

FIGURE 55
2024 Vegetation Removal and Treatment Areas,
Western Wolf Canyon and Wolf Canyon Parcels

RECON

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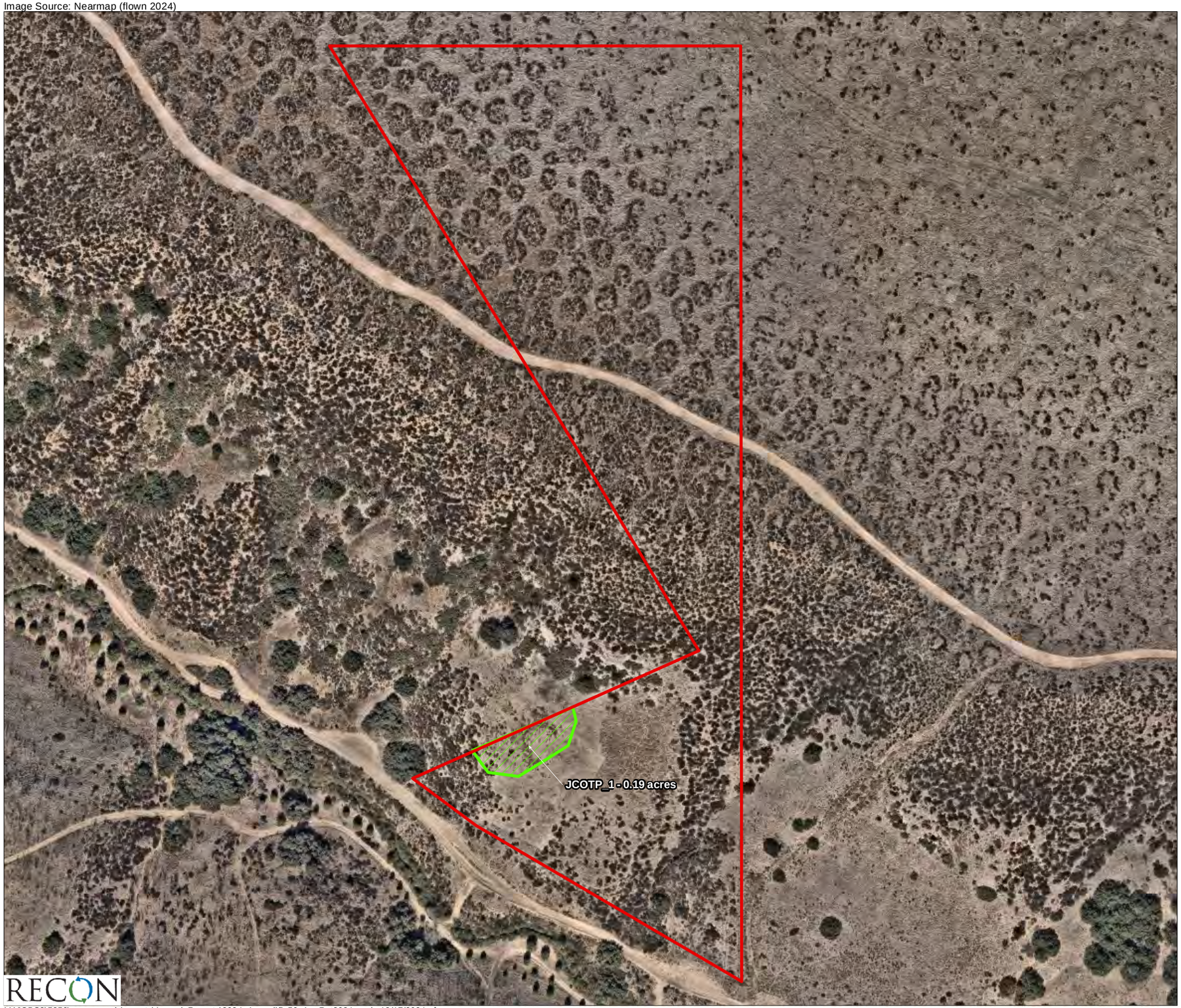
Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Otay Tarplant Habitat –
Non-native Plant Treatment Area

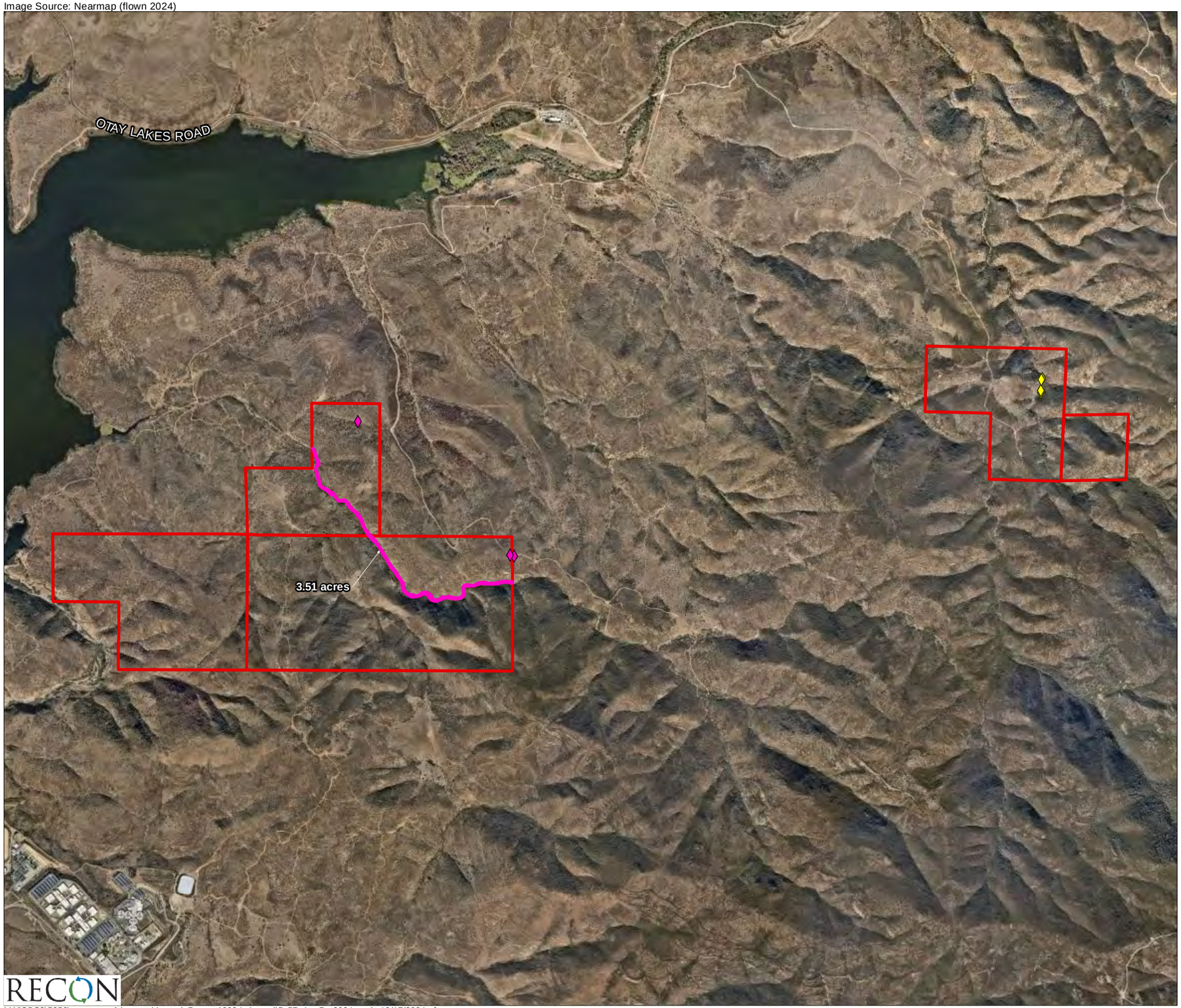
0 Feet 150

RECON

M:\JOBS3\5256\common_gis\reports\Annual_Reports\2024_Annual\fig56_AnnRpt2024.mxd 12/17/2024 fmm

FIGURE 56
2024 Vegetation Removal and Treatment Areas,
Johnson Canyon Otay Tarplant Preserve

Image Source: Nearmap (flown 2024)



Conveyed Land Under POM Management

Stinkwort (*Dittrichia graveolens*) Treatment Locations

False Hawkbit (*Urospermum picroides*) Treatment Locations

0 Feet 2,000

RECON

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FIGURE 57

2024 Vegetation Removal and Treatment Areas, San Ysidro, Northern San Ysidro, and Little Cedar Canyon Parcels

ATTACHMENT 2

Photographs 1–57

PHOTOGRAPH 1
Representative Riparian Photo Monitoring Location, Salt Creek Parcels,
May 23, 2024

PHOTOGRAPH 2
Minor Lemonade Berry Dieback Observed, Wolf Canyon Parcels,
May 21, 2024

PHOTOGRAPH 3
Vernal Pool Ponding Observed at Millenia Parcels During Focused Fairy Shrimp Surveys, February 16, 2024

PHOTOGRAPH 4
San Diego Goldenstar at Dulzura Parcels, April 25, 2024

PHOTOGRAPH 5
San Diego Goldenstar at Dulzura Parcels, April 30, 2024

PHOTOGRAPH 6
Snake Cholla at Northern Salt Creek Parcels,
May 14, 2024

PHOTOGRAPH 7
Gander's Pitcher Sage at Proctor Valley Parcels,
June 7, 2024

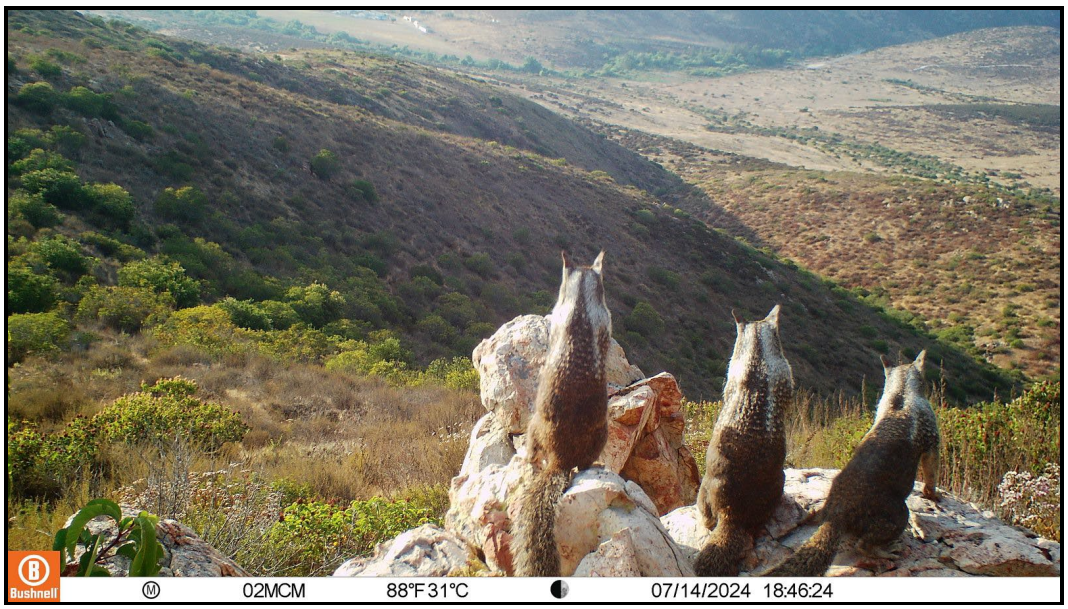
PHOTOGRAPH 8
Cellular Service-connected Solar-powered Wildlife Camera, McMillin Parcels, October 21, 2024

PHOTOGRAPH 9
Cellular Service-connected Solar-powered Wildlife Camera, McMillin Parcels, October 21, 2024

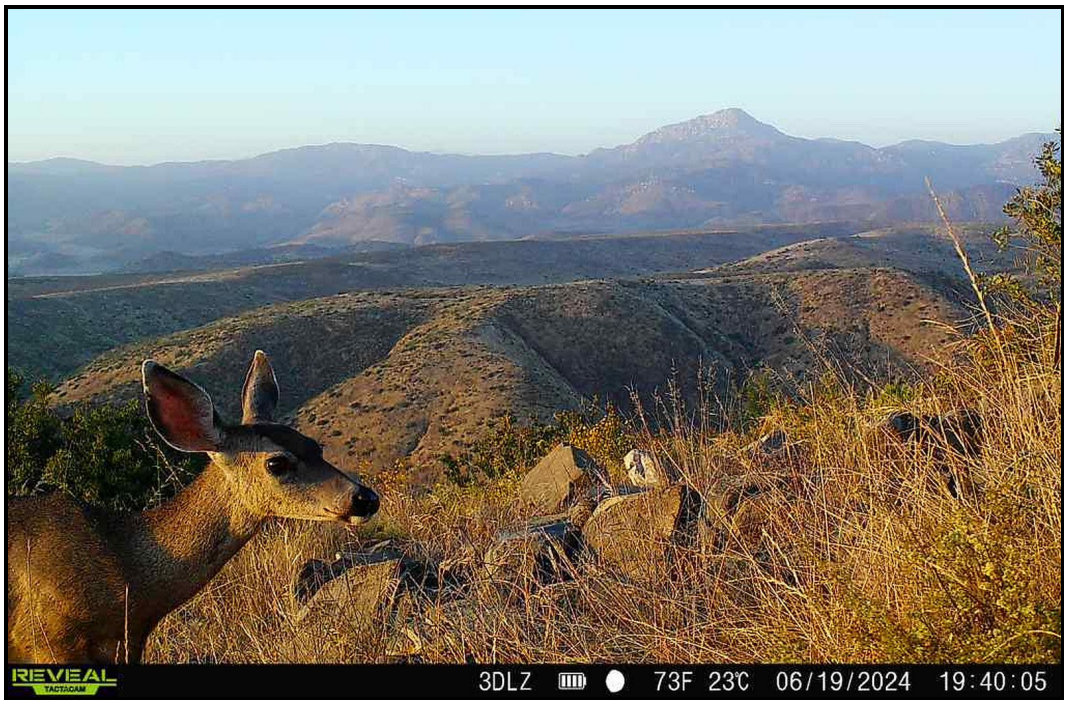
PHOTOGRAPH 10
Cellular Service-connected Solar-powered Wildlife Camera, Ridge Parcels, October 30, 2024

PHOTOGRAPH 11
Golden Eagle Pair Photographed at Golden Eagle Camera Survey Location, McMillin Parcels, March 14, 2024

PHOTOGRAPH 12
Bobcat Photographed at Golden Eagle Camera Survey Location, Ridge Parcels, November 9, 2024



PHOTOGRAPH 13
California Ground Squirrels Photographed at Golden Eagle Camera Survey Location, McMillin Parcels, July 14, 2024



PHOTOGRAPH 14
Southern Mule Deer Photographed at Golden Eagle Camera Survey Location, Dulzura Parcels, June 19, 2024

PHOTOGRAPH 15
Great Horned Owl Photographed at Golden Eagle Camera Survey Location, McMillin Parcels, September 12, 2024

PHOTOGRAPH 16
Common Gray Fox Photographed at Golden Eagle Camera Survey Location, McMillin Parcels, January 13, 2024

PHOTOGRAPH 17
Northern Harrier Photographed at Golden Eagle Camera Survey Location, McMillin Parcels, April 9, 2024

PHOTOGRAPH 18
American Kestrel Pair Photographed at Golden Eagle Camera Survey Location, McMillin Parcels, January 25, 2024

PHOTOGRAPH 19
Quino Checkerspot Butterfly Host Plant, Purple Owl's Clover, Proctor Valley Parcels, March 28, 2024

PHOTOGRAPH 20
Quino Checkerspot Butterfly Host Plant, Dot-seed Plantain, Proctor Valley Parcels, March 14, 2024

PHOTOGRAPH 21
Representative Landscape Photographic Monitoring Location at
Millenia Parcels, April 11, 2024

PHOTOGRAPH 22
Representative Landscape Photographic Monitoring Location at
Proctor Valley (South) Parcels, April 30, 2024

PHOTOGRAPH 23
Coastal Cactus Wren Habitat at Millenia Parcels, March 8, 2024

PHOTOGRAPH 24
Coastal Cactus Wren Habitat at Salt Creek Parcels, March 26, 2024

PHOTOGRAPH 25
Coastal Cactus Wren at Salt Creek Parcels, January 18, 2024

PHOTOGRAPH 26
Coastal Cactus Wren Carrying Food at Salt Creek Parcels, January 18, 2024

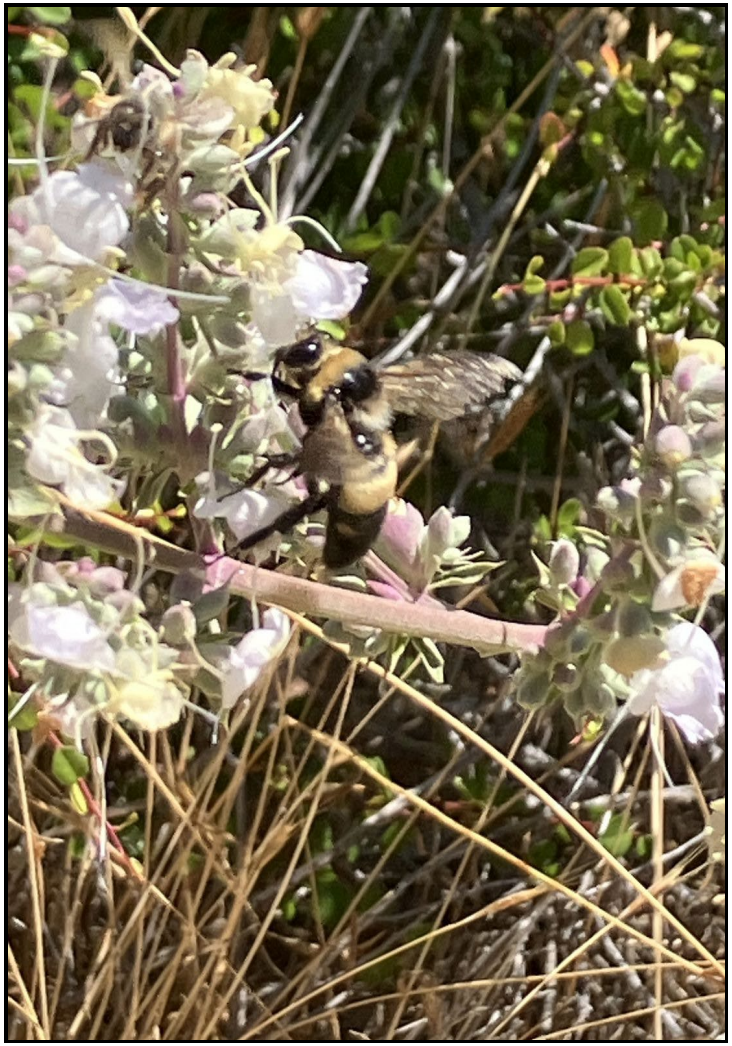
PHOTOGRAPH 27
Coastal Cactus Wren Pair at Salt Creek Parcels, January 18, 2024

PHOTOGRAPH 28
Coastal Cactus Wren Nest at Salt Creek Parcels,
March 26, 2024

PHOTOGRAPH 29
Otay Mesa Mint and San Diego Button-celery,
Millenia Parcels, May 2, 2024

PHOTOGRAPH 30
Acoustic Data Logger for Western Spadefoot, Johnson Canyon Otay Tarplant Preserve, December 9, 2024

PHOTOGRAPH 31
Acoustic Data Logger for Western Spadefoot, Salt Creek Parcels, December 9, 2024

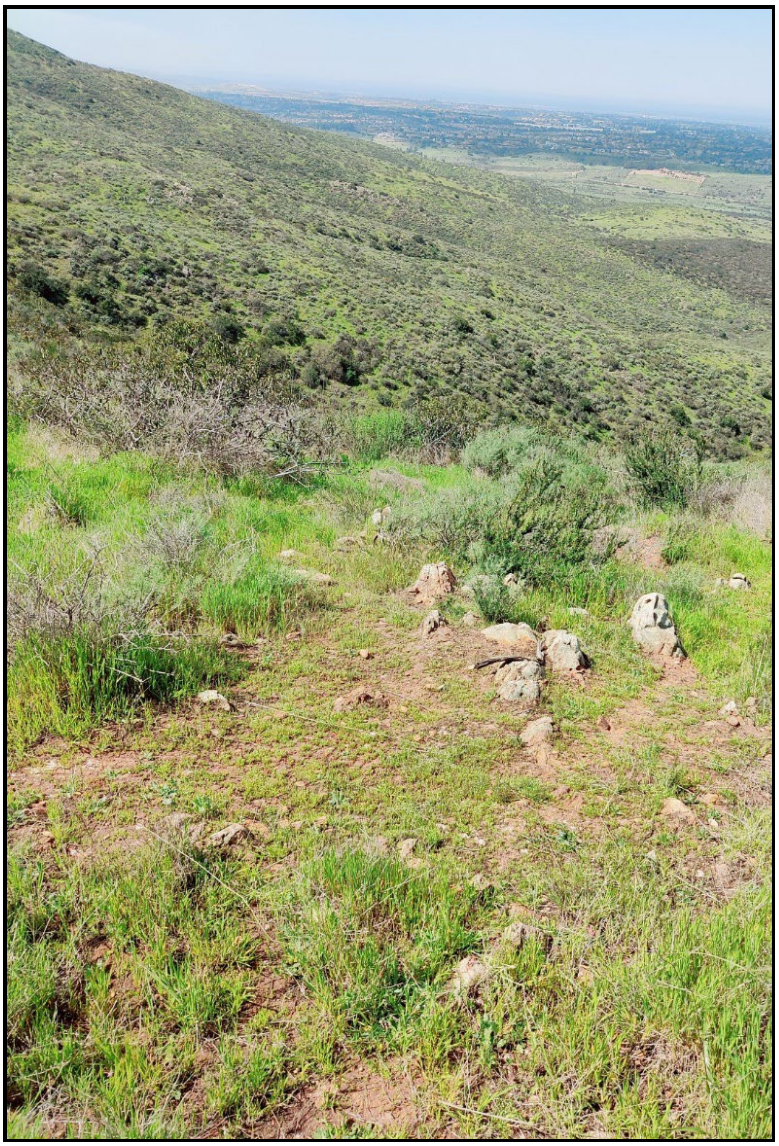


PHOTOGRAPH 32
Crotch's Bumble Bee, Little Cedar Canyon Parcels,
June 14, 2024

PHOTOGRAPH 33
Crotch's Bumble Bee, McMillin Parcels,
May 6, 2024

PHOTOGRAPH 34
Former Cattle Pond Inundated with Water, Proctor Valley (South) Parcels, March 8, 2024

PHOTOGRAPH 35
Coastal California Gnatcatcher, Salt Creek Parcels, January 18, 2024



PHOTOGRAPH 36
Quino Checkerspot Habitat, Proctor Valley Parcels,
March 19, 2024

PHOTOGRAPH 37
California Patch, Proctor Valley Parcels, April 3, 2024

PHOTOGRAPH 38
Quino Checkerspot Butterfly Adult Observed Off-site Near McMillin Parcels, March 13, 2024

PHOTOGRAPH 39
San Diego Fairy Shrimp Voucher Specimen, Johnson Canyon (East) Parcels,
February 13, 2024

PHOTOGRAPH 40
Vertical Mulch Placement to Cover an Unauthorized Mountain Bike Route on City of San Diego Property that Leads to Jamul Mountains Parcels, April 15, 2024

PHOTOGRAPH 41
Conducting Fence Repair, Jamul Mountains Parcels, April 15, 2024

PHOTOGRAPH 42
The Fence was Repaired and the T-posts were Embedded in Concrete to Secure the Fence, Millenia Parcels, April 16, 2024

PHOTOGRAPH 43
Conducting Fence Installation, Northern San Ysidro Parcels, April 22, 2024

PHOTOGRAPH 44
Collecting Coast Cholla Cuttings for Access Control, Salt Creek Parcels, November 1, 2024

PHOTOGRAPH 45
Planting Coast Cholla Cuttings to Block an Unauthorized ATV Route, Salt Creek Parcels, November 1, 2024

PHOTOGRAPH 46
PSB Providing Guidance to RECON Crew Lead Prior to Vegetation Treatment, Salt Creek Parcels, January 24, 2024

PHOTOGRAPH 47
Conducting Line Trimming for Coastal Cactus Wren Habitat,
Northern Salt Creek Parcels, December 11, 2024

PHOTOGRAPH 48
Conducting Line Trimming for Coastal Cactus Wren Habitat,
Northern Salt Creek Parcels, December 11, 2024

PHOTOGRAPH 49
Conducting Hand Weeding Around Otay Tarplant, Millenia Parcels, April 15, 2024

PHOTOGRAPH 50
SC_4 Treatment Location, Salt Creek Parcels, January 24, 2024

PHOTOGRAPH 51
False Hawkbit Individual Prior to Removal,
Little Cedar Canyon Parcels, April 10, 2024

PHOTOGRAPH 52
Garbage Littering the Ground Prior to Removal at the Dulzura Parcels, March 12, 2024

PHOTOGRAPH 53
Collecting Garbage from Beneath the Vegetation at the Dulzura Parcels, March 12, 2024

PHOTOGRAPH 54
Vegetation Following Trash Removal at the Dulzura Parcels, March 12, 2024

PHOTOGRAPH 55
Little Cedar Canyon Parcels Site Prior to Trash Removal, March 19, 2024

PHOTOGRAPH 56
Little Cedar Canyon Parcels Site Following Trash Removal, March 21, 2024

PHOTOGRAPH 57
Trash Bags Carried to a Vehicle Access Point for Proper Disposal at Dulzura Parcels, April 2, 2024

ATTACHMENT 3

Vernal Pool Plant Survey List

Attachment 3 Vernal Pool Plant Survey List												
Major Plant Group	Family	Scientific Name / Common Name	Federal Status	State Status	CNPS Rare Plant Rank	County of San Diego	City of Chula Vista	Management and Monitoring Strategic Plan: Species Management Category	Otay Ranch Preserve Resource Management Plan Phase 2 Update: Priority Group	Vernal Pool Indicator	Ponded Areas	Origin
Leptosporangiate Ferns	Marsileaceae / Marsilea Family	*Pilularia americana* / American pillwort								Yes	MLLN E1	N
Angiosperms: Monocots	Cyperaceae / Sedge Family	*Eleocharis macrostachya* / pale spike-rush								Yes	JCE 11	N
		Eleocharis sp. / spike-rush									JCE 4, JCE 5, JCE 6, JCE 7, JCE 9, MLLN W1, MLLN E1, MLLN E2, MLLN E3	N
	Iridaceae / Iris Family	*Sisyrinchium bellum* / western blue-eyed grass									JCE 7	N
	Juncaginaceae / Arrow-Grass Family	*Triglochin scilloides* [=*Lilaea scilloides*] / flowering-quillwort								Yes	MLLN E1	N
	Poaceae (Gramineae) / Grass Family	*Avena sp.* / oats									JCE 5, JCE 12, JCE 14, JCE 17, JCE 19	I
		Distichlis spicata / salt grass									MLLN W2	N
		Festuca perennis [=*Lolium multiflorum* and *Lolium perenne*] / rye grass									JCE 1, JCE 2, JCE 4, JCE 5, JCE 6, JCE 7, JCE 8, JCE 9, JCE 10, JCE 11, JCE 12, JCE 13, JCE 14, JCE 15, JCE 16, JCE 17, JCE 18, JCE a, JCE b, JCE c, JCE d, MLLN W1, MLLN E2, MLLN E3	I
		Hordeum marinum / Mediterranean barley									JCE 5, JCE 9, JCE 10, JCE 11, JCE 15, JCE 19, MLLN W1	I
		Stipa pulchra [=*Nassella pulchra*] / purple needle grass									JCE 17	N
		Stipa sp. / needle grass									JCE 14, JCE 15	N
Angiosperms: Eudicots	Apiaceae (Umbelliferae) / Carrot Family	*Eryngium aristulatum* var. *parishii* / San Diego button-celery	FE	SE	1B.1	SCMSCP, List A	MSCP	VF	1—Annuals & Herbaceous Perennials	Yes	MLLN W1, MLLN E1, MLLN E2	N
	Asteraceae / Sunflower Family	*Baccharis sarothroides* / broom baccharis									JCE 7	N
		Holocarpha virgata ssp. elongata / graceful tarplant			4.2	List D			4		MLLN E2	N
	Cactaceae / Cactus Family	*Ferocactus viridescens* / San Diego barrel cactus, coast barrel cactus			2B.1	SCMSCP, List B	MSCP	VF	2—Perennials		JCE 17	N
	Chenopodiaceae / Goosefoot Family	*Atriplex semibaccata* / Australian saltbush									JCE 15	I
	Elatinaceae / Waterwort Family	*Elatine brachysperma* / short-seed waterwort								Yes	JCE 4, MLLN W1, MLLN E1	N
	Geraniaceae / Geranium Family	*Erodium* sp. / filaree, storksbill									MLLN W1, MLLN E1, MLLN E2, MLLN E3	I
	Lamiaceae / Mint Family	*Pogogyne nudiuscula* / Otay mesa mint	FE	SE	1B.1	SCMSCP, List A	MSCP	SL	1—Annuals & Herbaceous Perennials	Yes	MLLN E1, MLLN E2	N
	Lythraceae / Loosestrife Family	*Lythrum hyssopifolia* / grass poly, hyssop loosestrife									JCE 4, JCE 6, MLLN W1, MLLN E1, MLLN E3	I
	Plantaginaceae / Plantain Family	*Callitriche* sp. / water-starwort								Yes	JCE 4, MLLN W1, MLLN E1	N
	Polygonaceae / Buckwheat Family	*Rumex crispus* / curly dock									MLLN E3	I

Attachment 3
Vernal Pool Plant Survey List

Major Plant Group	Family	Scientific Name / Common Name	Federal Status	State Status	CNPS Rare Plant Rank	County of San Diego	City of Chula Vista	Management and Monitoring Strategic Plan: Species Management Category	Otay Ranch Preserve Resource Management Plan Phase 2 Update: Priority Group	Vernal Pool Indicator	Ponded Areas	Origin

NOTE: Scientific and common names were primarily derived from Jepson eFlora (Jepson Flora Project 2023). In instances where common names were not provided in this resource, common names were obtained from Rebman and Simpson (2014). Federal and state listing status is based on California Department of Fish and Wildlife, Natural Diversity Database (CDFW) 2023. Species noted as vernal pool indicator plants were obtained from Bauder et al. (1998).

STATUS CODES

Federal Status
FE = Listed as endangered by the federal government

State Status
SE = Listed as endangered by the state of California

California Native Plant Society (CNPS): California Rare Plant Ranks (CRPR)
1B = Species rare, threatened, or endangered in California and elsewhere. These species are eligible for state listing.
2B = Species rare, threatened, or endangered in California but more common elsewhere. These species are eligible for state listing.
4 = A watch list of species of limited distribution. These species need to be monitored for changes in the status of their populations.
0.1 = Species seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat).
0.2 = Species fairly threatened in California (20%-80% occurrences threatened; moderate degree and immediacy of threat).

County of San Diego
SCMSCP = Multiple Species Conservation Program County of San Diego Subarea Plan (South County Plan) covered species.
List A = Plants rare, threatened or endangered in California and elsewhere.
List D = Plants of limited distribution and are uncommon, but not presently rare or endangered.

City of Chula Vista
MSCP = City of Chula Vista MSCP Subarea Plan covered species.

Management and Monitoring Strategic Plan: Species Management Category
SL = Species at risk of loss from the Management Strategic Plan Area.
VF = Species with limited distribution in the Management Strategic Plan Area or needing specific vegetation characteristics requiring management.

Otay Ranch Preserve Resource Management Plan 2 Update: Priority Group
1 = Species listed by state and federal agencies as threatened, endangered, or a candidate for listing, classified as a narrow endemic by the City and/or County's MSCP Subarea Plans, and/or have a Species Management Category of 'SL', 'SO', or 'SS'. Priority Group 1 species are considered the highest priority for monitoring and should be funded and monitored every designated monitoring period.
2 = Species covered by the City or County's MSCP Subarea Plans and have a CRPR of 1B or 2B. Priority Group 2 plant species are distinguished from Priority Group 1 plant species as they are not federally or state-listed, considered a narrow endemic, or an 'SL', 'SO', or 'SS' species. Priority Group 2 species should be monitored every designated monitoring period as funding allows.
4 = Species classified by CDFW as a species of special concern, fully protected, or watch list species. Priority Group 4 species are distinguished from Priority Group 3 species as they have not been identified as regionally sensitive and prioritized for monitoring and/or management activities by the Management and Monitoring Strategic Plan. Priority Group 4 species should be monitored incidentally during other tasks as funding allows.

Ponded Areas
MLLN = Millenia
JCE = Johnson Canyon (East)

ORIGIN
N =Native to locality.
I = Introduced species from outside locality.

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APPENDIX O

MSCP Covered Species on County Preserves and Current Status

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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	COUNTY PRESERVE: Species populations have been conserved and are found within preserved southern maritime chaparral habitat. 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.
2. Dunn's mariposa lily	Otay Ranch Preserve	COUNTY PRESERVE: Species populations have been conserved and are found within preserved chaparral and closed-cone coniferous forest habitats. 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.
3. Encinitas baccharis	Del Dios Highlands Preserve	COUNTY PRESERVE: Species populations have been conserved and are found within preserved southern maritime chaparral habitat. Monitoring and species protection efforts maintain the stable population at Del Dios Highlands Preserve. Regional monitoring efforts are on-going. 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.
4. Felt-leaved monardella	Boulder Oaks Preserve El Capitan Preserve Otay Ranch Preserve	COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral habitat. 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.

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
5. Gander's pitcher sage	Otay Ranch Preserve	COUNTY PRESERVE: Species populations have been conserved and are found within preserved chaparral, coastal scrub, and closed-cone coniferous forest habitats. 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.
6. Heart-leaved pitcher sage	Iron Mountain Preserve	COUNTY PRESERVE: Species populations have been conserved and are found within preserved granitic southern mixed chaparral habitat. 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.
7. Lakeside ceanothus	Boulder Oaks Preserve El Capitan Preserve Louis A. Stelzer Park Oakoasis Preserve	COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral habitat. Monitoring and species protection efforts maintain stable populations at Boulder Oaks Preserve, El Capitan Preserve, Louis A. Stelzer Park, and Oakoasis Preserve. 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.
8. Orcutt's bird's beak	Otay Valley Regional Park Tijuana River Valley Regional Park	COUNTY PRESERVES: Species populations have been conserved and are found within preserved maritime succulent scrub habitat. 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.
9. Orcutt's brodiaea	Boulder Oaks Preserve Los Peñasquitos Canyon Preserve Otay Ranch Preserve Santa Fe Valley Preserve	COUNTY PRESERVES: Species populations have been conserved and are found within preserved of chaparral habitat. 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.

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
10. Otay manzanita	Otay Ranch Preserve	COUNTY PRESERVE: Species populations have been conserved and are found within preserved chaparral habitat. 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.
11. Otay mesa mint	Otay Lakes County Park Otay Ranch Preserve	COUNTY PRESERVES: Species populations have been conserved and are found within preserved vernal pools habitat. 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.
12. Otay tarplant	Furby-North Property Otay Ranch Preserve Otay Valley Regional Park	COUNTY PRESERVES: Species populations have been conserved and are found within preserved maritime succulent scrub habitat. 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.
13. Palmer's goldenbush	Lawrence and Barbara Daley Preserve Otay Ranch Preserve	COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral and coastal sage scrub habitats. 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.
14. San Diego barrel cactus	Dictionary Hill Preserve Furby-North Property Lusardi Creek Preserve Otay Ranch Preserve Tijuana River Valley Regional Park Los Peñasquitos Canyon Preserve	COUNTY PRESERVES: Species populations have been conserved and are found within preserved coastal sage scrub habitat. 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.
15. San Diego button celery	Louis A. Stelzer Park Otay Ranch Preserve Otay Valley Regional Park Los Peñasquitos Canyon Preserve	COUNTY PRESERVES: Species populations have been conserved and are found within preserved vernal pool and marsh habitats. 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.

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	COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral, coastal scrub, and grassland habitats. 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.
17. San Diego mesa mint	Los Peñasquitos Canyon Preserve	COUNTY PRESERVE: Species populations have been conserved and are found within preserved vernal pool and marsh habitats. REGIONAL PRESERVE: Approximately 80% of known species locations within the MSCP Plan boundaries have been conserved[b] MSCP goal is to conserve 88% of the known locations.
18. San Diego thornmint	Sycamore Canyon and Goodan Ranch Preserve	COUNTY PRESERVE: Species populations have been conserved and are found within preserved coastal sage scrub and chaparral habitats. Monitoring and species protection efforts maintain a stable population at Sycamore Canyon and Goodan Ranch Preserve. 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.
19. San Miguel savory	Boulder Oaks Preserve Otay Ranch Preserve	COUNTY PRESERVES: Species populations have been conserved and are found within preserved coastal sage scrub and chaparral habitats. Monitoring and species protection efforts maintain stable populations at Boulder Oaks Preserve and Otay Ranch Preserve. 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.
20. Snake cholla	Furby-North Property Otay Ranch Preserve	COUNTY PRESERVES: Species populations have been conserved and are found within preserved maritime succulent scrub habitat. 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.

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
21. Spreading (prostrate) navarretia	Otay Ranch Preserve	COUNTY PRESERVE: Species populations have been conserved and are found within preserved vernal pool habitat. Species protection efforts maintain a stable population at Otay Ranch Preserve. 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.
22. Tecate cypress	Otay Ranch Preserve	COUNTY PRESERVE: Species populations have been conserved and are found within preserved southern interior cypress forest habitat. 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.
23. Torrey pine	Tijuana River Valley Regional Park	COUNTY PRESERVE: Species distribution was enhanced via the County's Tree Planting Program and is found within preserved coastal sage scrub habitat. 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.
24. 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	COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral and vernal pool habitats. Monitoring and species protection efforts maintain stable populations at Lusardi Creek and Sycamore Canyon/Goodan Ranch Preserves. Species protection efforts maintain stable populations at Dictionary Hill Preserve, Otay Lakes Regional Park, Otay Ranch Preserve, Otay Valley Regional Park. 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.
25. Wart-stemmed ceanothus	Del Dios Highlands Preserve Tijuana River Valley Regional Park	COUNTY PRESERVES: Species populations have been conserved and are found within preserved coastal chaparral habitat. 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.

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
26. Willowy monardella	Otay Ranch Preserve Sycamore Canyon and Goodan Ranch Preserve	COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral, coastal sage scrub, riparian scrub, riparian forest, and woodland habitats. Monitoring and species protection efforts maintain stable populations Sycamore Canyon and Goodan Ranch Preserve and Otay Ranch Preserve. 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.
Birds		
27. American peregrine falcon	Del Dios Highlands Otay Ranch Preserve Peutz Valley Preserve Tijuana River Valley Regional Park	COUNTY PRESERVES: Species populations have been conserved and are found within preserved foraging coastal wetland, riparian, and lake habitats. 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.
28. Burrowing owl	Otay Ranch Preserve Sycamore Canyon and Goodan Ranch Preserve Ramona Grasslands Preserve[a]	COUNTY PRESERVES: Species populations have been conserved and are found within preserved grassland habitat. Regional monitoring and species protection efforts are on-going. 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.
29. Canada goose	Tijuana River Valley Regional Park	COUNTY PRESERVES: Species populations have been conserved and are found within preserved fresh and brackish water habitats and open fields and agricultural lands. REGIONAL PRESERVE: Approximately 67% of known species locations within the MSCP Plan boundaries have been conserved[b] MSCP goal is to conserve 78% of the known locations.

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
30. 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	COUNTY PRESERVES: Species populations have been conserved and are found within preserved maritime succulent scrub. Monitoring, species protection efforts, and habitat restoration and enhancement maintain a stable population at Lakeside Linkage Preserve. Regional monitoring and species protection efforts are on-going. 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.
31. Coastal California gnatcatcher	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	COUNTY PRESERVES: Species populations have been conserved and are found within preserved coastal sage scrub habitat. Species protection efforts on County properties have been successful and are on-going. Regional monitoring and species protection efforts are on-going 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.
32. Cooper's hawk	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	COUNTY PRESERVES: Species populations have been conserved and are found within preserved riparian and wooded habitats. 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.

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
33. Ferruginous hawk	Del Dios Highlands Preserve	COUNTY PRESERVE: Species populations have been conserved and are found within preserved foraging grassland habitat. REGIONAL PRESERVE: Approximately 71% of habitat within the MSCP Plan boundaries has been conserved[b] MSCP goal is to conserve 100% of known habitat.
34. 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	COUNTY PRESERVES: Species populations have been conserved and are found within preserved foraging grassland, chaparral, and coastal sage scrub habitat and nesting cliff habitat. Monitoring and species protection efforts ensure successful fledging at Ramona Grasslands Preserve and El Capitan Preserve. Regional monitoring and species protection efforts are on-going. REGIONAL PRESERVE: Approximately 64% of habitat within the MSCP Plan boundaries has been conserved[b] MSCP goal is to conserve 100% of known habitat.
35. 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	COUNTY PRESERVES: Species populations have been conserved and are found within preserved riparian habitat. Regional monitoring and species protection efforts have been successful and are on-going. 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.
36. Light-footed Ridgway's rail (Clapper rail)	Tijuana River Valley Regional Park	COUNTY PRESERVE: Species populations have been conserved and are found within preserved freshwater marsh and riparian habitats. Monitoring and species protection efforts enhance a population at Tijuana River Valley Regional Park. Regional species protection efforts are on-going. REGIONAL PRESERVE: Approximately 54% of habitat within the MSCP Plan boundaries has been conserved[b] MSCP goal is to conserve 100% of known habitat.

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
37. 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 Ramona Grasslands Preserve Sycamore Canyon and Goodan Ranch Preserve Tijuana River Valley Regional Park	COUNTY PRESERVES: Species populations have been conserved and are found within preserved foraging and nesting wetland, marsh, marshy meadow, grassland, and riparian woodland habitats. REGIONAL PRESERVE: Approximately 54% of habitat within the MSCP Plan boundaries has been conserved[b] MSCP goal is to conserve 100% of known habitat.
38. 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	COUNTY PRESERVES: Species populations have been conserved and are found within preserved coastal sage scrub habitat. 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.
39. Southwestern willow flycatcher	Tijuana River Valley Regional Park	COUNTY PRESERVE: Species populations have been conserved and are found within preserved riparian habitat. Regional monitoring and species protection efforts are on-going. 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.
40. Swainson's hawk	Barnett Ranch Preserve Skyline Preserve	COUNTY PRESERVE: Species populations have been conserved and are found within preserved foraging grassland habitat. REGIONAL PRESERVE: Approximately 71% of habitat within the MSCP Plan boundaries has been conserved[b] MSCP goal is to conserve 100% of known habitat.

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
41. Tricolored blackbird	Barnett Ranch Preserve Ramona Grasslands Preserve[a] Tijuana River Valley Regional Park	COUNTY PRESERVES: Species populations have been conserved and are found within preserved foraging grassland habitat. Monitoring and species protection efforts ensure that the population adjacent to Ramona Grasslands Preserve is stable. Species protection efforts maintain populations at Barnett Ranch Preserve and Tijuana River Valley Regional Park. 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.
42. 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 Ramona Grasslands Preserve Stoneridge Preserve Sycamore Canyon and Goodan Ranch Preserve	COUNTY PRESERVES: Species populations have been conserved and are found within preserved grassland, coastal sage scrub, and riparian woodland habitats. REGIONAL PRESERVE: Approximately 51% of habitat within the MSCP Plan boundaries has been conserved[b] MSCP goal is to conserve 100% of known habitat.
43. White-faced ibis	Del Dios Highlands Preserve	COUNTY PRESERVE: Species populations have been conserved and are found within preserved freshwater wetland habitat. REGIONAL PRESERVE: Approximately 31% of habitat within the MSCP Plan boundaries has been conserved[b] MSCP goal is to conserve 100% of known habitat.

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
Reptiles		
44. 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	COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral and scrub habitats. 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.
45. 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	COUNTY PRESERVES: Species populations have been conserved and are found within preserved chaparral and scrub habitats. 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.
Mammals		
46. 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	COUNTY PRESERVES: Species populations have been conserved and are found within diverse preserved habitats. Regional monitoring, species protection, and increasing habitat connectivity efforts are on-going. 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.

MSCP Covered Species and Habitats	County Preserve or Park	Status of Species
47. 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	COUNTY PRESERVES: Species populations have been conserved and are found within preserved grassland, scrub, and chaparral habitats. Regional monitoring, species protection, and increasing habitat connectivity efforts are on-going. 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
Invertebrates		
48. San Diego fairy shrimp	Otay Ranch Preserve Ramona Grasslands Preserve[a]	COUNTY PRESERVES: Species populations have been conserved and are found within preserved vernal pool habitat. Monitoring and species protection efforts maintain stable populations at Ramona Grasslands Preserve and Otay Ranch Preserve. REGIONAL PRESERVE: Approximately 54% of habitat within the MSCP Plan boundaries has been conserved[b] MSCP goal is to conserve 88% of known habitat.
49. Thorne's hairstreak butterfly	Otay Ranch Preserve	COUNTY PRESERVE: Species populations have been conserved and are found within preserved foraging chaparral habitat and larval host Tecate cypress habitat. REGIONAL PRESERVE: Approximately 100% of habitat within the MSCP Plan boundaries has been conserved[b] MSCP goal is to conserve 100% of known habitat.

[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 2022 State of the Regional Preserve System in Western San Diego County, which summarized monitoring results for all three South County MSCP Subarea Plan Areas.

Reference:

Preston, K., E. Perkins, C. Brown, S. McCutcheon, A. Bernabe, E. Luciani, B. Kus, and S. Wynn. 2022. State of the Regional Preserve System in Western San Diego County, USGS Cooperator report prepared for San Diego Association of Governments Environmental Mitigation Program, Agreements 5004597 and 548642.

APPENDIX P

Targeted Monitoring Plan Resource-Specific Monitoring and Management 2024 Annual Report

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Final

TARGETED MONITORING PLAN RESOURCE-SPECIFIC MONITORING & MANAGEMENT

2024 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

March 2025

ESA

Final

TARGETED MONITORING PLAN RESOURCE-SPECIFIC MONITORING & MANAGEMENT

2024 Annual Report

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ACRONYMS AND OTHER ABBREVIATIONS

Acronym or Abbreviation	Definition
Blackhawk	Blackhawk Environmental, Inc.
Cal-IPC	California Invasive Plant Council
CBI	Conservation Biology Institute
CDFW	California Department of Fish and Wildlife (2013 and after)
County	County of San Diego
DPR	Department of Parks and Recreation
ESA	Environmental Science Associates
Field Maps	ArcGIS Field Maps mobile application
GPS	Global Positioning System
HDS	Harbison's dun skipper
lb/acre	pounds per acre
MBC	Mulligan Biological Consulting
mm	millimeter
MSCP	Multiple Species Conservation Program
MSP	Management and Monitoring Strategic Plan
NCCP	Natural Community Conservation Plan
RDM	residual dry matter
ROE	Right-of-Entry
SANDAG	San Diego Association of Governments
SDMMP	San Diego Management and Monitoring Program
SKR	Stephens' kangaroo rat
SR	State Route
TMP	Targeted Monitoring Plan
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
Wildlife Agencies	CDFW and USFWS

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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 updates (ESA and ICF 2022; ESA 2024a).

The TMP and subsequent updates were 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 U.S. Geological Survey (USGS) and 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 Subarea Plan Framework Management Plan (County of San Diego 2001). The TMP addresses monitoring and adaptive management within 31 parks and preserves for 23 plant and wildlife species and two habitat types, located in the South County Subarea Plan and draft North County MSCP Plan Areas.

TMP implementation in 2024 included habitat and resource-specific monitoring following the monitoring frequencies in the TMP and adaptive management following the recommendations from the 2023 TMP Annual Report (ESA and ICF 2022; ESA 2024a, 2024b). Resource-specific monitoring was conducted in 12 parks and preserves: Tijuana River Valley Regional Park, and Boulder Oaks, Furby-North, Hellhole Canyon, Lusardi Creek, Mount Olympus, Ramona Grasslands, Los Peñasquitos Canyon, Santa Margarita, Simon, Sycamore Canyon/Goodan Ranch, and Wilderness Gardens County Preserves. Resource-specific adaptive management was conducted in seven parks and preserves: Tijuana River Valley Regional Park and Boulder Oaks, Furby-North, Hellhole Canyon, Lusardi Creek, Ramona Grasslands, and Santa Margarita County Preserves.

Monitoring was conducted by Environmental Science Associates (ESA) for the following 6 MSCP and 8 draft North County MSCP-covered species and habitats in 2024:

- Vernal pool and alkali playa habitats (MSCP and draft North County MSCP)
- San Diego thornmint (*Acanthomintha ilicifolia*) (MSCP and draft North County MSCP)
- Willowy monardella (*Monardella viminea*) (MSCP)
- Harbison's dun skipper (*Euphyes vestris harbisoni*) (HDS)
- Arroyo toad (*Anaxyrus californicus*) (MSCP and draft North County MSCP)
- Northern harrier (*Circus hudsonius*) (MSCP and draft North County MSCP)

- Least Bell's vireo (*Vireo bellii pusillus*) (MSCP and draft North County MSCP)
- Stephens' kangaroo rat (*Dipodomys stephensi*) (SKR) (draft North County MSCP)
- Pallid bat (*Antrozous pallidus*) (draft North County MSCP)
- Townsend's big-eared bat (*Corynorhinus townsendii*) (draft North County MSCP)

Golden eagle (*Aquila chrysaetos*) and bald eagle (*Haliaeetus leucocephalus*) monitoring also occurred in 2024 consistent with the TMP. Results are included under separate cover in the *Ramona Grasslands Preserve 2023–2024 Raptor Surveys Summary Report* (ESA 2024c).

Adaptive management was conducted by ESA for the following 5 MSCP and 1 draft North County MSCP-covered species in 2024:

- San Miguel savory (*Clinopodium chandleri*) (MSCP)
- Otay tarplant (*Deinandra conjugens*) (MSCP)
- Orcutt's bird's-beak (*Dicranostegia orcuttiana*) (MSCP)
- Variegated dudleya (*Dudleya variegata*) (MSCP)
- Harbison's dun skipper
- Least Bell's vireo (MSCP and draft North County MSCP)

Table ES-1 provides a summary of 2024 TMP monitoring results, and **Table ES-2** provides a summary of 2024 TMP management results.

TABLE ES-1
2024 TMP MONITORING RESULTS

Species	County Park/Preserve	Monitoring Results
Vernal pools/Alkali playas: Quantitative monitoring	Ramona Grasslands	22 study locations monitored. All monitored study locations, except raap14, supported at least one floral indicator species during both wet and dry seasons. 14 of the monitored study locations supported at least one faunal indicator species. All monitored study locations supported invasive non-native plant species.
	Los Peñasquitos Canyon	45 study locations monitored. All monitored study locations supported at least one floral indicator species during both wet and dry seasons. 33 of the monitored study locations supported at least one faunal indicator species. Invasive non-native plant species were present in 24 of the monitored study locations.
San Diego thornmint	Simon	IMG plot: 2,200 individuals Total On-site Population: 2,260 individuals
	Sycamore Canyon/ Goodan Ranch[1]	IMG plots: 7,086 individuals Total On-site Population: 36,788 individuals
Otay tarplant[2]	Furby-North 1	IMG plot: 295 individuals Total On-site Population: 340 individuals
	Furby-North 2	IMG plot: 102 individuals Total On-site Population: 430 individuals

Species	County Park/Preserve	Monitoring Results
Willowy monardella[3]	Sycamore Canyon/ Goodan Ranch 1	IMG plot: 47 individuals Total On-site Population: 392 individuals
	Sycamore Canyon/ Goodan Ranch 2	IMG plot: 2 individuals Total On-site Population: 2 individuals
	Sycamore Canyon/ Goodan Ranch 3	IMG plot: 7 individuals Total On-site Population: 50 individuals
Harbison's dun skipper	Hellhole Canyon	Total individuals: 5 adults
Arroyo toad	Ramona Grasslands	Adult/Juveniles: 0 (25 metamorphs)[4] Larvae: 212 individuals (0)[4]
Northern harrier	Tijuana River Valley Regional Park	Territories: 2–4 Pairs: 2–4 Total Individuals: 4–6
Tricolored blackbird	Ramona Grasslands	Total individuals: (0)[5]
Least Bell's vireo	Santa Margarita	Territories: 15 Breeding Pairs: 15 Fledged Young: 35
Stephens' kangaroo rat	Ramona Grasslands	Habitat assessment: 10 of 28 sample plots with high potential 10 sample plots considered occupied based on sign
	Hellhole Canyon	Habitat assessment: 0 of 3 sample plots with high potential[5] 3 considered occupied based on sign[6]
Pallid bat	Hellhole Canyon	Roosting habitat assessment: suitable roosting habitat present (i.e., rocky outcrops, boulders, under bark or in tree cavities).
	Mount Olympus	Roosting habitat assessment: suitable roosting habitat present (i.e., rocky outcrops, boulders, under bark or in tree cavities, abandoned human-made structures).
	Wilderness Gardens	Roosting habitat assessment: suitable roosting habitat present (i.e., historic and unused buildings, rocky outcrops, under bark or in tree cavities).
Townsend's big-eared bat	Hellhole Canyon	Roosting habitat assessment: suitable roosting habitat present (i.e., boulder, rocky outcrops, tree hollows and cavities).
	Wilderness Gardens	Roosting habitat assessment: suitable roosting habitat present (i.e., historic and unused buildings, rocky outcrops, under bark or in tree cavities).

NOTES:

1. At the recommendation of the San Diego Management and Monitoring Program, San Diego thornmint monitoring efforts at Sycamore Canyon/Goodan Ranch County Preserve were reduced to five of the permanent monitoring plots (SYGOACIL01, SYGOACIL05, SYGOACIL06, SYGOACIL08, SYGOACIL10) starting in 2024.
2. Furby-North 1 = MSP Occurrence ID DECO13_3OMEA026_1. Furby-North 2 = MSP Occurrence ID DECO13_3OMEA040_1. Otay tarplant IMG monitoring results from Mulligan Biological Consulting (MBC) are provided in parentheses.
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. Arroyo toad monitoring results from the U.S. Geological Survey (USGS) are provided in parentheses.
5. Tricolored blackbird monitoring results from the San Diego Natural History Museum are provided in parentheses.
6. SKR occupancy at Hellhole Canyon County Preserve in fall 2024 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 in plots 1, 2, and 3 during fall 2024 monitoring, the proximity of the 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 ES-2
2024 TMP MANAGEMENT RESULTS

Species	County Park/Preserve	Management Results
Vernal pools/ Alkali playas	Ramona Grasslands	Management area: (14 pools and 4 alkali playas, totaling 2.23 acres)[1]
San Diego thornmint	Sycamore Canyon/ Goodan Ranch	Management area: (0.98 acre within and surrounding 11 monitoring plots)[2]
San Miguel savory	Boulder Oaks	Management area: 0.57 acre within and surrounding 1 monitoring plot
Otay tarplant	Furby-North	Management area: 0.30 acre within and surrounding 1 monitoring plot
Orcutt's bird's-beak	Tijuana River Valley Regional Park	Management area: 0.46 acre within and surrounding 2 monitoring plots
Variegated dudleya	Lusardi Creek	Management area: 0.75 acre within and surrounding 1 monitoring plot
	Sycamore Canyon/ Goodan Ranch	Management area: (0.04 acre within and surrounding 2 monitoring plots)[3]
Willowy monardella	Sycamore Canyon/ Goodan Ranch	Management area: (0.89 acre within 2 monitoring plots)[4]
Harbison's dun skipper	Hellhole Canyon	Management area: 1.2 acres
Least Bell's vireo[5]	Santa Margarita	BHCO trapped: 11 individuals

NOTES:

BHCO = brown-headed cowbird.

1. Vernal pool/alkali playa management results from RECON Environmental, Inc. are provided in parentheses.
2. San Diego thornmint management results from RECON Environmental, Inc. are provided in parentheses.
3. Variegated dudleya management results from RECON Environmental, Inc. are provided in parentheses.
4. Willowy monardella management results from RECON Environmental, Inc. are provided in parentheses.
5. Two BHCO traps were installed at Santa Margarita County Preserve in 2024.

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 (parks and preserves) (Preserve Group 1) overseen by DPR. The TMP was revised in December 2022 (ESA and ICF 2022) to incorporate 10 additional parks and preserves (Preserve Group 2) and again in August 2024 (ESA 2024a) to incorporate 11 additional parks and preserves (Preserve Group 3). These 31 parks and preserves fall within the South County MSCP Subarea Plan Area and the draft North County MSCP Plan 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 addresses monitoring and adaptive management within 31 parks and preserves for 23 plant and wildlife species and two habitat types.

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 Subarea Plan 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 31 parks and preserves: El Monte County Park, Louis A. Stelzer County Park, San Luis Rey River Park, and Tijuana River Valley Regional Park and Barnett Ranch, Bottle Peak, Boulder Oaks, Del Dios Highlands, Dictionary Hill, El Capitan, Escondido Creek, Furby-North, Hellhole Canyon, Iron Mountain, Keys Creek, Lakeside Linkage, Lawrence and Barbara Daley, Los Peñasquitos Canyon, Lusardi Creek, Mountain Meadow, Mount Olympus, Oakoasis, Peutz Valley, Ramona Grasslands, Sage Hill, Santa Margarita, Simon, Skyline, Stoneridge, Sycamore Canyon/Goodan Ranch, and Wilderness Gardens County Preserves.

Following the TMP resource-specific monitoring frequencies and the management recommendations from the 2023 TMP Annual Report, resource-specific monitoring and management was conducted in 12 parks and preserves identified in the 2024 TMP: Tijuana River Valley Regional Park, and Boulder Oaks, Furby-North, Hellhole Canyon, Lusardi Creek, Mount Olympus, Ramona Grasslands, Santa Margarita, Simon, Sycamore Canyon/Goodan Ranch, Los Peñasquitos Canyon, and Wilderness Gardens County Preserves (ESA and ICF 2022; ESA 2024b). Los Peñasquitos Canyon County Preserve was included in TMP 2024 monitoring efforts to collect baseline vernal pool inventory information to support the finalization of TMP Preserve Group 3 Update (ESA 2024a).

Table 1 presents the monitoring conducted by Environmental Science Associates (ESA) for the following 10 MSCP- or draft North County MSCP-covered species and habitats in 2024.

TABLE 1
TMP SPECIES AND HABITATS MONITORED IN 2024

TMP Species/Habitat	Covered by		Monitored
	MSCP	Draft North County MSCP	
Vernal pool and alkali playa habitat	✓	✓	✓
San Diego thornmint (*Acanthomintha ilicifolia*)	✓	✓	✓
Willowy monardella (*Monardella viminea*)	✓		✓
Harbison's dun skipper (*Euphyes vestris harbisoni*)			✓
Arroyo toad (*Anaxyrus californicus*)	✓	✓	✓
Northern harrier (*Circus hudsonius*)	✓	✓	✓
Least Bell's vireo (*Vireo bellii pusillus*)	✓	✓	✓
Stephens' kangaroo rat (*Dipodomys stephensi*)		✓	✓
Pallid bat (*Antrozous pallidus*)		✓	✓
Townsend's big-eared bat (*Corynorhinus townsendii*)		✓	✓

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- and 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), 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 pursuant to Section 10(a)(1)(B) of the federal Endangered Species Act 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 draft North County MSCP for the northwestern unincorporated areas of the county and the draft 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), signed by the County and the Wildlife Agencies.

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CHAPTER 2
Study Area Description

2.1 Overview

During the 2024 reporting period, ESA performed resource-specific monitoring and management in the following 12 parks and preserves identified in the TMP: Tijuana River Valley Regional Park, Boulder Oaks, Furby-North, Hellhole Canyon, Lusardi Creek, Mount Olympus, Ramona Grasslands, Santa Margarita, Simon, Sycamore Canyon/Goodan Ranch, Los Peñasquitos Canyon, and Wilderness Gardens County Preserves (**Figure 1**).

Boulder Oaks, Lusardi Creek, and Sycamore Canyon/Goodan Ranch County Preserves are located entirely within the South County MSCP Subarea Plan Area and are monitored and managed in accordance with the Implementing Agreement (County of San Diego 1998). Portions of Ramona Grasslands County Preserve are located within the MSCP and draft North County MSCP Plan Area. Hellhole Canyon, Simon, Mount Olympus, Santa Margarita, and Wilderness Gardens County Preserves are located completely within the draft North County MSCP Plan Area. These preserve areas will be monitored and managed in accordance with the draft North County MSCP Plan upon adoption and are included in the TMP at this time due to the number of sensitive on-site resources that require conservation and management. Furby-North County Preserve and Tijuana River Valley Regional Park are located within the City of San Diego MSCP Subarea Plan Area and are monitored and managed in accordance with the County's Implementing Agreement (County of San Diego 1998). Los Peñasquitos Canyon County Preserve also falls within the City of San Diego MSCP Subarea Plan Area.

2.2 Project Location

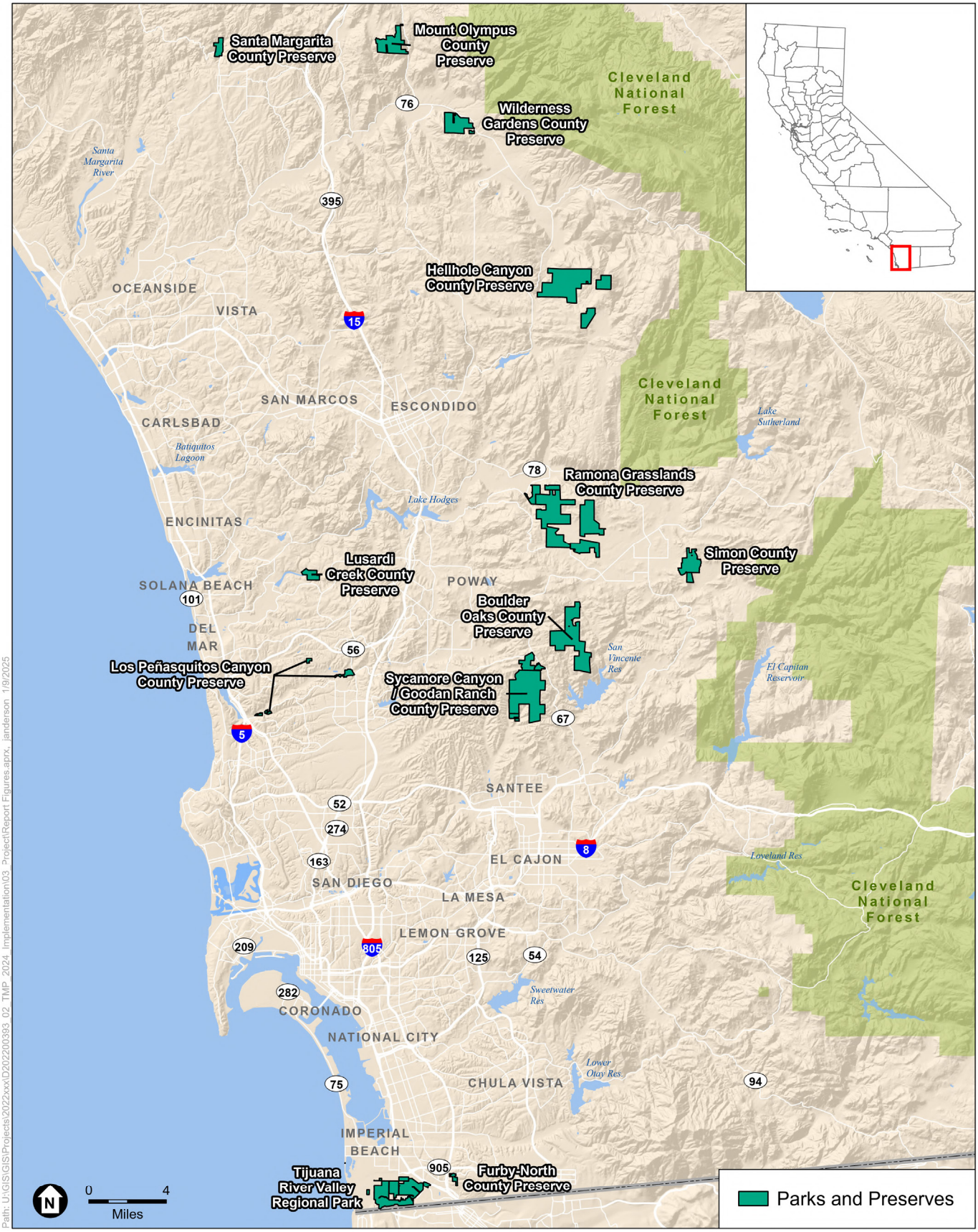
Descriptions of the 12 park and preserve locations monitored and managed in 2024 are provided below.

2.2.1 Boulder Oaks County Preserve

Boulder Oaks County Preserve 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.

2.2.2 Furby-North County Preserve

Furby-North County Preserve is located in the southern portion of the city of San Diego MSCP Subarea Plan, near the U.S.–Mexico border in Otay Mesa, directly south of SR 905 and east of Interstate 805.



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COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management

Targeted Monitoring Plan Resource-Specific Monitoring and Management 2024 Annual Report

Figure 1

Project Location

ESA

2.2.3 Hellhole Canyon County Preserve

Hellhole Canyon County Preserve is located northeast of Escondido within Valley Center, an unincorporated community of San Diego County. This acreage consists of the contiguous preserve, as well as five non-contiguous additions. It is 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.

2.2.4 Los Peñasquitos Canyon County Preserve

Los Peñasquitos Canyon County Preserve is a preserve in the northern portion of the city of San Diego, in between Rancho Peñasquitos, Sorrento Hills, and Mira Mesa—west of Interstate 15. It consists of seven parcels: five parcels are located along Sorrento Valley Boulevard, east of Interstate 805; one parcel north of Park Village Drive; and one parcel east of Black Mountain Road, south of Canyonside Recreation Center.

2.2.5 Lusardi Creek County Preserve

Lusardi Creek County Preserve is 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 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.

2.2.6 Mount Olympus County Preserve

Mount Olympus County Preserve comprises 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.

2.2.7 Ramona Grasslands County Preserve

Ramona Grasslands County Preserve is west of Ramona, an unincorporated community of San Diego County. It is in west-central San Diego County in the western portion of Santa Maria Valley within the San Dieguito Watershed.

2.2.8 Santa Margarita County Preserve

Santa Margarita County Preserve is 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.

2.2.9 Simon County Preserve

Simon County Preserve is located within Ramona, an unincorporated community of San Diego County, east of State Route 67, and within the San Dieguito and San Diego River Watersheds. The preserve is bound by access points from Woods Hill Lane to the north, Arena Way to the east, and Bassett Way to the south.

2.2.10 Sycamore Canyon/Goodan Ranch County Preserve

Sycamore Canyon/Goodan Ranch County Preserve is located just east of Marine Corps Air Station Miramar and approximately 2 miles north of Santee within an unincorporated area of San Diego County. It is in the coastal foothills of the Peninsular Ranges in south-central San Diego County within the Peñasquitos and San Diego Watersheds.

2.2.11 Tijuana River Valley Regional Park

Tijuana River Valley Regional Park is 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.

2.2.12 Wilderness Gardens County Preserve

Wilderness Gardens County Preserve comprises 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 Field Maps mobile application (Field Maps); data sheets for all surveys can be found in referenced resource-specific appendices. 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; ESA 2024a).

For the purposes of this report, non-native plant species are species that were introduced to California after European contact and as a direct or indirect result of human activity, as defined by the California Invasive Plant Council (Cal-IPC). Invasive non-native plant species are species rated by Cal-IPC in the Invasive Plant Inventory Database (Cal-IPC 2023) because they are not native, and once introduced can establish, quickly reproduce and spread, and cause harm to native vegetation communities, the environment, economy, and/or human health. Once invasive non-native plant species spread into wildland ecosystems, they can hybridize with native plant species, displace native plant and wildlife species, alter biological communities, and/or alter ecosystem processes (Cal-IPC n.d.).

3.2 Vernal Pools and Alkali Playas

3.2.1 Quantitative Monitoring

ESA biologists conducted quantitative monitoring of vernal pools and alkali playas during the 2024 wet and dry seasons within Ramona Grasslands County Preserve and the Los Peñasquitos Canyon County Preserve. The wet season is defined as the period when vernal pools and alkali playas are saturated and inundated during the rainy season (generally November–March). The dry season occurs in late spring and early summer when vernal pools and alkali playas are dry. Both phases of vernal pool and alkali playas are important to detect indicator species as well as to document species abundance and distribution within the pools and playas throughout plant and animal lifecycles. Vernal pool indicator species followed those listed in the *Revised Final City of San Diego Vernal Pool Habitat Conservation Plan* (City of San Diego 2019). Floral indicator species (plant species) and faunal indicator species (wildlife species) are species that rely heavily on vernal pools for breeding and development. Incidental observations of MSCP or other special-status species observed outside monitoring plots were recorded. Quantitative monitoring of vernal pools and alkali playas followed the methods in the TMP, which included the following steps:

- Conduct photo monitoring at each pool or playa during both wet and dry season monitoring visits to track the habitat quality (hydrology, disturbance) and plant cover of the pool or playa.

- Maintain a plant species inventory list of all plants, including vernal pool floral indicator species, associated with each vernal pool and alkali playa during each visit to record early (wet) and late (dry) season vernal pool plants.
- Estimate percent cover of all plant species detected, including vernal pool floral indicator species, and grouping into the following classes to track changes in cover over time: <25%, 25–49%, 50%+.
- Assign a distribution class for each plant species: solitary (occurring as single plants widely dispersed within the pool or playa), patches (occurring as small groups or clumps scattered within the pool or playa), or carpets (occurring as dense stands within the pool or playa).
- Assign an abundance class for each plant species: 0–50 individuals, 51–100 individuals, or 101–500+ individuals.
- Maintain a vernal pool faunal indicator species inventory list associated with each vernal pool and alkali playa during the early (wet) season visits and assign an abundance class for each faunal indicator species: 0–50 individuals, 51–100 individuals, or 101–500+ individuals.

Ramona Grasslands County Preserve

ESA biologists conducted quantitative monitoring at 22 study locations within Ramona Grasslands County Preserve: p7, p13, p14, e45, e48, e52, e53, e56, e58, e59, e61, e62, e63, e77, ev3, c3e, c20, Cagney Swale, raap4, raap6, raap14, and raap17. Monitoring details, including date, survey type, and field personnel, are listed in **Table 2**.

TABLE 2
VERNAL POOLS AND ALKALI PLAYA QUANTITATIVE MONITORING SUMMARY:
RAMONA GRASSLANDS COUNTY PRESERVE

2024 Survey Date	Survey Type	Name of Biologists
April 11	Wet	Brenda McMillan, Bailey Setzler
April 12	Wet	Brenda McMillan, Bailey Setzler
April 16	Wet	Brenda McMillan, Bailey Setzler
May 6	Dry	Brenda McMillan, Bailey Setzler
May 7	Dry	Brenda McMillan, Bailey Setzler, Stefanie Lehner
May 8	Dry	Brenda McMillan, Bailey Setzler
June 4	Dry	Brenda McMillan, Bailey Setzler

Los Peñasquitos Canyon County Preserve

ESA biologists conducted a baseline inventory of vernal pools within a 30-acre parcel of Los Peñasquitos Canyon County Preserve to identify vernal pool complexes and areas that exhibited ponding and supported vernal pool indicator species, map vernal pool basins, and establish a north-facing photo point using a Global Positioning System (GPS) prior to conducting quantitative monitoring. A seasonally flooded depression was identified and mapped as a vernal pool if one or more vernal pool indicator species was observed (City of San Diego 2019). Any human-made seasonally flooded depressions (e.g., road ruts) were mapped as a vernal pool if one or more vernal pool floral indicator species was observed (City of San Diego 2019). ESA biologists conducted quantitative monitoring at 45 study locations within

Los Peñasquitos Canyon County Preserve. Monitoring details, including date, survey type, and field personnel, are listed in **Table 3**.

TABLE 3
VERNAL POOLS QUANTITATIVE MONITORING SUMMARY: LOS PEÑASQUITOS CANYON COUNTY PRESERVE

2024 Survey Date	Survey Type	Name of Biologists
April 2	Wet	Brenda McMillan, Bailey Setzler
April 3	Wet	Brenda McMillan, Bailey Setzler
April 4	Wet	Brenda McMillan, Bailey Setzler
April 9	Wet	Brenda McMillan, Bailey Setzler
April 29	Dry	Brenda McMillan, Stefanie Lehner
April 30	Dry	Brenda McMillan, Bailey Setzler
May 1	Dry	Brenda McMillan, Bailey Setzler
May 2	Dry	Brenda McMillan, Bailey Setzler
June 3	Dry	Brenda McMillan, Bailey Setzler

3.3 Rare Plant Monitoring

ESA biologists conducted resource-specific monitoring in 2024 for two 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 (SDMMP 2022). Additional data was collected for willowy monardella (*Monardella viminea*) at Sycamore Canyon/Goodan Ranch County Preserve, as required by the TMP. Incidental observations of MSCP or other special-status species observed outside monitoring plots were recorded. Monitoring details, including species, dates, number of monitoring plots, preserve name, and field personnel, are listed in **Table 4**.

TABLE 4
MSP RARE PLANT MONITORING SURVEY SUMMARY

Species	Plot Establishment Date	2024 Monitoring Date	# of Permanent Monitoring Plots	County Preserve	Names of Biologists
San Diego thornmint	April 26, 2016	May 1	1	Simon	Dillon Travis and Stefanie Lehner
San Diego thornmint	April 22, May 4–5, 2016; and May 4, 2017	May 7–9	5	Sycamore Canyon/ Goodan Ranch	Dillon Travis, Amy Orduño-Baez, and Karla Alcaraz
Willowy monardella	July 7, 2015; June 22, 2016; June 9, 2021	June 20	3	Sycamore Canyon/ Goodan Ranch	Adrienne Lee and Dillon Travis

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 (*Acanthomintha ilicifolia*) 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 in 2016, and an eleventh permanent monitoring plot was added by ICF in 2017. In February 2024, SDMMP recommended reducing the monitoring effort for San Diego thornmint at the Sycamore Canyon/Goodan Ranch County Preserve. Permanent monitoring plots were reduced from 11 to 5 in 2024.
- **Willowy monardella**. One permanent monitoring plot was established for willowy 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 2023 Rare Plant Monitoring Protocol (SDMMP 2022), which included the following steps:

- Map the perimeter of the current extent of the occurrence with submeter-accuracy GPS and Field Maps and estimating or counting and recording the number of plants within the current mapped extent. If the previously mapped current extent was still an accurate representation of the 2024 extent of the occurrence, no remapping occurred.
- Conduct photo monitoring 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.
- Conduct a habitat assessment within the permanent monitoring plot using the MSP – 2023 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.
- Conduct a threats assessment within the current maximum extent of the occurrence and adjacent 10-meter buffer.
- Provide management recommendations for the site using the MSP – 2023 Rare Plant Occurrence Monitoring Form.

Additional data specified in the TMP was collected for one rare plant species, willowy monardella.

- **Willowy monardella**. The height, width, and length in meters of each willowy 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

3.4 Rare Plant Focused Management

ESA biologists conducted resource-specific management in 2024 for four of the eight TMP rare plant species. Rare plant focused management followed TMP management recommendations (ESA and ICF 2022). Management details, including species, dates, preserve name, and approximate acreage managed, are listed in **Table 5**. Additional details are included in the following sections.

TABLE 5
MSP RARE PLANT MANAGEMENT SUMMARY

Species	2024 Management Date	County Park/Preserve	Acres Managed
San Miguel savory	April 8 and 12	Boulder Oaks	0.57
Otay tarplant	April 2 and July 17	Furby-North	0.30
Orcutt's bird's-beak	May 10, May 14, and July 25	Tijuana River Valley Regional Park	0.46
Variegated dudleya	April 3, April 22, and June 27	Lusardi Creek	0.75

3.4.1 San Miguel Savory Focused Management

The control of invasive non-native plant species is a primary concern for San Miguel savory (*Clinopodium chandleri*) 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 2023 TMP monitoring results and adaptive management recommendations for Boulder Oaks County Preserve (ESA 2024b).

ESA biologist Brenda McMillan flagged San Miguel savory individuals on April 8, 2024, in preparation for focused management. ESA subconsultant Habitat West conducted focused management for San Miguel savory at the Boulder Oaks County Preserve within the BOCLCH02 monitoring plot maximum extent and an additional area northwest of the monitoring plot's maximum extent for a total of a 0.57-acre management area on April 12, 2024. To prevent the encroachment of invasive non-native perennial veldtgrass (*Ehrharta calycina*) on the San Miguel savory population, an additional management area northwest of the monitoring plot was delineated around a dense population of perennial veldtgrass. ESA biologist Mark Dodero met Habitat West staff on-site on April 12, 2024, to orient the field crew, identify and discuss San Miguel savory avoidance strategies, and provide management recommendations. Target invasive non-native plants included perennial veldtgrass. Non-native plants within 12 inches of San Miguel savory plants and the additional management area were carefully removed by hand. All biomass was manually collected, bagged, and properly disposed of at an approved off-site facility.

3.4.2 Otay Tarplant Focused Management

The control of invasive non-native plant species is a primary concern for Otay tarplant (*Deinandra conjugens*) 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 2023 TMP monitoring results and adaptive management recommendations for Furby-North County Preserve (ESA 2024b).

ESA subconsultant Habitat West conducted focused management for Otay tarplant at the Furby-North County Preserve within the DECO13_3OMEA026_1 monitoring plot maximum extent for an 0.30-acre management area on April 2, 2024, and July 17, 2024. ESA biologist Mark Dodero met Habitat West staff on-site to orient the field crew, identify and discuss Otay tarplant avoidance strategies, and provide management recommendations. Spring management in April consisted of carefully hand-pulling invasive non-native grasses and herbs, including crown daisy (*Glebionis coronaria*) and black mustard (*Brassica nigra*), directly adjacent to Otay tarplant individuals. Summer management in July consisted of hand-pulling additional crown daisy and black mustard plants. Once hand-pulling was completed, Habitat West staff used line trimmers to remove thatch and invasive non-native grasses to 2 inches from the ground within the monitoring plot's maximum extent. The biomass was manually collected, bagged, and properly disposed of at an approved off-site facility.

3.4.3 Orcutt's Bird's-Beak Focused Management

The control of invasive non-native plant species is a primary concern for Orcutt's bird's-beak (*Dicranostegia orcuttiana*) management. The TMP recommends invasive non-native grasses and forbs control within suitable Orcutt's bird's-beak habitat (ESA and ICF 2022), and SDMMP recommends controlling invasive non-native plant species to less than 20 percent cover. Focused management was conducted in response to 2023 TMP monitoring results and adaptive management recommendations for Tijuana River Valley Regional Park (ESA 2024b).

ESA biologist Mark Dodero flagged Orcutt's bird's-beak individuals on May 10, 2024, at monitoring plot COOR7_1TIRI009_1 in preparation for focused management. On May 14, 2024, ESA biologist Mark Dodero met Habitat West staff on-site at monitoring plot COOR7_1TIRI009_1 to orient the field crew, identify and discuss Orcutt's bird's-beak avoidance strategies, and provide management recommendations. Additional Orcutt's bird's-beak individuals (approximately 545 individuals) were detected on May 14, 2024, north of monitoring plot COOR7_1TIRI009_1 and focused management was extended to this new site using the same methods described below. Management was not conducted at monitoring plot COOR7_1SMGU006_1 on May 14, 2024, due to high runoff flows from Smuggler's Gulch. Management occurred at both monitoring plots and the newly mapped location north of monitoring plot COOR7_1TIRI009_1 on July 25, 2024, and consisted of carefully hand-pulling invasive non-native grasses and herbs, including tocalote (*Centaurea melitensis*) adjacent to Orcutt's bird's-beak individuals. The biomass was manually collected, bagged, and properly disposed of at an approved off-site facility. ESA subconsultant Habitat West conducted focused management for Orcutt's bird's-beak at the Tijuana River Valley Regional Park within the COOR7_1TIRI009_1 and COOR7_1SMGU006_1 monitoring plots maximum extents in 2024 for a total of an 0.46-acre management area.

3.4.4 Variegated Dudleya Focused Management

The control of invasive non-native plant species is a primary concern for variegated dudleya (*Dudleya variegata*) 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 2023 TMP monitoring results and adaptive management recommendations for Lusardi Creek County Preserve (ESA 2024b).

ESA subconsultant Habitat West conducted focused management for variegated dudleya at Lusardi Creek County Preserve on April 3, April 22, and June 27, 2024, within the LCDUVA01 monitoring plot maximum extent and within all three herbivory enclosures for a total of an 0.75-acre management area. ESA biologist Mark Dodero met Habitat West staff to orient the field crew, identify and discuss variegated dudleya avoidance strategies, and provide management recommendations. Management consisted of hand-pulling invasive non-native plant species within the three herbivory enclosures to reduce the amount of standing biomass from invasive non-native plants and encourage native plant recruitment. Once hand-pulling was completed inside the herbivory fencing, Habitat West staff manually removed or used line trimmers to remove tufted wallaby grass (*Rytidosperma caespitosum*), purple false brome (*Brachypodium distachyon*), artichoke thistle (*Cynara cardunculus*), and fountain grass (*Cenchrus setaceum*) within the maximum extent. No herbicide was applied during maintenance. All biomass was manually collected, bagged, and properly disposed of at an approved off-site facility.

3.5 Harbison's Dun Skipper

3.5.1 Harbison's Dun Skipper Adult Flight Surveys

ESA and Blackhawk Environmental, Inc. (Blackhawk) biologists conducted two adult surveys for Harbison's dun skipper (*Euphyes vestris harbisoni*) (HDS) during the 2024 flight season (between May 15 through June 30) (**Table 6**). Surveys were conducted at the two locations previously surveyed in 2021–2023. Surveys focused on immediate areas surrounding host plant San Diego sedge (*Carex spissa*) patches and worked outward to nearby potential nectar sources. Surveys were conducted in appropriate weather (sunny or partly sunny, 20˚C–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 6
HARBISON'S DUN SKIPPER SURVEY SUMMARY

Survey Type	2024 Survey Date	Survey Times	Start Weather Conditions	End Weather Conditions	Names of Biologists
Adult Flight Surveys	May 28	1045–1350	Temp: 77.8°F 0% Cloud Cover Wind Speed: 0.8 mph	Temp: 81.5°F 0% Cloud Cover Wind Speed: 0.5 mph	Kris Alberts*, Dillon Travis
	June 17	1000–1355	Temp: 71°F 0% Cloud Cover Wind Speed: 1.5 mph	Temp: 80°F 0% Cloud Cover Wind Speed: 1 mph	Kris Alberts*, Brennan Mulrooney

NOTE:
* Blackhawk Environmental, Inc. staff.

3.5.2 Harbison's Dun Skipper Focused Management

Focused management for HDS was conducted in response to 2023 TMP adaptive management recommendations for Hellhole Canyon County Preserve (ESA 2024b). On May 16, 2024, ESA biologist Mark Dodero visited the HDS management sites previously seeded in October 2023 to check for germination of native nectar plant species and mapped additional potential seeding areas. ESA and subconsultant Habitat West returned to Hellhole Canyon County Preserve from November 4–6 and 27, 2024, where ESA biologists Mark Dodero and Dillon Travis oriented Habitat West staff by walking the 2023 management areas and new 2024 management areas, delineated seeding areas based on proximity to San Diego sedge and presence of grassy open habitat where seed could establish, discussed native habitat avoidance strategies, and identified appropriate native mulch material. Once areas were delineated, Habitat West removed non-native grasses and forbs via hand tools and line-trimmers in all management areas. Native plants were carefully avoided and left in place. Seeding occurred with local native nectar sources along Hell Creek within the newly mapped management areas, and reseeding occurred in select 2023 management areas. The seed was lightly raked into the top 0.25 inch of soil. Once the seed was applied, the seeded areas were covered with light natural organic mulch (less than 80 percent cover) sourced from the surrounding habitat.

3.6 Arroyo Toad

ESA conducted surveys for arroyo toad (*Anaxyrus californicus*) along the Santa Maria Creek within the Ramona Grasslands County Preserve. The surveys were conducted in accordance with the U.S. Geological Survey (USGS) Aquatic Species and Habitat Assessment Protocol Rivers, Streams and Creeks-Paper (USGS 2020), and timed to fall within the accepted range (i.e., March 15–July 1) outlined in the Survey Protocol for the Arroyo Toad (USFWS 1999). Incidental observations of MSCP-covered species or other special-status species were recorded. Survey dates and field personnel are listed in **Table 7**.

TABLE 7
ARROYO TOAD SURVEY SUMMARY

2024 Survey Date	Survey Times	Start Weather Conditions	End Weather Conditions	Names of Biologists
May 13	1035–1510	Temp: 73°F Partly cloudy/variable	Temp: 75°F Partly cloudy/variable	Robert Sweet Brennan Mulrooney
May 14	0931–1526	Temp: 72°F Clear/few clouds	Temp: 75°F Clear/few clouds	Robert Sweet Dillon Travis
May 15	0830–1449	Temp: 56°F Cloudy or overcast	Temp: 70°F Cloudy or overcast	Robert Sweet Karla Alcaraz
May 16	0829–1340	Temp: 61°F Cloudy or overcast	Temp: 75°F Clear/few clouds	Dillon Travis Bailey Setzler Alissa Lun

ESA biologists conducted habitat assessment and presence/absence surveys along previously established USGS survey reaches within the Santa Maria Creek on May 13–16, 2024. ESA surveyed 18 of the 23 reaches (i.e., 22–24, 26–28, 30, 33, 35–38, 40–42, 45, 52, and 53) along the Santa Maria Creek (survey

area), while USGS surveyed the remaining 5 reaches (i.e., 25, 29, 34, 39, and 44). Each survey reach is 250 meters in length and is separated into two smaller 125-meter segments (i.e., A and B). The habitat assessment and presence/absence survey documented the quality and extent of suitable arroyo toad habitat and the total number/life stage of arroyo toad clutches observed along each reach. All suitable habitat (i.e., potential breeding pools) was documented in accordance with the USGS protocol and inspected for the presence and quantity of arroyo toad individuals and clutches, as well as the presence and quantity of any potential predator species such as the American bullfrog (*Lithobates catesbeianus*; larvae, sub-adults, and/or adults), red swamp crayfish (*Procambarus clarkii*), and red-eared slider turtle (*Trachemys scripta* ssp. *elegans*). Perennial invasive non-native vegetation observed along each reach (e.g., tamarisk [*Tamarix ramosissima*]) was also mapped.

For each segment along each survey reach, survey start information (i.e., date, weather, surveyors, and locational coordinates) was documented and upstream/downstream photographs were taken. Suitable habitat was characterized and included the documentation of substrate along the bed and banks, the presence and extent of aquatic and emergent vegetation/algae along the bed and banks, the vegetation community type (including the presence and extent of an overhead canopy), dominant plant species, etc. An assessment of potential disturbances, natural and human-made (e.g., high flows, livestock), observed within each survey area was noted as well. Water quality measurements were taken along each segment that included temperature (°F), pH, conductivity, channel width and depth (meter), transparency, channel surface water velocity (meters/second), etc.

While conducting the habitat assessment, ESA biologists traversed the survey area sufficiently to achieve full-visual coverage of suitable habitat and to document the presence/absence and prevalence of arroyo toad. For each arroyo toad detection, the estimated number and size of individuals, including size class (i.e., adult, juvenile, metamorphs, larvae, or egg strand) were recorded. Any special-status aquatic wildlife species (e.g., two-striped garter snake [*Thamnophis hammondii*], western pond turtle [*Emys marmorata*], arroyo chub [*Gilia orcuttii*]) incidentally observed during surveys were noted and recorded, as well).

3.7 Northern Harrier

ESA biologists conducted four nesting surveys, once a month for 4 months (April–July 2024), within the Tijuana River Valley Regional Park to document northern harrier (*Circus hudsonius*) individuals and breeding behavior. If nest sites were detected, the habitat was characterized and nest success was noted, if feasible. Incidental observations of MSCP-covered species or other special-status species were recorded on Field Maps and the Fulcrum mobile applications. Survey dates, weather conditions, and field personnel names are provided in **Table 8**.

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 Tijuana River Valley Regional Park. ESA biologists scanned these areas with binoculars and spotting scopes before walking along trails or dirt access roads to cover as much of the Tijuana River Valley Regional Park as feasible. ESA biologists reviewed the 2023 TMP Annual Report to ensure all known northern harrier locations were recorded and documented in 2024 (ESA 2024b).

TABLE 8
NORTHERN HARRIER SURVEY SUMMARY

2024 Survey Date	Survey Number	Survey Times	Start Weather Conditions	End Weather Conditions	Names of Biologists
April 3	1	0700–1015	Temp: 55°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Temp: 68°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 2 mph; Wind Direction: SE	Jaclyn Catino-Davenport, Brennan Mulrooney
May 2	2	0640–1218	Temp: 57°F, 100% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 5 mph; Wind Direction: SE	Temp: 68°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 5 mph; Wind Direction: SW	Brennan Mulrooney, Karla Alcaraz
June 4	3	0637–1249	Temp: 60°F, 100% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 2 mph; Wind Direction: S	Temp: 67°F, 80% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 4 mph; Wind Direction: SW	Brennan Mulrooney, Alissa Lun
July 2	4	0610–1058	Temp: 63°F, 100% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 1 mph; Wind Direction: W	Temp: 70°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 2 mph; Wind Direction: SW	Brennan Mulrooney, Jaclyn Catino-Davenport

ESA biologists conducted the threats assessment monitoring during the June and July surveys, using the northern harrier threat assessment form created by AECOM and SDMMP during the county-wide 2021 survey effort (AECOM 2022). The threats assessment survey included an evaluation of potential threats to northern harrier nest success, breeding and foraging habitat, and/or potential management recommendations.

3.8 Least Bell's Vireo

3.8.1 Least Bell's Vireo Nest Monitoring

ESA biologists conducted a nest monitoring study with weekly surveys from April 4 through July 30, 2024, to locate least Bell's vireo (*Vireo bellii pusillus*; vireo) territories and determine breeding status of pairs in suitable habitat within the Santa Margarita County Preserve (**Table 9**). Monitoring followed the USFWS *Least Bell's Vireo Survey Guidelines* issued January 19, 2001 (USFWS 2001) and *The Status and Management of the Least Bell's Vireo and Southwestern Willow Flycatcher within the Prado Basin, California, 1986–1999* (Pike et al. 1999). Nest monitoring surveys were led by ESA biologist Florence Chan (TE ES06873C-2) and assisted by Alissa Lun, Brennan Mulrooney, Dillon Travis, Mary Cozy, and Stefanie Lehner. Nest monitoring was conducted between 6:05 a.m. and 12:57 p.m. within suitable weather conditions: overcast to clear skies, winds up to 7 miles per hour, and temperatures between 47°F and 85°F. Three additional 9-day nest checks were conducted to determine fledgling success on July 8, July 15, and July 19, 2024.

All vireo detections were recorded and plotted to estimate the location and extent of habitats utilized and mapped. Data pertaining to vireo status, GPS location, movement, behavior, nest placement, nest status,

age, and sex of the bird, as well as any leg bands, were noted and recorded. 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.

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 trallii extimus*) and yellow-billed cuckoo (*Coccyzus americanus*) were recorded. Additionally, incidental observations of other special-status species were also recorded.

TABLE 9
LEAST BELL'S VIREO NEST MONITORING SUMMARY

2024 Survey Date	Time (start/end)	Wind (mph) (start/end)	Temperature (F) (start-end)	Cloud Cover Percentage (start/end)	Names of Biologists
April 4	0656–1202	1 / 5	52°–59°	100–90	Florence Chan, Brennan Mulrooney
April 10	0700–1200	0 / 3–5	47°–78°	0–0	Florence Chan, Brennan Mulrooney
April 17	0715–1200	1–5 / 3–5	52°–75°	0–10	Florence Chan, Stephanie Lehner
April 24	0640–1240	1–3 / 3–5	56°–69°	100–30	Florence Chan, Brennan Mulrooney
May 1	0700–1245	1–3 / 1–3	57°–73°	100–0	Florence Chan, Brennan Mulrooney
May 8	0630–1248	1–3 / 2–7	53°–74°	95–74	Florence Chan, Brennan Mulrooney
May 15	0644–1247	1–2 / 2–5	65°–68°	100–100	Florence Chan, Brennan Mulrooney, Alissa Lun
May 22	0629–12425	1–3 / 1–3	60°–72°	100–10	Florence Chan, Mary Cozy
May 29	0635–1237	1–2 / 3–7	58°–73°	100–0	Florence Chan, Brennan Mulrooney
June 5	0612–1205	1–3 / 3–5	61°–77°	100–0	Florence Chan, Brennan Mulrooney
June 12	0605–1116	1–3 / 3–5	58°–74°	100–0	Florence Chan, Brennan Mulrooney
June 19	0610–1205	1–3 / 1–3	56°–80°	100–0	Florence Chan, Brennan Mulrooney
June 26	0610–1117	1–3 / 3–5	68°–79°	90–0	Florence Chan, Brennan Mulrooney
July 3	0608–1100	1–3 / 1–3	65°–80°	0–0	Florence Chan, Dillon Travis
July 8*	1022–1051	1–3 / 2–4	72°–78°	0–0	Florence Chan, Brennan Mulrooney
July 10	0617–1130	1–3 / 1–3	62°–85°	100–0	Florence Chan, Brennan Mulrooney
July 15*	1040–1115	1–5 / 1–3	77°–77°	0–0	Florence Chan, Brennan Mulrooney
July 17	0615–1145	1–3 / 3–6	60°–60°	100–40	Florence Chan, Brennan Mulrooney
July 19*	1045–1135	1–3 / 1–3	78°–81°	0–0	Florence Chan, Brennan Mulrooney
July 24	0612–1040	1–3 / 2–6	69°–83°	0–0	Florence Chan, Brennan Mulrooney
July 30	0646–1105	1–2 / 3–7	55°–78°	0–0	Florence Chan, Brennan Mulrooney

NOTE:
* 9-Day Nest Check

3.8.2 Brown-Headed Cowbird Trapping

A brown-headed cowbird trapping program was implemented on Santa Margarita County Preserve in 2022 to reduce the threat and impact of brown-headed cowbird brood parasitism on least Bell's vireo. The trapping program was initiated in response to detections of least Bell's vireo nest parasitism incidentally observed during 2021 TMP surveys (ESA 2022) and was recommended to continue in 2023 and 2024 based on 2022 and 2023 brown-headed cowbird trapping results (ESA 2023; ESA 2024b). TW Biological Services, LLC, personnel installed and assembled two traps on April 1, 2024, in the same general locations as those in 2022 and 2023: 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 0.1-mile 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 0.5-mile 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 locations that were easily accessible by vehicle.

TW Biological Services, LLC, personnel activated traps on April 1, 2024. 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 to June 30, 2024. This was done to record trap capture events, release non-target wildlife 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 used 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, 2024, both traps were deactivated and later dismantled and removed from the preserve on July 6, 2024.

3.9 Stephens' Kangaroo Rat

3.9.1 Habitat Assessments

SKR habitat monitoring at Ramona Grasslands County Preserve and Hellhole Canyon County Preserve was conducted in October 2024. Specific monitoring protocols followed those outlined in the TMP for SKR monitoring at both preserves (ESA and ICF 2022). This methodology follows the methodology used by USGS for SKR monitoring at Camp Pendleton (Brehme et al. 2016). Incidental observations of MSCP-covered species or other special-status species were recorded.

- **Ramona Grasslands County Preserve.** Monitoring plots were initially established within SKR Management Areas 1 and 2 within Grazing Management Units 2A, 2B, and 3A, and the 3-acre SKR Management Area 3 on the preserve in 2016, following an adapted methodology used by USGS for SKR monitoring at Camp Pendleton (Brehme et al. 2016). A 50- by 50-meter grid pattern was overlain onto a georeferenced aerial map over each of the core SKR monitoring areas (areas monitored for continued SKR presence and distribution), 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 2024 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 areas and 6 within the SKR discovery areas (areas monitored to determine if SKR colonization is occurring)—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 TMP (ESA and ICF 2022), the 2024 SKR monitoring effort sampled the same three sampling plots established during the 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).

All monitoring plots were located in the field using the cellular ArcGIS FieldMaps application. 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, tail drags, runways, caching/foraging craters, and dust-bathing sites) until 100 percent coverage of the plot was achieved. All SKR sign were recorded on electronic survey forms using the Survey123 application. SKR presence or absence within a given plot was determined solely on whether SKR sign was 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 10**.

TABLE 10
SKR HABITAT ASSESSMENT SURVEY SUMMARY

Preserve	2024 Survey Date	Survey Times	Start Weather Conditions	End Weather Conditions	Name of Biologists
Ramona Grasslands	October 17	0850–1450	Temp: 62°F 100% Cloud Cover Wind Speed 0–0 mph	Temp: 67°F 100% Cloud Cover Wind Speed: 2–8 mph	Kris Alberts* Dillon Travis
	October 18	0845–1235	Temp: 63°F 40% Cloud Cover Wind Speed: 0–2 mph	Temp: 70°F 20% Cloud Cover Wind Speed: 2–6 mph	Kris Alberts* Dillon Travis
Hellhole Canyon	October 9	1000–1130	Temp: 84°F 0% Cloud Cover Wind Speed: 0–0 mph	Temp: 87°F 0% Cloud Cover Wind Speed: 0–0 mph	Kris Alberts* Dillon Travis

NOTE:
* Blackhawk Environmental, Inc. staff.

3.10 Pallid Bat

3.10.1 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 (*Antrozous pallidus*) 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, using the Section VI of the 2020 Rare Plant Occurrence Monitoring (SDMMP 2020). Visual roosting and foraging habitat threat assessment surveys were conducted in July 2024 (**Table 11**).

TABLE 11
PALLID AND TOWNSEND'S BIG-EARED BAT SURVEY SUMMARY

Survey Type	2024 Survey Date	County Preserve	Start Weather Conditions	End Weather Conditions	Names of Biologists
Roosting and Foraging Habitat Threat Assessment / Transect Acoustic Survey	July 3	Mount Olympus	Temp: 75.4°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 1.2 mph; Wind Direction: SW	Temp: 72.0°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0.9 mph; Wind Direction: SW	Jaclyn Catino-Davenport, Karla Alcaraz
Roosting and Foraging Habitat Threat Assessment / Transect Acoustic Survey	July 10	Hellhole Canyon	Temp: 86.2°F, 30% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 1.0 mph; Wind Direction: W	Temp: 76.8°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0.0 mph; Wind Direction: --	Jaclyn Catino-Davenport, Karla Alcaraz
Roosting and Foraging Habitat Threat Assessment / Transect Acoustic Survey	July 11	Wilderness Gardens	Temp: 79.7°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 1.7 mph; Wind Direction: NW	Temp: 72.9°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0.9 mph; Wind Direction: NW	Karla Alcaraz, Amy Orduño-Baez

Transect acoustic monitoring was conducted using one Wildlife Acoustics Inc. SM4 bat echolocation detector with a SMM-U2 microphone mounted 8 to 10 feet above the ground and secured onto a backpack and one Wildlife Acoustics Inc. Echo Meter Touch Pro 2 echolocation detector carried at handlevel by the biologist. The SM4 detector was programmed to turn on at solar sunset and default settings were modified to trigger recording at 8 kilohertz. The Echo Meter Touch Pro 2 detector was manually turned on at solar sunset and set to record and identify bat acoustics for North American species. Transect routes were selected during the day, recorded on Field Maps, and began up to 30 minutes after solar sunset. 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 30 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.

3.11 Townsend's Big-Eared Bat

3.11.1 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 (*Corynorhinus townsendii*) 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 monitoring, using the Section VI of the 2020 Rare Plant Occurrence Monitoring (SDMMP 2020). Visual roosting and foraging habitat threat assessment surveys were conducted in July 2024 (**Table 11**).

Transect acoustic monitoring was conducted using one Wildlife Acoustics Inc. SM4 bat echolocation detector with a SMM-U2 microphone mounted 8 to 10 feet above the ground and secured onto a backpack and one Wildlife Acoustics Inc. Echo Meter Touch Pro 2 echolocation detector carried at hand level by the biologist. The SM4 detector was programmed to turn on at solar sunset and default settings were modified to trigger recording at 8 kilohertz. The Echo Meter Touch Pro 2 detector was manually turned on at solar sunset and set to record and identify bat acoustics for North American species. Transect routes were selected during the day, recorded on Field Maps, and began up to 30 minutes after solar sunset. 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 30 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 the 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.

3.12 Residual Dry Matter Monitoring

Ramona Grasslands County 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 and associated target residual dry matter (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 to make grazing management adjustments to maintain a sustainable rangeland. Samples were collected and RDM was measured 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 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 11 and 12, 2024, by ESA biologists Amy Orduño-Baez, Brenda McMillan, Dillon Travis, and Karla Alcaraz. 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 then 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 samples in the ESA office located at 2355 Northside Drive, Suite 100, San Diego, California 92108. All samples were air-dried and weighed in grams using a digital scale. Biologists excluded the weight of 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.

3.13 Regional Monitoring Efforts

DPR coordinated with regional monitoring partners regarding monitoring activities to reduce duplication of efforts and to minimize impacts on the species. Through DPR-issued Right-of-Entry (ROE) Permits, conservation partners—including AECOM and Mulligan Biological Consulting (MBC) contracted by San Diego Association of Governments (SANDAG), USGS, and the San Diego Natural History Museum—performed monitoring activities for species included in the TMP on parks and preserves in 2024. Monitoring details, including species, preserve name, dates, methodology, and monitoring entity, are listed in **Table 12**.

TABLE 12
ADDITIONAL MONITORING SURVEY SUMMARY

Species	County Preserve	2024 Survey Date	Methodology	Monitoring Entity
Parish's brittlescale	Ramona Grasslands	July 19	MSP Rare Plant Monitoring Protocol	AECOM
Otay tarplant	Furby-North	May 14 and 21	MSP Rare Plant Monitoring Protocol	MBC
Baja California oatgrass*	Furby-North	April 18	MSP Rare Plant Monitoring Protocol	MBC
Arroyo toad	Ramona Grasslands	June 20 and 24	USGS Aquatic Species and Habitat Assessment Protocol	USGS
Tricolored blackbird	Ramona Grasslands	April 30	SDMMP San Diego County Tricolored Blackbird Breeding Surveys and Habitat and Threat Assessments Protocol	San Diego Natural History Museum

NOTE:
* Baja California oatgrass is not a species covered under the TMP.

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CHAPTER 4
Results and Discussion

4.1 Vernal Pools and Alkali Playas

4.1.1 Quantitative Monitoring

Quantitative monitoring was conducted in Ramona Grasslands County Preserve and Los Peñasquitos Canyon County Preserve during an above-average winter and spring rainfall year. The first measurable rain event occurred on January 22, 2024, which resulted in 2.73 inches of rain, respectively (NOAA 2024). Due to contract timing, ESA's first quantitative monitoring visit at Los Peñasquitos Canyon County Preserve was conducted on April 2, 2024, and at Ramona Grassland County Preserve on April 11, 2024. Field forms and representative photographs of vernal pools and alkali playas at Ramona Grasslands County Preserve and vernal pools at Los Peñasquitos Canyon County Preserve are provided in **Appendix A,** *Vernal Pools and Alkali Playas Permanent Photographic Monitoring*.

4.1.1.1 Ramona Grasslands County Preserve

Quantitative monitoring at Ramona Grasslands County Preserve consisted of documenting the presence of vernal pool and alkali playa plant species and estimating their cover, distribution, and abundance, and documenting vernal pool faunal indicator species and estimating their abundance across 22 study locations (p7, p13, p14, e45, e48, e52, e53, e56, e58, e59, e61, e62, e63, e77, ev3, c3e, c20, Cagney Swale, raap4, raap6, raap14, and raap17). Locations of the vernal pools and alkali playas monitored in 2024 at Ramona Grasslands County Preserve are shown in **Figure 2**. Due to the size of Cagney Swale, this study location was monitored at three monitoring points (CS01, CS02, and CS03). Cagney Swale did not have a dry season in 2024; therefore, data collected during the dry season survey represents species observed along edges of the water or within saturated soil conditions. Cover, distribution, and abundance of native plant species within each pool during wet and dry seasons are summarized in **Table 13**; cover, distribution, and abundance of non-native plant species within each pool during wet and dry seasons are summarized in **Table 14**. In addition, faunal vernal pool indicator species observed within each pool during the wet and dry season surveys are summarized in **Table 15**.

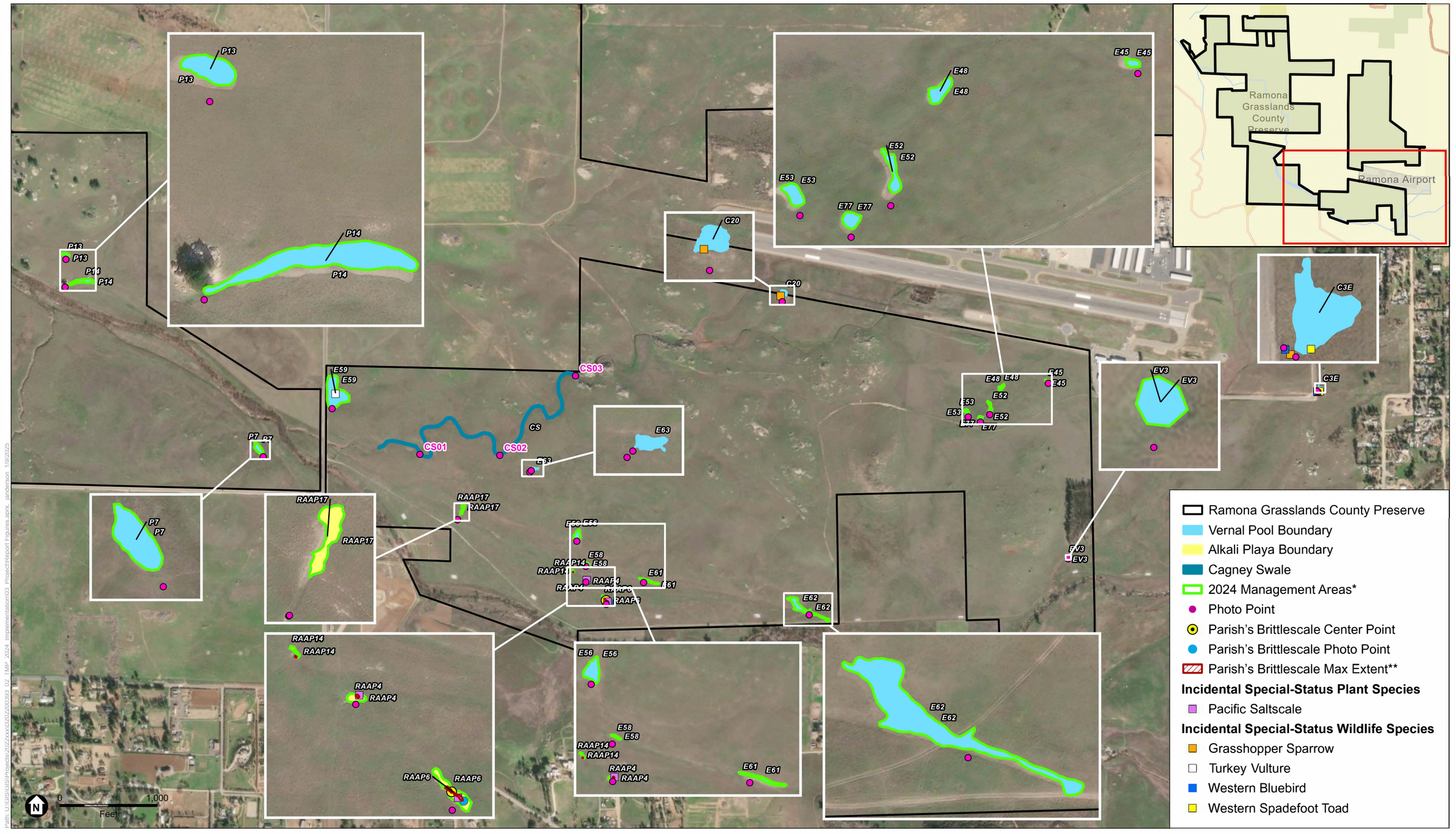
Twenty-three vernal pool floral indicator species were observed among the 22 study locations within the preserve during quantitative monitoring, with toad rush (*Juncus bufonius*) and pale spikerush (*Eleocharis macrostachya*) as the most common. Floral indicator species observed within each vernal pools ranged from 5 to 12 species over the course of the wet and dry season surveys. Vernal pool indicator plant species within each alkali playas ranged from 0 to 5 species over the course of the wet and dry season surveys. Floral indicator species that were observed within the alkali playas over the course of the wet and dry season surveys included Pacific saltscale (*Atriplex pacifica*), Coulter's saltbush (*Atriplex coulteri*),

toad rush, dwarf peppergrass (*Lepidium latipes*), and coastal plantain (*Plantago elongata*). The Cagney Swale supported 1 to 3 floral indicator plant species over the course of the wet and dry season surveys.

Forty-eight native plant species were observed among the 22 study locations within the preserve during quantitative monitoring. Native plant diversity, including floral indicator species, in each vernal pool ranged from 6 to 20 observed species over the course of the wet and dry season surveys. Native plant diversity, including floral indicator species, in each alkali playa ranged from 1 to 8 observed species over the course of the wet and dry season surveys. A total of 8 native plant species, including 3 vernal pool indicator species, were observed among the three monitoring locations within Cagney Swale over the course of the wet and dry season surveys. Within the Cagney Swale monitoring locations, pale spikerush was the most common native plant species recorded.

Invasive non-native plant species were detected in all 22 study locations, with a total of 28 invasive non-native plant species observed. The most common invasive non-native plant species encountered within the study locations during surveys were hare barley (*Hordeum murinum* ssp. *leporinum*), grass poly (*Lythrum hyssopifolium*), Italian rye grass (*festuca perennis*), red-stem filaree (*Erodium botrys*), and oat (Avena sp.). Observed invasive non-native plant species in each vernal pool ranged from 6 to 16 species over the course of the wet and dry season surveys. Invasive non-native plant species observed within each alkali playa ranged from 6 to 13 species over the course of the wet and dry season surveys. Soft brome (*Bromus hordeaceus*), Italian rye grass, hare barley, and Boccone's sand-spurrey (*Spergularia bocconi*) were the most common invasive non-native plant species observed in the alkali playas. A total of 9 invasive non-native plant species were observed among the three monitoring locations within Cagney Swale over the course of the wet and dry season surveys.

Faunal indicator species were observed in 16 of the 22 study locations. The maximum number of faunal indicator species observed within a study location was 4 species. No faunal indicator species were observed within the alkali playas during any of the surveys. Seed shrimp and unknown species of tadpoles/toads were observed within Cagney Swale over the course of the wet and dry season surveys. The most common aquatic faunal indicator species observed over the course of the wet and dry season surveys in vernal pools and the Cagney Swale were seed shrimp. Fairy shrimp were visually identified in vernal pools e48, ev3, and c3e. Dip-netting was not conducted to confirm species, but San Diego fairy shrimp (*Branchinecta sandiegonensis*) was positively identified within the preserve in vernal pools ev3, e59, e61, and the Cagney Swale during USFWS protocol surveys during 2022 TMP monitoring surveys (ESA 2023). No other fairy shrimp species, including the more regionally abundant versatile fairy shrimp (*Branchinecta lindahli*), were detected during the 2022 TMP monitoring surveys (ESA 2023). Based on the 2022 survey results, it is likely that the fairy shrimp observed in vernal pools e48, ev3, and c3e this year are San Diego fairy shrimp. Baja California tree frog (*Pseudacris hypochondriaca hypochondriaca*), western spadefoot toad (*Spea hammondii*), and unknown species of tadpoles, froglets, and toadlets were also observed in vernal pools and in the Cagney Swale study locations. Some vernal pools such as p7 and e59 were important resting and foraging areas for wading birds such as American wigeon (*Mareca americana*), western cattle-egret (*Ardea ibis*), and Wilson's snipe (*Gallinago delicata*). Incidentally observed special-status wildlife species included western spadefoot toad, grasshopper sparrow (*Ammodramus savannarum*), turkey vulture (*Cathartes aura*), and western bluebird (*Sialia mexicana*) (**Figure 2**).



SOURCE: ESRI, 2021; ESA, 2024; AECOM, 2024
**NOTE: 2024 Management areas provided by RECON Environmental, Inc.*
***NOTE: IMG monitoring results provided by AECOM.*

ESA

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Figure 2
Vernal Pools and Alkali Playas Monitoring Results
Ramona Grasslands County Preserve

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Table 13
Vernal Pool and Alkali Playa Quantitative Native Flora Cover, Distribution, and Abundance Observed During Wet and Dry Season: Ramona Grasslands County Preserve

Native Plant Species

Study Location	*Acmispon americana*	*Ambrosia psilostachya*	***Atriplex coulteri***	***Atriplex pacifica***	*Brodiaea terrestris subsp. kernensis*	***Callitriche marginata***	*Castellieja exserta*	*Centromadia parryi ssp. australis*	***Lysimachia [Centunculus] minima***	*Clarkia purpurea*	*Corethrogyne filaginifolia*	***Crassula aquatica***	*Deinandra fasciculata*	***Deschampsia danthonoides***	*Distichlis spicata*	***Downingia cupidata***	***Elatine bracysperma***	***Eleocharis macrostachya***	*Elymus glauca*	***Epilobium campestre***	*Gnaphalium palustre*	*Grindelia camporum*	***Isoetes orcuttii***	***Juncus bufonius***
P13						**1 C H**						**1 S M**	1 S L					**1 P L**						**1 C H**
						1 P H	1 S M		**1 S M**			**1 P H**					**1 P M**	**1 S M**						**1 C H**
P14						**1 P H**						**1 S L**	1 S L					**1 P H**						**1 P H**
					1 S H			1 S L				**1 S H**	1 S H		1 P H				1 P H					**1 S H**
P7						**1 C H**						**1 S L**						**1 P L**						**1 P L**
												1 S H					**1 P L**	**1 S M**						**1 S H**
E59		1 S L				**1 C H**						**1 S L**			1 P L			**1 P L**						**1 C H**
								1 S M							1 P H			**1 P H**			1 S H			

Study Location	*Juncus xiphioides*	*Lashtenia gracilis*	*Lepidium latipes*	*Lupinus bicolor*	***Malvella leprosa***	***Marselia vestita***	*Matricaria occidentalis*	*Microseris douglasii*	*Muilla maritima*	***Pilularia americana***	***Plagiobothrys bracteatus***	***Plantago elongata***	*Plantago erecta*	***Plagiobothrys acanthocarpus***	***Psilocarphus brevissimus***	*Scribneria bolanderi*	*Sisyrinchium bellum*	*Trichostema lanceolata*	***Trifolium depauperatum***	*Trifolium sp.*	*Trifolium variegatum*	*Trifolium wildenovii*	***Triglochin sciloides***	***Veronica peregrina ssp. xalapensis***
P13									1 S H		**1 S L**				**1 S L**							1 P M		**1 S M**
									1 S L	**1 C H**					**1 S M**				**1 S L**		1 P M		**1 S L**	**1 S H**
P14		3 C H										**1 S H**			**1 S L**									**1 S L**
		1 S H						1 S L							**1 P M**									
P7	1 P M										**1 P L**				**1 P L**									**1 S L**
	1 P M					**1 P L**					**1 S L**				**1 P H**						1 P M		**1 S L**	**1 S M**
E59				1 S L			1 P H				**1 S L**	**1 S L**			**1 P L**									**1 S H**
						1 P H									**1 S L**									**1 S L**

Native Plant Species

Study Location	*Acmispon americana*	*Ambrosia psilostachya*	***Atriplex coulteri***	***Atriplex pacifica***	*Brodiaea terrestris subsp. kernensis*	***Callitriche marginata***	*Castellieja exserta*	*Centromadia parryi ssp. australis*	***Lysimachia [Centunculus] minima***	*Clarkia purpurea*	*Corethrogyne filaginifolia*	***Crassula aquatica***	*Deinandra fasciculata*	***Deschampsia danthonoides***	*Distichlis spicata*	***Downingia cupidata***	***Elatine bracysperma***	***Eleocharis macrostachya***	*Elymus glauca*	***Epilobium campestre***	*Gnaphalium palustre*	*Grindelia camporum*	***Isoetes orcuttii***	***Juncus bufonius***	*Juncus xiphioides*	*Lashtenia gracilis*	*Lepidium latipes*	*Lupinus bicolor*	***Malvella leprosa***	***Marselia vestita***	*Matricaria occidentalis*	*Microseris douglasii*	*Muilla maritima*	***Pilularia americana***	***Plagiobothrys bracteatus***	***Plantago elongata***	*Plantago erecta*	***Plagiobothrys acanthocarpus***	***Psilocarpus brevissimus***	*Scribneria bolanderi*	*Sisyrinchium bellum*	*Trichostema lanceolata*	***Trifolium depauperatum***	*Trifolium sp.*	*Trifolium variegatum*	*Trifolium wildenovii*	***Triglochin scilloides***	***Veronica peregrina ssp. xalapensis***
CS01								1 S L										**1 P L**							1 P L																							
CS01																								**1 S L**						**1 S L**																		
CS02															1 S L									**1 P L**																								
CS02								1 S L										**1 S L**						**1 S L**																								
CS03																		**1**																														
CS03		1 P M			1 S L													**1 P M**																														
E63						**1 M**												**1 L**						**1 L**											**1 L**												**1 P L**	
E63						**1 S L**												**3 C H**																	**1 S M**				**1 S L**									
E56						**1 P H**		1 S M				**1 S H**			2 C H		**1 P H**	**3 C H**						**1 S L**											**2 C H**				**1 S L**								**1 P H**	**1 S H**
E56					1 S L	**1 P H**						**1 S L**					**1 P L**	**3 C H**						**1 C H**					**1 S L**					**1 P H**	**1 P H**				**1 P H**								**1 S L**	**1 S H**

Study Location		Native Plant Species																																													
		Acmispon americana	*Ambrosia psilostachya*	***Atriplex coulteri***	***Atriplex pacifica***	*Brodiaea terrestris subsp. kernensis*	***Callitriche marginata***	*Castellieja exserta*	*Centromadia parryi ssp. australis*	***Lysimachia [Centunculus] minima***	*Clarkia purpurea*	*Corethrogyne filaginifolia*	***Crassula aquatica***	*Deinandra fasciculata*	***Deschampsia danthonoides***	*Distichlis spicata*	***Downingia cupidata***	***Elatine bracysperma***	***Eleocharis macrostachya***	*Elymus glauca*	***Epilobium campestre***	*Gnaphalium palustre*	*Grindelia camporum*	***Isoetes orcuttii***	***Juncus bufonius***	*Juncus xiphioides*	*Lashtenia gracilis*	*Lepidium latipes*	*Lupinus bicolor*	***Malvella leprosa***	***Marselia vestita***	*Matricaria occidentalis*	*Microseris douglasii*	*Muilla maritima*	***Pilularia americana***	***Plagiobothrys bracteatus***	***Plantago elongata***	*Plantago erecta*	***Plagiobothrys acanthocarpus***	***Psilocarphus brevissimus***	*Scribneria bolanderi*	*Sisyrinchium bellum*	*Trichostema lanceolata*	***Trifolium depauperatum***	*Trifolium sp.*	*Trifolium variegatum*	*Trifolium wildenovii*	***Triglochin scilloides***	***Veronica peregrina ssp. xalapensis***
E58							**1 C H**		1 S L				**1 S M**			1 P M			**2 P H**						**1 P H**											**1 P H**				**2 C H**					1 S L				**1 S M**
							1 P M		1 S M				**1 S H**			1 P H			**2 P H**						**1 S H**											**1 P H**				**3 C H**									**1 S H**
E61							**1 P M**						**1 S H**			1 P M			**1 P L**						**1 P M**															**1 S L**		1 P L							
							1 P H	1 S H					**1 S H**	1 S H		1 P M			**1 P H**						**2 P H**	1 P L														**1 P H**				**1 S L**					**1 S H**
C20							**1 P H**		1 S L				**1 S H**	1 S L			**1 P M**	**1 P H**	**1 P M**						**1 S M**						**3 C H**				**1 P M**	**2 C H**													**1 S M**
									1 S M				**1 P H**	1 S H					**1 P H**		**1 S L**				**1 P H**						**3 C H**					**1 C H**	**1 S L**												**1 S H**
E62							**1 S L**		1 S L				**1 S L**						**1 P M**						**1 P M**									1 S L		**1 S L**	**1 S M**			**1 S L**									**1 P M**
							1 P H						**1 S H**	1 S L		1 P M			**2 C H**						**2 C H**												**1 S H**			**1 P H**				**1 S L**					
E53							**1 P H**						**1 S L**				**1 S M**		**3 C H**						**1 C H**														**1 C H**	**1 S M**									**1 S H**
						1 S L		1 S L						1 S M	**1 S L**	1 S L	**1 C H**		**3 C H**						**1 C H**				1 S L							**1 P H**				**1 P L**				**1 S M**					

Study Location	Native Plant Species																																															
	Acmispon americana	*Ambrosia psilostachya*	***Atriplex coulteri***	***Atriplex pacifica***	*Brodiaea terrestris subsp. kernensis*	***Callitriche marginata***	*Castellieja exserta*	*Centromadia parryi ssp. australis*	***Lysimachia [Centunculus] minima***	*Clarkia purpurea*	*Corethrogyne filaginifolia*	***Crassula aquatica***	*Deinandra fasciculata*	***Deschampsia danthonoides***	*Distichlis spicata*	***Downingia cupidata***	***Elatine bracysperma***	***Eleocharis macrostachya***	*Elymus glauca*	***Epilobium campestre***	*Gnaphalium palustre*	*Grindelia camporum*	***Isoetes orcuttii***	***Juncus bufonius***	*Juncus xiphioides*	*Lashtenia gracilis*	*Lepidium latipes*	*Lupinus bicolor*	***Malvella leprosa***	***Marselia vestita***	*Matricaria occidentalis*	*Microseris douglasii*	*Muilla maritima*	***Pilularia americana***	***Plagiobothrys bracteatus***	***Plantago elongata***	*Plantago erecta*	***Plagiobothrys acanthocarpus***	***Psilocarpus brevissimus***	*Scribneria bolanderi*	*Sisyrinchium bellum*	*Trichostema lanceolata*	***Trifolium depauperatum***	*Trifolium sp.*	*Trifolium variegatum*	*Trifolium wildenovii*	***Triglochin scilloides***	***Veronica peregrina ssp. xalapensis***
E77						1 P H						1 S M	1 S M					1 S L				1 S L		1 P H																								
		1 S L			1 P L	1 P H	1 S L					1 S L	1 S H									1 S L		1 P H				1 S L											1 S L			1 S L						
E52					1 P H	1 P M						1 S H				1 S H		2 C H						3 C H									1 P H										1 C H					1 S H
		1 S L			1 S L	1 P M	1 S M		1 S H			1 S H				1 S H		2 C H						3 C H	1 P H																	1 S L	1 C H		1 P H			1 S L
E48						1 C H						1 S H	1 S L			2 C H		2 P H						1 P H														1 P H	1 P M		1 S L		1 S L					1 P H
					1 S M		1 S M		1 S H	1 S L		1 S H	1 S H	1 C H		2 C H		2 C H		1 S L				1 C H				1 S L									1 S L		1 S H		1 S L	1 S L	1 P H					1 S L
E45					1 P H	2 C H						1 S H	1 S L										1 P M	2 P H									1 P H	1 P M				1 S L	1 S L		3 C H		1 S M					1 P M
					1 S L	1 C H	1 S L					1 S H	1 S M			1 S L		1 P H						2 C H	2 C H	1 S L													1 S L				1 P M					1 S H
Ev3												1 S M						1 P M						1 S M						1 S L									2 P H									1 S L
																	1 P L	1 P H						1 P H						1 P M									1 C H									1 S L

Study Location	Native Plant Species																																														
	Acmispon americana	*Ambrosia psilostachya*	***Atriplex coulteri***	***Atriplex pacifica***	*Brodiaea terrestris subsp. kernensis*	***Callitriche marginata***	*Castellieja exserta*	*Centromadia parryi ssp. australis*	***Lysimachia [Centunculus] minima***	*Clarkia purpurea*	*Corethrogyne filaginifolia*	***Crassula aquatica***	*Deinandra fasciculata*	***Deschampsia danthonoides***	*Distichlis spicata*	***Downingia cupidata***	***Elatine bracysperma***	***Eleocharis macrostachya***	*Elymus glauca*	***Epilobium campestre***	*Gnaphalium palustre*	*Grindelia camporum*	***Isoetes orcuttii***	***Juncus bufonius***	*Juncus xiphioides*	*Lashtenia gracilis*	*Lepidium latipes*	*Lupinus bicolor*	***Malvella leprosa***	***Marselia vestita***	*Matricaria occidentalis*	*Microseris douglasii*	*Muilla maritima*	***Pilularia americana***	***Plagiobothrys bracteatus***	***Plantago elongata***	*Plantago erecta*	***Plagiobothrys acanthocarpus***	***Psilocarpus brevissimus***	*Scribneria bolanderi*	*Sisyrinchium bellum*	*Trichostema lanceolata*	***Trifolium depauperatum***	*Trifolium sp.*	*Trifolium variegatum*	*Trifolium wildenovii*	***Triglochin scilloides***	***Veronica peregrina ssp. xalapensis***
C3e	1 M					**1 S M**					1 S L	**1 S H**	1 S M					**2 P H**				1 S L		**1 P H**															**1 P H**									**1 S L**
												1 S H						**1 P H**				1 S L		**1 S H**															**3 C H**									
Raap17			**1 S L**					1 S L							1 P M									**1 C H**			1 S L									**1 S L**												
			1 S L												2 P H									**1 C H**																1 P H								
Raap4			**1 P L**	**1 S L**				1 S L							1 P M									**1 C H**			1 S L									**1 P M**												
			1 S L	**1 S M**				1 S M							1 P L									**1 S L**												**1 S H**												
Raap6								1 S H							1 P M									**1 C H**			1 P M									**1 C H**				1 P H								
				1 S L				1 S M					1 S L											**1 P H**			1 S L									**1 C H**				1 P H								
Raap14															1 P M																																	
															1 S L																																	

Study Location	Native Plant Species																																														
	Acmispon americana	*Ambrosia psilostachya*	***Atriplex coulteri***	***Atriplex pacifica***	*Brodiaea terrestris subsp. kernensis*	***Callitriche marginata***	*Castellieja exserta*	*Centromadia parryi ssp. australis*	***Lysimachia [Centunculus] minima***	*Clarkia purpurea*	*Corethrogyne filaginifolia*	***Crassula aquatica***	*Deinandra fasciculata*	***Deschampsia danthonoides***	*Distichlis spicata*	***Downingia cupidata***	***Elatine bracysperma***	***Eleocharis macrostachya***	*Elymus glauca*	***Epilobium campestre***	*Gnaphalium palustre*	*Grindelia camporum*	***Isoetes orcuttii***	***Juncus bufonius***	*Juncus xiphioides*	*Lashtenia gracilis*	*Lepidium latipes*	*Lupinus bicolor*	***Malvella leprosa***	***Marselia vestita***	*Matricaria occidentalis*	*Microseris douglasii*	*Muilla maritima*	***Pilularia americana***	***Plagiobothrys bracteatus***	***Plantago elongata***	*Plantago erecta*	***Plagiobothrys acanthocarpus***	***Psilocarpus brevissimus***	*Scribneria bolanderi*	*Sisyrinchium bellum*	*Trichostema lanceolata*	***Trifolium depauperatum***	*Trifolium sp.*	*Trifolium variegatum*	*Trifolium wildenovii*	***Triglochin scilloides***	***Veronica peregrina ssp. xalapensis***

NOTES:

All pools were surveyed once during the wet season and once during the dry season.
Bold species are known vernal pool indicator species, as listed in the *Revised Final City of San Diego Vernal Pool Habitat Conservation Plan* (City of San Diego 2019).
Blue-shaded rows denote results of wet season surveys, while white-shaded rows denote results of dry season surveys of species abundance, distribution, and cover.
Blank cells indicate that the species was not observed within the study location during the respective survey window.
Cover values:
1 = species constitutes <25% of pool or playa vegetation cover
2 = species constitutes 25–49% of pool or playa vegetation cover
3 = species constitutes 50%+ of pool or playa vegetation cover
Distribution values:
S = Solitary; species occurring as single plants widely dispersed within the pool or playa
P = Patches; species occurring in patches or clumps scattered throughout the pool or playa
C = Carpets; species occurring in dense stands within the pool or playa
Abundance values:
L = Low; 0–50 species individuals observed within the pool or playa
M = Moderate; 51–100 species individuals observed within the pool or playa
H = High; 101–500+ individuals observed within the pool or playa

TABLE 14
VERNAL POOL AND ALKALI PLAYA QUANTITATIVE NON-NATIVE FLORA COVER, DISTRIBUTION, AND ABUNDANCE MONITORING RESULTS OBSERVED DURING WET AND DRY SEASON: RAMONA GRASSLANDS COUNTY PRESERVE

Study Location	Non-Native Plant Species																											
	Anthemis cotula	*Avena sp.*	*Bromus diandrus*	*Bromus hordeaceus*	*Bromus madritensis*	*Cerastium glomeratum*	*Cotula australis*	*Cotula coronopifolia*	*Crypsis schoenoides*	*Cynodon dactylon*	*Erodium botrys*	*Festuca myuros*	*Festuca perennis*	*Hordeum murinum ssp. leoporinum*	*Hypochaeris glabra*	*Lactuca serriola*	*Lythrum hyssopifolia*	*Medicago polymorpha*	*Melilotus sp.*	*Poa annua*	*Polygonum aviculare ssp. depressum*	*Polypogon monspeliensis*	*Portulaca oleracea*	*Rumex crispus*	*Silene gallica*	*Sonchus oleraceus*	*Spergularia bocconi*	*Trifolium hirtum*
P13		1 S L						1 S L			2 P H	1 P L		2 P M			1 C H											
		1 S L						1 S L			1 S H	1 S M	1 P H	1 P M			1 C H								1 S L			
P14		1 S M			1 P M		1 S L			1 P M	2 C H			3 C H			2 S H			1 P H				1 S L				
		1 S L		1 S H			1 S L				2 C H	1 P H	2 C H	2 P H	1 S L		2 C H	1 S H		1 S L				1 S L				
P7										1 P M	1 P M			2 P H			1 S H							1 S M				
	1 S L			1 S M		1 S L		1 C H		1 P H	1 P H	1 S H		1 P H			1 S H				1 S L			1 S M				
E59	1 P H	1 S L				1 S L		1 S M		1 P L	1 S M		1 P M	1 P H			1 C H				1 S M			1 S M			1 P H	
	1 S H								1 S L	2 C H	1 S L	1 S L	1 P H	1 P M			1 S H				1 S H	1 S M	1 S L	1 S L			1 S L	

Study Location	Non-Native Plant Species																											
	Anthemis cotula	*Avena sp.*	*Bromus diandrus*	*Bromus hordeaceus*	*Bromus madritensis*	*Cerastium glomeratum*	*Cotula australis*	*Cotula coronopifolia*	*Crypsis schoenoides*	*Cynodon dactylon*	*Erodium botrys*	*Festuca myuros*	*Festuca perennis*	*Hordeum murinum ssp. leoporinum*	*Hypochaeris glabra*	*Lactuca serriola*	*Lythrum hyssopifolia*	*Medicago polymorpha*	*Meliilotus sp.*	*Poa annua*	*Polygonum aviculare ssp. depressum*	*Polypogon monspeliensis*	*Portulaca oleracea*	*Rumex crispus*	*Silene gallica*	*Sonchus oleraceus*	*Spergularia bocconi*	*Trifolium hirtum*
CS01	1 SM	1 SL								1 PL	1 SL		1 PH	1 PL			1 SL											
	1 SL									1 CS			1 PH				1 PH								1 SL			
CS02	1 SL	1 SL								1 SL	1 SM		1 PM	1 PM			1 SL											
	1 SL	1 SL								2 PH			1 PH	1 SL			1 PH											
CS03	1 SM	1 SM								1 SL			1 PH	1 PH			1 SL											
	1 SH	1 SM											1 PH				1 SH							1 SL				
E63		1 SL									1 SL			3 CH			1 PL											
	1 SL	1 SL								1 SL			2 PH	1 PH			1 SL											

Study Location	Non-Native Plant Species																												
	Anthemis cotula	*Avena sp.*	*Bromus diandrus*	*Bromus hordeaceus*	*Bromus madritensis*	*Cerastium glomeratum*	*Cotula australis*	*Cotula coronopifolia*	*Crypsis schoenoides*	*Cynodon dactylon*	*Erodium botrys*	*Festuca myuros*	*Festuca perennis*	*Hordeum murinum ssp. leoporinum*	*Hypochaeris glabra*	*Lactuca serriola*	*Lythrum hyssopifolia*	*Medicago polymorpha*	*Melilotus sp.*	*Poa annua*	*Polygonum aviculare ssp. depressum*	*Polypogon monspeliensis*	*Portulaca oleracea*	*Rumex crispus*	*Silene gallica*	*Sonchus oleraceus*	*Spergularia bocconi*	*Trifolium hirtum*
E56	1 S L	1 S L												3 C H			1 S H							1 S M				
	1 S L	1 S L						1 P H					2 P M	3 C H		1 S L	1 S H				1 S L	1 S L		1 S M				
E58		1 S L								1 S L	1 S H	1 S H	1 P M	3 C H			1 S L							1 S L				
										1 P M	1 S H		2 S H	2 P H	1 S L		1 S H											
E61								1 S H		1 P H				2 P H			1 S L										2 C H	
		1 S L		1 S L				1 S H		2 P H	2 P H	1 P M	2 P H	1 P H			1 S H		1 S H	1 S L							2 C H	1 S L
C20											2 C M			1 P H			1 S M										1 P M	
	1 S L			1 S L							1 P H	1 P L	1 P M	1 S L		1 S L	2 S H				1 P H	1 S L		1 S L			1 P H	

Study Location	Non-Native Plant Species																											
	Anthemis cotula	*Avena sp.*	*Bromus diandrus*	*Bromus hordeaceus*	*Bromus madritensis*	*Cerastium glomeratum*	*Cotula australis*	*Cotula coronopifolia*	*Crypsis schoenoides*	*Cynodon dactylon*	*Erodium botrys*	*Festuca myuros*	*Festuca perennis*	*Hordeum murinum ssp. leoporinum*	*Hypochaeris glabra*	*Lactuca serriola*	*Lythrum hyssopifolia*	*Medicago polymorpha*	*Meliilotus sp.*	*Poa annua*	*Polygonum aviculare ssp. depressum*	*Polypogon monspeliensis*	*Portulaca oleracea*	*Rumex crispus*	*Silene gallica*	*Sonchus oleraceus*	*Spergularia bocconi*	*Trifolium hirtum*
E62		1 S L								1 P L				3 C H			1 S M											
		1 S L		1 S L						1 P M	3 C H	3 C H	2 C H	3 C H			1 S H							1 S L		1 S L	1 P M	
E53		1 S L	1 S L								2 S H			2 P H			1 S M											
		1 S L									1 P H	1 P M	1 P L	2 P H		1 S L	1 S M											
E77			1 S L							1 P H	3 C H			2 C H	1 S L		1 S M											
		1 S M	1 S L							1 P M	3 C H	2 P H		1 S L			1 S H											
E52		1 S H								1 P M	3 CH	1 S H		2 C H			1 S H											
		1 S H								1 P M	1 P H	1 S H		2 C H			1 S H											

Study Location	Non-Native Plant Species																											
	Anthemis cotula	*Avena sp.*	*Bromus diandrus*	*Bromus hordeaceus*	*Bromus madritensis*	*Cerastium glomeratum*	*Cotula australis*	*Cotula coronopifolia*	*Crypsis schoenoides*	*Cynodon dactylon*	*Erodium botrys*	*Festuca myuros*	*Festuca perennis*	*Hordeum murinum ssp. leoporinum*	*Hypochaeris glabra*	*Lactuca serriola*	*Lythrum hyssopifolia*	*Medicago polymorpha*	*Melilotus sp.*	*Poa annua*	*Polygonum aviculare ssp. depressum*	*Polypogon monspeliensis*	*Portulaca oleracea*	*Rumex crispus*	*Silene gallica*	*Sonchus oleraceus*	*Spergularia bocconi*	*Trifolium hirtum*
E48		1 SL									2 PH			2 PH			1 PH											
		1 SL		1 SL						1 PH	1 PH	1 SM	1 PH	2 CH			1 SH											
E45		1 SL								1 SL	3 CH			2 PH			1 PH											
		1 SL	1 PH								2 PH		1 PM	1 PH	1 SL													
Ev3				1 PH										2 PH			2 PH							1 SL				
										1 PH			1 PH	2 CH			1 PH							1 SL				
C3e		1 PM	1 PH		1 SL						2 CH			2 PH			2 CH							1 SL				
			1 PH								1 SH		1 SH	1 PH			1 SH					1 PH		1 SM				

Study Location	Non-Native Plant Species																											
	Anthemis cotula	*Avena sp.*	*Bromus diandrus*	*Bromus hordeaceus*	*Bromus madritensis*	*Cerastium glomeratum*	*Cotula australis*	*Cotula coronopifolia*	*Crypsis schoenoides*	*Cynodon dactylon*	*Erodium botrys*	*Festuca myuros*	*Festuca perennis*	*Hordeum murinum ssp. leoporinum*	*Hypochaeris glabra*	*Lactuca serriola*	*Lythrum hyssopifolia*	*Medicago polymorpha*	*Melilotus sp.*	*Poa annua*	*Polygonum aviculare ssp. depressum*	*Polypogon monspeliensis*	*Portulaca oleracea*	*Rumex crispus*	*Silene gallica*	*Sonchus oleraceus*	*Spergularia bocconi*	*Trifolium hirtum*
Raap17				1 S L						1 P M	1 P L			3 C H			1 S H	1 S M						1 P M			3 C H	
				1 S L			1 P L						2 S H	3 C H			1 P H	1 S M	1 S L								2 P H	
Raap4		1 S L		1 S M		1 S L				1 P L	1 S M			3 C H		1 S L		1 S H							1 S L	1 S L	3 C H	
				1 S H									1 S H	1 S H		1 S L		1 S M							1 S L		2 C H	
Raap6		2 P M	1 P M	2 S H						1 P M	1 S M	1 S H		3 C H			1 S H	1 P M									3 C H	
		1 S L		1 S M							1 P H		1 P M	1 P M		1 S L	1 S H	1 S H							1 S L		3 C H	
Raap14		1 S L	1 S L											3 C H													1 P L	
				1 S L									2 P H	3 C H													1 P H	

Study Location	Non-Native Plant Species																										
	Anthemis cotula	*Avena sp.*	*Bromus diandrus*	*Bromus hordeaceus*	*Bromus madritensis*	*Cerastium glomeratum*	*Cotula australis*	*Cotula coronopifolia*	*Crypsis schoenoides*	*Cynodon dactylon*	*Erodium botrys*	*Festuca myuros*	*Festuca perennis*	*Hordeum murinum ssp. leoporinum*	*Hypochaeris glabra*	*Lactuca serriola*	*Lythrum hyssopifolia*	*Medicago polymorpha*	*Melilotus sp.*	*Poa annua*	*Polygonum aviculare ssp. depressum*	*Polypogon monspeliensis*	*Portulaca oleracea*	*Rumex crispus*	*Silene gallica*	*Sonchus oleraceus*	*Spergularia bocconi*	*Trifolium hirtum*

NOTES:

All pools were surveyed once during the wet season and once during the dry season.
Blue-shaded rows denote results of wet season surveys, while white-shaded rows denote results of dry season surveys of species abundance, distribution, and cover.
Blank cells indicate that the species was not observed within the study location during the respective survey window.
Cover values:
1 = species constitutes <25% of pool vegetation cover
2 = species constitutes 25-49% of pool vegetation cover
3 = species constitutes 50%+ of pool vegetation cover
Distribution values:
S = Solitary; species occurring as single plants widely dispersed within the pool or playa
P = Patches; species occurring in patches or clumps scattered throughout the pool or playa
C = Carpets; species occurring in dense stands within the pool or playa
Abundance values:
L = Low; 0–50 species individuals observed within the pool or playa
M = Moderate; 51–100 species individuals observed within the pool or playa
H = High; 101–500+ individuals observed within the pool or playa

TABLE 15
VERNAL POOL AND ALKALI PLAYA QUANTITATIVE FAUNA ABUNDANCE OBSERVED DURING WET AND DRY SEASON: RAMONA GRASSLANDS COUNTY PRESERVE

Study Location	Invertebrates			Amphibians		
	Copepoda	Fairy shrimp	Seed Shrimp	Baja California tree frog tadpole/frog	Western spadefoot toad	Tadpoles/toads/frogs (Unknown species)
P13						
P14						
P7			H			
E59	H		H			
CS01			M			L
CS02			M			L
CS03						M
			H			L
E63			H			
E56			H			
				L		
E58			H			
E61			H	H		
				L		
C20			H			
E62	H		H			
				L		
E53	H		H			L

Study Location	Invertebrates			Amphibians		
	Copepoda	**Fairy shrimp**	**Seed Shrimp**	Baja California tree frog tadpole/frog	Western spadefoot toad	Tadpoles/toads/frogs (Unknown species)
E77						
E52			H			
				L		
E48		L	H	L		L
E45						
Ev3		M	H			L
				M		
C3e	M	H	H		L	
Raap17						
Raap4						
Raap6						
Raap14						

NOTES:
All pools were surveyed once during the wet season and once during the dry season.
Bold species are known vernal pool indicators, as listed in the *Revised Final City of San Diego Vernal Pool Habitat Conservation Plan* (City of San Diego 2019).
Blue-shaded rows denote results of wet season surveys, while white-shaded rows denote results of dry season surveys of species abundance, distribution, and cover.
Blank cells indicate that species was not observed within pool during the respective survey window.
Abundance values:
L = 0–50 species individuals observed within pool
M = 51–100 species individuals observed within pool
H = 101–500+ individuals observed within pool

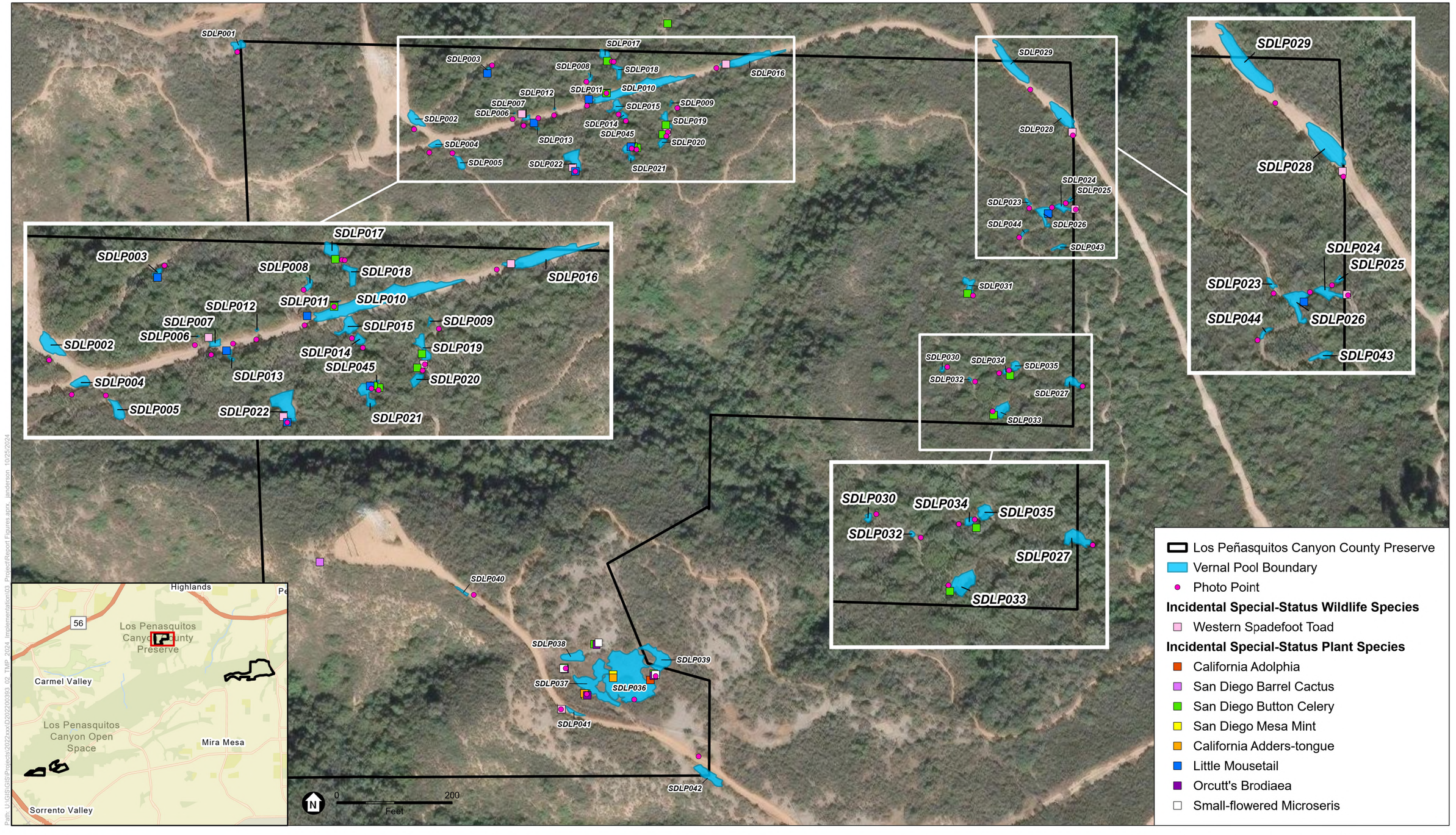
The annual floral and faunal species composition within vernal pools and alkali playas varies annually based on the rainfall pattern as well as the total amount of rainfall received. Quantitative monitoring in 2024 found non-native annual grasses dominated the vernal pools, alkali playas, and the banks and top of banks around the Cagney Swale, often creating dense stands or carpets and accounting for a greater percent cover than native plant species. Quantitative monitoring results presented in Tables 13–15 illustrate a correlation between native plant species, including floral indicator species, abundance and distribution with the overall health of the vernal pool or alkali playa. For example, vernal pools such as p48, e45, and c20 had high native plant species richness and abundance and lower non-native species abundance with scattered or patchy distribution. Conversely, vernal pools such as e62 and e63 with high non-native grass cover, abundance, and dense distribution had lower vernal pool indicator plant species cover and often had scattered distribution along the pool margins or in small patches within the basins.

Nine vernal pools (p13, e56, e58, e61, e48, e52, e45, c20, and e53) have higher native plant species richness compared to non-native plant species richness, and eight vernal pools (p7, p14, e59, e63, e62, e77, ev3, and c3e) are threatened by high non-native plant cover, abundance, and dense distribution within and surrounding the vernal pools. Alkali playa raap4 and raap6 continue to support Pacific saltscale and additional plant species evolved for alkali soils. Alkali playa raap14 and raap17 are threatened by dense carpets of invasive non-native hare barley.

4.1.1.2 Los Peñasquitos Canyon County Preserve

A reconnaissance baseline survey was conducted at Los Peñasquitos Canyon County Preserve to map the current extent of vernal pools and establish a permanent photo-point for the 45 vernal pools observed in 2024. Additionally, quantitative monitoring at Los Peñasquitos Canyon County Preserve consisted of documenting vernal pool plant species and estimating their cover, distribution, and abundance, and documenting vernal pool faunal indicator species and estimating their abundance across the 45 vernal pool study locations. Locations of the vernal pools mapped and monitored in 2024 at Los Peñasquitos Canyon County Preserve are shown in **Figure 3**. Cover, distribution, and abundance of native plant species within each pool during wet and dry seasons are summarized in **Table 16**; cover, distribution, and abundance of non-native plant species within each pool during wet and dry seasons are summarized in **Table 17**. In addition, faunal vernal pool indicator species observed within each pool during the wet and dry season surveys are summarized in **Table 18**.

Seventeen vernal pool floral indicator species were observed during quantitative monitoring at Los Peñasquitos Canyon County Preserve, with winged water starwort (*Callitriche marginata*), water pygmy weed (*Crassula aquatica*), toad rush, and woolly marbles (*Psilocarphus brevissimus*) recorded as the most common. Floral indicator species within each vernal pool ranged from 4 to 14 observed species over the course of the wet and dry season surveys.



Path: U:\GIS\GIS\Projects\2022\xxx\D2022003\93_02_TMP_2024_Implementation\03_Project\Report Figures aprx, jlanderson 10/25/2024

SOURCE: ESRI, 2021; ESA 2024

COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management
Targeted Monitoring Plan Resource-Specific Monitoring and Management 2024 Annual Report

Figure 3
Vernal Pool Monitoring Results
Los Peñasquitos Canyon County Preserve

ESA

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TABLE 16
VERNAL POOL QUANTITATIVE NATIVE FLORA COVER, DISTRIBUTION, AND ABUNDANCE MONITORING RESULTS OBSERVED DURING WET AND DRY SEASON: LOS PEÑASQUITOS CANYON COUNTY PRESERVE

Native Plant Species

Vernal Pool	Acmispon glaber	Adenostoma fasciculata	Adolphia californica	Artemisia californica	Baccharis pilularis	**Brodiaea orcuttii**	**Callitriche marginata**	Castelleja exserta	Chlorogalum parviflorum	**Crassula aquatica**	Crassula connata	Danthonia californica	Deinandra fasciculata	**Deschampsia danthonoides**	Dicranostegia capitata	**Elatine bracysperma**	**Elatine californica**	**Eleocharis macrostachya**	Eriogonum fasciculatum	**Eryngium aristulatum var. parishii**	Festuca octoflora	Gamochaeta sp.	Isocoma menzeisii	**Isoetes orcuttii**	**Juncus bufonius**
SDLP001							3 P H			1 S H															1S M
										1 S H			1S L	1 P M											1 S L
SDLP002							1 S L			1 S H															1 S M
										1 S H						1 S L									1 S L
SDLP003							2 P H			1 S M			1 S L												1 S L
							1 P H			1 S H			1 S L												
SDLP004							1 P M			1 S H			1 S L												1 S M
										1 S M			1 S L	1 S L											1 S L

Vernal Pool	Juncus bufonius var. occidentallis	Lepidium sp.	**Lysmachia minima**	Microseris douglasii ssp. platycarpha	Muilla maritima	**Myosurus minimus**	Navarettia hamata	Ophioglossum californicum	Opuntia oricola	**Pogogyne abramsii**	**Pilularia americana**	**Plantago elongata**	Plantago erecta	Pseudognaphalium palustre	**Psilocarphus brevissimus**	**Pseudognaphalium stramineum**	Quercus berberidifolia	Rhus integrifolia	Salvia mellifera	Sedge	Selaginella cinerascens	Sisyrinchium bellum	Stipa pulchra	**Triglochin scilloides**	Uropappus lindleyi	Zeltnera venusta
SDLP001												1 S M			2 P M											
					1 S M		1 S M					1 S L			1 S L	1 S L					1 P M					1 S L
SDLP002											1 S M		1 S L		1 S M											
											2 C H				1 P M											
SDLP003						1 S L									1 S M											
						1 S L									1 S L											
SDLP004													1 S L		1 P M											
			1 S L								1 S L		1 S L		1 S L											

Vernal Pool	*Acmispon glaber*	*Adenostoma fasciculata*	*Adolphia californica*	*Artemisia californica*	*Baccharis pilularis*	***Brodiaea orcuttii***	***Callitriche marginata***	*Castelleja exserta*	*Chlorogalum parviflorum*	***Crassula aquatica***	*Crassula connata*	*Danthonia californica*	*Deinandra fasciculata*	***Deschampsia danthonoides***	*Dicranostegia capitata*	***Elatine bracysperma***	***Elatine californica***	***Eleocharis macrostachya***	*Eriogonum fasciculatum*	***Eryngium aristulatum var. parishii***	*Festuca octoflora*	*Gamochaeta sp.*	*Isocoma menzeisii*	***Isoetes orcuttii***	***Juncus bufonius***	*Juncus bufonius var. occidentallis*	*Lepidium sp.*	***Lysmachia minima***	*Microseris douglasii ssp. platycarpha*	*Muilla maritima*	***Myosurus minimus***	*Navarettia hamata*	*Ophioglossum californicum*	*Opuntia oricola*	***Pogogyne abramsii***	***Pilularia americana***	***Plantago elongata***	*Plantago erecta*	*Pseudognaphalium palustre*	***Psilocarphus brevissimus***	***Pseudognaphalium stramineum***	*Quercus berberidifolia*	*Rhus integrifolia*	*Salvia mellifera*	*Sedge*	*Selaginella cinerascens*	*Sisyrinchium bellum*	*Stipa pulchra*	***Triglochin sciloides***	*Uropappus lindleyi*	*Zeltnera venusta*
SDLP005							**1 P H**						1 S L			**1 P L**									**1 S M**															**1 P M**											
										1 C H							**1 S M**				1 S M	1S L			**1 S L**	1 S L										**1 S L**				**1 S L**											
SDLP006							**2 C H**			**1 S M**															**1 S L**															**1 S L**											
							1 P M			**1 S M**			1 S L				**1 S L**					1 S L			**1 S M**	1 S L					**1 S L**	1 S M								**1 S L**											
SDLP007							**1 S H**			**1 S L**			1 S L			**1 P M**									**1 S H**															**1 S M**											
																																1 S L				**2 C H**															
SDLP008							**2 P H**			**1 S M**																														**1 S L**											
							2 C H			**1 S L**															**1 S L**															**1 S L**											
SDLP009							**2 P H**																																	**1 S L**											
							2 C H			**1 S H**						**1 P H**									**1 S L**											**1 P H**			1 S L												

Vernal Pool	Native Plant Species																																																		
	Acmispon glaber	*Adenostoma fasciculata*	*Adolphia californica*	*Artemisia californica*	*Baccharis pilularis*	***Brodiaea orcuttii***	***Callitriche marginata***	*Castelleja exserta*	*Chlorogalum parviflorum*	***Crassula aquatica***	*Crassula connata*	*Danthonia californica*	*Deinandra fasciculata*	***Deschampsia danthonoides***	*Dicranostegia capitata*	***Elatine bracysperma***	***Elatine californica***	***Eleocharis macrostachya***	*Eriogonum fasciculatum*	***Eryngium aristulatum var. parishii***	*Festuca octoflora*	*Gamochaeta sp.*	*Isocoma menzeisii*	***Isoetes orcuttii***	***Juncus bufonius***	*Juncus bufonius var. occidentallis*	*Lepidium sp.*	***Lysmachia minima***	*Microseris douglasii ssp. platycarpha*	*Muilla maritima*	***Myosurus minimus***	*Navarettia hamata*	*Ophioglossum californicum*	*Opuntia oricola*	***Pogogyne abramsii***	***Pilularia americana***	***Plantago elongata***	*Plantago erecta*	*Pseudognaphalium palustre*	***Psilocarphus brevissimus***	***Pseudognaphalium stramineum***	*Quercus berberidifolia*	*Rhus integrifolia*	*Salvia mellifera*	*Sedge*	*Selaginella cinerascens*	*Sisyrinchium bellum*	*Stipa pulchra*	***Triglochin scilloides***	*Uropappus lindleyi*	*Zeltnera venusta*
SDLP010							**1 S H**			**1SH**			1 S L												**1 S H**											**1 S M**													**1 S L**		
							1 P H									**1 S H**									**1 S L**			**1 S L**			**1 P L**	1 S L				**1 P M**				**1 S L**					1 S L				**1 S L**		
SDLP011							**1 PH**			**1 S H**			1 S L							**1 S L**					**1 S M**															**1 S M**											
							1 P H			**1 S M**			1 S L							**1 S L**					**1 S L**							1 S L								**1 S L**											
SDLP012							**1 S L**						1 S L												**1 S L**							1 S L				**1S L**															
										1 S L			1 S L												**1 S L**			**1 S L**				1 S L								**1 S L**											
SDLP013							**1 P H**			**1 S L**			1 P M								1S L				**1 S M**						**1 P L**																				
							2 C H			**1 S L**			1 S L												**1 S H**						**1 S L**																				
SDLP014							**1 C H**																																												
							3 C H			**1 S L**						**1 S H**									**1 S L**															**1 S L**											

	Native Plant Species																																																	
Vernal Pool	*Acmispon glaber*	*Adenostoma fasciculata*	*Adolphia californica*	*Artemisia californica*	*Baccharis pilularis*	***Brodiaea orcuttii***	***Callitriche marginata***	*Castelleja exserta*	*Chlorogalum parviflorum*	***Crassula aquatica***	*Crassula connata*	*Danthonia californica*	*Deinandra fasciculata*	***Deschampsia danthonoides***	*Dicranostegia capitata*	***Elatine bracysperma***	***Elatine californica***	***Eleocharis macrostachya***	*Eriogonum fasciculatum*	***Eryngium aristulatum var. parishii***	*Festuca octoflora*	*Gamochaeta sp.*	*Isocoma menzeisii*	***Isoetes orcuttii***	***Juncus bufonius***	*Juncus bufonius var. occidentallis*	*Lepidium sp.*	***Lysmachia minima***	*Microseris douglasii ssp. platycarpha*	*Muilla maritima*	***Myosurus minimus***	*Navarettia hamata*	*Ophioglossum californicum*	*Opuntia oricola*	***Pogogyne abramsii***	***Pilularia americana***	***Plantago elongata***	*Plantago erecta*	*Pseudognaphalium palustre*	***Psilocarphus brevissimus***	***Pseudognaphalium stramineum***	*Quercus berberidifolia*	*Rhus integrifolia*	*Salvia mellifera*	*Sedge*	*Selaginella cinerascens*	*Sisyrinchium bellum*	*Stipa pulchra*	***Triglochin sciloides***	*Uropappus lindleyi*	*Zeltnera venusta*
SDLP015							**1 C H**			**1 S L**																						1 S L				**1 S L**				**1 S L**											1 S L
							1 P H			**1 S H**			1 S L			**1 S H**					1 S L				**1 S L**							1 S L				**1 P H**				**1 S L**											
SDLP016							**1 S M**						1 S H								1 S L				**1 S M**							1 S L								**1 S L**									**1 S L**		
							1 P H			**1 S M**			1 S M			**1 S H**									**1 S M**							1 S M				**1 P H**				**1 S L**											
SDLP017							**1 C H**			**1 S H**										**1 S L**					**1 S M**							1 S L				**1 S L**				**1 S L**											
							1 P H			**1 S H**			1 S M			**1 S H**				**1 S L**				**1 P H**	**1 S L**			**1 S L**				1 S L				**1 P H**				**1 S L**											
SDLP018							**1 P H**						1 S M								1 S L				**1 S M**																										
							2 P H			**1 S H**														**1 P H**	**1 S L**											**1 P H**															
SDLP019							**1 C H**			**1 S M**										**1 S L**					**1 S L**	1 S L														**1 S L**											
							2 C H			**1 S H**							**1 S H**			**1 S L**				**1 P H**	**1 S M**											**1 P H**			1 S H							1 P M					

Vernal Pool	Native Plant Species																																																		
	Acmispon glaber	*Adenostoma fasciculata*	*Adolphia californica*	*Artemisia californica*	*Baccharis pilularis*	***Brodiaea orcuttii***	***Callitriche marginata***	*Castelleja exserta*	*Chlorogalum parviflorum*	***Crassula aquatica***	*Crassula connata*	*Danthonia californica*	*Deinandra fasciculata*	***Deschampsia danthonoides***	*Dicranostegia capitata*	***Elatine bracysperma***	***Elatine californica***	***Eleocharis macrostachya***	*Eriogonum fasciculatum*	***Eryngium aristulatum var. parishii***	*Festuca octoflora*	*Gamochaeta sp.*	*Isocoma menzeisii*	***Isoetes orcuttii***	***Juncus bufonius***	*Juncus bufonius var. occidentallis*	*Lepidium sp.*	***Lysmachia minima***	*Microseris douglasii ssp. platycarpha*	*Muilla maritima*	***Myosurus minimus***	*Navarettia hamata*	*Ophioglossum californicum*	*Opuntia oricola*	***Pogogyne abramsii***	***Pilularia americana***	***Plantago elongata***	*Plantago erecta*	*Pseudognaphalium palustre*	***Psilocarphus brevissimus***	***Pseudognaphalium stramineum***	*Quercus berberidifolia*	*Rhus integrifolia*	*Salvia mellifera*	*Sedge*	*Selaginella cinerascens*	*Sisyrinchium bellum*	*Stipa pulchra*	***Triglochin sciloides***	*Uropappus lindleyi*	*Zeltnera venusta*
SDLP020							**1 C H**			**1 S H**															**1 S L**															**1 S L**											
					1 S L		**2 C H**			**1 S H**	1 S L					**1 S L**									**1 S L**														1 S L							1 P M					
SDLP021							**1 C H**			**1 S L**						**1 P M**									**1 S L**															**1 S L**											
							1 P H			**1 S M**						**1 P H**									**1 S L**																										
SDLP022							**1**			**1**			1 S H			**1 L**									**1 S L**							1S M				**1 S L**				**1 S L**											
							1 P H			**1 S H**			1 S M			**1 P H**									**1 S L**							1 S H				**1 P H**			1 S L												
SDLP023							**1 P H**			**1 S L**															**1 S L**			**1 S M**			**1 S L**	1 S H								**1 S L**											
							1 P H			**1 S H**			1 S L			**1 P H**						1 S L			**1 S L**			**1 S M**				1 S M				**1 S L**				**1 S L**											
SDLP024							**1 C H**			**1 S H**						**1 P M**									**1 S M**			**1 P H**				1 S H								**1 S L**						2 C H					
							1 C H			**1 S H**											1 S L				**1 S L**			**1 S H**				1 S H				**1 S L**															

Vernal Pool	Native Plant Species																																																	
	Acmispon glaber	*Adenostoma fasciculata*	*Adolphia californica*	*Artemisia californica*	*Baccharis pilularis*	***Brodiaea orcuttii***	***Callitriche marginata***	*Castelleja exserta*	*Chlorogalum parviflorum*	***Crassula aquatica***	*Crassula connata*	*Danthonia californica*	*Deinandra fasciculata*	***Deschampsia danthonoides***	*Dicranostegia capitata*	***Elatine bracysperma***	***Elatine californica***	***Eleocharis macrostachya***	*Eriogonum fasciculatum*	***Eryngium aristulatum var. parishii***	*Festuca octoflora*	*Gamochaeta sp.*	*Isocoma menzeisii*	***Isoetes orcuttii***	***Juncus bufonius***	*Juncus bufonius var. occidentallis*	*Lepidium sp.*	***Lysmachia minima***	*Microseris douglasii ssp. platycarpha*	*Muilla maritima*	***Myosurus minimus***	*Navarettia hamata*	*Ophioglossum californicum*	*Opuntia oricola*	***Pogogyne abramsii***	***Pilularia americana***	***Plantago elongata***	*Plantago erecta*	*Pseudognaphalium palustre*	***Psilocarphus brevissimus***	***Pseudognaphalium stramineum***	*Quercus berberidifolia*	*Rhus integrifolia*	*Salvia mellifera*	*Sedge*	*Selaginella cinerascens*	*Sisyrinchium bellum*	*Stipa pulchra*	***Triglochin sciloides***	*Uropappus lindleyi*	*Zeltnera venusta*
SDLP025							2 C H			1 S H															1 S L			1 P H																							
							1 P H			1 S H						1 P H						1 S M				1 S M		1 S H				1 S M																			
SDLP026							1 P H			1S H			1S H			1 P H										1 S H		1 P H			1 S L	1 S H								1 P H											
							1 S H			1 S H						1 P H									1 S M	1 S M		1 S H				1 S H								1 S L											
SDLP027							1			1						1		1 L							1 S L															1 S L											
							1 P H									1 P H																				1 P M			1 S L												
SDLP028							1C H			1 S H			1 S H			1 P H									1 S H	1 S L						1 S H				1 P H				1 P H									2 P H		
							1 S L			1 S M			1 P H			1 P H									1 S H							1 S L				1 P H				1 P H									1 S H		
SDLP029							1 P H			1 S H															1 P H			1 S L				1 S H				1 P H				1 P H									1 S M		
							1 P M			1 S L			1 S L			1 P L									1 S M							1 P H				1 P M	1 S L			1 S L									1 S L		

	Native Plant Species																																																	
Vernal Pool	*Acmispon glaber*	*Adenostoma fasciculata*	*Adolphia californica*	*Artemisia californica*	*Baccharis pilularis*	***Brodiaea orcuttii***	***Callitriche marginata***	*Castelleja exserta*	*Chlorogalum parviflorum*	***Crassula aquatica***	*Crassula connata*	*Danthonia californica*	*Deinandra fasciculata*	***Deschampsia danthonoides***	*Dicranostegia capitata*	***Elatine bracysperma***	***Elatine californica***	***Eleocharis macrostachya***	*Eriogonum fasciculatum*	***Eryngium aristulatum var. parishii***	*Festuca octoflora*	*Gamochaeta sp.*	*Isocoma menzeisii*	***Isoetes orcuttii***	***Juncus bufonius***	*Juncus bufonius var. occidentallis*	*Lepidium sp.*	***Lysmachia minima***	*Microseris douglasii ssp. platycarpha*	*Muilla maritima*	***Myosurus minimus***	*Navarettia hamata*	*Ophioglossum californicum*	*Opuntia oricola*	***Pogogyne abramsii***	***Pilularia americana***	***Plantago elongata***	*Plantago erecta*	*Pseudognaphalium palustre*	***Psilocarphus brevissimus***	***Pseudognaphalium stramineum***	*Quercus berberidifolia*	*Rhus integrifolia*	*Salvia mellifera*	*Sedge*	*Selaginella cinerascens*	*Sisyrinchium bellum*	*Stipa pulchra*	***Triglochin scilloides***	*Uropappus lindleyi*	*Zeltnera venusta*
SDLP030							**2 C H**			**1 S L**						**1 S L**																								**1 P H**											
							1 P H			**1 S L**						**1 S L**												**1 S L**											1 S M												
SDLP031							**1 P H**		1 S L	**1 S H**										**1 P M**								**1 S L**				1 S H				**1 S H**				**1 S L**											
							1 C H			**1 S H**			1 S H			**1 S M**				**1 S H**				**1 P H**	**1 S L**			**1 S H**				1 S H				**1 P H**			1 S H												
SDLP032							**1 P M**			**1 S H**			1 S L												**1 S L**			**1 S L**																							
					1 S L		**1 S L**			**1 S L**			1 S L												**1 S L**							1 S L							1 S L												
SDLP033							**1 P H**			**1 P H**								**1 S L**		**1 S M**						1 S L						1 S L				**1 P H**															
							1 P H			**1 S H**						**1 P H**	**1 P H**	**1 S H**		**1 S H**				**1 P H**				**1 S L**				1 S L				**1 P H**				**1 S L**											
SDLP034							**2 C H**			**1 S L**						**1 P H**									**1 S L**			**1 S L**												**1 S L**											
							1 C H			**1 S M**						**1 S H**									**1 S L**			**1 S L**				1 S L				**1 P M**				**1 S L**											

Vernal Pool	Native Plant Species																																																	
	Acmispon glaber	*Adenostoma fasciculata*	*Adolphia californica*	*Artemisia californica*	*Baccharis pilularis*	***Brodiaea orcuttii***	***Callitriche marginata***	*Castelleja exserta*	*Chlorogalum parviflorum*	***Crassula aquatica***	*Crassula connata*	*Danthonia californica*	*Deinandra fasciculata*	***Deschampsia danthonoides***	*Dicranostegia capitata*	***Elatine bracysperma***	***Elatine californica***	***Eleocharis macrostachya***	*Eriogonum fasciculatum*	***Eryngium aristulatum var. parishii***	*Festuca octoflora*	*Gamochaeta sp.*	*Isocoma menzeisii*	***Isoetes orcuttii***	***Juncus bufonius***	*Juncus bufonius var. occidentallis*	*Lepidium sp.*	***Lysmachia minima***	*Microseris douglasii ssp. platycarpha*	*Muilla maritima*	***Myosurus minimus***	*Navarettia hamata*	*Ophioglossum californicum*	*Opuntia oricola*	***Pogogyne abramsii***	***Pilularia americana***	***Plantago elongata***	*Plantago erecta*	*Pseudognaphalium palustre*	***Psilocarphus brevissimus***	***Pseudognaphalium stramineum***	*Quercus berberidifolia*	*Rhus integrifolia*	*Salvia mellifera*	*Sedge*	*Selaginella cinerascens*	*Sisyrinchium bellum*	*Stipa pulchra*	***Triglochin scilloides***	*Uropappus lindleyi*	*Zeltnera venusta*
SDLP035							1 P H			1 S H						1 P H		1 S L		1S M					1 S M	1 S M		1 S H				1 S H				1 S M															
							1 P H			1 S H							1 P H	1 P M		1 S H				1 P H				1 S L				1 S L				1 P H															
SDLP036			1 S L	1 P L		2 P M	1 P H		1 S L				1 S H					2 C H		1 P H			1 S L	1 P M	1 S H	1 S M		1 P H		1S H			1 S L		2 P H	1 P M				1 S L			1 P L	1 P L			2 P H		1 S L		1 S L
	1 S L	1 S L	1 S L	1 P L		1 S H	1 P H	1 S L		1 S H		1 S L	1 S H	1P H		1 P H		1 P H		2 P H			1 P M	1 P H	1 S H			1 S H	1 P H	1 C H				1S L	1 P H	1 S L				1 P H			1 P L	1 P L			2 P H	1 P H		1 S L	1 S H
SDLP037						1	1P M		1	1			1		1	1		2	1	2			1	1	1	1		1		1		1	1		1	1				1							2	1			
	1 S L	1 S L				1 S H	1 P H			1 S H			1 S H	1 P H		1 S L		1 S M		1 C H			1 S H	1 P H	1 C H			1 S H							1 S L					1 P H						1 C H	1 P H	1 P M			1 S L
SDLP038						1				1			1							1				1	2	1		1	1	1		1					1	1		1						2	1	1			1
						1 S H							1 P H	1 P H						1 S L					1 S H			1 S H		1 S M		1 S H					1 S H			1 P H						1 P M	1 P M	1 P L			1 S H
SDLP039	1 L					2 P H	1S L			1 S H			1 S H		1 S L			2 P H		1 S M			1 P L	1 P H	1 P H		1 S L	1 P H								1 S L				1 S L							1 P M	1 P L			
		1 S L				1 S H	1 P M		1 S L	1 S H			1 S H	1 P H		1 S L		1 S M		1 P H			1 S M	1 S H	1 P H			1 S H	1 S L			1 S H						1 S L		1 P M						1 P M	2 S H	1 S H			

Vernal Pool	Native Plant Species																																																		
	Acmispon glaber	*Adenostoma fasciculata*	*Adolphia californica*	*Artemisia californica*	*Baccharis pilularis*	***Brodiaea orcuttii***	***Callitriche marginata***	*Castelleja exserta*	*Chlorogalum parviflorum*	***Crassula aquatica***	*Crassula connata*	*Danthonia californica*	*Deinandra fasciculata*	***Deschampsia danthonoides***	*Dicranostegia capitata*	***Elatine bracysperma***	***Elatine californica***	***Eleocharis macrostachya***	*Eriogonum fasciculatum*	***Eryngium aristulatum var. parishii***	*Festuca octoflora*	*Gamochaeta sp.*	*Isocoma menzeisii*	***Isoetes orcuttii***	***Juncus bufonius***	*Juncus bufonius var. occidentallis*	*Lepidium sp.*	***Lysmachia minima***	*Microseris douglasii ssp. platycarpha*	*Muilla maritima*	***Myosurus minimus***	*Navarettia hamata*	*Ophioglossum californicum*	*Opuntia oricola*	***Pogogyne abramsii***	***Pilularia americana***	***Plantago elongata***	*Plantago erecta*	*Pseudognaphalium palustre*	***Psilocarphus brevissimus***	***Pseudognaphalium stramineum***	*Quercus berberidifolia*	*Rhus integrifolia*	*Salvia mellifera*	*Sedge*	*Selaginella cinerascens*	*Sisyrinchium bellum*	*Stipa pulchra*	***Triglochin scilloides***	*Uropappus lindleyi*	*Zeltnera venusta*
SDLP040							**1P M**			**1 S L**	1 C H														**1 S M**			**1 S M**				1 S L				**1 S L**	**1 P H**	1 S M		**1 S L**											
										1 S H			1 S M												**1 S M**			**1 S M**				1 S L					**1 C H**			**1 S L**						1 P L					
SDLP041							**1 S L**			**1 S L**			1 S M			**1 S L**									**1 P H**			**1 P H**				1 S L				**1S L**	**1 S L**	1 S L		**1 P L**											
										1 S H			1 S L			**1 S H**									**1 S L**			**1 S L**				1 S L				**1 S H**				**1 S L**											
SDLP042							**1 S H**			**1 S H**			1 P M			**1 S L**									**1 P H**			**1 P H**				1 S M				**1 S M**	**1 S M**	1 P H		**1P H**									**1 S M**		1 S L
							1 S L			**1 S H**			1 P H												**1 S L**			**1 S L**				1 P H								**1 P H**									**1 S L**		1 S M
SDLP043*																																																			
							1 P H			**1 S M**							**1 S L**					1 S L						**1 S H**								**1 S L**															
SDLP044*																																																			
							1 P H			**1 S L**						**1 P H**									**1 S L**			**1 S H**																							
SDLP045*																																																			
										1 S L	1 S L		1 S M	**2 P M**						**2 S M**					**1 S L**						**1 S L**									**1 S L**		1 S L				1 P M					1 S M

	Native Plant Species																																																		
Vernal Pool	*Acmispon glaber*	*Adenostoma fasciculata*	*Adolphia californica*	*Artemisia californica*	*Baccharis pilularis*	***Brodiaea orcuttii***	***Callitriche marginata***	*Castelleja exserta*	*Chlorogalum parviflorum*	***Crassula aquatica***	*Crassula connata*	*Danthonia californica*	*Deinandra fasciculata*	***Deschampsia danthonoides***	*Dicranostegia capitata*	***Elatine bracysperma***	***Elatine californica***	***Eleocharis macrostachya***	*Eriogonum fasciculatum*	***Eryngium aristulatum var. parishii***	*Festuca octoflora*	*Gamochaeta sp.*	*Isocoma menzeisii*	***Isoetes orcuttii***	***Juncus bufonius***	*Juncus bufonius var. occidentallis*	*Lepidium sp.*	***Lysmachia minima***	*Microseris douglasii ssp. platycarpha*	*Muilla maritima*	***Myosurus minimus***	*Navarettia hamata*	*Ophioglossum californicum*	*Opuntia oricola*	***Pogogyne abramsii***	***Pilularia americana***	***Plantago elongata***	*Plantago erecta*	*Pseudognaphalium palustre*	***Psilocarphus brevissimus***	***Pseudognaphalium stramineum***	*Quercus berberidifolia*	*Rhus integrifolia*	*Salvia mellifera*	*Sedge*	*Selaginella cinerascens*	*Sisyrinchium bellum*	*Stipa pulchra*	***Triglochin scilloides***	*Uropappus lindleyi*	*Zeltnera venusta*

NOTES:

All pools were surveyed once during the wet season and once during the dry season.
* Pools were not discovered during the wet season, thus were only surveyed during the dry season.
Bold species are known vernal pool indicators, as listed in the *Revised Final City of San Diego Vernal Pool Habitat Conservation Plan* (City of San Diego 2019).
Blue-shaded rows denote results of wet season surveys, while white-shaded rows denote results of dry season surveys of species abundance, distribution, and cover.
Blank cells indicate that the species was not observed within the vernal pool during the respective survey window.
Cover values:
1 = species constitutes <25% of pool vegetation cover
2 = species constitutes 25–49% of pool vegetation cover
3 = species constitutes 50%+ of pool vegetation cover
Distribution values:
S = Solitary; species occurring as single plants widely dispersed within the pool
P = Patches; species occurring in patches or clumps scattered throughout the pool
C = Carpets; species occurring in dense stands within the pool
Abundance values:
L = Low; 0–50 species individuals observed within the pool
M = Moderate; 51–100 species individuals observed within the pool
H = High; 101–500+ individuals observed within the pool

TABLE 17
VERNAL POOL QUANTITATIVE NON-NATIVE FLORA COVER, DISTRIBUTION, AND ABUNDANCE MONITORING RESULTS OBSERVED DURING WET AND DRY SEASON: LOS PEÑASQUITOS CANYON COUNTY PRESERVE

Vernal Pool	Non-Native Plant Species																		
	Avena sp.	*Bromus diandrus*	*Bromus hordeaceus*	*Bromus madretensis*	*Centaurea melitensis*	*Dittrichia graveolens*	*Festuca myuros*	*Festuca perenne*	*Gastridium pheloides*	*Helmenthotheca echoides*	*Hordeum murinum ssp. leporinum*	*Hypochaeris glabra*	*Lysmachia arvensis*	*Lythrum hyssopifolia*	*Oxalis pes-caprae*	*Polypogon monspeliensis*	*Sonchus apser*	*Sonchus oleraceus*	*Spergularia bocconii*
SDLP001				1 S M			1 P M				1 P L								
							3 C H	1 S L									1 S L		
SDLP002																			2 P H
							1 P H												1 P M
SDLP003				1 S L															
SDLP004			1 S L								1 S L								1 S L
							1 S M		1 S M										1 S L
SDLP005																			
							1 S M												
SDLP006																			
				1 S L				1 S L											

Vernal Pool	Non-Native Plant Species																		
	Avena sp.	*Bromus diandrus*	*Bromus hordeaceus*	*Bromus madretensis*	*Centaurea melitensis*	*Dittrichia graveolens*	*Festuca myuros*	*Festuca perenne*	*Gastridium pheloides*	*Helmenthotheca echoides*	*Hordeum murinum ssp. leporinum*	*Hypochaeris glabra*	*Lysmachia arvensis*	*Lythrum hyssopifolia*	*Oxalis pes-caprae*	*Polypogon monspeliensis*	*Sonchus apser*	*Sonchus oleraceus*	*Spergularia bocconii*
SDLP007																			1 P L
									1 P L										
SDLP008																			
SDLP009																			
SDLP010																			
							1 S L												
SDLP011																			
									1 S M										1 S L
SDLP012																			
SDLP013																			
							1 P M												
SDLP014																			
SDLP015					1 S L		1 S L												
							1 S M											1 S L	

Vernal Pool	Non-Native Plant Species																		
	Avena sp.	*Bromus diandrus*	*Bromus hordeaceus*	*Bromus madretensis*	*Centaurea melitensis*	*Dittrichia graveolens*	*Festuca myuros*	*Festuca perenne*	*Gastridium pheloides*	*Helmenthotheca echoides*	*Hordeum murinum ssp. leporinum*	*Hypochaeris glabra*	*Lysmachia arvensis*	*Lythrum hyssopifolia*	*Oxalis pes-caprae*	*Polypogon monspeliensis*	*Sonchus apser*	*Sonchus oleraceus*	*Spergularia bocconii*
SDLP016																			
																			1 S L
SDLP017																			
SDLP018																			
SDLP019																			
SDLP020																			
								1 S L											
SDLP021																			
SDLP022																			
SDLP023																			
																		1 S L	
SDLP024																			
SDLP025																			

Vernal Pool	Non-Native Plant Species																		
	Avena sp.	*Bromus diandrus*	*Bromus hordeaceus*	*Bromus madretensis*	*Centaurea melitensis*	*Dittrichia graveolens*	*Festuca myuros*	*Festuca perenne*	*Gastridium pheloides*	*Helmenthotheca echoides*	*Hordeum murinum ssp. leporinum*	*Hypochaeris glabra*	*Lysmachia arvensis*	*Lythrum hyssopifolia*	*Oxalis pes-caprae*	*Polypogon monspeliensis*	*Sonchus apser*	*Sonchus oleraceus*	*Spergularia bocconii*
SDLP026																			
SDLP027																			
SDLP028								1 S L											1 S L
							1 S L									1 S L			1 S M
SDLP029								1 S L										1 S L	1 S L
							1 S L									1 S L			1 S L
SDLP030																			
SDLP031																			
SDLP032																			
SDLP033																			
SDLP034																			

Vernal Pool	Non-Native Plant Species																		
	Avena sp.	*Bromus diandrus*	*Bromus hordeaceus*	*Bromus madretensis*	*Centaurea melitensis*	*Dittrichia graveolens*	*Festuca myuros*	*Festuca perenne*	*Gastridium pheloides*	*Helmenthotheca echoides*	*Hordeum murinum ssp. leporinum*	*Hypochaeris glabra*	*Lysmachia arvensis*	*Lythrum hyssopifolia*	*Oxalis pes-caprae*	*Polypogon monspeliensis*	*Sonchus apser*	*Sonchus oleraceus*	*Spergularia bocconii*
SDLP035																			
SDLP036	1 S L											2 C H					1 S L		
	1 S L		1 P H	1 S L	1 P H		2 P H		1 S L	1 S L	1 P M	1 P H		1 S L			1 S L	1 S M	
SDLP037	1 S L		1 S L	1			1					2					1 L		
			1 P H				1 P H	1 S L				1 S H		1 S L				1 S L	
SDLP038				1 P M	1 S L		2 P H					1 S H					1 S L		
			1 P H	1 S L			2 S H	1 S L				1 S M						1 S L	1 P H
SDLP039	1 S L		1 S L	1 P M	1 S M		1 P H					1 S H			1 P M		1 S L	1 S L	
			1 P H				2 P M		1 S L			1 S H						1 S L	
SDLP040																			2 C H
		1 P H		1 S L			1 P H	1 S H										1 S L	1 P H

Vernal Pool	Non-Native Plant Species																		
	Avena sp.	***Bromus diandrus***	***Bromus hordeaceus***	***Bromus madretensis***	***Centaurea melitensis***	***Dittrichia graveolens***	***Festuca myuros***	***Festuca perenne***	***Gastridium pheloides***	***Helmenthotheca echoides***	***Hordeum murinum ssp. leporinum***	***Hypochaeris glabra***	***Lysmachia arvensis***	***Lythrum hyssopifolia***	***Oxalis pes-caprae***	***Polypogon monspeliensis***	***Sonchus apser***	***Sonchus oleraceus***	***Spergularia bocconii***
SDLP041							1 P H												1 S L
							1 P M												
SDLP042							1 P H					1 S L	1 P M	1 P H					1 P H
			1 P H	1 S L	1 S L		1 P H	1 S L	1 S L			1 P H	1 S M	1 S M				1 S L	1 P H
SDLP043*																			
						1 S L													
SDLP044*																			
SDLP045*																			

NOTES:
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Cover values:
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Abundance values:
L = Low; 0–50 species individuals observed within the pool
M = Moderate; 51–100 species individuals observed within the pool
H = High; 101–500+ individuals observed within the pool

TABLE 18
VERNAL POOL QUANTITATIVE FAUNA ABUNDANCE MONITORING RESULTS OBSERVED DURING WET AND DRY SEASON: LOS PEÑASQUITOS CANYON COUNTY PRESERVE

Vernal Pool	Invertebrates				Amphibians		
	Cladocera	Copepoda	Fairy shrimp	Seed Shrimp	Baja California tree frog tadpole/frog	Western spadefoot toad	Tadpoles/toads (Unknown species)
SDLP001				H			
	H						
SDLP002				H			
				L			L
SDLP003				H			
SDLP004							
SDLP005							
SDLP006							
SDLP007		M		H		L	
				H		L	
SDLP008		L		H			
SDLP009				M			
SDLP010		L		H			
				M			

Vernal Pool	Invertebrates				Amphibians		
	Cladocera	Copepoda	Fairy shrimp	Seed Shrimp	Baja California tree frog tadpole/frog	Western spadefoot toad	Tadpoles/toads (Unknown species)
SDLP011				L			
SDLP012							
SDLP013							
SDLP014							
SDLP015							
				H			
SDLP016						H	
				M			
SDLP017				H			
				H	L		
SDLP018				H			
				H			
SDLP019		H		H		M	
SDLP020				H			
SDLP021		H		H			

Vernal Pool	Invertebrates				Amphibians		
	Cladocera	Copepoda	Fairy shrimp	Seed Shrimp	Baja California tree frog tadpole/frog	Western spadefoot toad	Tadpoles/toads (Unknown species)
SDLP022		H		H		M	
				H	L		L
SDLP023				H			
SDLP024					L	L	
SDLP025							
SDLP026		H		H			
				H			
SDLP027		H	H	H			
		H					
SDLP028		H				L	
				M			
SDLP029							
				M			
SDLP030		H					
SDLP031		H	H	H	L		
SDLP032							

Vernal Pool	Invertebrates				Amphibians		
	Cladocera	Copepoda	Fairy shrimp	Seed Shrimp	Baja California tree frog tadpole/frog	Western spadefoot toad	Tadpoles/toads (Unknown species)
SDLP033			H	H			L
				H			
SDLP034		H		H			
SDLP035			H				
					L		
SDLP036				H			
				H			
SDLP037					L		
SDLP038							
				H			
SDLP039							
SDLP040							
				H			
SDLP041						L	
				H			
SDLP042				H			
SDLP043*							
				H			

Vernal Pool	Invertebrates				Amphibians		
	Cladocera	**Copepoda**	**Fairy shrimp**	**Seed Shrimp**	Baja California tree frog tadpole/frog	Western spadefoot toad	Tadpoles/toads (Unknown species)
SDLP044*							
				H			
SDLP045*							
					L		

NOTES:

All pools were surveyed once during the wet season and once during the dry season.
* Pools were not discovered during the wet season, thus were only surveyed during the dry season.
Bold species are known vernal pool indicators, as listed in the *Revised Final City of San Diego Vernal Pool Habitat Conservation Plan* (City of San Diego 2019).
Blue-shaded rows denote results of wet season surveys, while white-shaded rows denote results of dry season surveys of species abundance, distribution, and cover.
Blank cells indicate that species was not observed within pool during the respective survey window.
Abundance values:
L = 0–50 species individuals observed within pool
M = 51–100 species individuals observed within pool
H = 101–500+ individuals observed within pool

Native plant diversity, including floral indicator species, in each vernal pool ranged from 4 to 34 species observed over the course of wet and dry season surveys. San Diego mesa mint (*Pogogyne abramsii*), a federally listed vernal pool indicator plant species and MSCP covered species, was observed within vernal pools SDLP036 and SDLP037; and San Diego button celery (*Eryngium aristulatum var. parishii*), a MSCP covered species, was observed within vernal pools SDLP011, SDLP017, SDLP019, SDLP031, SDLP033, SDLP035–SDLP039, and SDLP045 (**Figure 3**). Additional incidental special-status plant species detected included Orcutt's brodiaea (*Brodiaea orcuttii*), California adolphia (*Adolphia californica*), small-flowered microseris (*Microseris douglasii ssp. platycarpha*), little mousetail (*Myosurus minimus ssp. apus*), California adders-tongue (*Ophioglossum californicum*) and San Diego barrel cactus (*Ferocactus viridescens*) (**Figure 3**).

Non-native plant species were detected in 24 of the 45 surveyed vernal pools, with a total of 19 non-native plant species observed. Non-native plant species in each vernal pool ranged from 0 to 12 observed species over the course of the wet and dry season surveys. The most common non-native plant species encountered within vernal pools during surveys were rattail fescue (*Festuca myuros*) and Boccone's sand-spurrey.

Faunal indicator species were observed in 36 of the 45 surveyed vernal pools. The maximum number of faunal indicator species observed within a vernal pool was 4 species. The most common aquatic faunal indicator species observed in vernal pools was seed shrimp. Fairy shrimp were visually identified in vernal pools SDLP027, SDLP031, SDLP033, and SDLP035; however, dip-netting was not conducted to confirm species. Baja California tree frog, western spadefoot toad, and unknown species of tadpoles, froglets, and toadlets were also observed in 14 of the 45 surveyed vernal pools over the course of the wet and dry season surveys. Special-status western spadefoot toad tadpoles and toadlets were observed in vernal pools SDLP007, SDLP016, SDLP019, SDLP022, SDLP024, SDLP028, and SDLP041 over the course of the wet and dry season surveys (**Figure 3**).

The floral and faunal species composition within vernal pools varies annually based on the rainfall pattern as well as the total amount of rainfall received. Native species richness and abundance was generally high in most vernal pools. Quantitative monitoring in 2024 found non-native plant species cover and abundance within each pool was generally low. Signs of physical damage were observed in nineteen of the vernal pools (generally those associated with on-site roads). This included observing an unidentified truck driving through vernal pools at high speeds, resulting in pools emptied of ponded water or turbid water conditions, damaged plants, and dead amphibians.

4.1.2 Adaptive Management Recommendations

4.1.2.1 Ramona Grasslands County Preserve

The results of the 2024 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Continue focused invasive non-native plant management.** 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). Invasive non-native plants are the main threat to the vernal pool and alkali playa habitat within Ramona Grasslands County Preserve as they outcompete native species for resources and the thatch they produce can affect ponding duration and timing, subsequently impacting aquatic faunal species as well. The dominant invasive non-native species detected in 2024 were hare barely, grass poly, and

red-stem filaree. The percent cover for these three species are provided in **Table 19** with recommended management priority levels. To ensure the persistence of vernal pool and alkali playa habitat at Ramona Grasslands County Preserve, it is recommended that invasive non-native plant control be conducted by a qualified restoration specialist within vernal pools p13, p14, p7, e59, e56, e58, e61, e62, e63, e53, e77, e52, e48, e45, and ev3, and the alkali playas raap4, raap6, raap14, and raap17. Management should continue to occur twice a year, once just after pool and playa basins have dried and the soil surface becomes firm, and again later in the season 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 plant species have set seed to fully remove any invasive non-native plant biomass remaining by hand to prevent the removal of native seed material. Thatch removal should be done by hand and lightly raking in basins and around the pool margins to minimize soils disturbance. 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).

- **Conduct a hydrological study of the Cagney Swale.** Potential altered hydrology (e.g., erosion and undercutting of the banks) within the Cagney Swale continued to be observed during 2024 quantitative monitoring surveys (see representative photographs in **Appendix A**). A hydrological study of the Cagney Swale is recommended to determine if altered hydrology is occurring and inform adaptive management strategies (e.g., 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).
- **Implement fencing pilot study.** Many vernal pools and alkali playas had numerous deep hoof prints and cow patties in the basins and along the margins. A fencing pilot study is recommended to study the effects of cattle grazing on existing vernal pool and alkali playa species richness, species distribution, and their abundance during both the wet and dry seasons. 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 this pool supports vernal pool indicator species and is located adjacent to existing exclusionary fencing surrounding the boundary of the 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 brittlescale [*Atriplex parishii*], Coulter's saltbush, and southern tarplant [*Centromadia parryi* ssp. *australis*]), however their presence and abundance are declining or are on the brink of disappearing from the playa. Exclusionary fencing may help decrease impacts to hydrology, reduce erosion and sedimentation, and increase native plant species presence and distribution within a vernal pool. 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 and soils are firm (anticipated as April to June) (ESA 2019). 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 and functionality 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 in pools and playas with low non-native cover that have demonstrated sufficient ponding periods to support indicator plant species across the pool and playa gradient to increase and enhance native species richness, diversity, and natural recruitment from year to year. Vernal pools and alkali playas that meet these criteria include e52, e61, e63 ev3, raap 4, raap 6, raap 14, and raap 17; while e77 supports a low cover of native and vernal pool indicators species, it does not have a sufficient ponding duration to support a seeding effort. Weed control efforts should be conducted in the summer to prepare vernal pool basins prior to seeding. Seeding should be timed for late fall and early winter prior to a rain event.

TABLE 19
VERNAL POOL AND ALKALI PLAYA QUANTITATIVE MONITORING SUMMARY AND MANAGEMENT PRIORITIES: RAMONA GRASSLANDS COUNTY PRESERVE

Vernal Pool	Total # of Plant Species	# of Vernal Pool Plant Indicator Species	# of Native Plant Species	# of Non-Native Plant Species	% Cover of Invasive Non-Native Hare Barley, Grass Poly, and Red-stem Filaree			Management Priority
					Red-Stem Filaree	Hare Barley	Grass Poly	
P13	15	7	9	6	2	2	1	Moderate
	22	11	14	8	1	1	1	
P14	18	7	9	9	2	3	2	High
	22	3	10	12	2	2	2	
P7	13	7	8	5	1	2	1	Moderate
	22	9	11	11	1	1	1	
E59	24	8	12	12	1	1	1	Low
	20	4	7	13	1	1	1	
CS01	10	1	3	7	1	1	1	Low
	7	2	2	5	0	0	1	
CS02	9	1	2	7	1	1	1	Low
	9	2	3	6	0	1	1	
CS03	7	1	1	6	0	1	1	Low
	8	1	3	5	0	0	1	
E63	9	5	5	4	1	3	1	High
	10	4	4	6	0	1	1	
E56	16	9	11	5	0	3	1	High
	22	11	12	10	0	3	1	
E58	18	7	10	8	1	3	1	High
	15	7	9	6	1	2	1	
E61	12	5	7	5	0	2	1	Moderate
	24	7	11	13	2	1	1	
C20	16	10	12	4	2	1	1	Moderate
	22	8	10	12	1	1	2	

Vernal Pool	Total # of Plant Species	# of Vernal Pool Plant Indicator Species	# of Native Plant Species	# of Non-Native Plant Species	% Cover of Invasive Non-Native Hare Barley, Grass Poly, and Red-stem Filaree			Management Priority
					Red-Stem Filaree	Hare Barley	Grass Poly	
E62	14	8	10	4	0	3	1	High
	20	7	9	11	3	3	1	
E53	13	8	8	5	2	2	1	Moderate
	19	7	12	7	1	2	1	
E77	12	4	6	6	3	2	1	High
	18	4	11	7	3	1	1	
E52	15	7	9	6	3	2	1	High
	20	8	14	6	1	2	1	
E48	15	9	11	4	2	2	1	Moderate
	26	10	18	8	1	2	1	
E45	18	9	13	5	3	2	1	High
	19	8	13	6	2	1	0	
Ev3	10	6	6	4	0	2	2	Moderate
	11	6	6	5	0	2	1	
C3e	17	6	10	7	2	2	2	Moderate
	12	4	5	7	1	1	1	
Raap 17	14	4	6	8	1	3	1	High
	12	2	4	8	0	3	1	
Raap4	18	5	7	11	1	3	0	High
	13	4	6	7	0	1	0	
Raap6	16	3	6	10	1	3	1	High
	17	4	7	10	1	1	1	
Raap14	5	0	1	4	0	3	0	High
	5	0	1	4	0	3	0	

NOTES:

All pools were surveyed once during the wet season and once during the dry season.
Blue-shaded rows denote results of wet season surveys, while white-shaded rows denote results of dry season surveys.
Cover values:
1 = species constitutes <25% of pool or playa vegetation cover
2 = species constitutes 25–49% of pool or playa vegetation cover
3 = species constitutes 50%+ of pool or playa vegetation cover
Management priority was determined based on the percent cover of the three focus invasive non-native grass species:
High: Maximum percent cover of at least one of the three focus invasive non-native grass species is greater than or equal to 50 percent.
Moderate: Maximum percent cover of at least one of the three focus invasive non-native grass species is 25–49 percent.
Low: Maximum percent cover at least one of the three focus invasive non-native grass species is less than 25.

4.1.2.2 Los Peñasquitos Canyon County Preserve

The results of the 2024 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Conduct long-term monitoring of vernal pools.** Per the TMP, long-term monitoring shall be initiated at the Los Peñasquitos Canyon County Preserve within a subset of pools. The following 15 vernal pools are recommended for long-term monitoring: SDLP09, SDLP014, SDLP015, SDLP017, SDLP019, SDLP027, SDLP32–SDLP39, and SDLP42. These vernal pools are recommended as they support federally and state listed San Diego mesa mint, San Diego button celery and/or have high non-native plant cover but support floral and faunal indicator species in sufficient abundance and cover and are distributed throughout the basin. Quantitative, qualitative, and hydrologic monitoring methods and frequencies should follow the TMP (ESA 2024a).
- **Repair existing broken fencing.** The fencing around vernal pools SDLP035–SDLP039 was observed to be broken in more than one location during 2024 monitoring. It is recommended to repair the fence to limit unauthorized access to these pools and prevent damage or take of listed species.
- **Control unauthorized access.** Bicycle and automobile tire tracks were documented in many of the vernal pools. These disturbances caused physical changes to the vernal pools by creating ruts and altering the local hydrology and how the vernal pools pond water over time, as well as having direct impacts on floral and faunal indicator species abundance and distribution. The estimated percent of damage for each pool is provided in **Table 20** with recommended management priority levels. Installation of signage stating sensitive resources are in the area, installation of exclusionary fencing around vernal pools, and regular preserve patrols focusing on these areas are options to control unauthorized access.
- **Conduct focused invasive non-native plant management.** The TMP recommends overall invasive non-native plant cover within vernal pool basins to be kept to less than 20 percent (ESA 2024a). While invasive non-native plant species richness was generally low across all pools, non-native species were distributed throughout the basin, and abundance was high in vernal pools SDLP035–SDLP039. Focused management within these pools are recommended as several special-status plant species (San Diego mesa mint, San Diego button celery, and Orcutt's brodiaea [*Brodiaea orcuttii*]) occur within these pools. Management should continue to occur twice a year, once just after pools have dried and the soil surface becomes firm, and again later in the season 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 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 plant species have set seed to fully remove any invasive non-native plant biomass remaining by hand; no blowing seed material out of the pool into the surrounding habitats will occur. Thatch removal should be done by hand and lightly raking in basins and around the pool margins to minimize soils disturbance. 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).
- **Seed vernal pool indicator plant species.** Hand-seeding of vernal pool indicator plant species is recommended in pools with low non-native cover that have demonstrated sufficient ponding periods to support indicator plant species across the pool gradient to increase and enhance native species richness, diversity, and natural recruitment from year to year. Vernal pools SDLP005, SDLP008, SDLP014, SDLP018, SDLP025, SDLP030 were found to have a low native and indicator species cover and abundance and a low non-native species abundance during the 2024 baseline surveys. These pools should be prioritized for hand-seeding and non-native species control. Invasive non-native plant control efforts should be conducted in the summer to prepare vernal pool basins prior to

hand-seeding to capture non-native seed material before it falls to the ground. Hand-seeding should be timed for late fall and early winter prior to a rain event.

TABLE 20
VERNAL POOL QUANTITATIVE MONITORING SUMMARY AND MANAGEMENT PRIORITIES: LOS PEÑASQUITOS CANYON COUNTY PRESERVE

Vernal Pool/Alkali Playa	Toal # of Plant Species	# of Vernal Pool Indicator Species	# of Native Plant Species	# of Non-Native Plant Species	% Physical Damage	Management Priority
SDLP001	8	5	5	3	<25	Low
	14	5	11	3		
SDLP002	7	5	6	1	0	Very low
	7	5	5	2		
SDLP003	7	5	6	1	0	Very low
	5	4	5	0		
SDLP004	9	4	6	3	25–49	Moderate
	11	6	8	3		
SDLP005	5	4	5	0	25–49	Moderate
	9	5	8	1		
SDLP006	4	4	4	0	0	Very low
	12	6	10	2		
SDLP007	7	5	6	1	25–49	Moderate
	3	1	2	1		
SDLP008	3	3	3	0	0	Very low
	4	4	4	0		
SDLP009	2	2	2	0	0	Very low
	6	5	6	0		
SDLP010	6	5	6	0	50–74	High
	11	8	10	1		
SDLP011	6	5	6	0	0	Very low
	9	5	7	2		
SDLP012	5	4	5	0	0	Very low
	6	4	6	0		
SDLP013	6	4	6	0	0	Very low
	6	4	5	1		
SDLP014	1	1	1	0	0	Very low
	5	5	5	0		
SDLP015	8	4	6	2	25–49	Moderate
	11	6	9	2		
SDLP016	7	4	7	0	25–49	Moderate
	9	6	8	1		

Vernal Pool/Alkali Playa	Toal # of Plant Species	# of Vernal Pool Indicator Species	# of Native Plant Species	# of Non-Native Plant Species	% Physical Damage	Management Priority
SDLP017	7	6	7	0	0	Very low
	11	9	11	0		
SDLP018	4	2	4	0	0	Very low
	5	5	5	0		
SDLP019	6	5	6	0	0	Very low
	9	7	9	0		
SDLP020	4	4	4	0	0	Very low
	9	4	8	1		
SDLP021	5	5	5	0	0	Very low
	4	4	4	0		
SDLP022	8	6	8	0	0	Very low
	8	5	8	0		
SDLP023	7	6	7	0	50–74	High
	11	7	10	1		
SDLP024	8	6	8	0	0	Very low
	7	5	7	0		
SDLP025	4	4	4	0	0	Very low
	7	4	7	0		
SDLP026	9	6	9	0	50–74	High
	8	6	8	0		
SDLP027	6	6	6	0	<25	Low
	4	3	4	0		
SDLP028	12	7	10	2	50–74	High
	12	7	9	3		
SDLP029	11	7	8	3	50–74	High
	13	8	10	3		
SDLP030	4	4	4	0	0	Low
	5	4	5	0		
SDLP031	8	6	8	0	0	Low
	11	8	11	0		
SDLP032	5	4	5	0	0	Low
	7	3	7	0		
SDLP033	7	5	7	0	25–49	Moderate
	11	10	11	0		
SDLP034	6	6	6	0	0	Very low
	8	7	8	0		
SDLP035	10	8	10	0	0	Very low
	9	8	9	0		

Vernal Pool/Alkali Playa	Toal # of Plant Species	# of Vernal Pool Indicator Species	# of Native Plant Species	# of Non-Native Plant Species	% Physical Damage	Management Priority
SDLP036	26	11	23	3	50–74	High
	42	13	30	12		
SDLP037	29	12	23	6	25–49	Moderate
	26	12	20	6		
SDLP038	23	8	18	5	0	Very low
	21	7	14	7		
SDLP039	26	10	17	9	0	Very low
	26	11	21	5		
SDLP040	11	7	10	1	<25	Low
	14	5	8	6		
SDLP041	13	8	11	2	50–74	High
	9	6	8	1		
SDLP042	18	9	13	5	50–74	High
	18	6	9	11		
SDLP043*	0	0	0	0	50-74	High
	7	5	6	1		
SDLP044*	0	0	0	0	25–49	Moderate
	5	5	5	0		
SDLP045*	0	0	0	0	0	Very low
	11	6	11	0		

NOTES:
All pools were surveyed once during the wet season and once during the dry season.
* Pools were not discovered during the wet season, thus were only surveyed during the dry season.
Blue-shaded rows denote results of wet season surveys, while white-shaded rows denote results of dry season surveys.
Management priority was determined based on observed physical damage to the vernal pool:
High: Physical damage observed in 50–74 percent of pool.
Moderate: Physical damage observed in 25–49 percent of pool.
Low: Physical damage observed in less than 25 percent of pool.
Very low: Physical damage not observed.

4.2 Rare Plant Monitoring and Focused Management

Rare plant monitoring was conducted at nine permanent monitoring plots at two preserves in 2024. Rare plant monitoring consisted of one San Diego thornmint monitoring plot at Simon County Preserve, five San Diego thornmint monitoring plots at Sycamore Canyon/Goodan Ranch County Preserve, and three willowy monardella monitoring plots at Sycamore Canyon/Goodan Ranch County Preserve. Rare plant management was conducted at five permanent monitoring plots at four preserves in 2024. Rare plant management consisted of one San Miguel savory monitoring plot at Boulder Oaks County Preserve, one Otay tarplant monitoring plot at Furby-North County Preserve, two Orcutt's bird's-beak monitoring plots at Tijuana River Valley Regional Park, and one variegated dudleya monitoring plot at Lusardi Creek County Preserve.

A summary of the monitoring plots, monitoring results, and management recommendations are provided in **Table 21**. Photographic monitoring and representative photographs of the monitored and managed plots are provided in **Appendix B**, *Rare Plant Monitoring & Management – Permanent Photographic Monitoring & Representative Photographs*. MSP Rare Plant Occurrence Monitoring Forms, which include Rare Plant Habitat and Threats Assessments, are provided in **Appendix C**, *MSP Rare Plant Occurrence Monitoring Forms*.

4.2.1 San Diego Thornmint

Simon County Preserve

The one monitoring plot within the San Diego thornmint population in Simon County Preserve was monitored by ESA in 2024. A total of 2,200 San Diego thornmint plants were estimated within the monitoring plot. The entire population of San Diego thornmint within Simon County Preserve in 2024 is estimated at 2,260 plants. Monitoring plot, center point, photo point, and maximum extent are shown in **Figure 4**. Photo monitoring and representative photographs are provided in **Appendix B**. Special-status plant species detected inside the monitoring plot included Palmer's grappling hook (*Harpagonella palmeri*). Incidental special-status wildlife species observed outside of the monitoring plot included turkey vulture (**Figure 4**). The San Diego thornmint habitat contained invasive non-native grasses and herbs, particularly slender oat (*Avena barbata*), soft brome (*Bromus hordeaceus*), annual fescue (*Festuca myuros*), and tocalote.

Monitoring Plot Number ACIL_4SIPR026_1

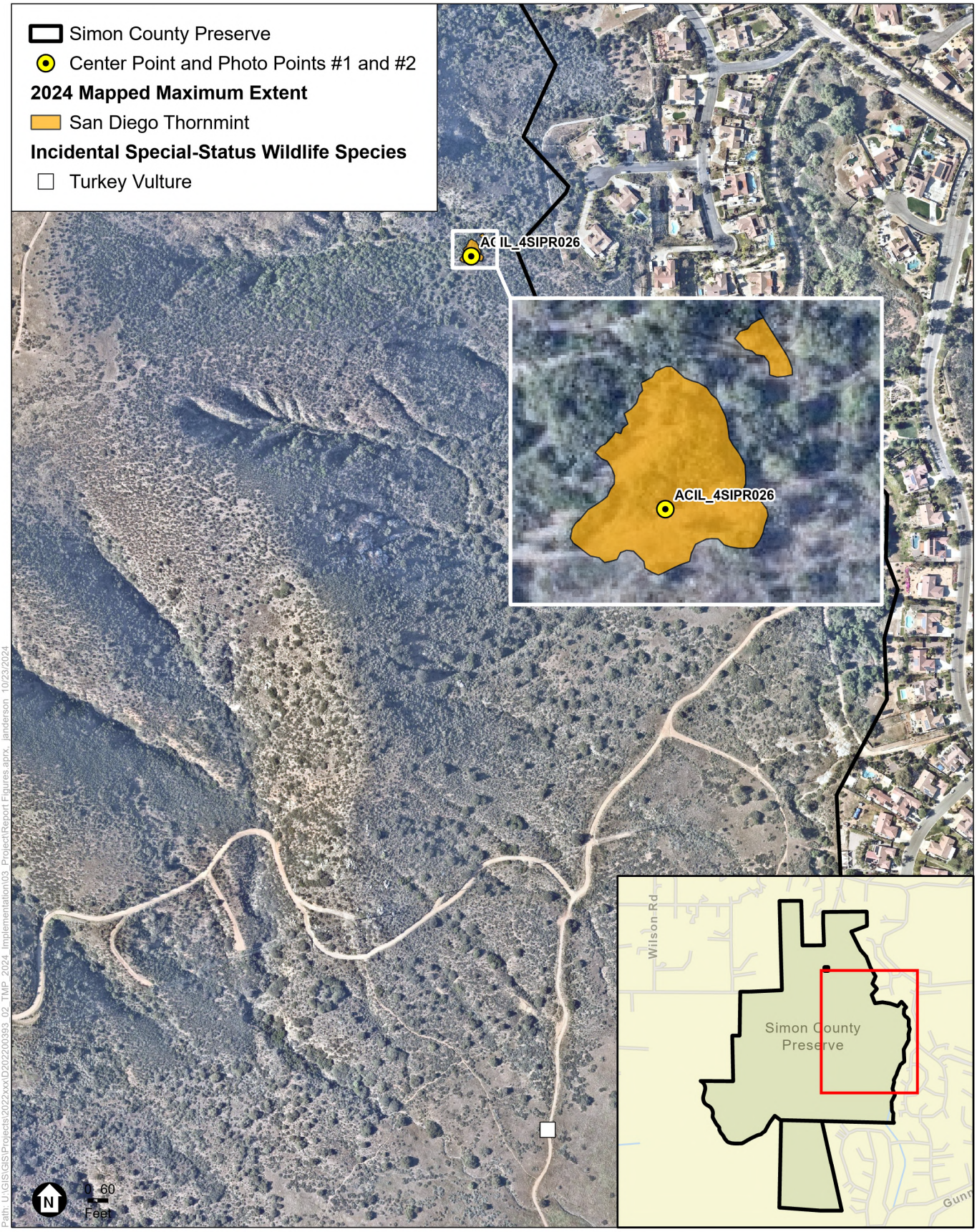
Monitoring plot ACIL_4SIPR026_1 is in the central portion of the San Diego thornmint population. Approximately 2,200 San Diego thornmint plants were estimated within the monitoring plot; 1 to 10 percent were flowering and the remaining were vegetative. Total vegetative cover within the plot was 47.6 percent, with 39.2 percent native plant cover and 8.4 percent non-native plant cover (non-native plant cover includes invasive non-native plant species). The dominant native plant species within the monitoring plot was mission manzanita (*Xylococcous bicolor*). Invasive non-native plant species included slender oat, soft brome, red brome (*Bromus rubens*), tocalote, redstem stork's bill (*Erodium cicutarium*), annual fescue, shortpod mustard (*Hirschfeldia incana*), and smooth cat's ear (*Hypochaeris glabra*). Non-native plant species included, narrowleaf cottonrose (*Logfia gallica*), annual yellow sweetclover (*Melilotus indicus*), and spiny sowthistle (*Sonchus asper*). Special-status plant species detected inside the plot included Palmer's grappling hook. Incidental special-status wildlife species observed outside of the monitoring plot included turkey vulture (**Figure 4**).

TABLE 21
MSP 2024 RARE PLANT MONITORING SUMMARY

Species	County Preserve	Plot #; MSP Occurrence ID[a]	Center Point Coordinates	Monitoring Plot Population		Native Plant Cover		Non-Native Plant Cover[b]		Management Recommendations
				# individuals	% cover	# species	% cover	# species	% cover	
San Diego thornmint *Acanthomintha ilicifolia*	Simon	– ACIL_4SIPR026_1	E 516451 N 3654129	2,200	8.0	17	39.2	11	8.4	Continue MSP rare plant monitoring of population.
San Diego thornmint *Acanthomintha ilicifolia*	Sycamore Canyon/ Goodan Ranch	SYGOACIL01 ACIL_4SYCA027_1	E 501592 N 3644272	1,100	2.0	18	20.0[c]	10	42.6[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.
		SYGOACIL05 ACIL_4SYCA027_5	E 502915 N 3643523	344	1.0	26	45.8	10	14.6	
		SYGOACIL06 ACIL_4SYCA027_6	E 502252 N 3644084	3,300	2.0	15	39.0	10	8.6	
		SYGOACIL08 ACIL_4SYCA027_8	E 502267 N 3644249	1,142	2.0	20	12.0	10	31.6	
		SYGOACIL10 ACIL_4SYCA027_10	E 501927 N 3644370	1,200	4.0	17	50.2	7	2.2	
Willowy monardella *Monardella viminea*	Sycamore Canyon/ Goodan Ranch	SYC201501 MOLIV_4SYCA006_1	E 502412 N 3642218	47	5.0	19	31.2	9	9.4[e]	Continue MSP rare plant monitoring of population. Conduct invasive non-native plant treatment for grasses and herbs, particularly slender oat, purple false brome, brome grasses, annual fescue, and tocalote. Trimming of California buckwheat within SYC201602 can be considered to reduce potential native competition to willowy monardella plants.
		SYC201602 MOLIV_4SYCA002_1	E 501045 N 3642551	2	0.2	9	15.0	12	9.8	
		SYC202103 MOLIV_4SPCA006_2	E 501657 N 3640638	7	1.0	12	23.4	9	9.8	

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 SDMMP) 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. *Stylocline gnaphaloides, Euphorbia spathulata,* and *Scutellaria tuberosa were detected at 0.2 percent each and were* categorized as native during vegetation cover calculations.
d. *Melilotus indicus* was detected at 0.2 percent and was categorized as non-native during vegetation cover calculations.
e. *Cirsium sp.* was detected at 0.2 percent and was categorized as non-native during vegetation cover calculations.



SOURCE: Nearmap, 4/18/2021; ESA, 2024.

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Targeted Monitoring Plan Resource-Specific Monitoring and Management 2024 Annual Report

Figure 4

San Diego Thornmint Monitoring Results
Simon County Preserve

ESA

Adaptive Management Recommendations

Based on the results of the 2024 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP, no management is recommended for 2025. Focused invasive non-native plant species management did not occur in 2023 and while non-native plant cover increased from 5.4 percent in 2023 to 8.4 percent in 2024, this increase is likely due to the higher than average rainfall in 2024 and encroachment of invasive non-native plants adjacent to the monitoring plot. Monitoring in 2025 should continue to track non-native plant cover within and around the San Diego thornmint population at Simon County Preserve and determine if focused invasive non-native plant species management is required.

Sycamore Canyon/Goodan Ranch County Preserve

Five monitoring plots within the San Diego thornmint population in Sycamore Canyon/Goodan Ranch County Preserve were monitored by ESA in 2024. A total of 7,086 San Diego thornmint plants were estimated within the monitoring plots. The entire population of San Diego thornmint within Sycamore Canyon County Preserve in 2024 is estimated at 36,788 plants. Monitoring plots, center points, photo points, maximum extent, and invasive non-native plant management areas are shown in **Figure 5**. Photo monitoring and representative photographs are provided in **Appendix B**. Special-status plant species detected included small-flowered bindweed (*Convolvulus simulans*) at one of the five monitoring plots, Palmer's grappling hook at all five monitoring plots, and variegated dudleya at one of the five monitoring plots. Incidental special-status wildlife species observed outside of the monitoring plots included San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), and turkey vulture (**Figure 5**). Across all five 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 1,100 San Diego thornmint plants were estimated within the monitoring plot; 10 to 25 percent were in flower, the remaining were vegetative. Total vegetative cover within the plot was 62.6 percent, with 20.0 percent native plant cover and 42.6 percent non-native plant cover. The dominant native plant species within the monitoring plot was clustered tarweed. Invasive non-native plant species included purple false brome, compact brome (*Bromus madritensis*), tocalote, annual fescue, and smooth cat's ear. Non-native plant species included longbeak stork's bill (*Erodium botrys*), nit grass (*Gastridium phleoides*), narrowleaf cottonrose, scarlet pimpernel (*Lysimachia arvensis*), and spiny sowthistle. Artichoke thistle was detected north of this plot's maximum extent. Special-status plant species detected within the monitoring plot included small-flowered bindweed and Palmer's grappling hook.

Monitoring Plot Number SYGOACIL05

Monitoring plot SYGOACIL05 is in the southeastern portion of the San Diego thornmint population. A total of 344 San Diego thornmint plants were estimated within the monitoring plot; 0 to 10 percent were in flower, greater than 75 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 60.4 percent, with 45.8 percent native plant cover and 14.6 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, red brome, tocalote, redstem stork's bill, annual fescue, and

smooth cat's ear. Non-native plant species included pepperweed (*Lepidium* spp.), narrowleaf cottonrose, and spiny sowthistle. Special-status plant species detected within the monitoring plot included variegated dudleya and Palmer's grappling hook.

Monitoring Plot Number SYGOACIL06

Monitoring plot SYGOACIL06 is in the central-northern portion of the San Diego thornmint population. A total of 3,300 San Diego thornmint plants were estimated within the monitoring plot; 10 to 25 percent were flowering, 25 to 50 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 47.6 percent, with 39.0 percent native plant cover and 8.6 percent non-native plant cover. The dominant native plant species within the monitoring plot were clustered tarweed and mission manzanita. Invasive non-native plant species included slender oat, purple false brome, soft brome, red brome, tocalote, redstem stork's bill, annual fescue, and smooth cat's ear. Non-native plant species included scarlet pimpernel and spiny sowthistle. Special-status plant species detected within the monitoring plot included Palmer's grappling hook.

Monitoring Plot Number SYGOACIL08

Monitoring plot SYGOACIL08 is in the central–northern portion of the San Diego thornmint population. A total of 1,142 San Diego thornmint plants were estimated within the monitoring plot; 10 to 25 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 43.6 percent, with 12.0 percent native plant cover and 31.6 percent non-native plant cover. The dominant native plant species within the monitoring plot were laurel sumac (*Malosma laurina*) Torrey's hybrid oak (*Quercus x acutidens*), and lemonade berry (*Rhus integrifolia*). Invasive non-native plant species included slender oat, purple false brome, soft brome, tocalote, and smooth cat's ear. Non-native plant species included field bindweed, petty spurge (*Euphorbia peplus*), scarlet pimpernel, spiny sowthistle, and common sowthistle (*Sonchus oleraceus*). Special-status plant species detected within the monitoring plot 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 1,200 San Diego thornmint plants were estimated within the monitoring plot; 10 to 25 percent were in flower and 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 52.4 percent, with 50.2 percent native plant cover and 2.2 percent non-native plant cover. The dominant native plant species within the monitoring plot were mock parsley (*Apiastrum angustifolium*), Torrey's hybrid oak, and black sage (*Salvia mellifera*). Invasive non-native plant species included red brome, tocalote, redstem stork's bill, and smooth cat's ear. Non-native plant species included petty spurge, narrowleaf cottonrose, scarlet pimpernel, and spiny sowthistle. Special-status plant species detected within the monitoring plot included small-flowered bindweed and Palmer's grappling hook.

Sycamore Canyon/Goodan Ranch County Preserve
Center Point
Photo Point
2024 Management Areas*

2024 Mapped Maximum Extent
San Diego Thornmint

Incidental Special-Status Plant Species
Variegated Dudleya

Incidental Invasive Non-Native Plant Species
Artichoke Thistle

Incidental Special-Status Wildlife Species
Turkey Vulture
San Diego Black-tailed Jackrabbit

SYGOACIL10 Detail
SYGOACIL10
SYGOACIL08 Detail
SYGOACIL08
SYGOACIL10
SYGOACIL01
SYGOACIL08
SYGOACIL01 Detail
SYGOACIL01
SYGOACIL06
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SOURCE: Nearmap, 2023; ESA, 2024.
**NOTE: 2024 Management areas provided by RECON Environmental, Inc.*

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Figure 5
San Diego Thornmint Monitoring Results
Sycamore Canyon/Goodan Ranch County Preserve

ESA

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Adaptive Management Recommendations

The results of the 2024 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 three of the monitoring plots: plots 1, 5, and 8, and the surrounding areas, as needed, to reduce encroachment and competition from invasive non-native plant species and allow expansion opportunities for the San Diego thornmint population. Total invasive non-native plant cover and purple false brome percent cover for all monitoring plots in 2024 are provided in **Table 22** 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. Artichoke thistle was also detected north of monitoring plot 1; these individuals should be removed and treated with herbicide during focused management to prevent future spread and encroachment into the San Diego thornmint population.

TABLE 22
SAN DIEGO THORNMINT 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	42.6	40.0	High
5	14.6	12.0	Moderate
6	8.6	3.0	Low
8	31.6	25.0	High
10	2.2	0.0	Low

NOTES:

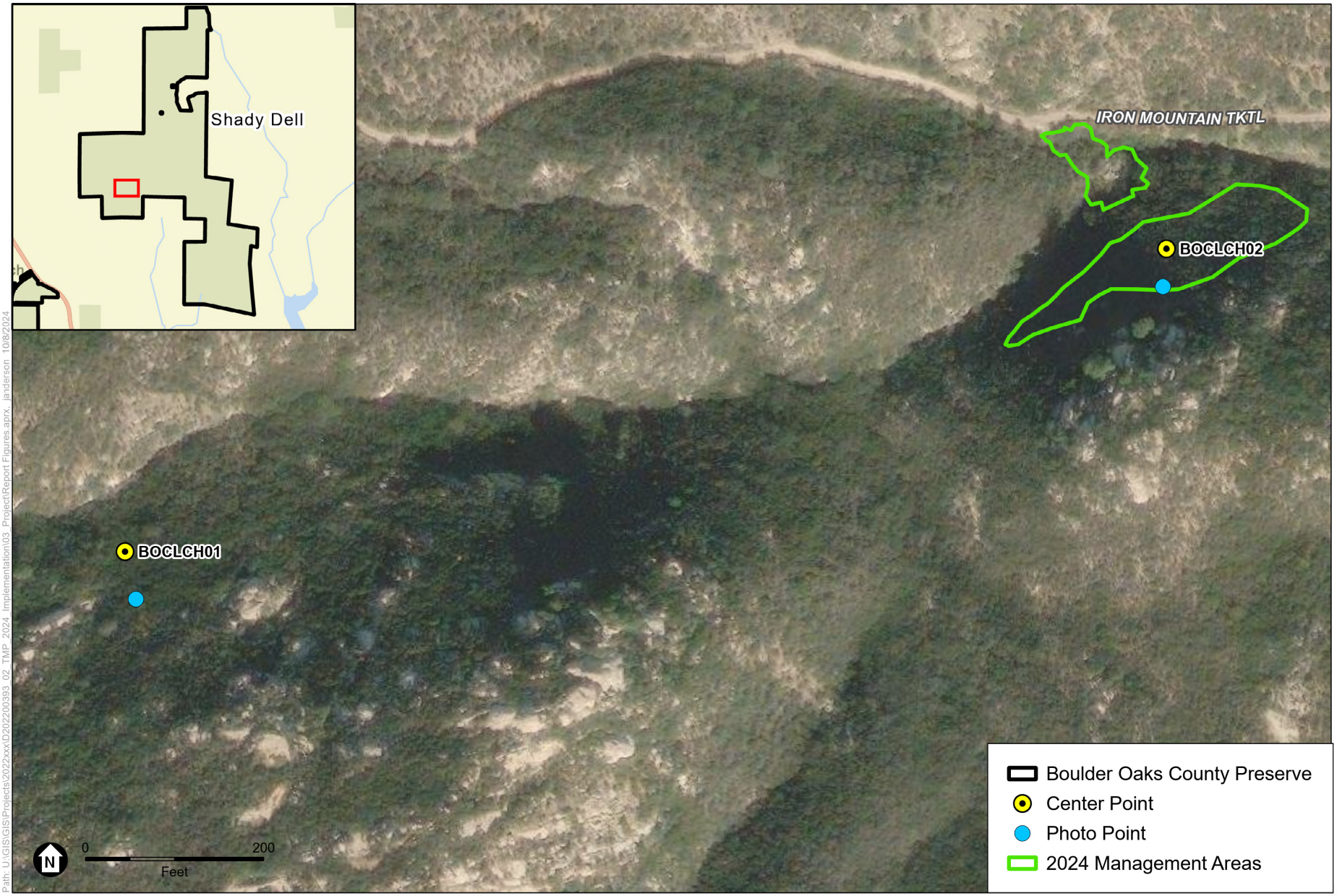
a. Invasive non-native purple false brome percent cover is included in the total non-native plant cover percentage.
b. Management priority was determined based on total non-native plant cover and purple false brome cover.
High = If total non-native plant cover was greater than 20 percent, and/or purple 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.

4.2.2 San Miguel Savory

Boulder Oaks County Preserve

Focused Management

Focused management occurred in 2024 in response to the presence of invasive non-native plant species detected during 2023 monitoring efforts. As described in Section 3.4.1, management consisted of carefully removing invasive non-native plants by hand within 12 inches of the San Miguel savory plants in the 0.57-acre management area around monitoring plot BOCLCH02 shown in **Figure 6**. Management targeted removal of high-priority invasive perennial veldtgrass. All cut biomass was manually collected, bagged, and properly disposed of at an approved off-site facility. No herbicide was used. Representative photographs of focused management are provided in **Appendix B**.



Path: U:\GIS\GIS\Projects\2022xxx\D202200393_02_TMP_2024_Implementation\03_Project\Report Figures.aprx, janderson 10/8/2024

SOURCE: ESRI, 2022; ESA, 2024.

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Figure 6

San Miguel Savory Management Results
Boulder Oaks County Preserve

ESA

Adaptive Management Recommendations

The results of 2024 focused management, 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). Although monitoring did not occur in 2024, on-site observations demonstrated that high-priority invasive non-native perennial veldtgrass was still detected within monitoring plot BOCLCH02, with increased cover adjacent to the monitoring plot. To limit the expansion of perennial veldtgrass and ensure the persistence of San Miguel savory at Boulder Oaks County 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 continue to include areas around monitoring plot BOCLCH02, just west and east of the dirt access road, to prevent encroachment of perennial veldtgrass. Herbicide applications should be conducted along the dirt access road when invasive non-native grasses have reached 2 to 3 inches in height during the peak of the growing season, and hand weeding should occur within the monitoring plot.

4.2.3 Otay Tarplant

Furby-North County Preserve

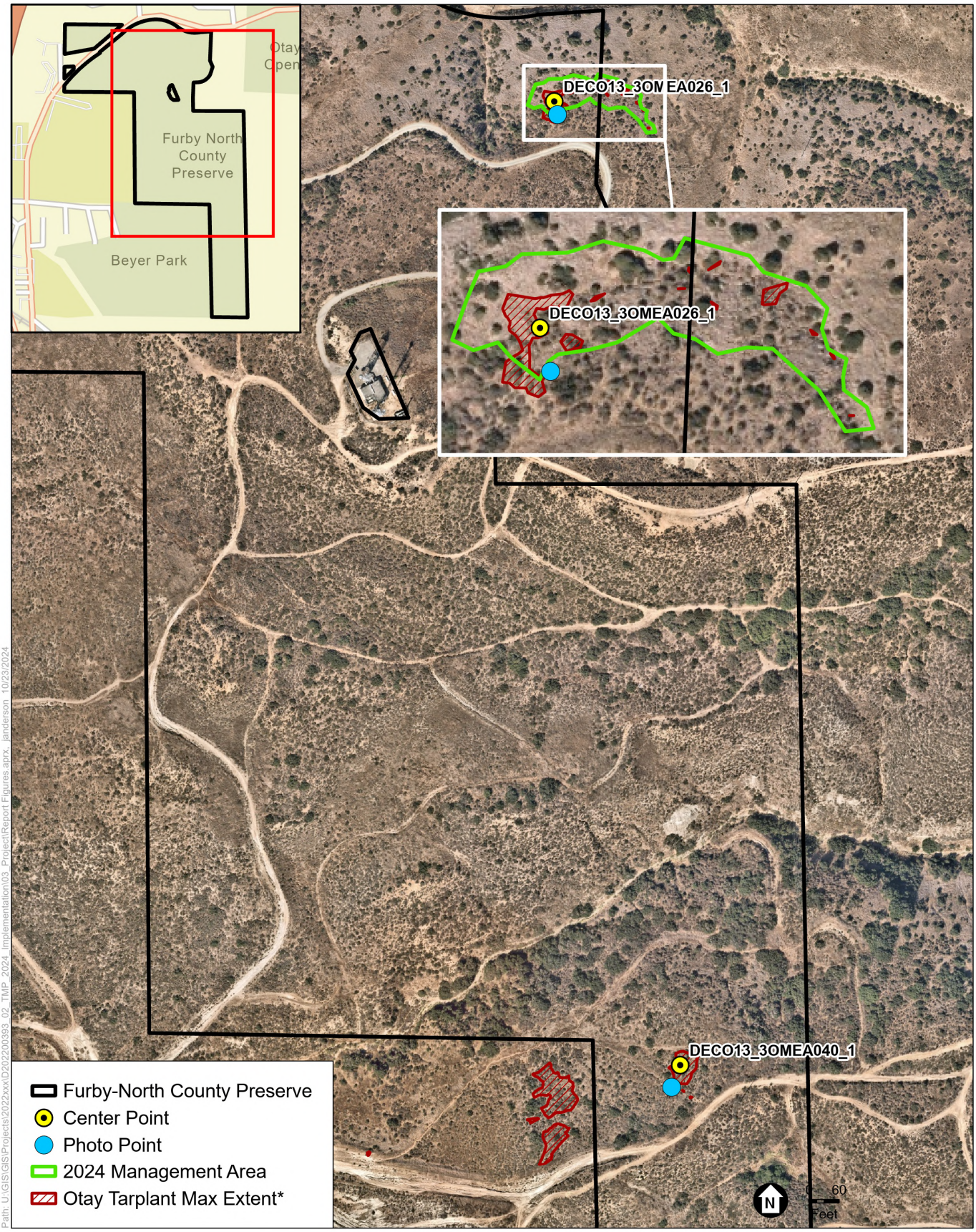
Focused Management

Focused management occurred in 2024 in response to the high thatch and invasive non-native plant cover observed in 2023. As previously described, management within DECO13_3OMEA026_1 plot maximum extent consisted of carefully hand-pulling invasive non-native grasses and herbs directly adjacent to Otay tarplant individuals, followed by line trimming invasive non-native grasses and thatch removal within the monitoring plot maximum extent, surrounding the hand-pulled areas within an 0.30-acre management area, as shown in **Figure 7**. All cut biomass was manually collected, bagged, and properly disposed of at an approved off-site facility. No herbicide was used. Representative photographs of focused management are provided in **Appendix B**.

Adaptive Management Recommendations

The results of the 2024 focused management, TMP management goals and objectives, recommendations from MBC monitoring, 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). MBC monitored both DECO13_3OMEA026_1 and DECO13_3OMEA40_1 monitoring plots in 2024 and recommended invasive non-native plant species management as non-native cover was estimated to be 39.2 percent and 16.4 percent, respectively. 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 line trimmers and rakes; debris should be hauled out and disposed of off-site at a county landfill.



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SOURCE: Nearmap, 9/21/2020; ESA, 2024; Mulligan Biological Consulting, 2024
**NOTE: IMG monitoring results provided by Mulligan Biological Consulting.*

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Figure 7
Otay Tarplant Management Results
Furby-North County Preserve

4.2.4 Orcutt's Bird's-Beak

Tijuana River Valley Regional Park

Focused Management

Focused management occurred in 2024 in response to high thatch cover detected in 2023. As previously described, management consisted of carefully hand-pulling invasive non-native grasses and herbs adjacent to Orcutt's bird's-beak individuals within the COOR7_1TIRI009_1 and COOR7_1SMGU006_1 plot maximum extents, for an approximately 0.46-acre management area, as shown in **Figure 8**. Management consisted of carefully hand-pulling invasive non-native grasses and herbs, primarily red brome and tocalote adjacent to Orcutt's bird's-beak individuals. All biomass was manually collected, bagged, and properly disposed of at an approved off-site facility. No herbicide was used. Special-status species coastal California gnatcatcher (*Polioptila californica californica*) was observed during focused management in 2024 (**Figure 8**). Representative photographs of focused management are provided in **Appendix B**.

Adaptive Management Recommendations

The results of the 2024 management, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Conduct reconnaissance surveys and establish new monitoring plots.** Additional Orcutt's bird's-beak plants were detected during 2021 discovery survey performed by AECOM and CBI through a DPR-issued ROE permit. Reconnaissance surveys should be conducted in these areas to determine population status and if new monitoring plots are warranted. Up to two new monitoring plots could be established for the preserve.
- **Conduct focused invasive non-native plant species removal.** The TMP recommends control of invasive non-native grasses and forbs within suitable habitat (ESA and ICF 2022) and SDMMP recommends controlling invasive non-native plant species to less than 20 percent cover. In 2024, the non-native plant cover at monitoring plot COOR7_1TIRI009_1 was estimated to be approximately 25 percent west of the dirt road that bisects the monitoring plot and 35 percent east of the dirt road. At monitoring plot COOR7_1SMGU006_1 non-native plant cover was estimated to be approximately 15 percent. 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 monitoring plot COOR7_1TIRI009_1 and extend into the maximum extent to reduce invasive non-native grass and forb species.

4.2.5 Variegated Dudleya

Lusardi Creek County Preserve

Focused Management

Focused management occurred in 2024 in response to the high thatch and invasive non-native plant cover observed in 2023. Management consisted of carefully hand-removing invasive non-native plants within the herbivory fencing surrounding the monitoring plot and line trimming within the maximum extent. Focused management for variegated dudleya was conducted within an 0.75-acre management area, shown in **Figure 9**. Invasive non-native plant cover consisted primarily of purple false brome, tufted wallaby grass, artichoke thistle, fountain grass, and other non-native grasses and herbs. All cut biomass was manually collected, bagged, and properly disposed of at an approved off-site facility. No herbicide was

used. Special-status species Crotch's bumble bee (*Bombus crotchii*) was observed during focused management in 2024 (**Figure 9**). Representative photographs of focused management are provided in **Appendix B**.

Adaptive Management Recommendations

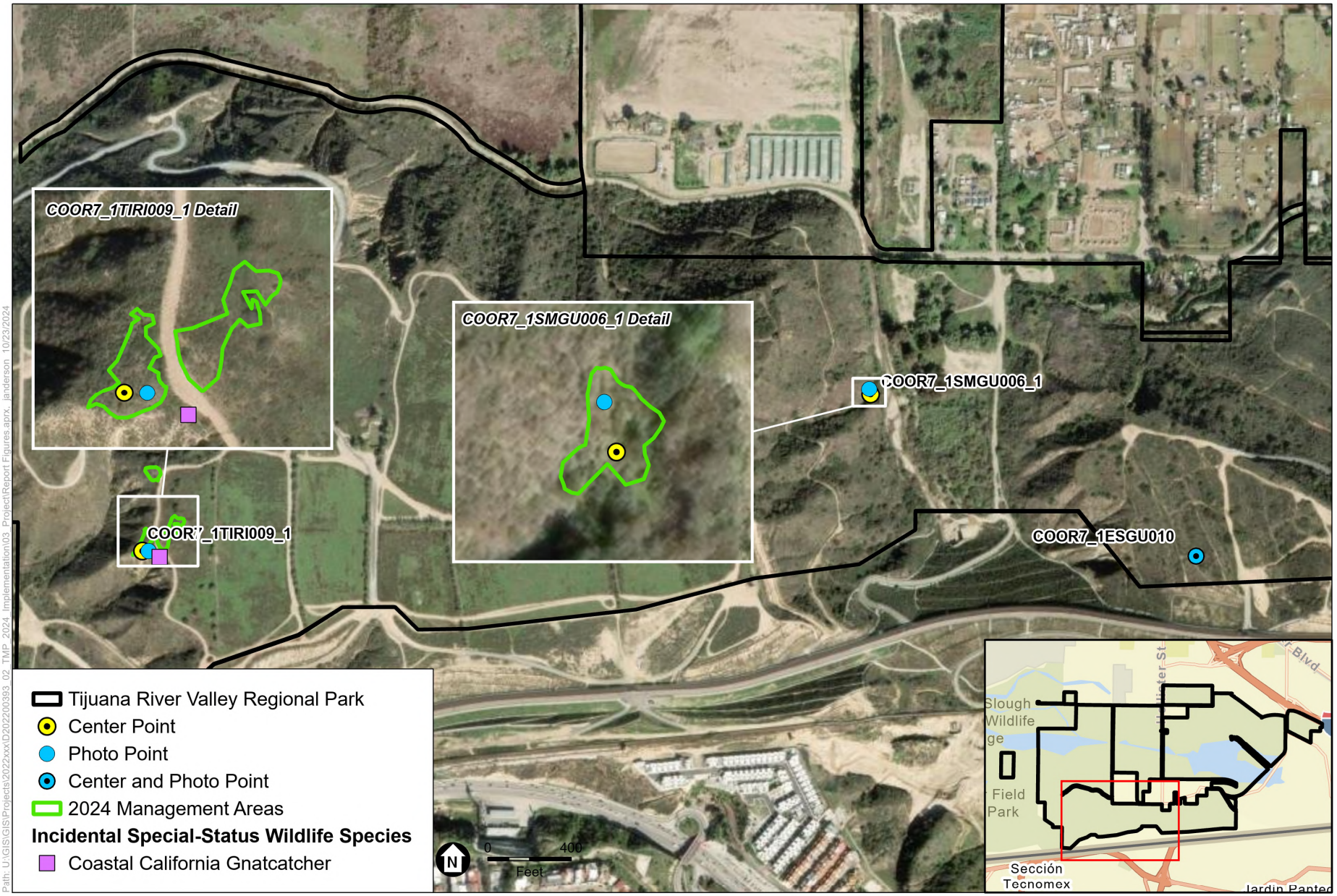
The results of the 2024 focused management, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendation:

- **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 within the monitoring plot was estimated to be over 20 percent in 2024. To ensure the persistence of variegated dudleya at Lusardi Creek County Preserve, it is recommended that invasive non-native plant control and thatch removal be continued by a qualified restoration specialist. 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 and repaired as necessary during management. Artichoke thistle and tufted wallaby grass should continue to be targeted for removal and treatment to prevent future spread and encroachment into the variegated dudleya population.

4.2.6 Willowy Monardella

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 2024. A total of 56 willowy monardella plants were estimated within the monitoring plots. The entire population of willowy monardella within Sycamore Canyon/Goodan Ranch County Preserve is estimated at 444 individual plants. Monitoring plots, center points, photo points, maximum extent, and plant management area are shown in **Figure 10**. Photo monitoring and representative photographs, including pre- and post-management conditions, are provided in **Appendix B**. Special-status plant species ashy spike-moss (*Selaginella cinerascens*) was incidentally observed outside monitoring plot SYC201501 (**Figure 10**). Incidental special-status wildlife species Crotch's bumble bee was observed multiple times outside of the monitoring plots (**Figure 10**). Across all monitoring plots, willowy monardella habitat contained invasive non-native grasses and herbs, particularly slender oat, purple false brome, brome grasses, tocalote, and annual fescue. Invasive non-native crimson fountain grass (*Pennisetum setaceum*) was detected within the willowy monardella population associated with monitoring plot number SYC201501 (**Figure 10**). 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 23**).



SOURCE: ESRI, 2022; ESA, 2024.

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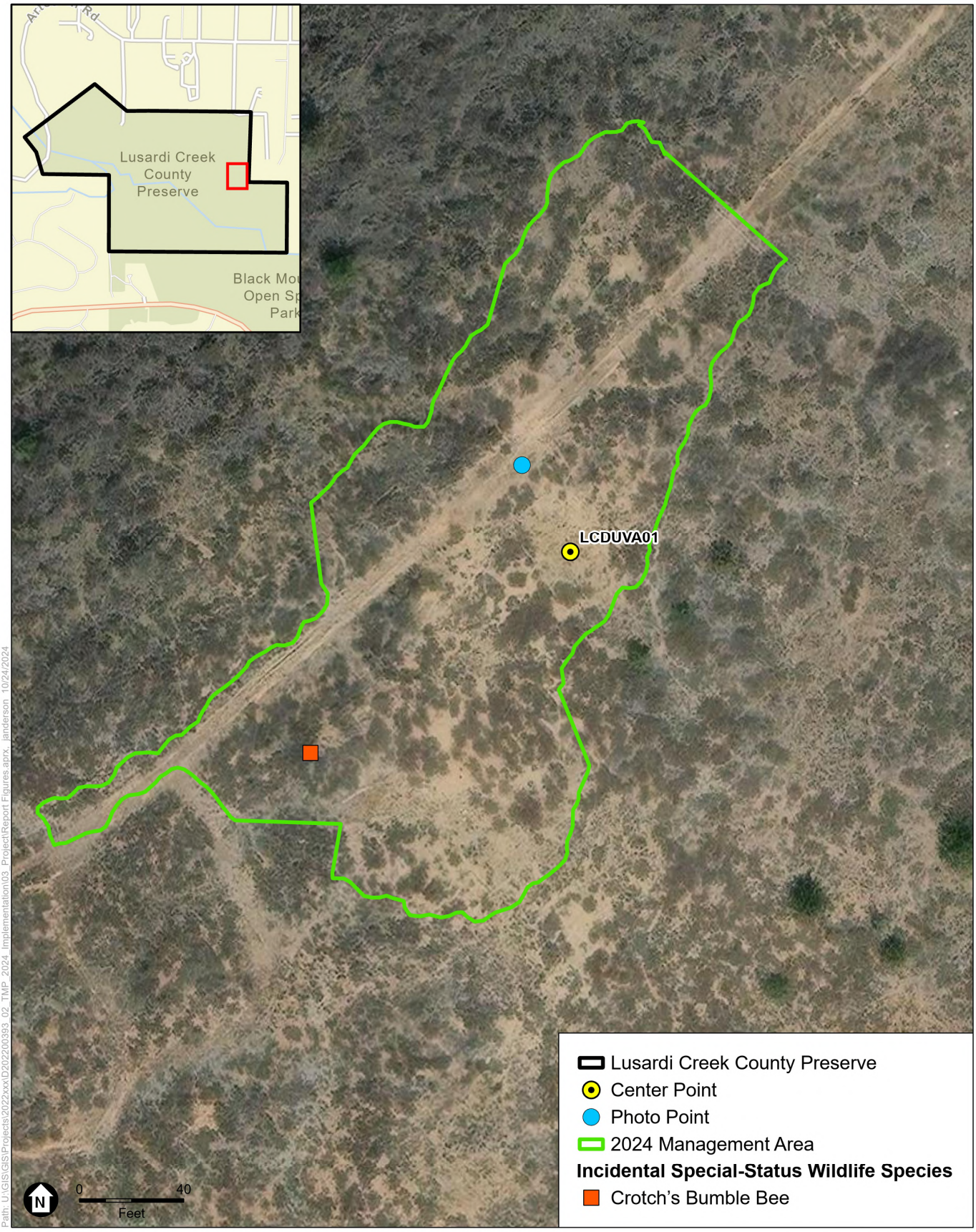
Figure 8

Orcutt's Bird's-Beak Management Results
Tijuana River Valley Regional Park

ESA



SOURCE: ESRI, 2022; ESA, 2024.

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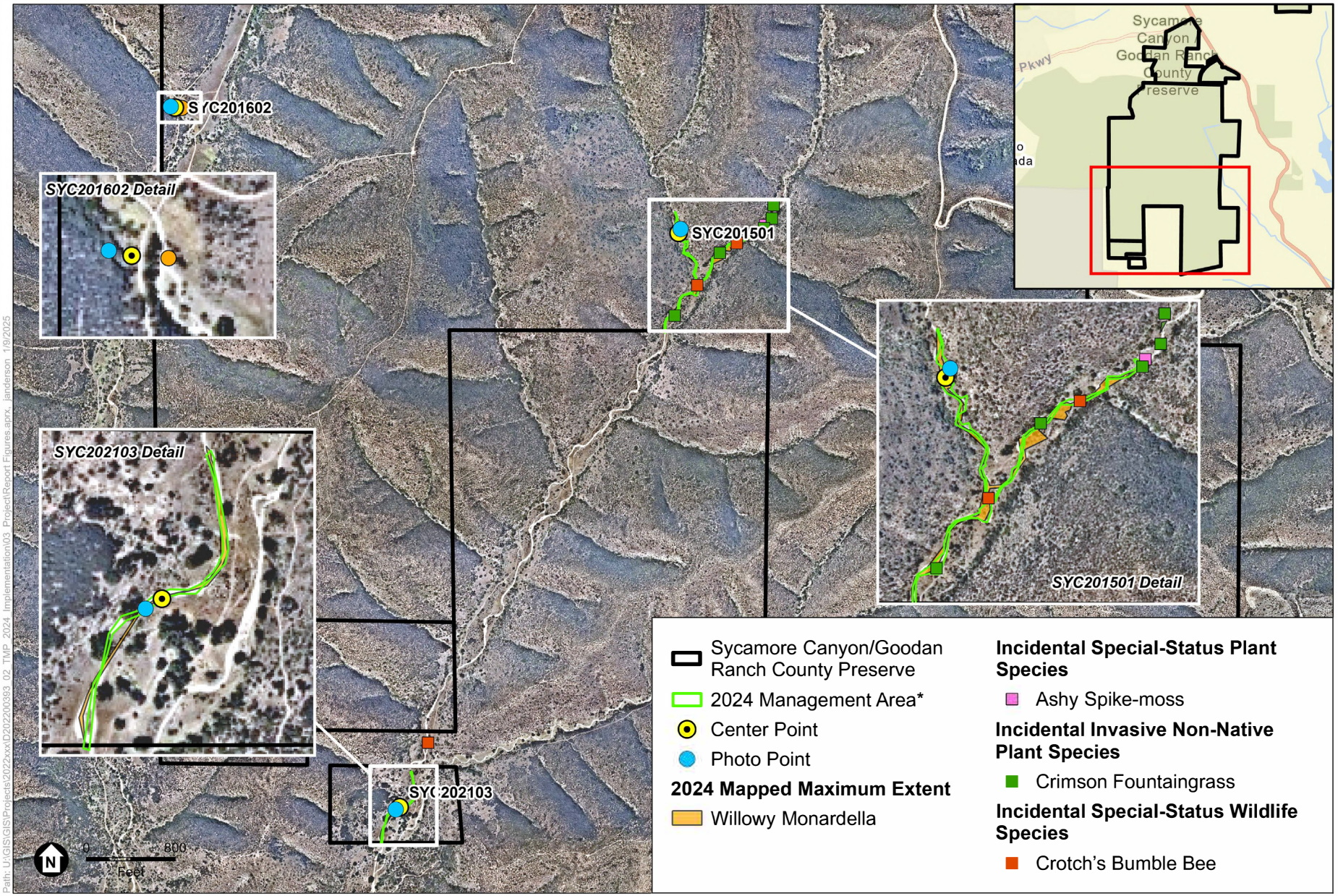
Figure 9

Variegated Dudleya Management Results
Lusardi Creek County Preserve

ESA



SOURCE: Nearmap, 4/18/2021; ESA, 2024.
**NOTE: 2024 Management areas provided by RECON Environmental, Inc.*

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Figure 10
Willowy Monardella Monitoring and Management Results
Sycamore Canyon/Goodan Ranch County Preserve

ESA

TABLE 23
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	1.25	0.9	0.75	1.25	0.84	2	1 Mature 1 Adult
	2	2.1	0.75	0.5	4.2	0.79	3	1 Mature 2 Adults
	3	1.8	1.3	0.6	5.4	1.40	6	2 Mature 4 Adults
	4	0.3	0.5	0.5	1.2	0.08	1	1 Adult
	5	1.4	4.2	0.6	7	3.53	11	1 Mature 10 Adults
	6	1.1	0.9	0.5	6.6	0.50	1	1 Adult
	7	1.5	0.75	0.4	10.5	0.45	3	3 Adults
	8	1.5	1.1	0.7	12	1.16	1	1 Adult
	9	0.75	0.4	0.6	6.75	0.18	1	1 Adult
	10	1.4	1.5	0.6	14	1.26	1	1 Adult
	11	1.1	0.8	0.5	12.1	0.44	2	2 Adults
	12	2.3	2.5	0.75	27.6	4.31	6	1 Mature 5 Adults
	13	1.8	1.75	0.5	23.4	1.58	3	3 Adults
	14	1.7	0.6	0.5	23.8	0.51	1	1 Adult
	15	1.2	1.6	0.5	18	0.96	5	1 Mature 4 Adults
SYC201602	1	1.2	1.1	0.7	1.32	0.92	2	1 Mature 1 Adult
SYC202103	1	1.7	1.5	0.4	2.55	1.02	1	1 Adult
	2	1.3	1	0.6	1.3	0.78	4	2 Mature 2 Adults
	3	1.6	1.3	0.7	2.08	1.46	1	1 Adult
	4	1.5	1.5	0.7	2.25	1.58	1	1 Adult

Monitoring Plot Number SYC201501

Monitoring plot SYC201501 is in the central portion of the willowy monardella population. A total of 47 willowy monardella plants were estimated within the monitoring plot; 25 to 50 percent were flowering and the remaining were vegetative. Total vegetative cover within the plot was 40.6 percent, with 31.2 percent native plant cover and 9.4 percent non-native plant cover. The dominant native plant species within the monitoring plot was California buckwheat (*Eriogonum fasciculatum*). Invasive non-native plant species included slender oat, purple false brome, ripgut brome (*Bromus diandrus*), soft brome, compact brome, tocalote, and annual fescue; non-native plant species included prickly lettuce (*Lactuca*

serriola) and thistle (*Cirsium* sp.). Crimson fountain grass was detected at multiple locations within the maximum extent associated with this monitoring plot. Incidental special-status wildlife species observed outside the monitoring plot included Crotch's bumble bee (**Figure 10**).

Monitoring Plot Number SYC201602

Monitoring plot SYC201602 is in the western portion of the willowy monardella population. A total of two willowy monardella plants were estimated within the monitoring plot, greater than 75 percent were flowering and the remaining were vegetative. Total vegetative cover within the plot was 24.8 percent, with 15 percent native plant cover and 9.8 percent non-native plant cover. The dominant native plant species within the monitoring plot was California buckwheat. Invasive non-native plant species included slender oat, purple false brome, ripgut brome, soft brome, compact brome, tocalote, annual fescue, shortpod mustard, and smooth cat's ear; non-native plant species included Italian thistle (*Carduus pycnocephalus*). No special-status species were detected within or outside the monitoring plot.

Monitoring Plot Number SYC202103

Monitoring plot SYC202103 is in the southern portion of the willowy monardella population. A total of seven willowy monardella plants were estimated within the monitoring plot, greater than 75 percent were flowering and the remaining were vegetative. Total vegetative cover within the plot was 33.2 percent, with 23.4 percent native plant cover and 9.8 percent non-native plant cover. The dominant native plant species within the monitoring plot was California buckwheat. Invasive non-native plant species included slender oat, purple false brome, ripgut brome, soft brome, compact brome, tocalote, annual fescue, shortpod mustard, and smooth cat's ear. Incidental special-status wildlife species observed outside the monitoring plot included Crotch's bumble bee (**Figure 10**).

Adaptive Management Recommendations

The results of the 2024 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, thin California buckwheat to reduce native competition to the willowy monardella plants.
- **Conduct focused invasive non-native plant species removal.** The TMP recommends overall invasive non-native plant cover be kept to less than 10 percent (ESA and ICF 2022) around willowy monardella plants. Total non-native plant cover was 9.4 percent within monitoring plot number SYC201501, 9.8 percent within monitoring plot number SYC201602, and 9.8 percent within monitoring plot number SYC202103. Total non-native cover was just under the 10 percent management threshold for all monitoring plots; therefore, to ensure the persistence of willowy monardella at Sycamore Canyon/Goodan Ranch County Preserve, it is recommended that invasive non-native plant control and thatch removal be continued by a qualified restoration specialist, as follows:
  - High-intensive management areas, 2- to 3-foot buffers around willowy monardella plants, should be delineated with submeter GPS units and flagged. Within each high-intensive management area, invasive non-native plants should be carefully pulled by hand. Areas outside the high-intensive management area can be treated with an appropriate aquatic-safe herbicide.

- Invasive non-native crimson fountain grass was observed at multiple locations within the willowy monardella population associated with monitoring plot number SYC201501. It should be treated and removed prior to seeding to prevent further spread into the willowy monardella population.
- All biomass should be manually collected, bagged, and properly disposed of at an approved off-site facility.

4.2.7 Regional MSP Rare Plant Monitoring & Focused Management

Through ROE permits issued by DPR, AECOM and MBC (contracted by SANDAG) conducted MSP rare plant monitoring for Parish's brittlescale at one permanent monitoring plot at Ramona Grasslands County Preserve; for Otay tarplant at two permanent monitoring plot at Furby-North County Preserve; and for Baja California oatgrass (*Sphenopholis interrupta* ssp. *californica*) at Furby-North County Preserve in 2024. Results of MSP rare plant monitoring by AECOM and MBC are provided in **Table 24**. MSP rare plant monitoring results for Parish's brittlescale at Ramona Grasslands County Preserve are depicted on **Figure 2** and Otay tarplant at Furby-North County Preserve are depicted on **Figure 7**.

TABLE 24
REGIONAL MSP 2024 RARE PLANT MONITORING RESULTS

Species	County Preserve	Plot #; MSP Occurrence ID	Monitoring Plot Population[a]	Maximum Extent Population Estimate[b]	Native Plant % Cover	Non-Native Plant % Cover	Threats
Parish's brittlescale	Ramona Grasslands	ATPA2_5RAGR001	12	129	14.6	84.8	Non-native grasses and forbs and grazing.
Otay tarplant	Furby North	DECO13_3OMEA026	295	340	33.4	39.2	Non-native grasses and forbs.
		DECO13_3OMEA40	102	430	44.4	16.4	Non-native grasses and forbs.
Baja California oatgrass[c]	Furby North	SPINCA_4SYCA008	206	516	26.4	12.6	Non-native grasses and thatch.

NOTES:
a. Monitoring plot population is the number of plants identified in the monitoring plot.
b. Maximum extent population is the total number of plants identified in the preserve, including the plants identified in the monitoring plot.
c. Baja California oatgrass is not a species covered under the TMP.

DPR also contracted RECON Environmental Inc. (RECON) to conduct focused management at 14 vernal pools (e45, e48, e52, e53, e56, e58, e59, e61, e62, e77, ev3, p7, p13, p14) and 4 alkali playas (raap4, raap6, raap14, raap17) within Ramona Grasslands County Preserve, and San Diego thornmint, variegated dudleya, and willowy monardella within Sycamore Canyon/Goodan Ranch County Preserve in 2024. Focused management within Sycamore Canyon/Goodan Ranch County Preserve was funded through the Natural Community Conservation Planning 30x30 Grant Program. Results of focused management by RECON are provided in **Table 25**.

TABLE 25
REGIONAL MANAGEMENT SUMMARY

Species	2024 Management Date	County Preserve	Acres Managed
Vernal pools/Alkali playas	August 19–24; October 14–17	Ramona Grasslands	2.23
San Diego thornmint	August 13–16, 19–23, 26–29; September 3–6	Sycamore Canyon/Goodan Ranch	0.98
Variegated dudleya	August 13–16, 19–23, 26–29; September 3–6	Sycamore Canyon/Goodan Ranch	0.04
Willowy monardella	September 19	Sycamore Canyon/Goodan Ranch	0.89

4.3 Harbison's Dun Skipper

4.3.1 Adult Flight Surveys

HDS adult flight surveys were conducted at two locations (survey locations 1 and 2) around large patches of San Diego sedge within suitable habitat along Hell Creek and its southern tributary in Hellhole Canyon County Preserve (**Figure 11**). During the first adult flight survey on May 28, 2024, two HDS were observed at survey location 1, where one individual was observed foraging on shortpod mustard. No HDS were observed at survey location 2 during the first survey. During the second adult flight survey on June 17, 2024, one pair of HDS was observed at survey location 1, where they were seen chasing each other, basking in the sun, and nectaring on California wild rose (*Rosa californica*). One male HDS was observed at survey location 2 where it was seen nectaring on hemp dogbane (*Apocynum cannabinum*). All butterfly species and potential nectar sources observed during the two adult flight surveys are presented in **Table 26**. Monitoring locations and HDS detections are depicted in **Figure 11**. Representative photographs from adult surveys, including HDS observations, are provided in **Appendix D**, *Harbison's Dun Skipper Representative Photographs and Field Forms*.

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 15 percent oaks, 30 percent sycamores (*Platanus* sp.), 40 percent willows (*Salix* spp.), and 15 percent cottonwoods (*Populus* sp.). The woodland habitat at survey location 2 consisted of 30 percent oaks, 15 percent sycamores, and 55 percent willows. The condition of San Diego sedge host plant populations at both survey locations ranged from all green (healthy) to mostly brown (dead). At survey location 1, most San Diego sedge plants were seen to be green with brown tips, suggesting only minor drought or water stress. At survey location 2, most San Diego sedge plants were all green. Climate change 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 heat stress. Additional threats detected at the survey locations included tree pests such as Kuroshio shot hole borer (*Euwallacea kuroshio*). This tree pest has 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 D**.

TABLE 26
OBSERVED BUTTERFLY AND POTENTIAL NECTAR SOURCES: HELLHOLE CANYON COUNTY PRESERVE

Common Name	Scientific Name
Butterflies Observed	
California sister	*Adelpha californica*
Orange sulphur	*Colias eurytheme*
Funeral duskywing	*Erynnis funeralis*
Propertius duskywing	*Erynnis propertius*
Bernardino blue	*Euphilotes bernardino*
Harbison's dun skipper	*Euphyes vestris harbisoni*
Gray buckeye	*Junonia grisea*
Marine blue	*Leptotes marina*
Western tiger swallowtail	*Papilio rutulus*
Cabbage white	*Pieris rapae*
Mylitta crescent	*Phyciodes mylitta*
Umber skipper	*Poanes melane*
Checkered white	*Pontia protodice*
Hedgerow hairstreak	*Satyrium saepium*
California dogface	*Zerene eurydice*
Potential Nectar Sources Observed	
Foothill deervetch	*Acmispon brachycarpus*
Hemp dogbane[a]	*Apocynum cannabinum*[a]
Italian thistle*	*Carduus pycnocephalus*[*]
Tocalote	*Centaurea melitensis*
Canyon clarkia	*Clarkia epilobioides*
Wine-cup clarkia	*Clarkia purpurea*
Golden yarrow	*Eriophyllum confertiflorum*
Seep monkeyflower	*Erythranthe guttata*
Shortpod mustard[a*]	*Hirschfeldia incana*[a*]
Chaparral beardtongue	*Keckiella antirrhinoides*
Southern honeysuckle	*Lonicera subspicata*
Chaparral mallow	*Malacothamnus fasciculatus*
Indian sweetclover*	*Melilotus indica**
Watercress	*Nasturtium officinale*
Caterpillar phacelia	*Phacelia cicutaria*
Sierra milkwort	*Rhinotropis cornuta*
California rose[a]	*Rosa californica*
Black sage	*Salvia mellifera*
Blue elderberry	*Sambucus cerulea*
Nuttall's snapdragon	*Sairocarpus nuttallianus*
California bee plant	*Scrophularia californica*
Ajuga hedge nettle	*Stachys ajugoides*

NOTES:

a Harbison's dun skipper was observed nectaring on this species during 2024 adult flight surveys.
* Non-native plant species.

4.3.2 Focused Management

Focused management for HDS occurred in 2024 in response to 2023 adaptive management recommendations. As described in Section 3.5.2, ESA biologist Mark Dodero was on-site on May 16, 2024, to check for germination of native nectar plant species in areas seeded in 2023 (Survey Location 2; management areas 1–6) and identify and map additional management areas (**Figure 11**). Seeded species observed to have successfully germinated on May 16, 2024, included chaparral bushmallow (*Malacothamnus fasciculatus*) and rod wirelettuce (*Stephanomeria virgata*) seedlings in management area 1 (**Figure 11**). Two additional management areas (management areas 7 and 8) were delineated during the May 16, 2024, visit, for a total of 0.84 acres (**Figure 11**). Site preparation occurred on November 4–6, 2024, and consisted of removing non-native grasses and forbs via hand tools and line trimmers across management areas 1–8, a total of 1.2 acres. All cut biomass was manually collected, bagged, and properly disposed of at an approved off-site facility. No herbicide was used.

Once the seeding areas were prepared, rough hedgenettle (*Stachys rigida*) seed was broadcast by hand in select areas near Hell Creek (i.e., management areas 3–5, see **Figure 11**) that support higher soil moisture levels appropriate for hedgenettle growth on November 6, 2024. The remaining seed, consisting of chaparral bushmallow, rod wirelettuce, island false morning glory (*Calystegia macrostegia intermedia*), narrowleaf milkweed (*Asclepias fascicularis*), and cobweb thistle (*Cirsium occidentale*), was broadcast by hand in the new management areas (management areas 7 and 8) on November 27, 2024. A list of seed species and quantities is provided in **Table 27**. The seed was lightly raked into the top 0.25 inch of soil. Once seed was applied, the seed was covered with light natural organic mulch (less than 80 percent cover) sourced from the surrounding habitat, which primarily consisted of coast live oak and California sycamore (*Platanus racemosa*) leaves. Representative photos of the Habitat West crew working, and before-and-after management photos are included in **Appendix D**.

TABLE 27
HARBISON'S DUN SKIPPER HABITAT ENHANCEMENT SEED

Scientific Name	Common Name	Source	Purity% / Germination%	Bulk Quantity (pounds)
Asclepias fascicularis	Narrowleaf milkweed	Camp Pendelton	88.22 / 71	1.76
Calystegia macrostegia intermedia	Island false morning glory	Lake Elsinore	99 / 68	0.70
Circium occidentale	Cobweb thistle	Colusa	99.08 / 63	0.44
Malacothamnus fasciculatus	Chaparral bushmallow	Camp Pendelton	34.54 / 72	0.88
Stachys rigida	Hedgenettle	Vista	No test	0.88
Stephanomeria virgata	Rod wirelettuce	Escondido	9.49 / 23	0.88
			Total	**5.54**

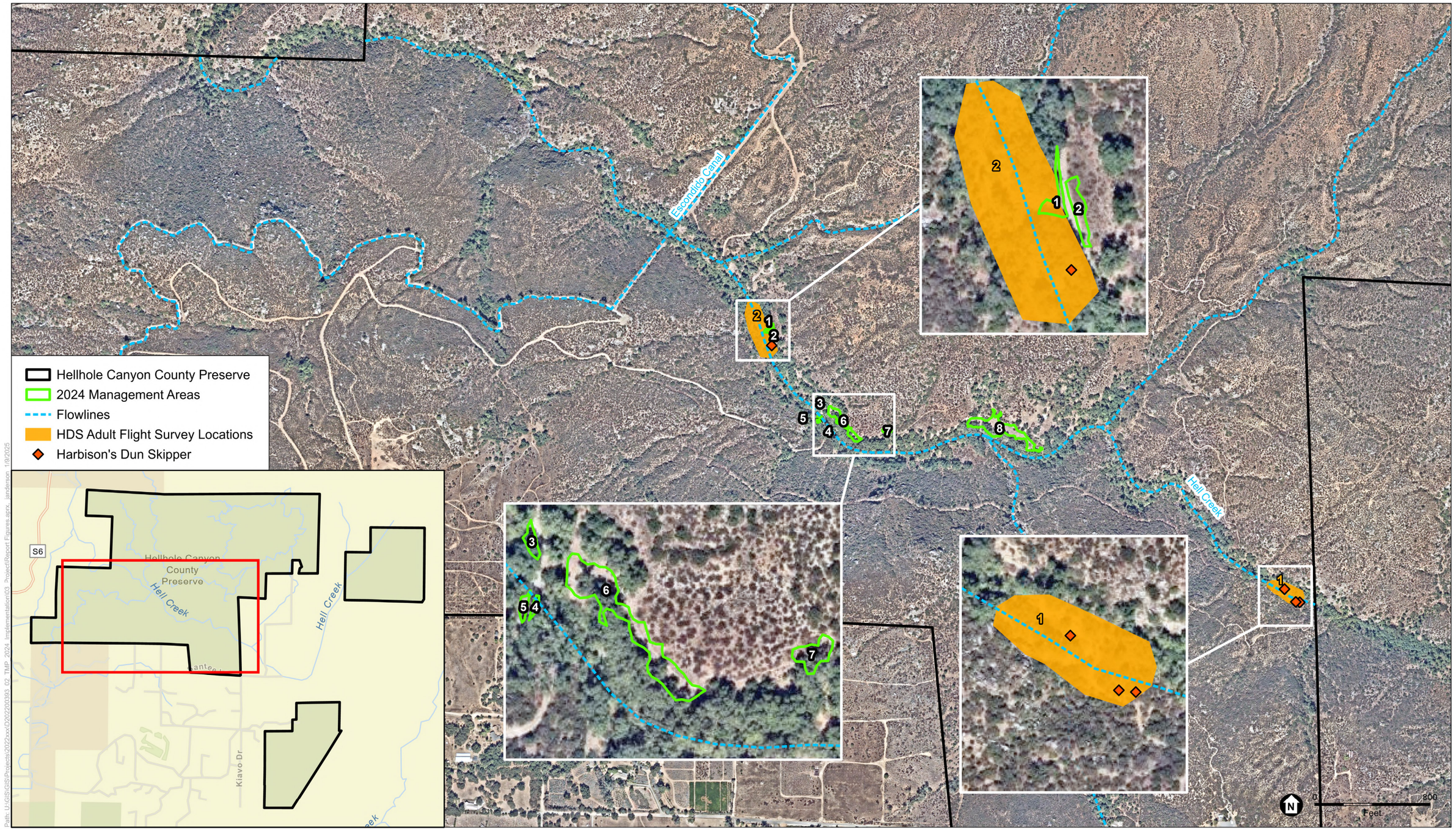
4.3.3 Adaptive Management Recommendations

The results of the 2024 surveys, TMP management goals and objectives, and adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Monitor/maintain nectar source seeded areas along Hell Creek.** Areas that were seeded with potential native nectar sources in 2024 along Hell Creek adjacent to and downstream of Survey Location 2 (**Figure 11**), should be monitored to assess seeding success, document site conditions and potential nectaring HDS individuals, and implement as needed follow-up management activities, such as hand weeding and additional seeding. Seeding considerations include the following:
  - Potential native nectar sources can include hedgenettle, cobweb thistle, narrowleaf milkweed, and chaparral bushmallow (Marschalek and Deutschman 2015, 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 0.25 inch of soil and provide "light" natural organic mulch cover (less than 80 percent cover to provide light and space for germinates).
  - Apply species in ecologically appropriate areas (e.g., 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 date of application, species and quantities of seed applied, 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

ESA monitored the status of breeding arroyo toads and assessed habitat conditions and potential threats to inform management needs within 18 reaches of the Santa Maria Creek in the Ramona Grasslands County Preserve. Arroyo toad occurrence data is depicted in **Figure 12** and presented in **Table 28**. Representative photographs of the survey area are provided in **Appendix E**, *Arroyo Toad Representative Photographs*.



SOURCE: Nearmap, 2020; ESA, 2024.

COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management

Targeted Monitoring Plan Resource-Specific Monitoring and Management 2024 Annual Report

Figure 11

Harbison's Dun Skipper Monitoring and Management Results
Hellhole Canyon County Preserve

ESA

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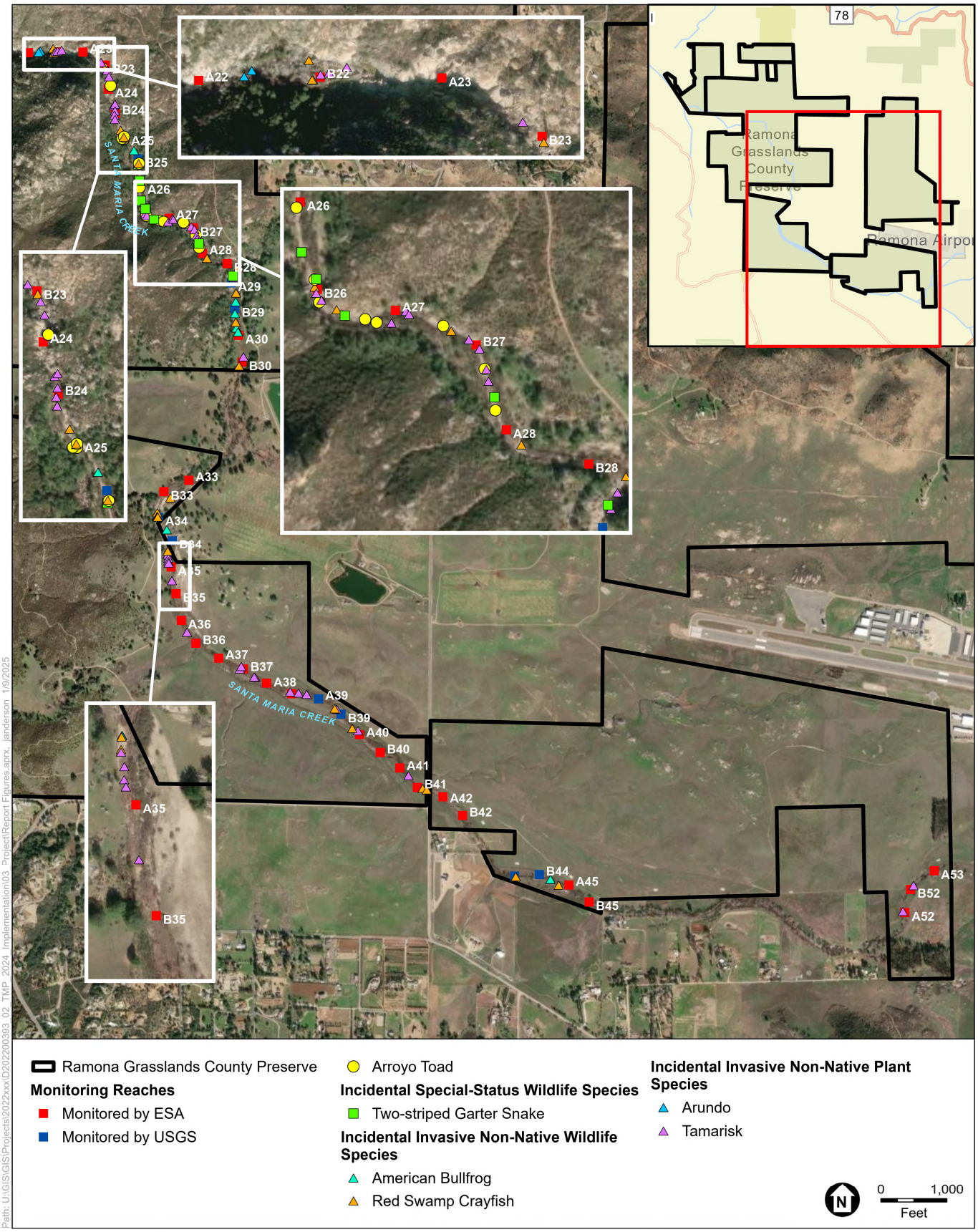

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SOURCE: ESRI; ESA, 2024; USGS, 2024

COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management

Targeted Monitoring Plan Resource-Specific Monitoring and Management 2024 Annual Report

Figure 12

Arroyo Toad Monitoring Results
Ramona Grasslands County Preserve

ESA

Of the 18 reaches surveyed, a total of five reach segments supported larval toad development. These include reach segments 23B, 26A, 26B, 27A, and 27B, concentrated within areas with suitable habitat in the northwestern, downstream extent of the survey area. Larvae were all observed prior to metamorphosis and were categorized into two size classes: 10–20 millimeters (mm) and 15–25 mm. Representative photographs of larvae observed within reach segments are provided for reference in **Appendix E**. Special-status wildlife species, two-striped garter snake, was incidentally observed during the surveys along reach segments 26A, 26B, 27B, 28B, and immediately upstream of reach 26A (**Figure 12**).

Vegetation along the Santa Maria Creek generally consists of riparian forest/riparian woodland, characterized by a prominence of mule fat (*Baccharis salicifolia*), red willow (*Salix laevigata*), and common threesquare (*Schoenoplectus pungens*). Invasive non-native plant species arundo (*Arundo donax*) and tamarisk were observed throughout the Santa Maria Creek (**Figure 12**). The overstory within the southeastern upstream extent of the survey area (including within segments 38B, 40A, and 40B) is particularly dense and supports 75–100 percent cover along the channel in many areas. Much of the northwestern downstream extent of the creek is less dense (including within segments 22A, 22B, 23A, 23B, 24B, 25A, 25B, 26A, 27A, and 27B) and exhibits more of an open channel. Flowing water was observed within the creek and pool depth ranged between shallow, medium, and deep. A greater number of plunge pools were documented in the northwestern downstream portion of the survey area (including within segments 22A, 22B, 23A, 23B, and 24A). Aquatic algae was observed throughout the survey area and was particularly dense along segment 23B. In general, substrate observed along the bed and banks of the creek generally varied between a dominance of sand with gravel, clay, cobble, pebble, and silt periodically mixed in. It should be noted that between reaches 22 and 24, the channel is formed by large boulders that are lined with sand.

The southeastern upstream extent of the survey area is generally characterized by moderate- to low-quality habitat for arroyo toad. This can be attributed to the presence of a dense overstory (i.e., greater than 50 percent overstory in segments 28A, 33A, 37A, 37B, 38B, 40A, 40B, and 41A) which provides sub-optimal conditions for male toads to call and attempt to initiate breeding. Generally, the northwestern downstream extent of the survey area (i.e., reaches 22–24, 26–27) provides a much higher concentration of suitable habitat for arroyo toad. Portions of the creek that were observed to have suitable habitat for arroyo toad were characterized by reduced overstory density, substrates with relatively high concentrations of sand, and areas of shallow pooling, all of which are habitat characteristics necessary for supporting breeding behavior and successful larval development.

TABLE 28
ARROYO TOAD HABITAT ASSESSMENT RESULTS: RAMONA GRASSLANDS COUNTY PRESERVE

Survey Reach	Segment	2024 Survey Date	Start/End Time	Start/End Air Temperature (°F)	Start/End Cloud Cover	Channel Width/ Flood Prone Width (m)	Entrancement Ratio	Plunge Pools (#)	Overhead Canopy (%)	Dominant Plant Species*	Portion Wet (%)	Pooling (%)			Aquatic Vegetation			Substrate (%)									# of Arroyo Toad larvae	
												Sh	Med	De	Su/ Flo	Em	Al	Cla	S	Sa	G	P	Co	B	LL	FL	10-20 mm	15-25 mm
22	A	05/13	10:35/ --	73/75	PCV / PCV	12.5/13.5	1.08	1-5	11-25	*Salix gooddingii, Populus spp., Platanus spp.*	76-100	1-10	51-75	11-25	1-10	1-10	51-75	--	--	26-50	--	--	--	26-50	1-10	--		
22	B	05/13	12:37/ --	75/75	PCV / PCV	3.85/7.3	1.90	1-5	1-10	*Salix gooddingii, Populus spp., Typha spp.*	76-100	11-25	26-50	11-25	0	1-10	51-75	--	--	26-50	--	--	--	26-50	1-10	--		
23	A	05/13	13:20/ 13:20	75/77	PCV / PCV	7.5/10.2	1.36	1-5	1-10	*Platanus spp.*	76-100	11-25	51-75	1-10	1-10	1-10	51-75	--	--	26-50	--	--	--	26-50	1-10	--		
23	B	05/13	14:07/ 15:10	75/75	PCV / PCV	5.6/13.5	2.41	1-5	1-10	*Salix laevigata, Populus spp., Platanus spp.*	76-100	11-25	26-50	11-25	1-10	1-10	76-100	--	--	26-50	--	--	--	26-50	1-10	--		1
24	A	05/14	09:31/ 10:20	71/63	Cl / --	7.6/12.5	1.64	1-5	26-50	*Baccharis salicifolia, Salix laevigata, Schoenoplectus pungens*	76-100	1-10	51-75	1-10	0	11-25	51-75	0	1-10	76-100	1-10	1-10	1-10	0	1-10	0		
24	B	05/14	10:21/ 10:55	72/72	Cl / Cl	9.7/11.5	1.19	0	11-25	*Salix laevigata, Baccharis salicifolia, Schoenoplectus pungens*	76-100	26-50	1-10	1-10	1-10	11-25	51-75	0	1-10	76-100	1-10	1-10	1-10	1-10	1-10	0		
26	A	05/14	11:10/ 11:58	72/79	Cl / Cl	11.3/14	1.24	0	1-10	*Salix laevigata, Baccharis salicifolia, Schoenoplectus pungens*	76-100	76-100	1-10	1-10	0	11-25	51-75	0	1-10	76-100	1-10	1-10	1-10	1-10	1-10	0		8
26	B	05/14	11:59/ 13:22	70/66	Cl / Cl	7.3/10.8	1.5	0	26-50	*Salix laevigata, Baccharis salicifolia, Schoenoplectus pungens*	76-100	11-25	26-50	1-10	1-10	11-25	26-50	0	1-10	76-100	1-10	1-10	1-10	1-10	1-10	1-10	10	3
27	A	05/14	13:25/ 13:52	72/73	Cl / Cl	8.1/9.2	1.14	0	11-25	*Salix laevigata, Baccharis salicifolia, Schoenoplectus pungens*	76-100	26-50	51-75	0	0	11-25	26-50	0	1-10	76-100	1-10	1-10	1-10	1-10	1-10	0		5
27	B	05/14	13:53/ 14:38	73/75	Cl / Cl	8/14.3	1.78	0	11-25	*Baccharis salicifolia, Salix laevigata, Schoenoplectus pungens*	76-100	11-25	26-50	11-25	0	26-50	26-75	0	1-10	76-100	1-10	1-10	1-10	1-10	1-10	0	125	60
28	A	05/14	14:39/ 15:00	75/72	Cl / Cl	22.8/29	1.27	0	51-75	*Baccharis salicifolia, Salix laevigata, Schoenoplectus pungens*	76-100	51-75	11-25	1-10	0	26-50	26-50	0	1-10	76-100	1-10	1-10	1-10	1-10	1-10	0		
28	B	05/14	15:02/ 15:26	75/75	Cl / Cl	14.7/19.7	1.34	0	26-50	*Salix laevigata, Baccharis salicifolia, Schoenoplectus pungens*	76-100	1-10	26-50	26-50	0	26-50	26-50	0	1-10	76-100	1-10	1-10	1-10	1-10	1-10	0		

Survey Reach	Segment	2024 Survey Date	Start/End Time	Start/End Air Temperature (°F)	Start/End Cloud Cover	Channel Width/ Flood Prone Width (m)	Entrancement Ratio	Plunge Pools (#)	Overhead Canopy (%)	Dominant Plant Species*	Portion Wet (%)	Pooling (%)			Aquatic Vegetation			Substrate (%)									# of Arroyo Toad larvae	
												Sh	Med	De	Su/ Flo	Em	Al	Cla	S	Sa	G	P	Co	B	LL	FL	10-20 mm	15-25 mm
30	A	05/15	08:30/ 09:17	56/59	Clo / Clo	15.1/46.8	3.22	0	1-10	*Schoenoplectus pungens, Baccharis salicifolia, Salix laevigata*	76-100	1-10	26-50	26-50	0	76-100	11-25	--	1-10	76-100	1-10	--	--	--	--	--		
33	A	05/15	10:04/ 10:41	60/62	Clo / Clo	24.9/30	0.83	0	76-100	*Baccharis salicifolia, Salix laevigata, Schoenoplectus pungens*	76-100	26-50	51-75	1-10	0	11-25	26-50	--	1-10	76-100	1-10	--	--	--	1-10	--		
33	B	05/15	10:42/ 11:06	62/64	Clo / Clo	11/26.6	2.42	0	26-50	*Schoenoplectus pungens, Salix laevigata, Baccharis salicifolia*	76-100	1-10	26-50	26-50	0	26-50	11-25	--	1-10	76-100	1-10	--	--	--	1-10	--		
35	A	05/15	11:18/ 12:11	64/67	z	6/22	3.67	0	11-25	*Schoenoplectus pungens, Baccharis salicifolia, Salix laevigata*	76-100	11-25	26-50	26-50	0	51-75	11-25	--	1-10	76-100	--	--	--	--	1-10	--		
35	B	05/15	12:16/ 12:34	67/67	PCV / PCV	40/45	1.23	0	26-50	*Schoenoplectus pungens, Salix laevigata, Baccharis salicifolia*	76-100	11-25	26-50	26-50	0	26-50	11-25	--	1-10	76-100	1-10	--	--	--	1-10	--		
36	A	05/15	12:35/ 12:53	67/68	PCV / Cl	40/56	1.4	0	26-50	*Schoenoplectus pungens, Salix laevigata, Baccharis salicifolia*	76-100	11-25	26-50	26-50	0	26-50	11-25	--	1-10	76-100	1-10	--	--	--	1-10	1-10		
36	B	05/15	12:54/ 13:15	68/69	Cl / PCV	21/27	1.29	0	--	*Salix laevigata, Baccharis salicifolia, Typha latifolia*	76-100	1-10	26-50	26-50	0	1-10	1-10	--	1-10	76-100	1-10	--	--	--	1-10	--		
37	A	05/15	13:16/ 13:45	69/70	PCV / PCV	26/33	1.27	0	51-75	*Baccharis salicifolia, Schoenoplectus pungens, Salix gooddingii*	76-100	11-25	26-50	11-25	0	26-50	11-25	--	1-10	51-75	--	--	--	--	1-10	--		
37	B	05/15	13:47/ 14:05	70/70	PCV / PCV	32/36	1.13	0	51-75	*Salix laevigata, Baccharis salicifolia, Schoenoplectus pungens*	76-100	11-25	26-50	26-50	0	26-50	11-25	--	11-25	26-50	--	--	--	--	1-10	--		
38	A	05/15	14:09/ 14:27	70/70	PCV / Clo	29/32	1.10	0	26-50	*Schoenoplectus pungens, Salix laevigata, Baccharis salicifolia*	76-100	76-100	1-10	1-10	0	26-50	11-25	--	26-50	26-50	--	--	--	--	1-10	--		
38	B	05/15	14:28/ 14:49	70/69	Clo / Clo	30/36	0.1	0	76-100	*Salix laevigata, Baccharis salicifolia, Schoenoplectus pungens*	76-100	76-100	1-10	0	1-10	51-75	11-25	--	26-50	26-50	--	--	--	--	1-10	--		

Survey Reach	Segment	2024 Survey Date	Start/End Time	Start/End Air Temperature (°F)	Start/End Cloud Cover	Channel Width/ Flood Prone Width (m)	Entrancement Ratio	Plunge Pools (#)	Overhead Canopy (%)	Dominant Plant Species*	Portion Wet (%)	Pooling (%)			Aquatic Vegetation			Substrate (%)								# of Arroyo Toad larvae	
												Sh	Med	De	Su/ Flo	Em	Al	Cla	S	Sa	G	P	Co	B	LL	FL	10-20 mm	15-25 mm
40	A	05/16	08:29/ 09:08	61/61	Clo / Clo	31/43	1.39	0	76-100	*Salix laevigata, Baccharis salicifolia, Schoenoplectus pungens*	76-100	76-100	1-10	0	1-10	51-75	11-25	1-10	1-10	51-75	1-10	1-10	1-10	0	11-25	1-10		
40	B	05/16	09:12/ 09:34	66/66	Clo / Clo	25.3/32	1.26	0	76-100	*Salix laevigata, Baccharis salicifolia, Schoenoplectus pungens*	76-100	26-50	11-25	11-25	1-10	26-50	11-25	26-50	26-50	1-10	1-10	1-10	0	0	11-25	1-10		
41	A	05/16	09:36/ --	70/70	Clo / Clo	18/26.2	1.45	0	51-75	*Salix laevigata, Bolboschoenus spp., Baccharis salicifolia*	76-100	51-75	26-50	1-10	1-10	26-50	11-25	11-25	51-75	1-10	1-10	0	0	0	11-25	1-10		
41	B	05/16	10:05/ 10:31	66/66	Clo / Clo	19/28	1.47	1-5	11-25	*Schoenoplectus acutus, Bolboschoenus spp., Anemopsis californica*	76-100	11-25	51-75	1-10	1-10	26-75	26-50	11-25	51-75	11-25	1-10	0	0	0	1-10	1-10		
42	A	05/16	10:36/ --	68/68	Clo / Clo	14.5/22.3	1.54	0	1–10	*Schoenoplectus acutus, Bolboschoenus spp., Salix laevigata*	76-100	51-75	26-50	1-10	1-10	51-75	26-50	1-10	1-10	76-100	1-10	1-10	0	0	1-10	1-10		
45	A	05/16	11:18/ 11:43	72/72	Clo / Clo	20/31	1.55	0	11–25	*Salix laevigata, Baccharis salicifolia, Schoenoplectus acutus*	76-100	51-75	11-25	1-10	0	26-50	11-25	0	1-10	76-100	1-10	1-10	0	0	11-25	0		
52	A	05/16	12:43/ 13:08	75/75	PCV / PCV	5.2/13.2	2.54	0	11–25	*Salix laevigata, Baccharis salicifolia, Persicaria hydropiper*	76-100	76-100	1-10	1-10	0	51-75	26-50	0	1-10	76-100	1-10	1-10	0	0	11-25	0		
52	B	05/16	13:08/ --	73/73	PCV / Cl	5.2/7.7	1.48	0	26–50	*Salix laevigata, Baccharis salicifolia, Persicaria hydropiper*	76-100	51-75	11-25	0	0	51-75	11-25	0	1-10	76-100	1-10	1-10	0	0	11-25	0		
53	A	05/16	13:26/ 13:40	75/75	Cl / Cl	7.6/11.3	1.49	0	26–50	*Baccharis salicifolia, Salix laevigata, Anemopsis californica*	76-100	76-100	1-10	0	1-10	26-50	11-25	0	1-10	76-100	1-10	1-10	0	0	1-10	0		
TOTAL																											**135**	**77**

NOTES:

F = Fahrenheit; Cl = Clear, Clo = Cloudy, PCV = Partly Cloudy/Variable; m = meters; Sh = Shallow, Med = Medium Depth, De = Deep; Su/Flo = Submerged/Floating, Em = Emergent, Al = Algae; Cla = Clay, S = Silt, Sa = Sand, G = Gravel, P = Pebbles, Co = Cobble, B = Boulder, LL = Leaf Litter, FL = Fallen Logs; -- = no value; mm = millimeters

* Dominant plant species within the canopy overstory.

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4.4.1 Habitat and Threats Assessment

Threats and habitat 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 following threats were assessed.

- **Invasive non-native plant species.** Invasive non-native plant species arundo and tamarisk were observed in 2024 (**Figure 12**). Arundo, a Cal-IPC "High" rated species, was mapped in low densities within reach segment A22. Tamarisk, a Cal-IPC "High" rated species due to its severe impacts on physical processes and plant and wildlife communities (Cal-IPC 2023), occurs in moderate densities throughout the Santa Maria Creek.
- **Exotic predators.** Exotic predators have been noted in abundance during previous monitoring efforts and were observed in 2024. Eleven red swamp crayfish observations were recorded within segments 22A, 23B, 24B, 27A, 28B, 33B, 34B (incidental observations within USGS's survey segment), and 41B; and seventeen American bullfrogs were observed within segments 23B, 24A, 26A, 26B, 27B, 30A, 33A, 34B (incidental observation within USGS's survey segment), 35A, 35B, 36B, 41B, and 52A (**Figure 12**). This is an increase in the amount of exotic predators compared to 2023 surveys, during which only one crayfish and one bullfrog were observed.

4.4.2 Adaptive Management Recommendations

The Santa Maria Creek supports adequate instream habitat for breeding arroyo toad; however, threats such as invasive non-native plant species and exotic predators may diminish the success of the species over time without effective management. The following adaptive management actions are recommended.

- **Treat invasive non-native plant species.** The invasive non-native plant species documented along the Santa Maria Creek have the potential to reduce available breeding habitat along the channel over time and should be treated to prevent their spread throughout the survey area. All treatment activities should take place outside of the arroyo toad breeding season. Vegetation should be treated as follows:
  - *Tamarisk and arundo*: Hand removal is recommended as the primary control method for these two species due to their proximity to arroyo toad breeding habitat. Care should be taken to remove underground rhizomes while limiting disturbance to the channel and breeding margins. Larger individuals (e.g., greater than 10 feet in height) may be removed using cut-and-daub practices with an aquatic-safe herbicide on a case-by-case basis, as necessary.
- **Control exotic predators.** Many exotic predators were observed during the 2024 surveys and should be controlled to some extent. This should be accomplished through targeted removal of breeding-size adult bullfrogs to avoid and minimize impacts to aquatic species and habitats. Red-swamp crayfish should be removed concurrently.

4.5 Northern Harrier

The 2024 northern harrier nesting surveys focused on areas with low scrub and/or vegetation cover and areas with previously documented northern harrier use in Tijuana River Valley Regional Park (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 and south of the Tijuana River Valley Sports

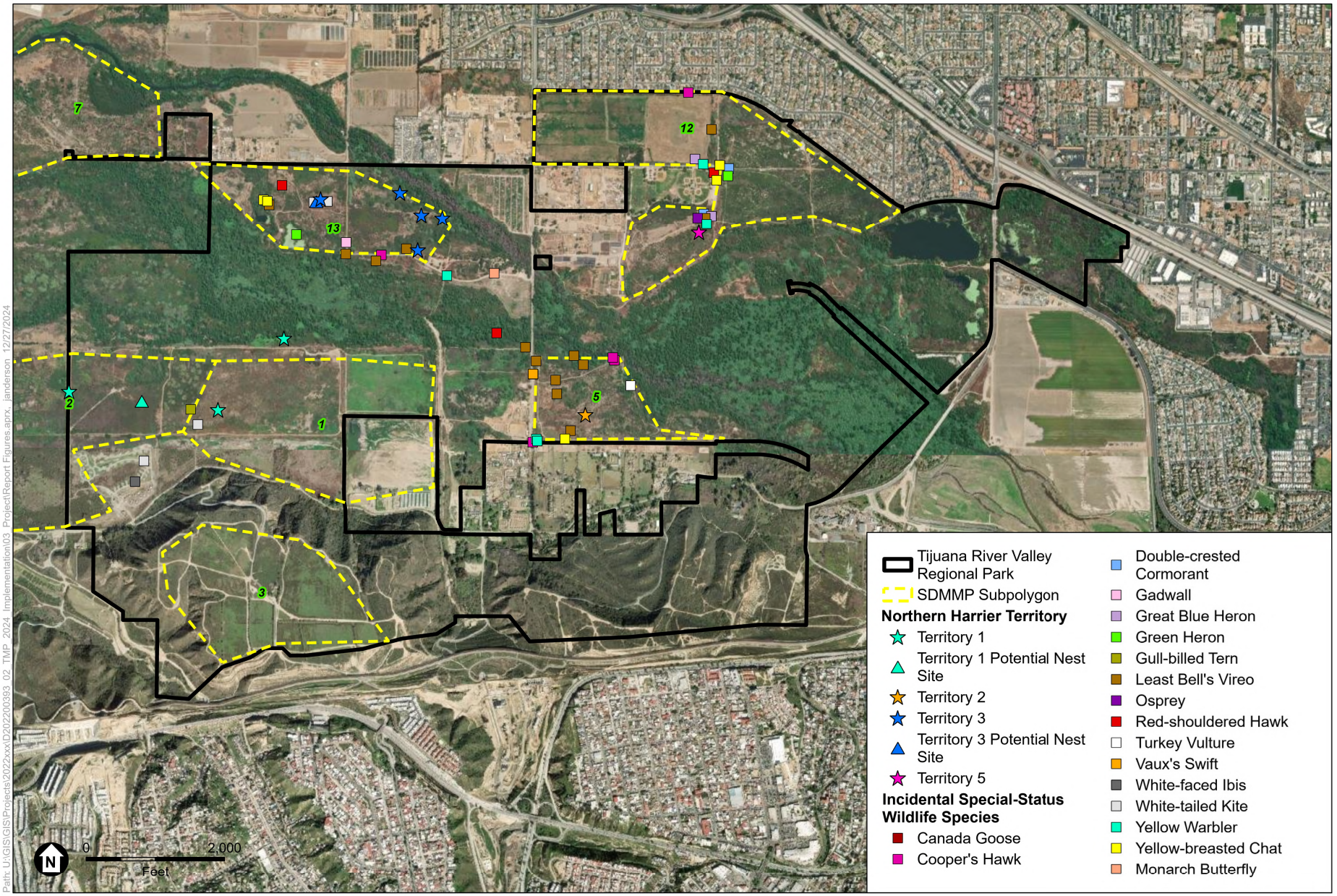
Complex, and the abandoned agricultural habitat north of the Tijuana River Valley Sports Complex. Representative photographs of the survey areas and completed field forms are provided in **Appendix F**, *Northern Harrier Representative Photographs and Field Forms*.

Northern harriers were observed during all surveys with the highest observations during the month of June. While up to five northern harrier territories could be present within the Park based on previous monitoring results, only two (Territory 1 [SDMMP Subpolygon 02] and Territory 3 [SDMMP Subpolygon 13]) were occupied with unknown nest success and two (Territory 2 [SDMMP Subpolygon 01] and Territory 5 [SDMMP Subpolygon 12]) were potentially occupied but not confirmed in 2024 (**Figure 13** and **Table 29**). Territorial behavior exhibited by northern harriers during surveys included prey carrying, prey transfers, females seen visiting probable nest sites, and fledglings heard begging from a probable nest location. Nesting behavior was confirmed within Territory 1 and Territory 3. The presumed nest site in Territory 1 was located approximately 90 meters west of a public trail and 200 meters north of the campground. A pair was seen making prey transfers during the May survey and making multiple prey deliveries to the presumed nest site during the June survey. No juveniles were detected on the July survey; therefore, the outcome of the nest is unknown. The nest in Territory 3 was confirmed to have chicks (unknown number) during the July survey, but it is unknown if they fledged because the July survey was the last survey of the monitoring period. The presumed nest site in Territory 3 was approximately 40 meters north from a public trail. Adults were seen carrying food at least once in Territories 2 and 5, but no potential nest locations were located. It is unknown if the observations were on territory or in transit to other territories. No northern harriers were observed in Territory 4 (SDMMP Subpolygon 02) in 2024. Overall, there were a similar number of northern harrier observations in 2024 compared to 2022 and 2023, but fewer compared to 2021.

Incidentally observed special-status wildlife species included monarch butterfly (*Danaus plexippus*), Canada goose (*Branta canadensis*), gadwall (*Mareca strepera*), gull-billed tern (*Gelochelidon nilotica*), double-crested cormorant (*Nannopterum auritum*), great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), white-faced ibis (*Plegadis chihi*), turkey vulture, osprey (*Pandion haliaetus*), Cooper's hawk (*Accipiter cooperii*), red-shouldered hawk (*Buteo lineatus*), white-tailed kite (*Elanus leucurus*), Vaux's swift (*Chaetura vauxi*), least Bell's vireo, yellow-breasted chat (*Icteria virens*), and yellow warbler (*Setophaga petechia*) (**Figure 13**).

4.5.1 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.



SOURCE: ESRI, 2022; ESA, 2024.

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Figure 13

Northern Harrier Monitoring Results
Tijuana River Valley Regional Park

ESA

TABLE 29
NORTHERN HARRIER NESTING SURVEY RESULTS

Territory (SDMMP Subpolygon)	Type	Nest Success	Location	Observation Summary
1 (Subpolygon 02)	Pair	Unknown (Chicks)	North of the TRVRP campground. Likely same location of historic nesting.	No April visit due to trail closures and road flooding. The pair was seen in May near historic nest site. During the June visit, the pair was seen taking food to a presumed nest. In July, only an adult male was seen.
2* (Subpolygon 01)	Possible Pair	Unknown	Northeast of the Hollister St/Monument Rd Intersect	In June, a possible pair were seen behaving in a way suggestive of nesting but was not seen on previous or subsequent visits.
3 (Subpolygon 13)	Pair	Unknown (Chicks)	West of the TRVRP Bird & Butterfly Garden	A possible pair was observed during the April visit and was confirmed on subsequent visits. The pair was seen visiting a possible nest in May, then seen carrying food to the same location in June and July. Chicks could be heard during the July visit.
4* (Subpolygon 02)	None	Not Occupied	Northwest of the newly constructed TRVRP campground. Likely not nesting on the preserve.	No observations in this potential territory were documented in 2024.
5* (Subpolygon 12)	Possible Pair	Unknown	East and South of Tijuana River Valley Sports Complex	An adult male was seen carrying food south of the Sports Complex, but flew out of view before its destination could be determined.

NOTES:
TRVRP = Tijuana River Valley Regional Park
* Potential territories due to territorial distance from other territories and evidence during previous years' surveys.

Suitable foraging habitat for northern harrier includes low-height and sparsely covered vegetation such as non-native grassland, coastal sage scrub, mule fat scrub, abandoned agriculture, and disturbed habitat. Suitable nesting habitat for northern harrier include dense scrub habitats that limit predation or predator harassment such as mule fat scrub, coastal sage scrub, marsh, and cattail habitat. Overall, the Park provides high-quality suitable foraging and nesting habitat for northern harriers as demonstrated by observed prey transfers and the Park being occupied by up to four northern harrier territories in 2024. The following threat was observed:

- **Nest disturbance.** Northern harrier is a ground-nesting species. The nest sites in Territory 1 and Territory 3 are close to authorized public trails. Territory 1 was occupied in 2024. The campground and adjacent trails were closed due to flooding in 2024 which likely reduced the potential for disturbance. An 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.

4.5.2 Adaptive Management Recommendations

The 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 2024 nest monitoring, 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 and 3 nest sites.** Install trail counters on trails in the vicinity of the nests in Territories 1 and 3 to track trail use. This will provide baseline trail use information 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.

4.6 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 G**, *Least Bell's Vireo USFWS 45-Day Report and Brown-Headed Cowbird Trapping Annual Report*. Due to the still present threat of nest parasitism by brown-headed cowbirds on least Bell's vireo in the preserve, the cowbird trapping program established in 2022 was continued in 2024. The brown-headed cowbird trapping annual report is also provided in **Appendix G**.

4.6.1 Least Bell's Vireo Nest Monitoring

All vegetation communities within the Santa Margarita channel are potentially suitable nesting habitat for least Bell's vireo and were surveyed. Potentially suitable nesting habitat for least Bell's vireo occurs only in southern riparian woodland, southern riparian forest, southern willow scrub, southern cottonwood-willow riparian forest, southern riparian scrub, southern sycamore-alder riparian woodland, and southern coast live oak riparian forest.

Survey results are summarized in **Table 30** below and depicted on **Figure 14**. Fifteen least Bell's vireo territories were detected during the nest monitoring study, an increase from thirteen territories detected in 2023. Of the fifteen pairs, fourteen pairs successfully produced at least one fledgling, and one pair produced six fledglings over the course of two broods. Two pairs attempted and successfully completed second broods. Four nests failed and were presumed to have been predated based on the physical appearance of the nest when found empty. Another nest was found to have failed (found empty) but there was no physical evidence suggesting predation, and so the cause of failure is unknown. No parasitized least Bell's vireo nests were found; however, one parasitized song sparrow (*Melospiza melodia*) nest was incidentally detected within an active least Bell's vireo territory on April 24, 2024. Adult song sparrows were observed feeding a brown-headed cowbird chick and an additional brown-headed cowbird egg was seen in the nest. During a following survey, this parasitized nest was found empty. No juvenile brown-headed cowbirds were observed during nest monitoring. A total of five adult brown-headed cowbirds were observed during nest monitoring (**Table 31**).

TABLE 30
LEAST BELL'S VIREO NEST MONITORING RESULTS: SANTA MARGARITA COUNTY PRESERVE

Category	Count
Number of territorial males	15
Number of known pairs	15
Number of known breeding (nesting) pairs	15
Number of known successful breeding pairs	14
Number of known fledged young observed	35
Number of nests that were discovered	13
Number of successful nests	8
Number of nests that failed as a result of reproductive failure	0
Number of nests that failed as a result of predation	4
Number of nests that failed as a result of parasitism	0
Number of nests that failed for unknown reasons	1

TABLE 31
BROWN-HEADED COWBIRD DETECTIONS: SANTA MARGARITA COUNTY PRESERVE

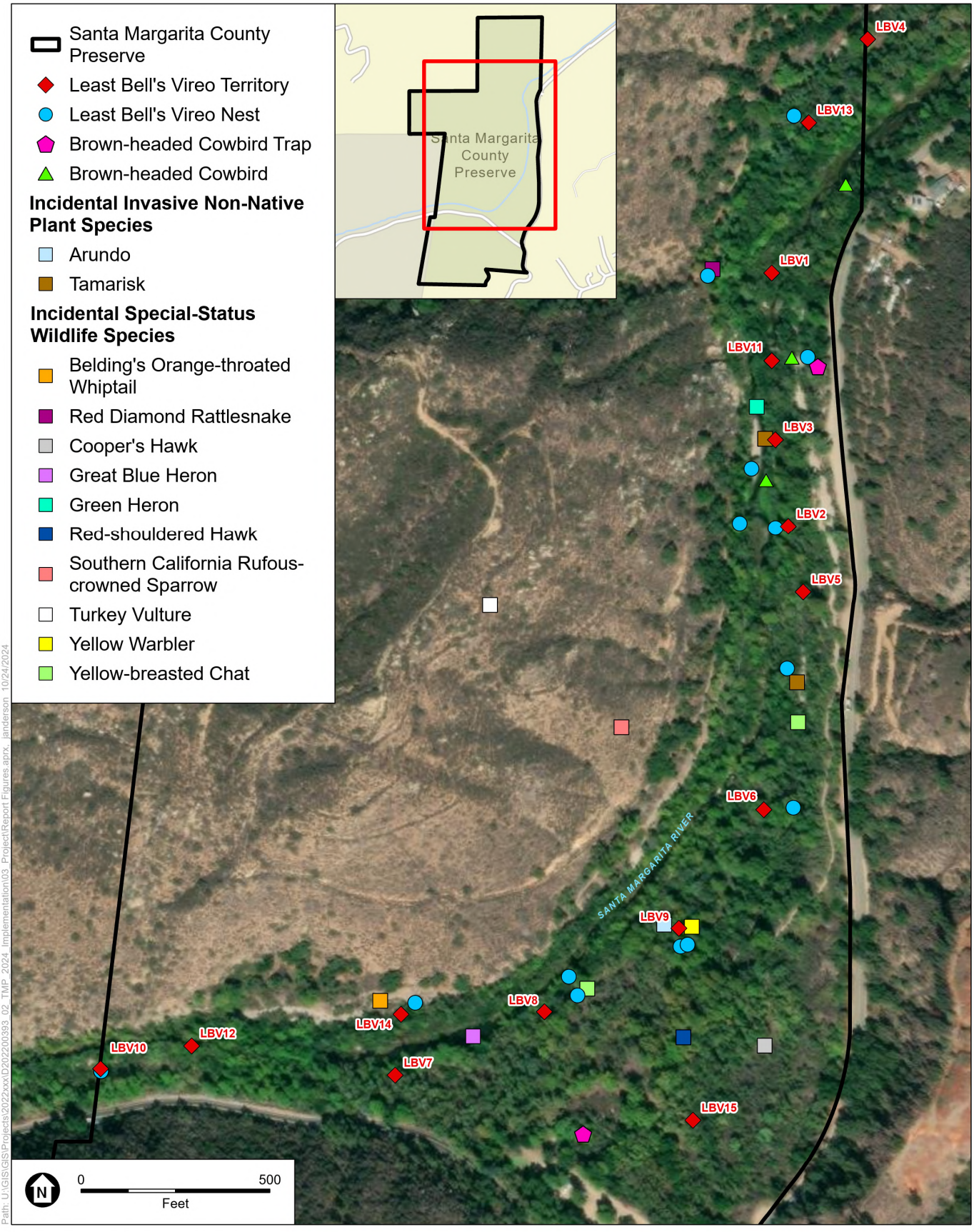
Date	Count
4/24/2024	2
5/08/2023	1
6/26/2023	2

During the nest monitoring survey on May 22, 2024, utility contractors were observed working on overhead powerlines in the area. This work involved flying a helicopter low and placing safety ball markers on an electrical line crossing the preserve. The helicopter operations caused mature riparian trees to shake and sway violently due to the strong downdrafts. After the helicopter departed, numerous avian alarm calls were heard throughout the habitat beneath the powerlines. Due to the stress response exhibited, the biologists immediately halted the monitoring survey and left the area.

Incidentally observed invasive non-native plant species included arundo and tamarisk (**Figure 14**). Incidentally observed special-status species included Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), red diamond rattlesnake (*Crotalus ruber*), great blue heron, green heron, turkey vulture, Cooper's hawk, red-shouldered hawk, Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), yellow-breasted chat, and yellow warbler (**Figure 14**). A complete list of wildlife observed during nest monitoring is included in **Appendix G**.

4.6.2 Habitat and Threats Assessment

Threats and habitat were assessed during species nest monitoring and 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.



SOURCE: ESRI, 2021; ESA, 2024

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Figure 14

Least Bell's Vireo Nest Monitoring and Management Results
Santa Margarita County Preserve

ESA

Suitable breeding habitat for least Bell's vireo includes 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 15 least Bell's vireo territories in 2024. The following threats were observed:

- **Nest parasitism by brown-headed cowbird.** The observations and capture of adult brown-headed cowbirds within Santa Margarita County Preserve are indicative of the continued threat of brood parasitism. Cowbirds were observed during three monitoring surveys and a parasitized song sparrow nest containing a cowbird nestling and egg was observed. This nest was found to be depredated the following survey. No monitored least Bell's vireo nests were parasitized and no cowbird fledglings were observed during the surveys. However, the continued presence of cowbirds and nest parasitism detection in the preserve is indicative of a continued threat.
- **Invasive non-native plant species.** Invasive non-native plant species arundo and tamarisk occur on the preserve in scattered locations (**Figure 14**). Arundo, a Cal-PIC "High" rated species was present in two stands on the preserve. Tamarisk, a Cal-PIC "High" rated species due to its severe impacts on hydrological processes and plant and wildlife communities (Cal-IPC 2023), occurs in scattered locations throughout the Santa Margarita River. These invasive non-native plant species can outcompete and displace native plant species, resulting in degraded riparian habitats. Displacement of native vegetation can negatively impact vireo prey availability and nesting habitat.
- **Management of desert wild grape.** Desert wild grape (*Vitis grdiana*) is a native vine species that occurs in many areas within the preserve. The species is dominant in the herbaceous layer and in some cases, has climbed into the canopy of mature riparian trees, choking out large willows and sycamores. The expansion of wild grape paired with the mortality of mature riparian trees decreases habitat quality and suitability for least Bell's vireo. In several active vireo territories, wild grape has become established resulting in decreased plant diversity and habitat quality.

4.6.3 Brown-Headed Cowbird Trapping

The two trap locations are depicted in **Figure 14**. A total of 11 brown-headed cowbirds were captured within Santa Margarita County Preserve from April 1 to June 30, 2024. This included four adult males and seven adult females. There were 181 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 such as vandalism. Trap 1 was inactive on June 18, 2024, due to vandalism, resulting in a loss of one trap day. There were 0.06 cowbirds captured per trap day in 2024. The ratio of male to female captures was 0.57:1. Trapping results for each trap location are summarized below in **Table 32**. Six non-target species were captured in Trap 1 and were released from the trap site unharmed on the same day they were captured. Non-target captures included four California towhees (*Melozone crissalis*), one song sparrow, and one house finch (*Haemorhous mexicanus*). Detailed trapping methods and results are provided in **Appendix G**.

TABLE 32
BROWN-HEADED COWBIRD TRAPPING RESULTS: SANTA MARGARITA COUNTY PRESERVE

Trap Number	Brown-Headed Cowbirds Captured			
	Adult Male	Adult Female	Juvenile	Total
1	2	3	0	**5**
2	2	4	0	**6**
Total	**4**	**7**	**0**	**11**

4.6.4 Adaptive Management Recommendations

The results of 2024 nest monitoring, 2024 adaptive management actions, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Continue brown-headed cowbird trapping program.** The brown-headed cowbird trapping effort in 2024 successfully captured 11 cowbirds. No juvenile cowbirds were captured, but a parasitized song sparrow nest containing a cowbird nestling and egg was observed. Continued program implementation should occur as follows.
  - Implement brown-headed cowbird trapping within the Santa Margarita County Preserve during the breeding season.
  - Evaluate the trapping program 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.
  - Establish thresholds for the density of cowbird females and the allowable level of parasitism for least Bell's vireo to guide the cowbird trapping program (Parker et al. 2022).
  - Partner with adjacent land managers in the area to provide trapping in suitable habitat to improve catch rates and decrease parasitism impacts to vireo and songbird species in the area.
- **Continue least Bell's vireo monitoring.** The monitoring frequency for least Bell's vireo at Santa Margarita County Preserve has been updated to every 3 years, with protocol-level presence/absence surveys anticipated to occur in 2028 (ESA 2024a). However, if brown-headed cowbird nest parasitism of least Bell's vireo or other songbird species is incidentally observed (e.g., feeding brown-headed cowbird fledglings) or a wave of juvenile brown-headed cowbirds are caught in brown-headed cowbird traps within the preserve, more intensive nest monitoring may be warranted to complement brown-headed cowbird trapping.
- **Conduct habitat restoration and habitat enhancement.** 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. Removal or treatment of invasive non-native plants creates an opportunity for habitat enhancement and restoration in areas that have low plant diversity. Actions should occur as follows.
  - Remove invasive non-native plant species arundo and tamarisk and monocultures of desert wild grape through mechanical or chemical methods outside of the avian nesting season (March–September). Care should be taken to remove underground rhizomes of arundo and tamarisk while limiting disturbance to the channel and breeding margins. Larger individuals (e.g., greater than 10 feet in height) may be removed using cut-and-daub practices with an aquatic-safe herbicide on a case-by-case basis, as necessary. 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. Ideally, herbicide should be applied before seed sets on plants, which may involve multiple treatment visits throughout the season.
- **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 invasive 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. Coordination with partner agencies, including utility contractors, is recommended to ensure operations and maintenance activities do not occur during the least Bell's vireo breeding and nesting season and potentially impact nesting success.

4.7 Stephens' Kangaroo Rat

ESA and Blackhawk (ESA subconsultant) conducted a burrow/sign search and habitat characterization to inform SKR management needs in Ramona Grasslands County Preserve and Hellhole Canyon County Preserve. The habitat assessment memorandums for both preserves are included in **Appendix H**, *Stephens' Kangaroo Rat Monitoring Memorandums.*

4.7.1 Ramona Grasslands County Preserve

Habitat Assessment

Habitat assessments were conducted at 28 monitoring plots within Ramona Grasslands County Preserve. Of these plots, 10 were determined to be occupied by SKR and 18 were determined to be unoccupied (**Figure 15, Table 33**). Each plot was rated for SKR potential and, in total, 10 monitoring plots were characterized as having a high potential, 1 was characterized as having a medium potential, 17 were characterized as having a low potential, and 0 were characterized as having no potential for SKR (**Table 34**).

TABLE 33
SKR MONITORING RESULTS: RAMONA GRASSLANDS COUNTY PRESERVE

Occupancy/Potential		# of Monitoring Plots
SKR Occupancy	Occupied	10
	Unoccupied	18
SKR Potential	High	10
	Medium	1
	Low	17
	No	0

NOTE:
SKR = Stephens' kangaroo rat.

The 2024 results indicate slight shifts in overall SKR suitability that can increase or decrease at given sites between monitoring years due to variables such as randomized assignment of non-permanent monitoring plots that varies between monitoring years, annual grazing practices, and drought/precipitation. Generally, there was an overall decrease in SKR potential in 2024, and the following variables influenced the survey results:

- **Precipitation.** Heavy rainfall was observed in the greater San Diego region between fall 2022 and fall 2024. An increase in overall rainfall can be beneficial for SKR suitability in that it can increase food availability; however, significant increases in rainfall are likely to increase vegetation density and height, which may increase obstruction factors. The period between the fall 2022 and fall 2024 monitoring efforts was marked by above-average rainfall in the greater San Diego region. In an ecological regime that is free of anthropogenic influences such as cattle grazing, consistently higher rainfall could result in a reduction of suitable habitat for SKR by promoting vegetation cover that excludes SKR.
- **Grazing.** Much of the SKR Monitoring Areas are actively grazed, thereby helping to reduce significant vegetative growth during years of above-average rainfall. Sunrise Cattle Company currently holds a grazing agreement with DPR, and cattle were stocked on-site in Grazing

Management Units 1A, 2A, 2B, 3A, 3B, 4A, and 4B in 2024. While grazing can help reduce vegetation coverage, thus potentially increasing SKR suitability, it does not always result in highly suitable SKR habitat. In 2024, monitoring results found that areas in which grazing was observed within the past 3 to 6 months did not directly correlate to high SKR potential. Two surveyed plots (3B-1 and 3B-2) showed no signs of grazing, with medium living vegetation coverage and medium obstruction factors, but were determined to have high-potential for SKR based on habitat and observed sign. Furthermore, several of the surveyed plots determined to have low potential for SKR had been grazed within the past 3 months, yet still maintained high living vegetative cover. This suggests that cattle may not be grazing uniformly within each Grazing Management Unit, and other factors may also influence overall habitat suitability.

- Most of the annual vegetation present in the high- or medium-potential SKR plots consisted of red-stem filaree, doveweed, western ragweed (*Ambrosia psilostachya*), shortpod mustard, and vinegar weed (*Trichostema lanceolatum*). Annual vegetation in the low-potential plots comprised similar species, as well as curly dock (*Rumex crispus*). Dense annual grasses were also observed in several low-potential plots, which may preclude or reduce SKR movement.

Detailed monitoring methods and results, including plot photographs and habitat assessment forms, are included in **Appendix H**.

Adaptive Management Recommendations

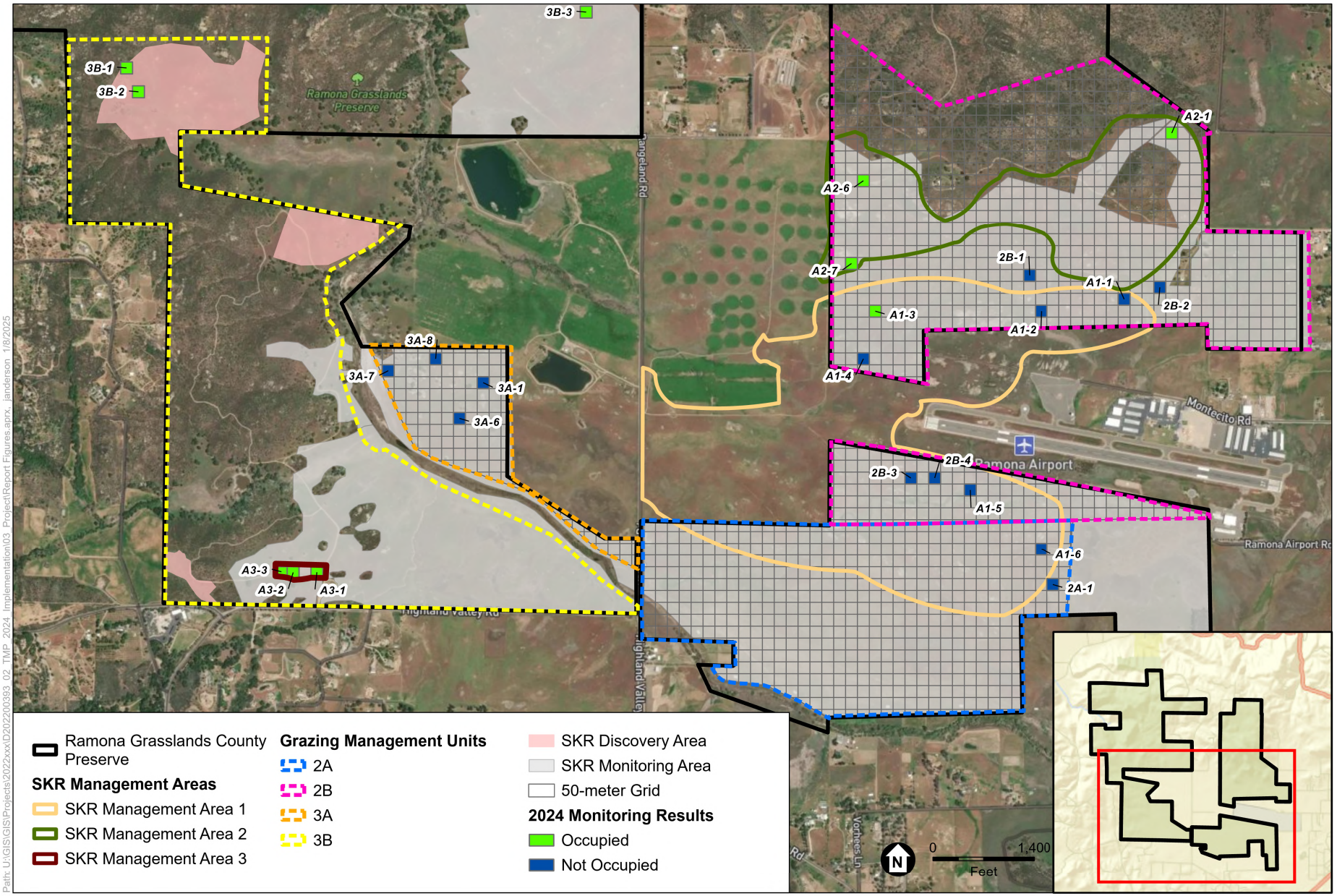
The following are the adaptive management recommendations to ensure persistence of SKR at Ramona Grasslands County Preserve:

- **Coordinate with the grazing lessee on cattle grazing practices.** Coordinate with the grazing lessee to provide information on the conservation goals to be fulfilled by grazing on the preserve, including those for SKR, and discuss grazing frequency, timing, rotation, and RDM targets to better guide annual grazing practices on the preserve. Recent 2024 RDM monitoring reports should be used to inform 2025 grazing practices to meet RDM targets for SKR.

4.7.2 Hellhole Canyon County Preserve

Habitat Assessment

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 16**, **Table 35**). Each plot was rated for SKR potential; no plots were rated high, two were rated medium, and one was rated low (**Table 36**).



SOURCE: Mapbox; ESA, 2024

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Figure 15

Stephens' Kangaroo Rat Monitoring Results
Ramona Grasslands County Preserve

ESA

TABLE 34
SKR HABITAT ASSESSMENT SUMMARY: RAMONA GRASSLANDS COUNTY PRESERVE

	Fall 2024									Fall 2023
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	High	0	75–95	Low/Medium	High	None	Not Occupied	Low	Medium**
A1-2	0–5	High	0	75–95	Low/Low	High	None	Not Occupied	Low	Low
A1-3	0–5	Medium	0	75–95	Low/Medium	Medium	None	Occupied	High**	Medium
A1-4	0–5	High	0	75–95	Medium/Medium	High	None	Not Occupied	Low	Low
A1-5	0–5	High	0–5	75–95	Medium/Low	High	None	Not Occupied	Low	Low
A1-6	0–5	Low	5–25	75–95	Medium/Low	Low	None	Not Occupied	Low	Medium**
A2-1	5–25	Low	0–5	75–95	Medium/Medium	Low	B, S	Occupied	High**	High**
A2-6	5–25	Medium	0	75–95	Medium/Low	Medium	B, S, CF	Occupied	High**	High**
A2-7	0–5	High	0	50–75	Low/Medium	High	B, S, CF	Occupied	High**	Low
A3-1	50–75	Low	0	50–75	Low/Low	Low	B, S, CF	Occupied	High**	High**
A3-2	50–75	Low	0	25–50	Low/Medium	Low	B, S, TD, CF	Occupied	High**	High**
A3-3	50–75	Low	0	25–50	Low/Medium	Low	S, TD, CF	Occupied	High**	High**
2A-1	0–5	High	5–25	75–95	Medium/Medium	High	None	Not Occupied	Low	Low
2B-1	0–5	Medium	0	75–95	Low/Low	Low	None	Not Occupied	Medium	High**
2B-2	0–5	High	0–5	50–75	Medium/Low	High	None	Not Occupied	Low	Low**
2B-3	0–5	Medium	0–5	75–95	Medium/Low	High	None	Not Occupied	Low	High**
2B-4	0–5	High	0–5	75–95	Medium/Low	High	None	Not Occupied	Low	Low
3A-1	0	High	0	50–75	Low/Low	High	None	Not Occupied	Low	Low
3A-6	0–5	Medium	0	75–95	Medium/Medium	Medium	None	Not Occupied	Low	Medium
3A-7	0–5	High	0	75–95	Medium/Low	High	None	Not Occupied	Low	Medium**
3A-8	0–5	Medium	0	75–95	Medium/Low	High	None	Not Occupied	Low	Medium
3B-1	0–5	Medium	5–25	50–75	Medium/High	Medium	B, S, CF	Occupied	High**	Low
3B-2	0–5	Medium	0–5	75–95	Low/Medium	Medium	B, S, CF	Occupied	High**	Medium
3B-3	0–5	Low	0	75–95	Low/Medium	Medium	S, CF	Occupied	High**	Medium

Fall 2024										Fall 2023
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†
3C-1	0–5	Medium	0–5	75–95	High/Low	Medium	B	Not Occupied	Low	NA
3C-2	0–5	Medium	0–5	75–95	High/Low	Medium	None	Not Occupied	Low	NA
3C-3	0–5	Medium	5–25	75–95	High/Low	Medium	None	Not Occupied	Low	NA
3C-4	0–5	High	0–5	50–75	High/Low	High	None	Not Occupied	Low	NA

NOTES:

SKR = Stephens' kangaroo rat
^ Active gopher excavation density ratings used; inactive excavations excluded.
* Potential Kangaroo Rat Sign: B = Burrow(s); S = Scat; T = Tracks; TD = Tail Drag; TV = Trails in Vegetation; CF = Caching/Foraging Craters; 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.

TABLE 35
SKR MONITORING RESULTS: HELLHOLE CANYON COUNTY PRESERVE

Occupancy/Potential		# of Monitoring Plots
SKR Occupancy*	Occupied	3
	Unoccupied	0
SKR Potential	High	0
	Medium	2
	Low	1
	No	0

NOTES:

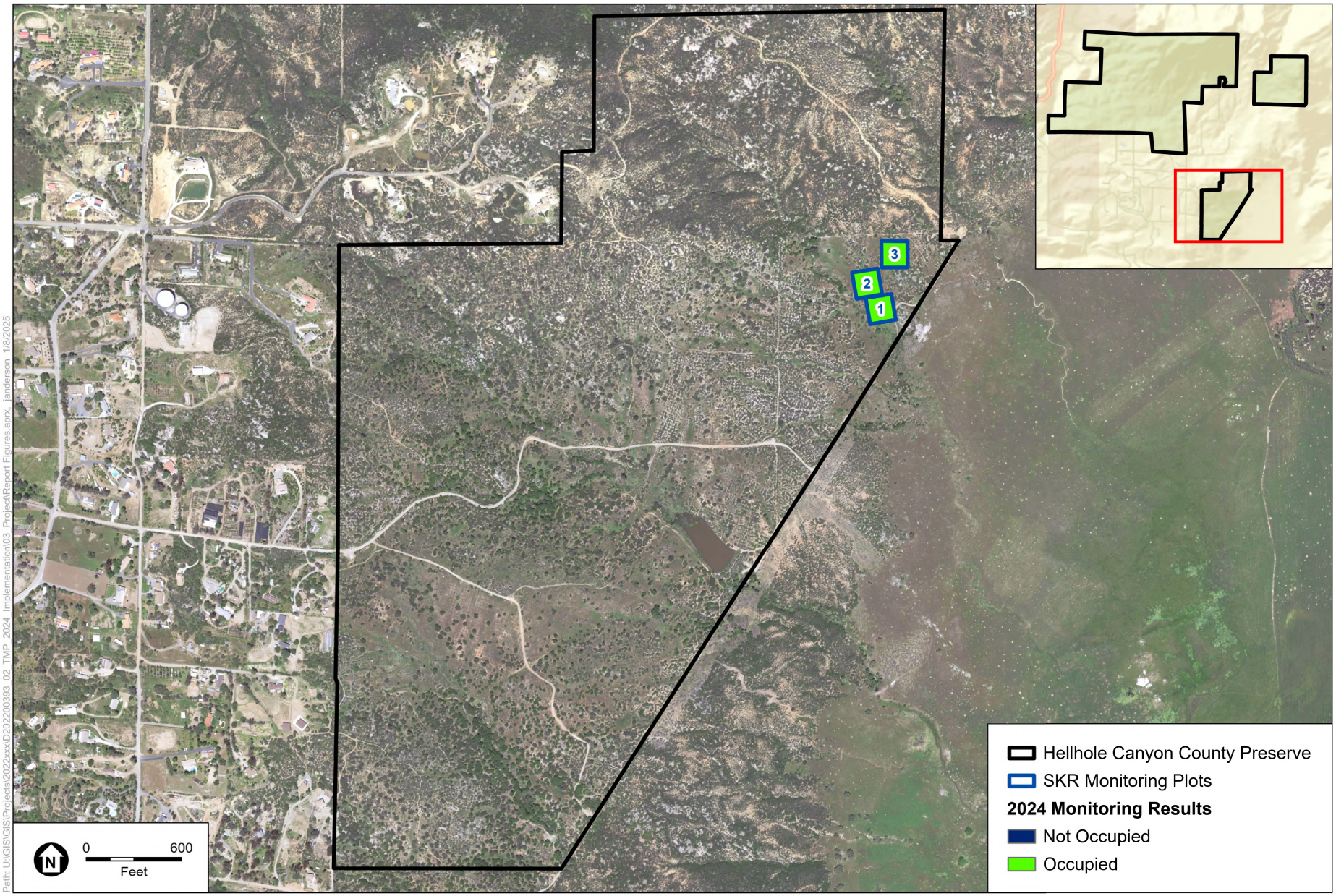
SKR = Stephens' kangaroo rat.
* Occupancy status was determined as "potentially occupied" based on the positive detection of one SKR in plot 2 during fall 2020 live-trapping surveys, positive kangaroo rat sign during fall 2023 monitoring, the proximity of all three plots (within 150 feet of one another), and no factors that could reasonably be expected to entirely preclude SKR movement between the three plots.

TABLE 36
SKR HABITAT ASSESSMENT SUMMARY: HELLHOLE CANYON COUNTY PRESERVE

	Fall 2024									Fall 2023
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	0–5	Medium	5–25	50–75	High/Low	Medium	B	Occupied	Low	Low
2	5–25	Medium	5–25	50–75	High/Low	Medium	B	Occupied	Medium**	High**
3	0–5	High	25–50	50–75	Medium/Low	High	B, S	Occupied	Medium**	Medium**

NOTES:

SKR = Stephens' kangaroo rat
^ Active gopher excavation density ratings used; inactive excavation density ratings excluded.
* 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 2023 was determined as "potentially occupied" as described in the footnote on **Table 30.**



SOURCE: NAIP, 2020; SanGIS, 2024; ESA, 2024.

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Figure 16

Stephens' Kangaroo Rat Monitoring Results
Hellhole Canyon County Preserve

ESA

SKR occupancy potential decreased for one of the three monitoring plots in fall 2024 compared to fall 2023 monitoring. SKR was found present at only one of the three monitoring plots during the fall 2020 live-trapping effort, but Dulzura kangaroo rat (*Dipodomys simulans*) (DKR) was also found present during the live-trapping effort. Based on sign detected during the fall 2024 habitat assessment monitoring effort, SKR presence was potentially detected at all three of the 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 potentially present at all three monitoring plots (**Table 36**). Habitat suitability for SKR decreased from High to Medium for plot 2. These results indicate seasonal SKR occupancy can increase or decrease at given sites between monitoring years due to variables such as drought/precipitation, survey timing, food availability, and competition among sympatric species. The following variables influenced survey results:

- **Precipitation.** Heavy rainfall was observed in the greater San Diego region between fall 2023 and fall 2024. An increase in overall rainfall can be beneficial for SKR suitability in that it can increase food availability; however, increases in rainfall are likely to increase vegetation density and height, which may increase obstruction factors. The period between the fall 2023 and fall 2024 monitoring efforts was marked by above-average rainfall in the greater San Diego region. In an ecological regime that is free of anthropogenic influences such as cattle grazing, consistently higher rainfall could result in a reduction of suitable habitat for SKR by promoting vegetation cover that excludes SKR.
- **Vegetation composition.** During the 2024 monitoring effort, none of the plots were observed to have had any mowing conducted, unlike the 2023 monitoring effort. As a result, and in conjunction with slightly above-average rainfall amounts during the previous rainy season, an increase in living/standing herb density and overall vegetation coverage was broadly observed across all three plots. Plot 2 presented similar findings as previous years, with more open areas primarily vegetated with low-growing filarees (*Erodium* spp.), which facilitates SKR movement and is a potential food source. Comparatively, plots 1 and 3 presented with higher percentages of taller-growing ruderal species such as tocalote and shortpod mustard, that increase obstruction factors and may preclude or reduce SKR movement. Obstruction factors were increased for plots 1, 2, and 3, compared to findings from 2021 to 2023, reducing the potential for SKR. Also of note is the significant increase in active gopher excavations observed, most notably in plots 1 and 2.

Detailed monitoring methods and results, including plot photographs and habitat assessment forms are included in **Appendix H**.

Adaptive Management Recommendations

The following are the adaptive management recommendations to ensure persistence of SKR at Hellhole Canyon County Preserve. The incidental observations of thatch and non-native plant species in 2024, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Habitat enhancement.** Focused management within the 5.8-acre management area is recommended to enhance and 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.

4.8 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 (**Figure 17**), Mount Olympus County Preserve (**Figure 18**), and Wilderness Gardens County Preserve (**Figure 19**). Field forms, including the habitat and threats assessment form, are included in **Appendix I**, *Bat Survey & Habitat Assessment Field Forms and Representative Photograph*. Transect acoustic monitoring was conducted to provide supplemental information and to document if pallid bat was potentially roosting on-site. Pallid bat was not detected during transect acoustic monitoring surveys (**Table 37**). Incidentally observed special-status wildlife species included turkey vulture at Hellhole Canyon County Preserve (**Figure 17**).

TABLE 37
TRANSECT ACOUSTIC BAT SURVEY RESULTS

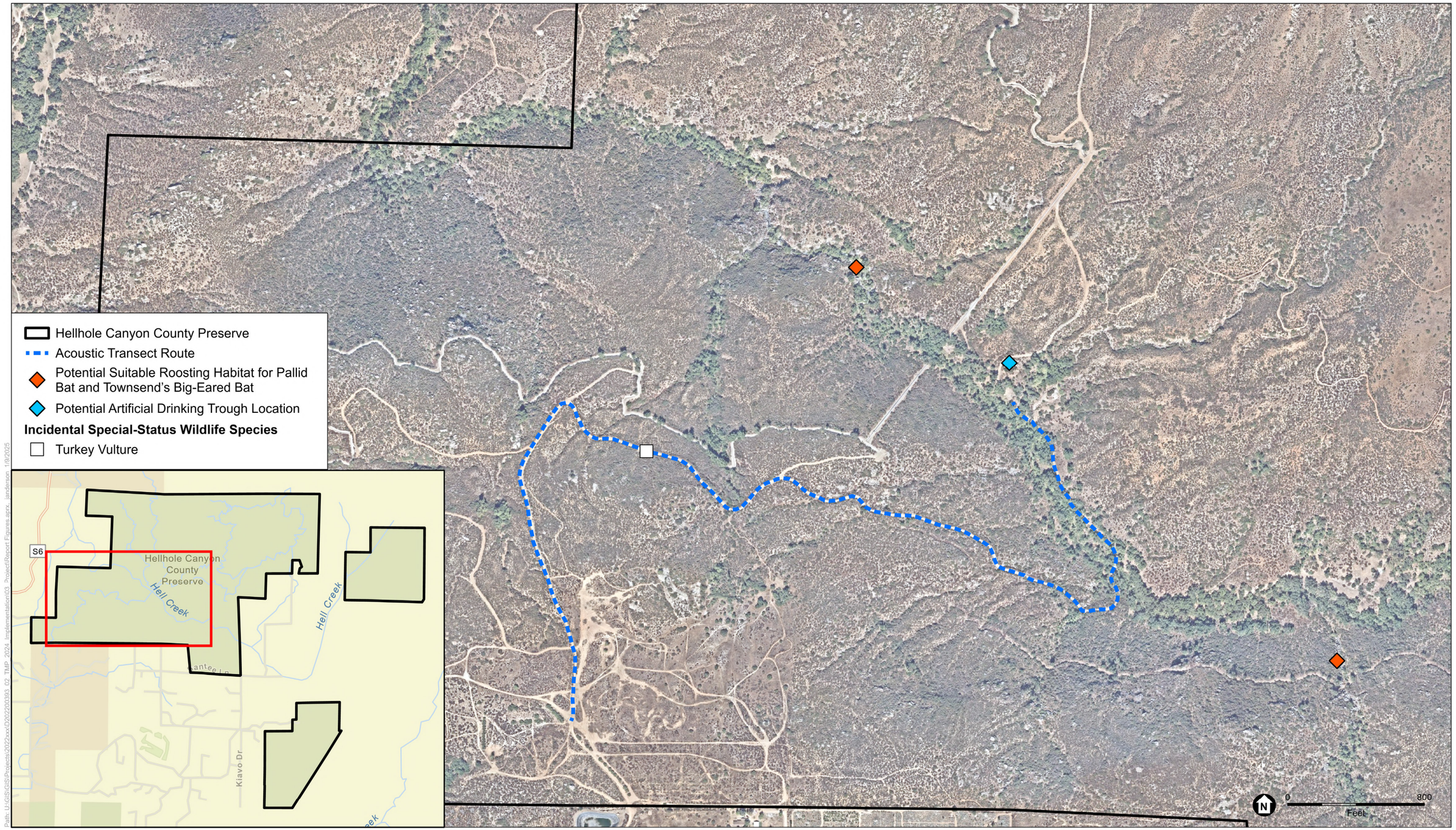
Bat Species Detected	Mount Olympus County Preserve (07/03/2024)	Hellhole Canyon County Preserve (07/10/2024)	Wilderness Gardens County Preserve (07/11/2024)	Total
Big brown bat *Eptesicus fuscus*	2	1	23	26
Silver-haired bat *Lasionycteris noctivagans*	1	–	30	31
Western yellow bat *Lasiurus xanthinus*	–	–	2	2
California myotis *Myotis californicus*	–	1	10	11
Western small-footed myotis[a] *Myotis ciliolabrum*	3	3	2	8
Yuma myotis[a] *Myotis yumanensis*	–	–	5	5
Canyon bat *Parastrellus hesperus*	5	–	–	5
Total	**11**	**5**	**72**	**88**

NOTES:

a. County of San Diego Sensitive Animal Group 2 Species.

4.8.1 Roosting and Foraging Habitat Assessment

Pallid bat is a multiple-habitat roosting species and forages on terrestrial arthropods in oak savannah-type habitats, grassy oak and sycamore-lined river terraces, native grasslands, and sparsely vegetated scrublands. Suitable foraging habitat also includes dirt trails, roads, and staging areas especially when it cuts through dense scrubland habitat like chaparral. 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.



SOURCE: Nearmap, 2020; ESA, 2024.

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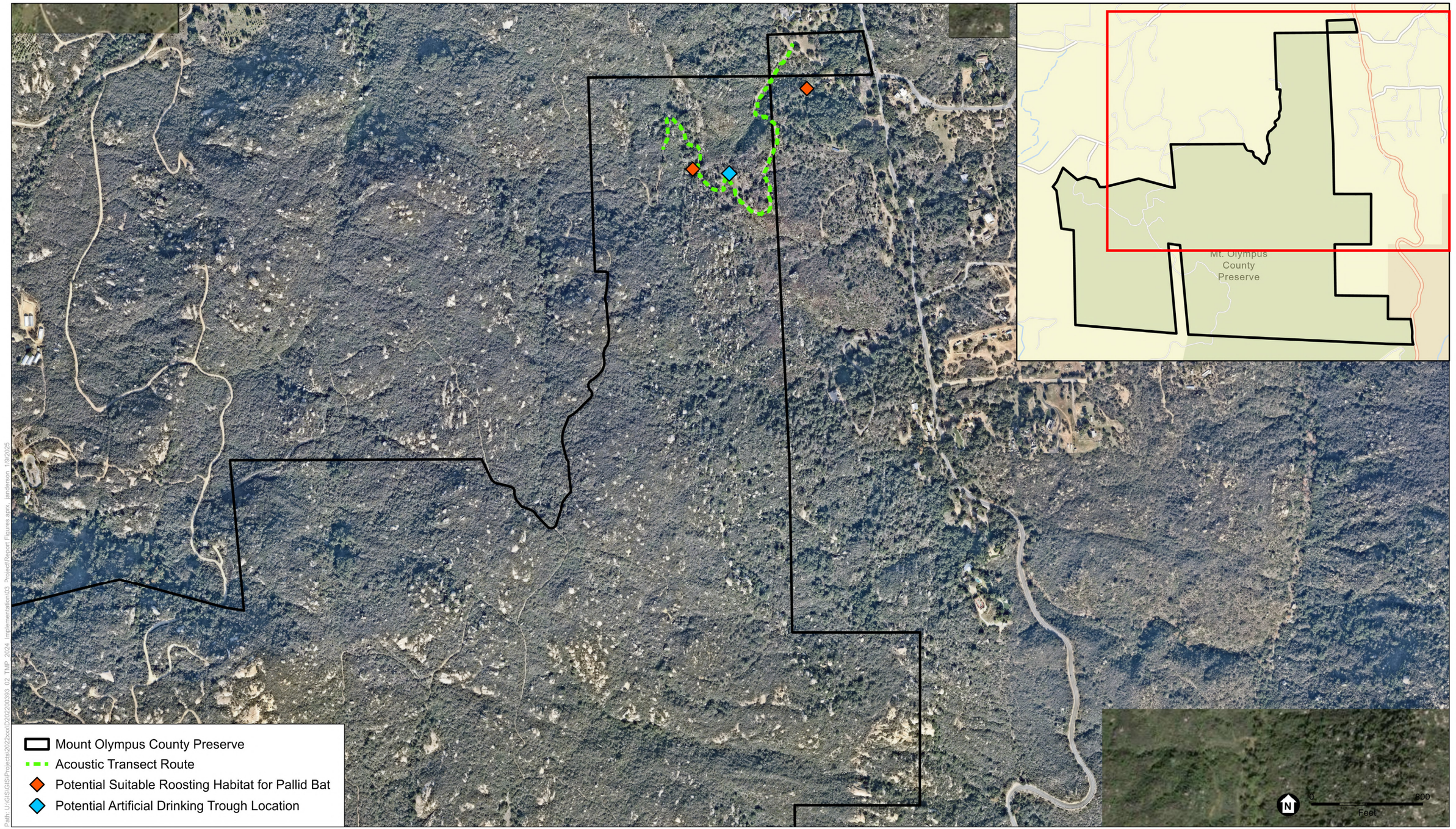
Figure 17
Pallid Bat and Townsend's Big-Eared Bat Monitoring Results
Hellhole Canyon County Preserve

ESA

Path: U:\GIS\GIS\Projects\2022\cxx\D2022200393 02 TMP 2024 Implementation\03 Project\Report Figures.aprx, janderson 1/9/2025



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SOURCE: Nearmap, 2021; ESA, 2024.

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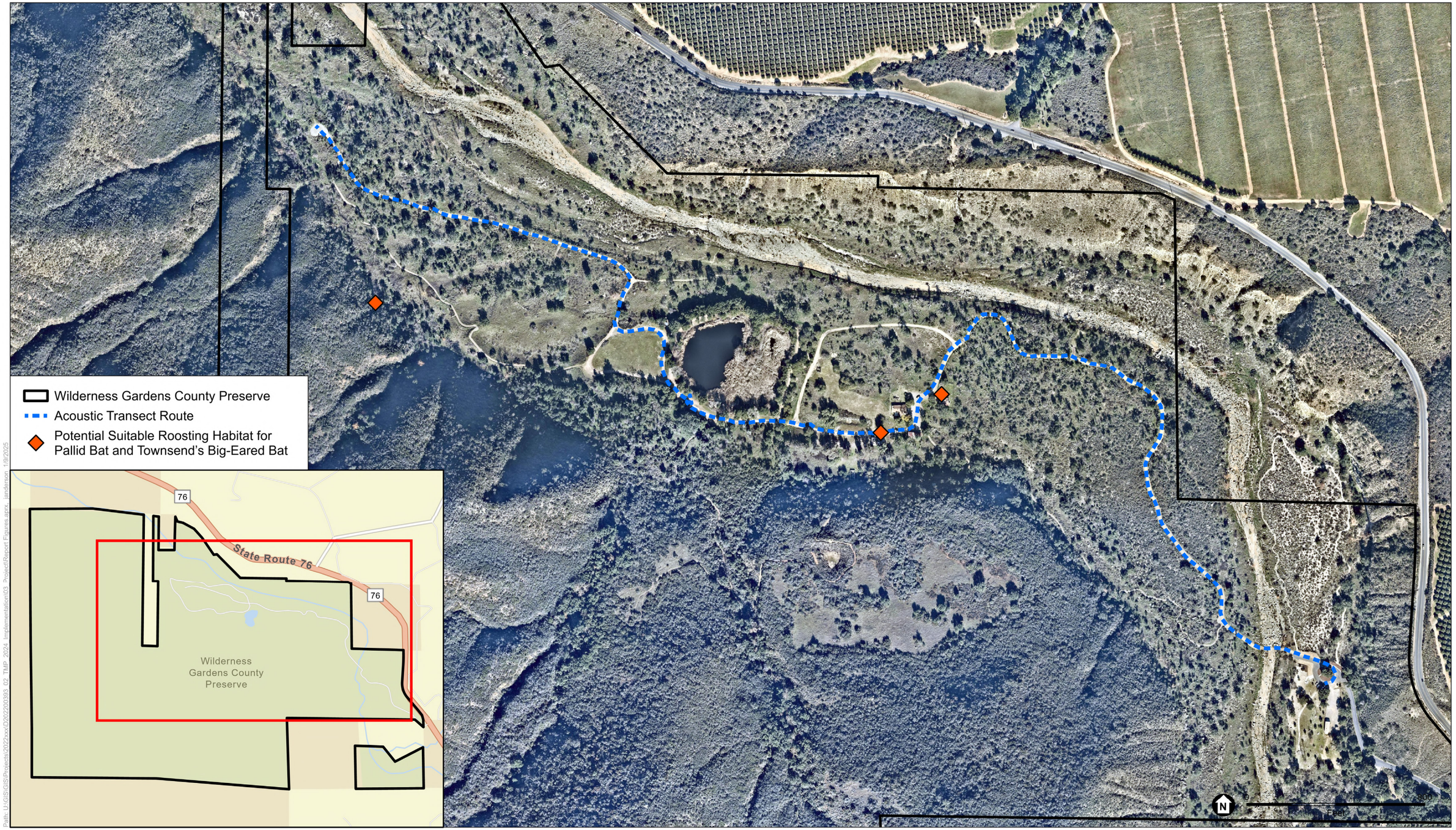
Figure 18

Pallid Bat Monitoring Results
Mount Olympus County Preserve

ESA



Path: U:\GIS\GIS\Projects\2022xxx\D2022200393_02_TMP_2024_Implementation\03_Project\Report Figures.aprx, janderson 1/9/2025

SOURCE: Nearmap, 2021; ESA, 2024.

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Figure 19
Pallid Bat and Townsend's Big-Eared Bat Monitoring Results
Wilderness Gardens County Preserve

ESA

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Hellhole Canyon County Preserve

There is an abundance of rocky outcrops and boulders that could provide suitable roosting habitat for pallid bats 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 17**). 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 pallid bats in Hellhole Canyon County Preserve.

Suitable foraging habitat on Hellhole Canyon County Preserve include the sycamore-lined Hell Creek and the sparsely vegetated scrubland. The numerous dirt trails and roads that run through chaparral and coastal sage scrub habitats on the preserve also provide suitable foraging habitat for pallid bat.

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 pallid bats. There are 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 pallid bats in Mount Olympus County Preserve (**Figure 18**).

Suitable foraging habitat on Mount Olympus County Preserve is limited to the rocky outcrops, dirt trails, and roads through the preserve. While there is oak and sycamore woodland, they are densely vegetated and lack openings for foraging pallid bats.

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 19**). Additional potential roosting habitat for pallid bat occurs in 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 dominate the preserve, and near the two ponds on-site.

Suitable foraging habitat on Wilderness Gardens County Preserve include the sycamore-lined San Luis Rey River, native grassland, and the sparsely vegetated scrubland. The numerous dirt trails and roads that run through chaparral and coastal sage scrub habitats on the preserve also provide suitable foraging habitat for pallid bats.

4.8.2 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 plant species.** Invasive non-native plant species alter vegetation structure, which affects foraging success. Invasive non-native plant cover has increased in density in the eastern portion of Mount Olympus County Preserve along the dirt trails and roads on-site and presents a potentially significant threat to pallid bat foraging habitat (see overgrown dirt trail in representative photograph Photo 1 in **Appendix I**). Pallid bats require open and sparsely vegetated areas for foraging such that they can easily access terrestrial arthropods; therefore, dense invasive non-native plant cover reduces suitable foraging habitat (Krutzsch 1948).

4.8.3 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 for non-native plant species within and along trails, roads, disturbed areas, and sparsely vegetated habitats that provide openings for foraging pallid bats mainly on Mount Olympus County Preserve. Targeted dethatching and mowing can reduce the overall height of the existing vegetation to a desired level and increase open ground, maximizing the ability for pallid bats to forage. Herbicide treatment can be used to maintain open ground areas and trail widths. 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 and vegetation removal should be implemented with weedeaters 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.
- **Enhance drinking sources.** Enhance drinking sources for pallid bats at Hellhole Canyon County Preserve and Mount Olympus County Preserve by installing spring- and/or water-table-fed artificial drinking troughs 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 in **Figure 17** and **Figure 18**, 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 (**Figure 19**), 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 to provide consistent and protected roost structures. 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.

- **Conduct mist-netting to determine pallid bat occupancy.** 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 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, as recommended in the TMP (ESA and ICF 2022).

4.9 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 I**. 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; however, this species has a low detection rate due to their call frequency (**Table 37**). Incidentally observed special-status wildlife species included turkey vulture at Hellhole Canyon County Preserve (**Figure 17**).

4.9.1 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. Townsend's big-eared bat is a Lepidopteran (small to medium moths) specialist and forages in edge habitats along streams and wooded habitats.

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 (**Figure 17**). On-site trees with tree hollows and cavities also have the potential for providing Townsend's big-eared bat roosting opportunities but is not the preferred roosting location for this species. 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.

Suitable foraging habitat on Hellhole Canyon County Preserve is limited to the woodland edge habitats around Hell Creek.

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 19**). Exposed rocky habitat such as the rocky outcrops near the northern boundary of the preserve serve as potential roosting habitat for Townsend's

big-eared bat as well. Additional potential roosting habitat for Townsend's big-eared bat occurs in 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.

Suitable foraging habitat on Wilderness Gardens County Preserve include the woodland area surrounding the pond and the woodland edge habitats around San Luis Rey River.

4.9.2 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. No signs of dumping/trash or illegal trail/unauthorized off-trail usage were detected; therefore, no threats were identified during the species surveys.

4.9.3 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 mowing and/or herbicide treatment for non-native plant species along edge habitats adjacent to Hell Creek and San Luis Rey River and adjacent to and within woodland habitat areas. Targeted mowing can increase native plant diversity by reducing invasive non-native plants, increasing prey abundancy, and maximizing the ability of Townsend's big-eared bats to forage in intact native habitat. Herbicide treatment can be used to reduce invasive non-native plants and increase prey abundance. Focused management should occur outside of the avian nesting season (March–September) at Hellhole Canyon County Preserve and Wilderness Gardens County Preserve and away from recreation areas such as trails and staging areas. 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. Vegetation removal should be implemented with weedeaters 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.
- **Enhance drinking sources.** Enhance drinking sources for Townsend's big-eared bats at Hellhole Canyon County Preserve by installing spring- and/or water-table-fed artificial drinking troughs in the preserve 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 are included on **Figure 17**, respectively. The location is near an access road and 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 to provide consistent and protected roost structures. 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.

- **Conduct mist-netting to determine Townsend's big-eared bat occupancy.** Townsend's big-eared 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 Townsend's big-eared bat sign, the alternative is to use electronic bat detectors. Townsend's big-eared bats appear to have low detection rates. 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, as recommended in the TMP (ESA and ICF 2022).

4.10 Regional MSP Wildlife Monitoring Results

Through ROE permits issued by DPR, USGS and the San Diego Natural History Museum conducted arroyo toad and tricolored blackbird monitoring at Ramona Grasslands County Preserve, respectively. Results are provided below.

4.10.1 Arroyo Toad

Regional monitoring efforts for arroyo toad included monitoring surveys performed by USGS permitted biologists (recovery permit TE-045991-19.1) along reaches 25, 29, 34, 39, and 44 in the Santa Maria Creek within Ramona Grasslands County Preserve. Of the 10 reach segments surveyed, only 2 reach segments (segments 25A and 25B) supported breeding and larval toad development (**Figure 12**). A total of 25 metamorphs were detected across these two reach segments. No additional special-status wildlife species were incidentally observed. Ninety-seven red swamp crayfish were recorded across all 10 reach segments; and 18 American bullfrogs were observed within segments 25A, 29A, 29B, 34A, 34B, and 44B (**Figure 12**).

4.10.2 Tricolored Blackbird

Regional monitoring efforts for tricolored blackbird included monitoring surveys performed by the San Diego Natural History Museum biologists within Ramona Grasslands County Preserve. No tricolored blackbird nesting colonies were observed within the preserve, but potentially suitable nesting and foraging habitat was observed.

4.11 Residual Dry Matter Monitoring

4.11.1 Residual Dry Matter Monitoring

The results of vegetation sampling within each management unit at Ramona Grasslands County Preserve are discussed below, and 2024 RDM values are summarized in **Table 38** and **Figure 20**. The results of the average RDM values from each of the individual RDM plots from 2011 through 2024 can be found in **Appendix J**, *Residual Dry Matter Monitoring Report*. All RDM values, except for management units 1A, 4A, and 4B, were above the target RDM values. Management units 1A and 4A were within their target RDM values, while management unit 4B was below its target RDM value. In 2024, RDM values in all management units except 1A and 3D decreased from 2023 results. Management unit 3D had the most significant increase in RDM value this season.

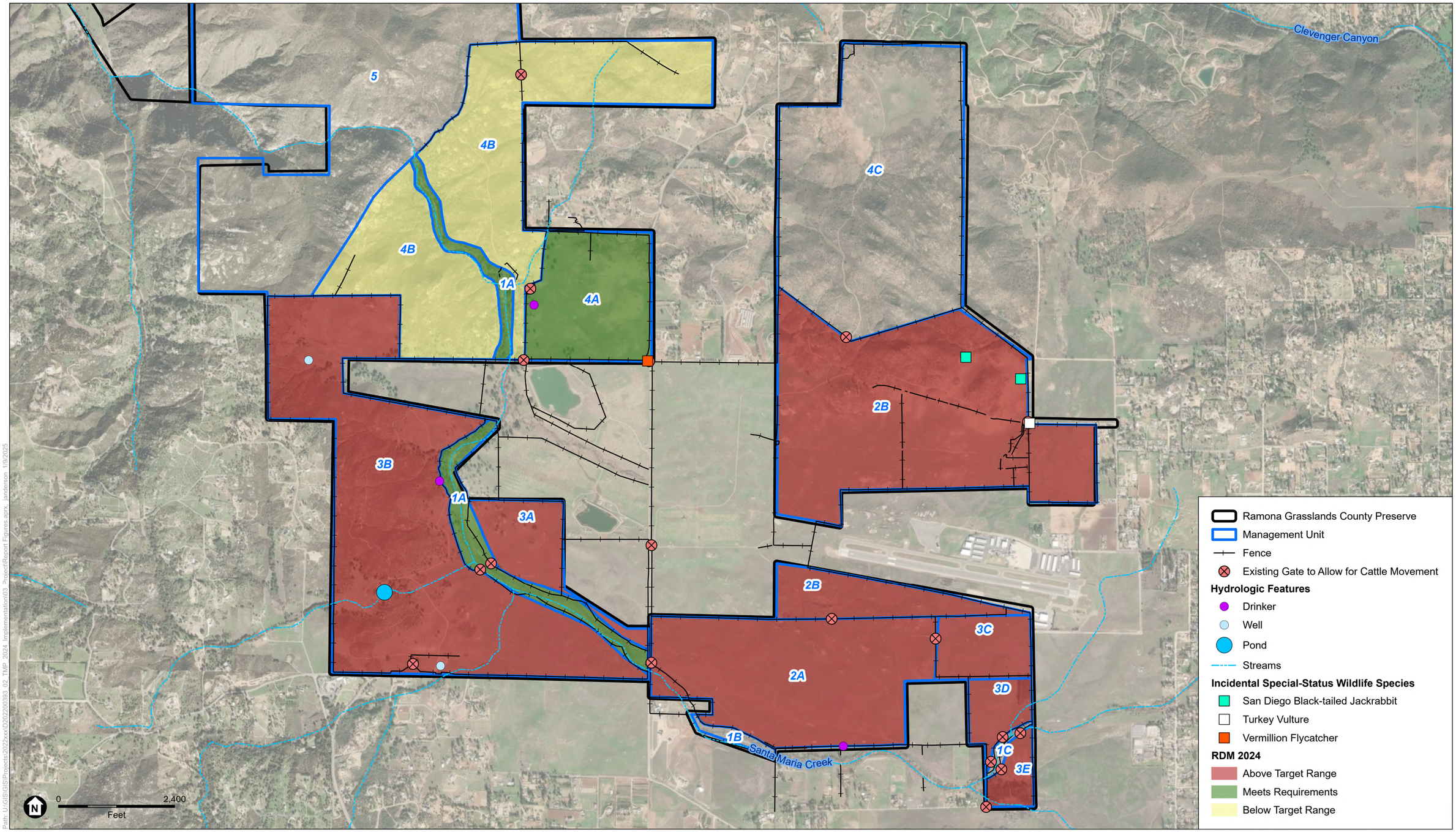
TABLE 38
SUMMARY OF 2024 RAMONA GRASSLANDS COUNTY PRESERVE RDM RESULTS

		Average RDM (lb/acre)														
Management Unit	**Target RDM Value**	**2011***	**2012***	**2013***	**2014***	**2015***	**2016***	**2017***	**2018***	**2019***	**2020**	**2021**	**2022**	**2023**	**2024**	**2024 Results**
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	1,333	1,867	Meets 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	3,886	2,871	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	2,881	2,086	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	2,447	1,700	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	2,193	1,720	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	3,600	2,311	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	2,667	5,244	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	6,858	3,300	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	1,800	833	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	1,294	756	Does not meet 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	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	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 2024.



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SOURCE: ESRI, AECOM 2017; ESA 2024

COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management

Targeted Monitoring Plan Resource-Specific Monitoring and Management 2024 Annual Report

Figure 20

Residual Dry Matter Monitoring Results
Ramona Grasslands County Preserve

ESA

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The majority of management units were above their target RDM values in 2024; however, 2024 RDM values were generally lower than in 2023. Results were likely influenced by the accumulated rainfall in 2024 and the reinstatement of grazing in January 2023. Ramona Airport reported approximately 13.5 inches of accumulated rainfall from January to September 2024, with significant rainfall in February from atmospheric river events (NWS, NOAA 2024). 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, drought conditions in 2021 and 2022, and above-average rainfall in 2023 and 2024) drive substantial variability in vegetative cover from year to year. As seen in **Table 38**, the general decrease in RDM values between 2023 and 2024 is likely due to the return of cattle on the preserve.

4.11.2 Adaptive Management Recommendations

The following are adaptive management recommendations based on the annual RDM monitoring results for all management units:

- **Coordinate with the grazing lessee on cattle grazing practices**. Provide information on the conservation goals to be fulfilled by grazing on the preserve and discuss grazing frequency, timing, rotation, and RDM targets to better guide annual grazing practices on the preserve. Cattle grazing frequency and rotations should be carefully monitored to restrict access to vernal pool and playa habitat during the wet season[1] (typically November through March for Southern California), as well as when clay soils are still moist and malleable.
- **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.
- **Conduct invasive non-native plant mapping**. Invasive non-native plant mapping should be conducted throughout the preserve annually, if feasible, per the monitoring recommendations in the *Targeted Monitoring Plan* (ESA and ICF 2022).
- **Continue active restoration of management unit 3E**. Remove invasive non-native plant 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 2018–2024 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 on 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 (2011) Plant Atlas Database. Seeds should not come from outside of San Diego County.

[1] The vernal pool wet season can generally be defined as the period between winter and early spring, typically November through March for Southern California. The start of the vernal pool wet season begins each year once a substantial precipitation event occurs (providing at least 0.5 inch) to wet the soil enough to start germination of vernal pool indicator species.

- **Conduct rare plant surveys throughout the preserve**. Rare plant surveys should be conducted every 10 years in the spring and late summer, per the monitoring recommendations in the *Targeted Monitoring Plan* (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.

CHAPTER 5
References

AECOM. 2022. *San Diego County 2021 Northern Harrier Surveys: Breeding Surveys and Habitat and Threat Assessments Information*.

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.

Blackhawk Environmental Inc. 2022. *USFWS 90-Day Report of 2022 Wet Season Fairy Shrimp Surveys for Ramona Grasslands County Preserve, Ramona, San Diego County, California*. July 4, 2022.

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.

Brown, J. 1991. *Sensitive and Declining Butterfly Species (Insecta: Lepidoptera) in San Diego County, California*. Draft report prepared for Dudek and Associates. 27 pages.

Cal-IPC (California Invasive Plant Council). 2023. "About the Cal-IPC Inventory." Available: https://www.cal-ipc.org/plants/inventory/about-the-inventory/. Accessed November 2023.

Cal-IPC. n.d. *About Invasive Plants*. Available: https://www.cal-ipc.org/plants/impact/. Accessed November 2023.

City of San Diego. 2019. *Revised Final City of San Diego Vernal Pool Habitat Conservation Plan*. City of San Diego Planning Department. October 2019.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*. August 1998.

County of San Diego. 2001. *Framework Management Plan*. Subarea Plan.

ESA (Environmental Science Associates). 2019. *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. 2022. *Final Targeted Monitoring Plan Resource-Specific Monitoring 2021 Annual Report.* Prepared for the County of San Diego Department of Parks and Recreation. May 2022.

ESA. 2023. *Final Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report.* Prepared for the County of San Diego Department of Parks and Recreation. January 2023.

ESA. 2024a. *Final Targeted Monitoring Plan*. Prepared for the County of San Diego Department of Parks and Recreation. August 2024.

ESA. 2024b. *Updated Final Targeted Monitoring Plan Resource-Specific Monitoring & Management 2023 Annual Report.* Prepared for the County of San Diego Department of Parks and Recreation. March 2024.

ESA. 2024c. *Ramona Grasslands Preserve 2023–2024 Raptor Surveys Summary Report*. Prepared for the County of San Diego Department of Parks and Recreation. November 2024.

ESA and ICF (ICF International, Inc.). 2015. *Comprehensive Monitoring Plan* (Targeted Monitoring Plan). Prepared for the County of San Diego Department of Parks and Recreation. July 2015.

ESA and ICF. 2022. *Targeted Monitoring Plan Update*. Prepared for the County of San Diego Department of Parks and Recreation. December 2022.

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.

Krutzsch, P.H. 1948. *Ecological study of the bats of San Diego County, California*. MA Thesis, University of California, Berkeley, California. 184 pp.

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.

NOAA (National Oceanic and Atmospheric Administration). 2024. National Water Prediction Service. Available: https://water.weather.gov/precip/. Accessed August 2024.

NWS (National Weather Service) NOAA. 2024. Temperature and Rainfall (RTP) Archive Map for Ramona, CA. Available: https://www.weather.gov/source/sgx/RTP/text/ramona.html. Accessed August 2024.

Parker S.S., L.S. Hall, M.J. Whitfield, L. Riege, K.R. Selm, and R. Corado. 2022. *Developing an adaptive management approach to cowbird control on the Santa Clara River, California.* The Journal of Wildlife Management. Volume 86, Issue 7. June 23, 2022.

Pike, J., Pellegrini, D., Reynolds, S., & Hays, L. R. 1999. *The status and management of the Least Bell's Vireo and Southwestern Willow Flycatcher within the Prado Basin, California, 1986-1999.*

Rebman and Dossey. 2006. *Baseline Survey of Willowy Monardella on MCAS Miramar*.

SDMMP (San Diego Management and Monitoring Program). 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) 2023 Rare Plant Inspect and Manage Monitoring Protocol for Occurrences on Conserved Lands in Western San Diego County*. November 7, 2022.

San Diego Natural History Museum. 2011. San Diego County Plant Atlas. Available: http://www.sdplantatlas.org/. Accessed October 2021.

USFWS (U.S. Fish and Wildlife Service). 1999. *Survey Protocol for the Arroyo Toad*. Prepared by the U.S. Department of the Interior. May 19, 1999.

USFWS. 2001. *Least Bell's Vireo Survey Guidelines*. Prepared by the U.S. Department of the Interior. January 19, 2001.

USGS (U.S. Geological Survey). 2020. *Aquatic Species and Habitat Assessment Protocol Rivers, Streams, and Creeks – Paper*. Survey Protocol. Prepared by the U.S. Department of the Interior. March 2020.

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Appendix A

Vernal Pools and Alkali Playas Permanent Photographic Monitoring

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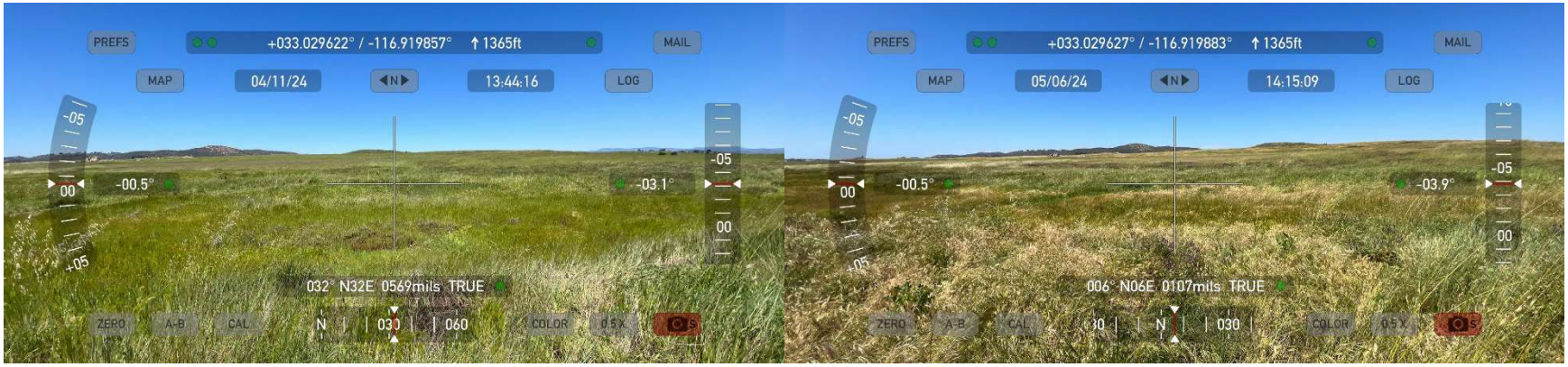
Wet Season **Dry Season**



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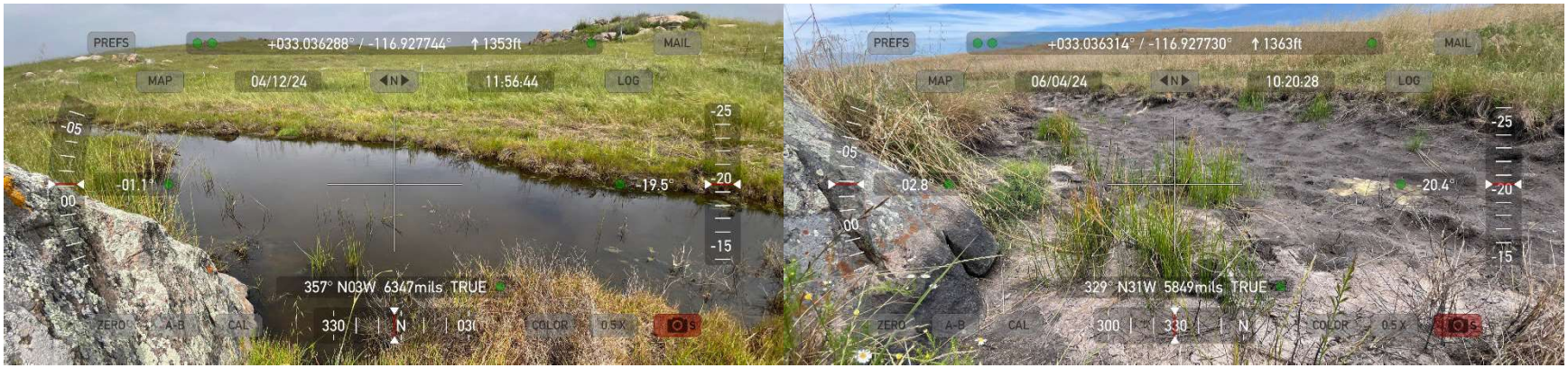
Wet Season **Dry Season**

CS02



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Wet Season **Dry Season**

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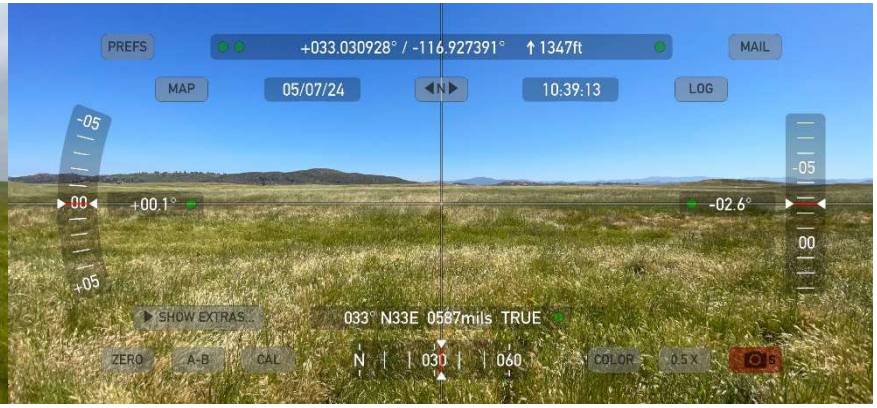
e53

Wet Season | **Dry Season**

e56



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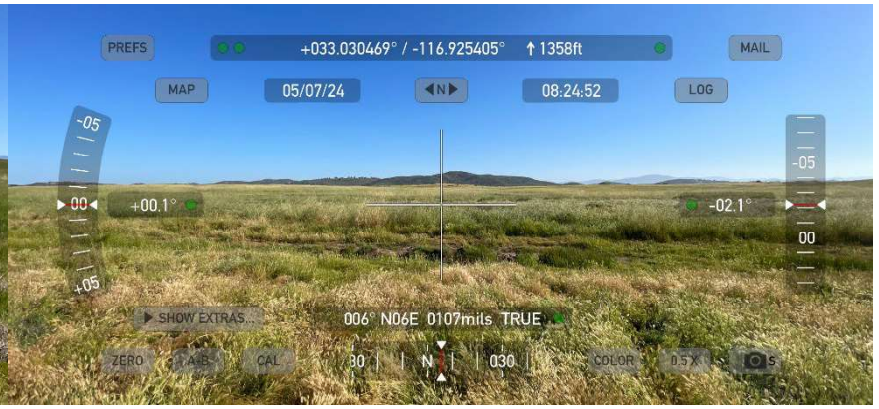

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Wet Season

Dry Season

e62

e63

Wet Season | **Dry Season**

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Wet Season	Dry Season
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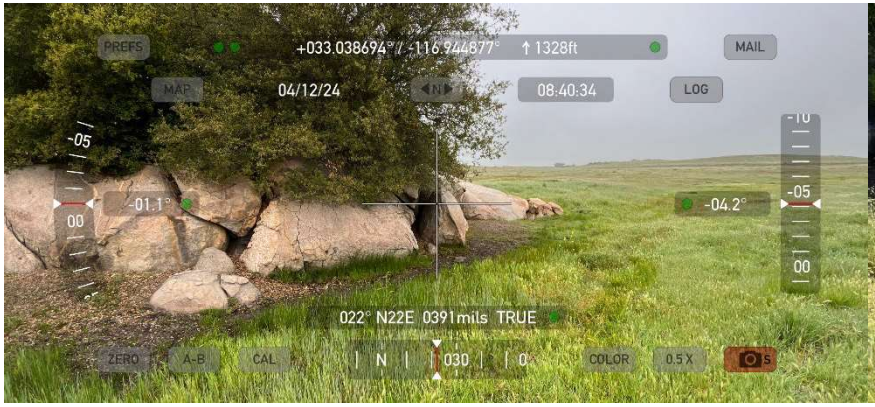
Wet Season **Dry Season**



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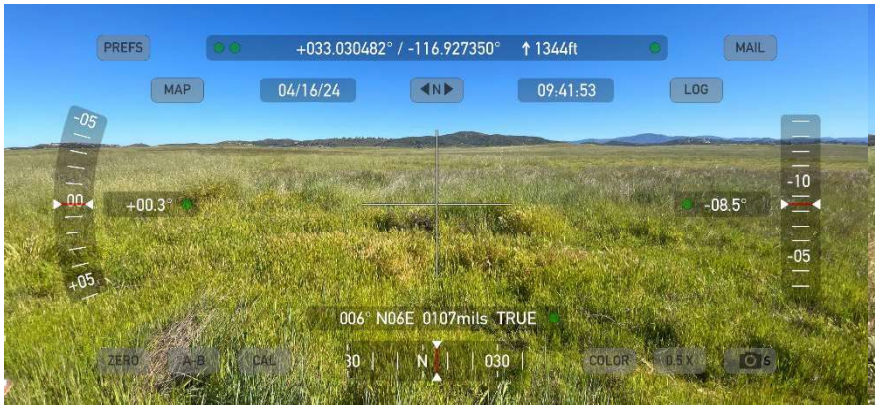

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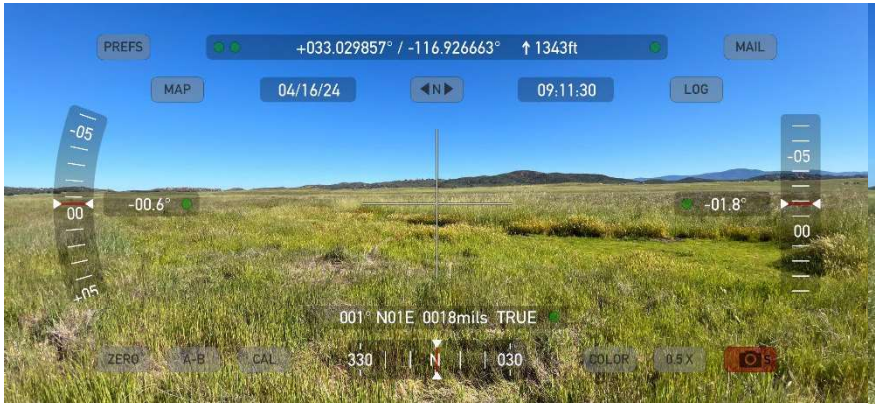

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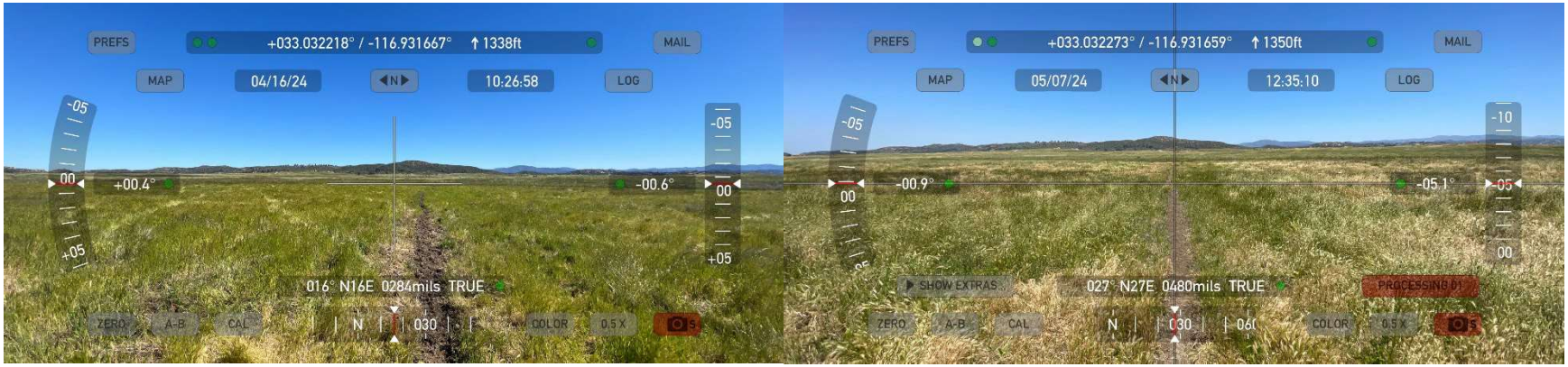

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A-2 Los Peñasquitos Canyon County Preserve

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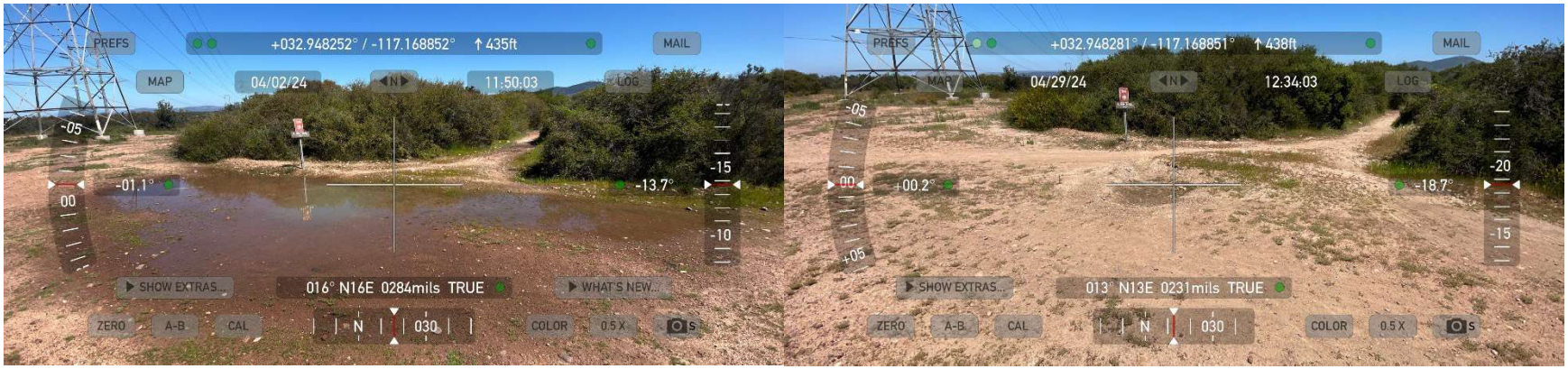

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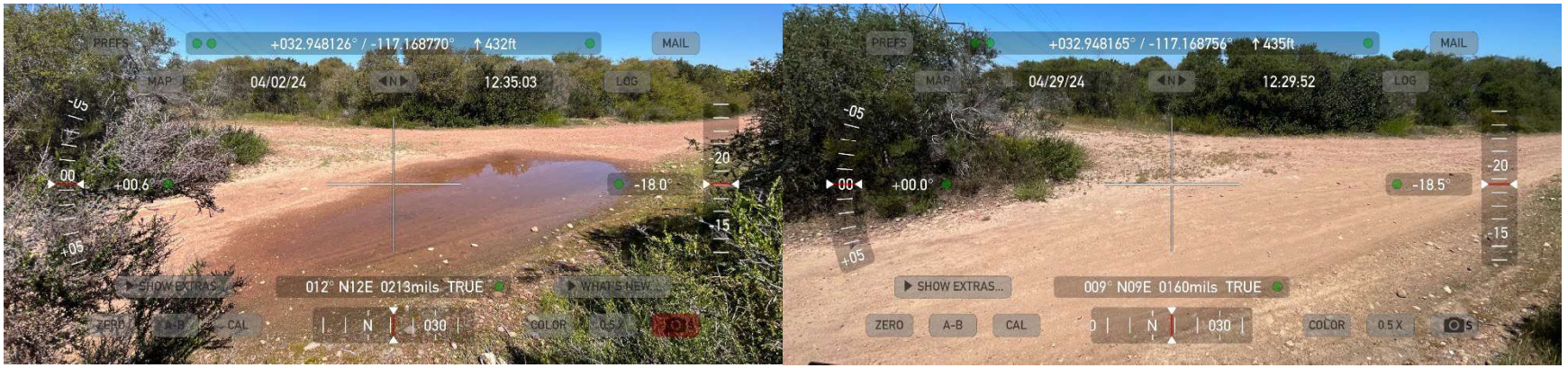
Wet Season **Dry Season**

SDLP003



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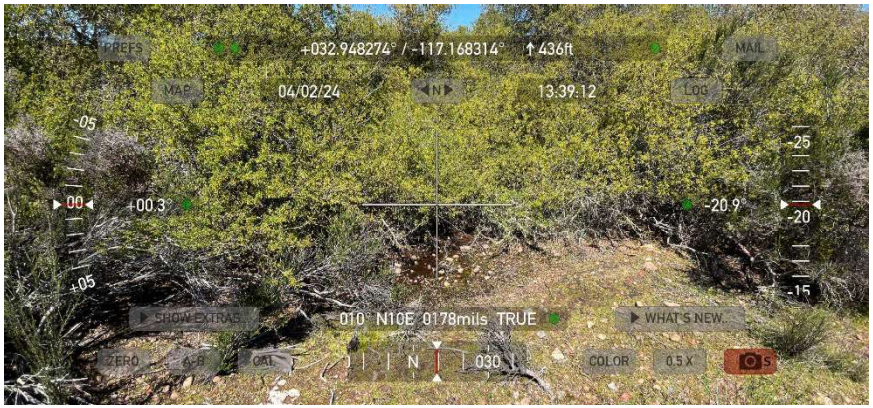 SDLP006	Image not available.

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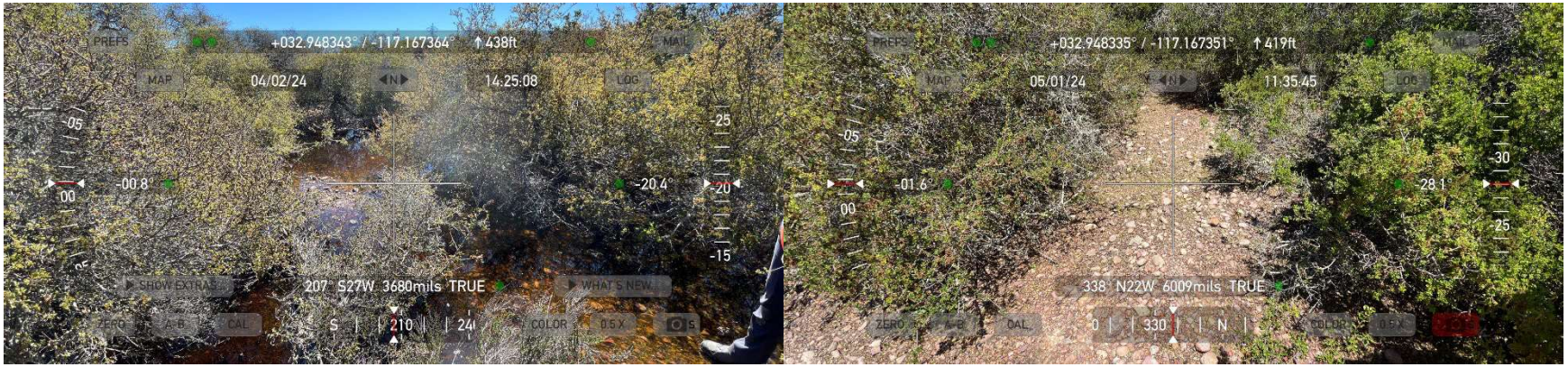

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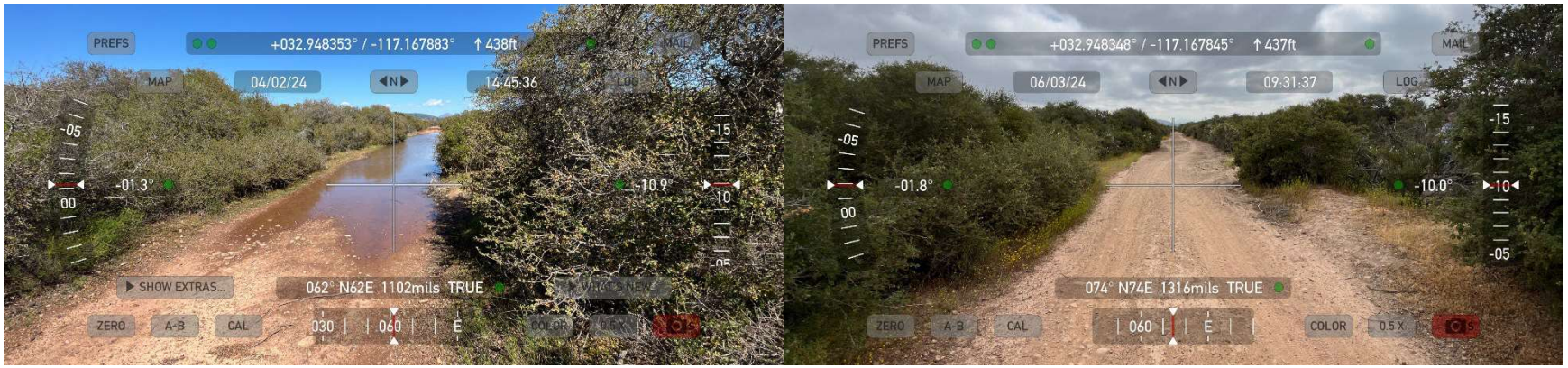

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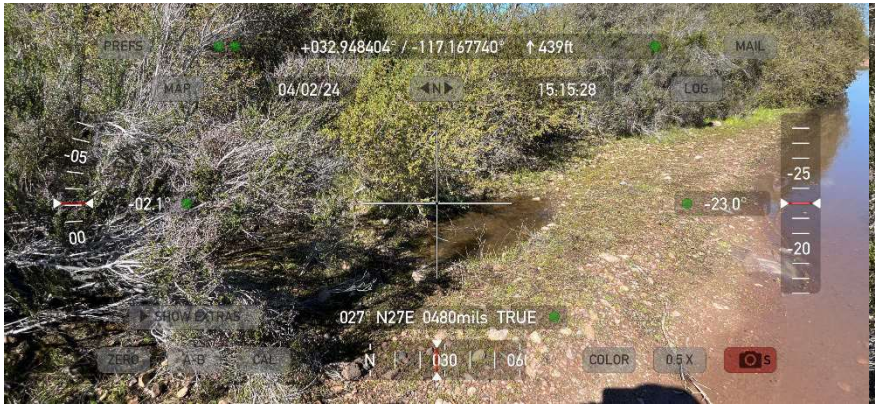

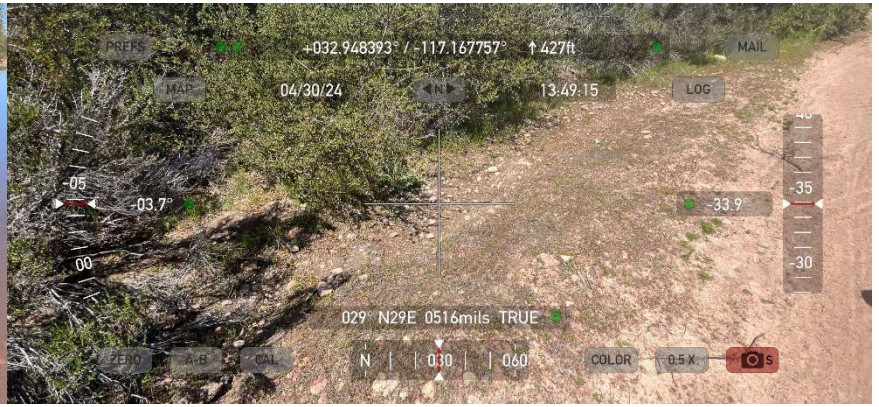

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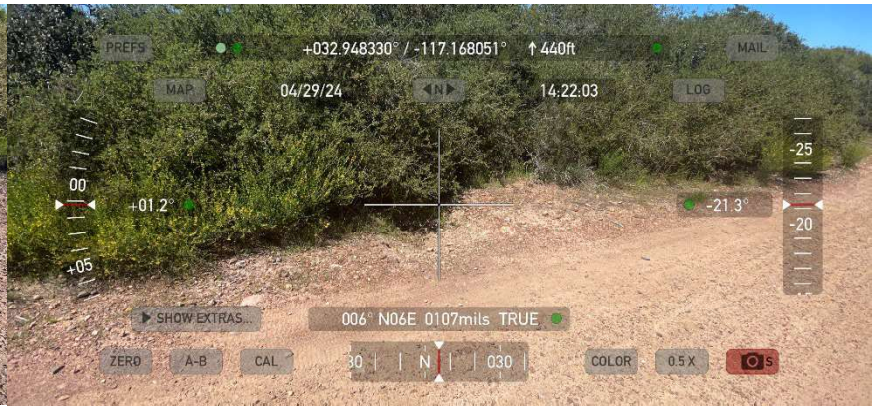


SDLP012

Wet Season **Dry Season**

SDLP013

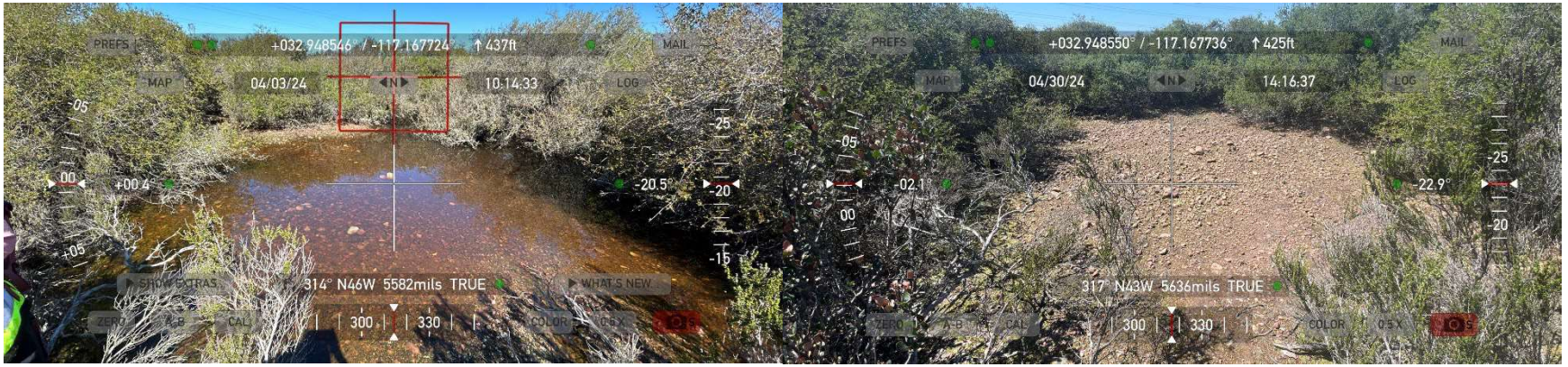
SDLP014

Wet Season **Dry Season**

SDLP015

SDP016

Wet Season **Dry Season**



SDLP017

SDLP018

Wet Season **Dry Season**

SDLP019

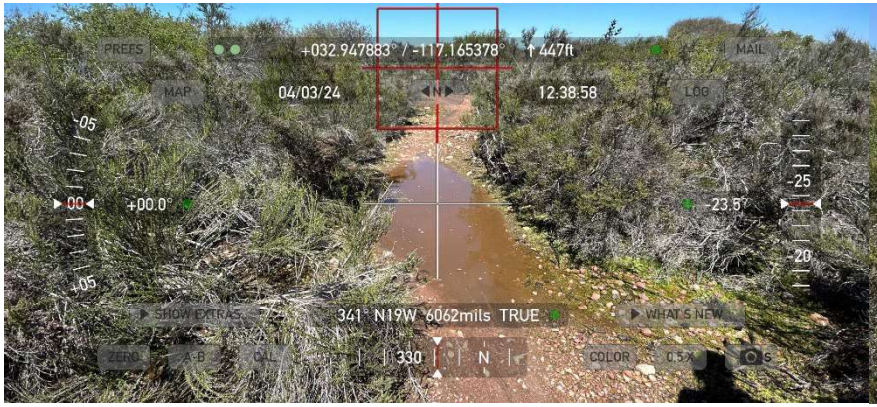
SDLP020

Wet Season | **Dry Season**

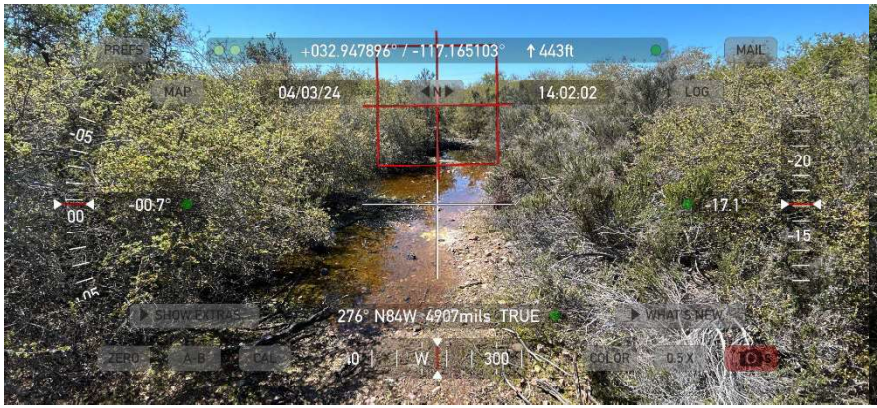
SDLP021

SDLP022

Wet Season | **Dry Season**

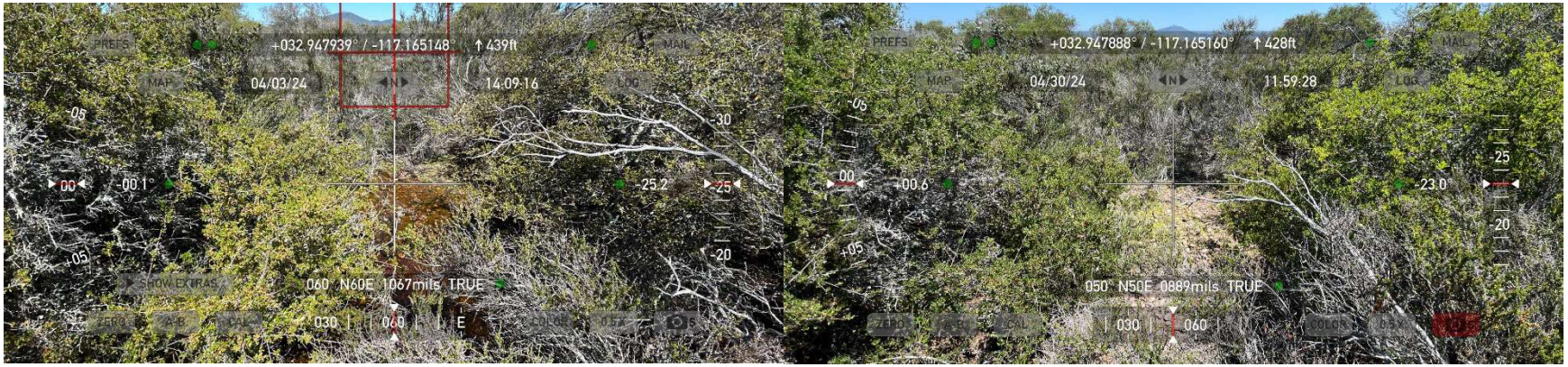


SDLP023



SDLP024

Wet Season **Dry Season**

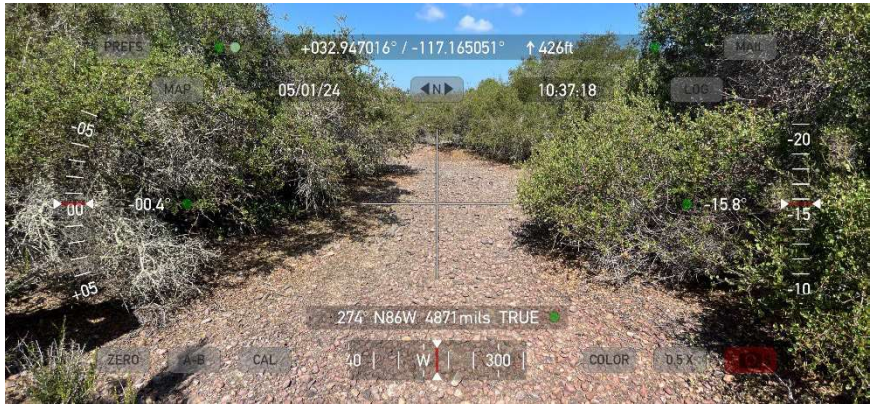


SDLP025

SDLP026

Wet Season

Dry Season



SDLP027

SDLP028

Wet Season **Dry Season**

SDLP029

SDLP030

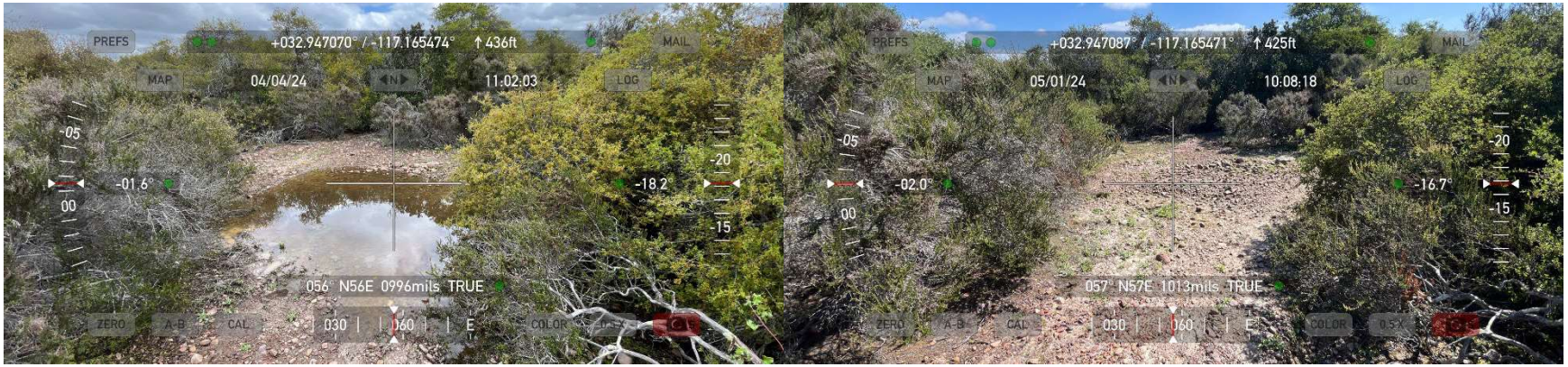
Wet Season	Dry Season
SDLP031	
SDLP032	

Wet Season **Dry Season**

SDLP033

SDLP034

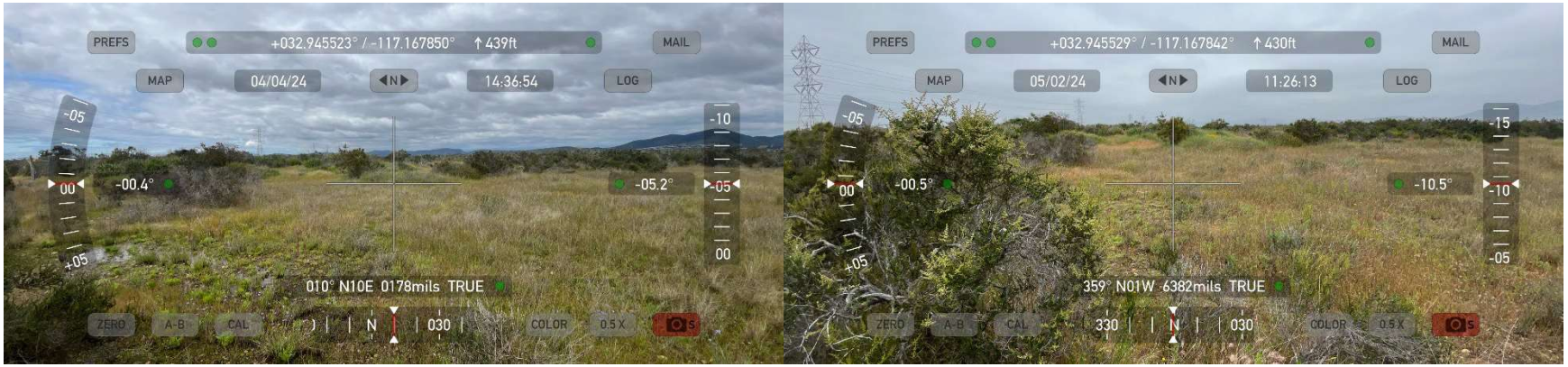
Wet Season **Dry Season**



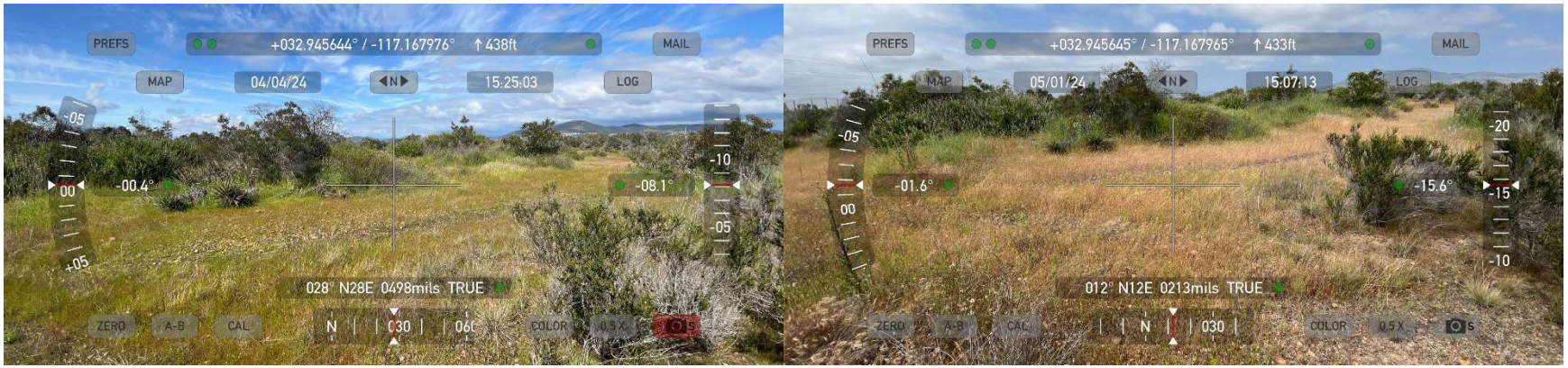
SDLP035

SDLP036

Wet Season **Dry Season**

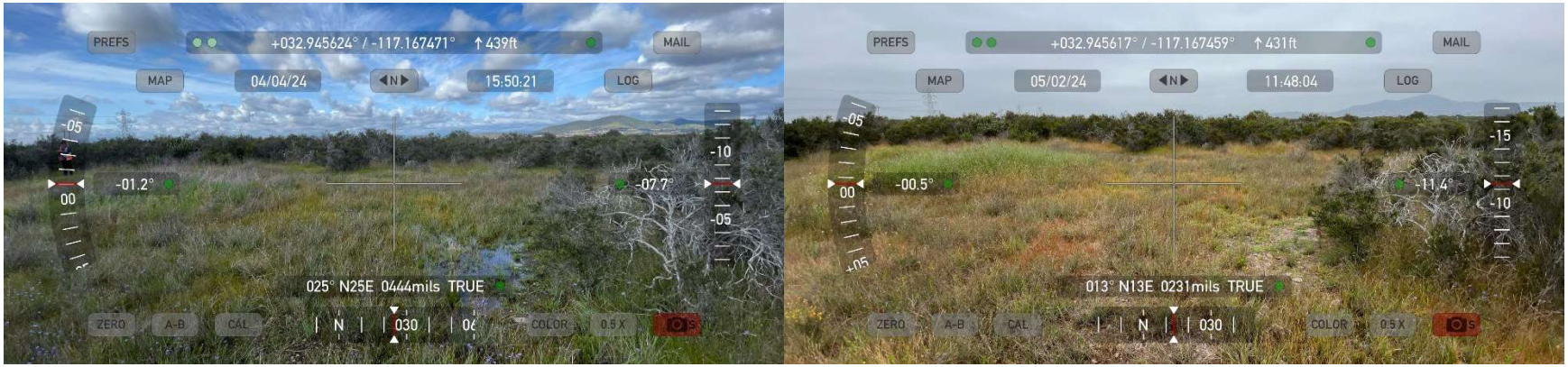


SDLP037



SDLP038

Wet Season | **Dry Season**



SDLP039

SDLP040

Wet Season **Dry Season**

SDLP041

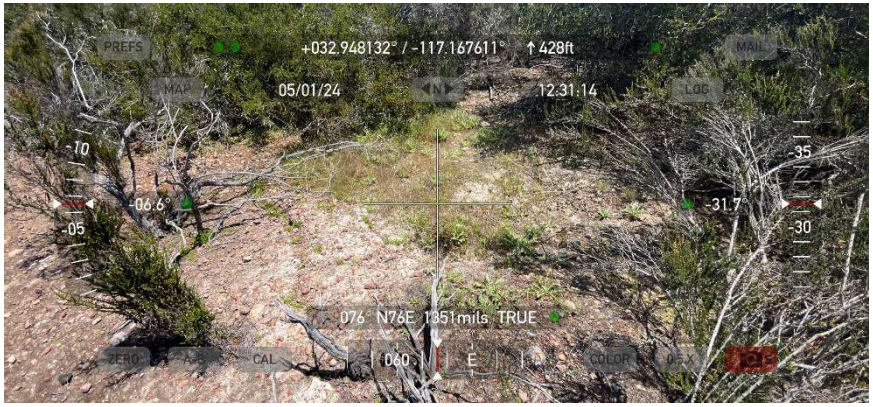
SDLP042

Wet Season	Dry Season
Image not available.	 SDLP043
Image not available.	 SDLP044

Wet Season

Image not available.

Dry Season



SDLP045

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Appendix B

Rare Plant Monitoring & Management – Permanent Photographic Monitoring & Representative Photographs

B-1 San Diego Thornmint

Simon County Preserve Permanent Photo Points

Photo 1. San Diego thornmint photo monitoring at SIPRACIL01 (Photo Point 1). ACIL_4SIPR026_1_Photo1_05022024

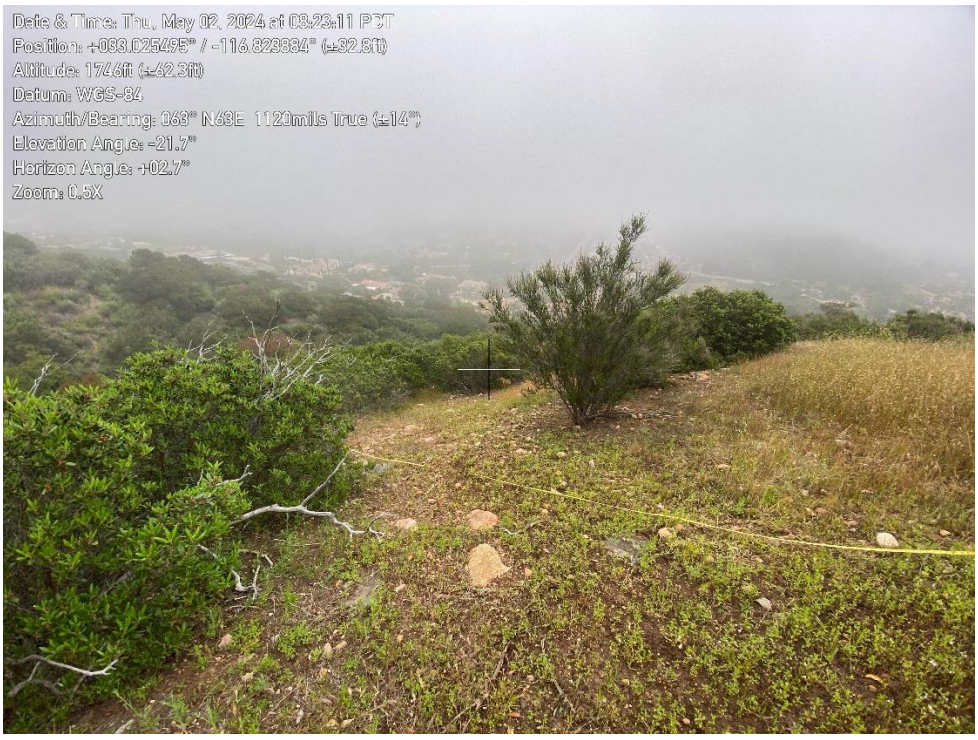

Photo 2. San Diego thornmint photo monitoring at SIPRACIL01 (Photo Point 2). ACIL_4SIPR026_1_Photo2_05022024

Simon County Preserve Representative Photographs

Photo 3. San Diego thornmint both vegetative and flowering at Simon County Preserve.

Sycamore Canyon/Goodan Ranch County Preserve Permanent Photo Points

Photo 4. San Diego thornmint photo monitoring at SYGOACIL01. ACIL_4SYCA027_1_Photo1_05072024

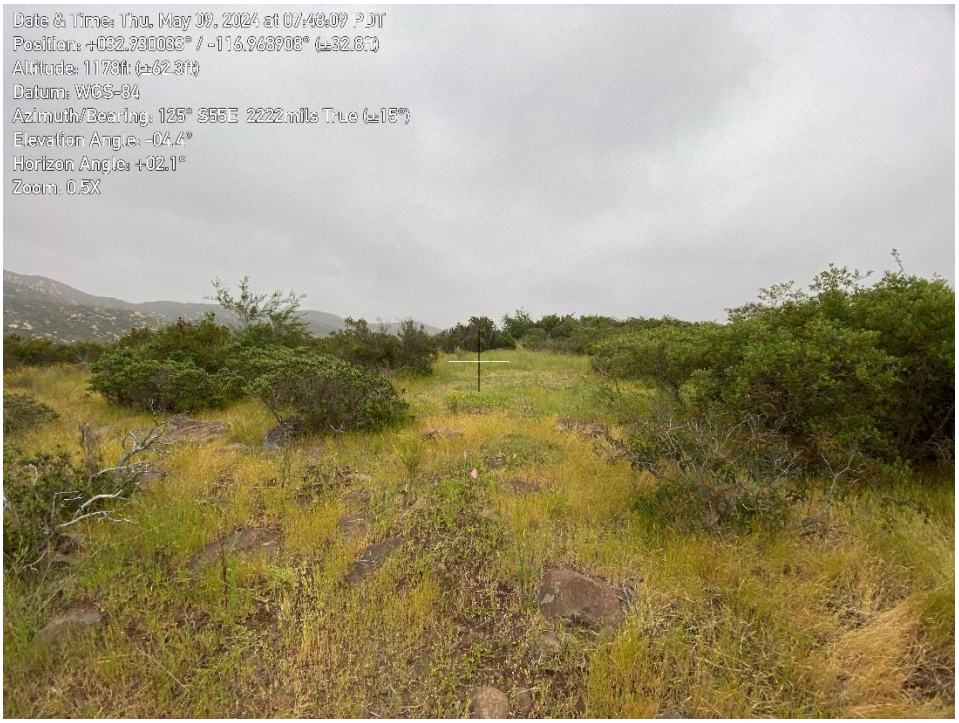

Photo 5. San Diego thornmint photo monitoring at SYGOACIL05. ACIL_4SYCA027_5_Photo1_05092024

Photo 6. San Diego thornmint photo monitoring at SYGOACIL06. ACIL_4SYCA027_6_Photo1_05082024

Photo 7. San Diego thornmint photo monitoring at SYGOACIL08. ACIL_4SYCA027_8_Photo1_05082024

Photo 8. San Diego thornmint photo monitoring at SYGOACIL10.
ACIL_4SYCA027_10_Photo1_05072024

Sycamore Canyon/Goodan Ranch County Preserve Representative Photographs

Photo 9. San Diego thornmint flowering amongst invasive non-native purple false brome at Sycamore Canyon/Goodan Ranch County Preserve.

Photo 10. San Diego thornmint population flowering amongst invasive non-native purple false brome and tocalote at Sycamore Canyon/Goodan Ranch County Preserve.

Photo 11. Sensitive native Palmer's grapplinghook detected within San Diego thornmint monitoring plots at Sycamore Canyon/Goodan Ranch County Preserve.

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B-2 San Miguel Savory

Boulder Oaks County Preserve Focused Management Representative Photographs

Photo 12. San Miguel savory in flower at Boulder Oaks County Preserve.

Photo 13. Representative photo of San Miguel savory after invasive non-native grasses were removed at Boulder Oaks County Preserve.

Photo 14. Focused management consisting of removing invasive non-native grasses near the San Miguel savory population at Boulder Oaks County Preserve.

B-3 Otay Tarplant

Furby-North County Preserve Focused Management Representative Photographs

Photo 15. Otay tarplant flowering at Furby-North County Preserve.

Photo 16. Representative invasive non-native plant species present in and around Otay tarplant populations within Furby-North County Preserve.

Photo 17. Focused management consisting of hand-pulling invasive non-native grasses occuring within the DECO13_3OMEA026_1 monitoring plot at Furby-North County Preserve.

Photo 18. Site conditions of the DECO13_3OMEA026_1 monitoring plot after management at Furby-North County Preserve.

B-4 Orcutt's Bird's-Beak

Tijuana River Valley Regional Park Focused Management Representative Photographs

Photo 19. Orcutt's bird's-beak observed at Tijuana River Valley Regional Park

Photo 20. Orcutt's bird's-beak observed at Tijuana River Valley Regional Park

Photo 21. New location of Orcutt's bird's-beak individuals observed at Tijuana River Valley Regional Park

Photo 22. New location of Orcutt's bird's-beak individuals observed at Tijuana River Valley Regional Park

Photo 23. Focused management consisting of hand-pulling invasive non-native grasses occuring within the Orcutt's bird's-beak monitoring plot COOR7_1TIRI009_1 at Tijuana River Valley Regional Park.

Photo 24. Site conditions of the Orcutt's bird's-beak monitoring plot COOR7_1TIRI009_1 after management at Tijuana River Valley Regional Park.

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B-5 Variegated Dudleya

Lusardi Creek County Preserve Focused Management Representative Photographs

Photo 25. Variegated dudleya with both the previous year's fruit and new flower buds at Lusardi Creek County Preserve.

Photo 26. New variegated dudleya seedlings at Lusardi Creek County Preserve.

Photo 27. Representative photo of invasive non-native grass cover within the variegated dudleya herbivore exclusion fencing prior to management at Lusardi Creek County Preserve.

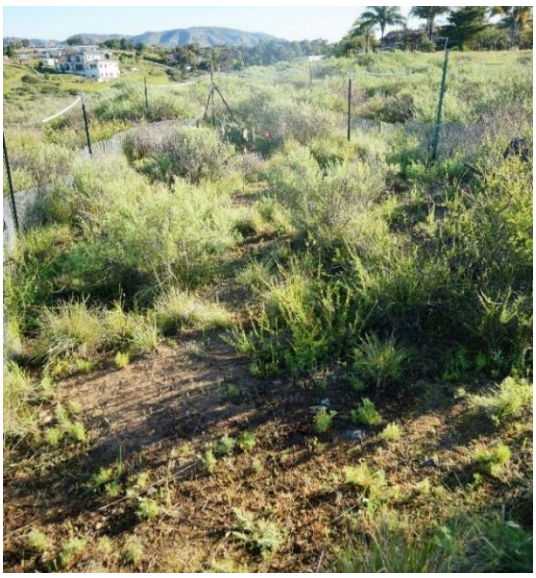

Photo 28. Representative photo within the variegated dudleya herbivore exclusion fencing after management at Lusardi Creek County Preserve.

Photo 29. Site conditions before management to the variegated dudleya monitoring plot at Lusardi Creek County Preserve.

Photo 30. Site conditions after management to the variegated dudleya monitoring plot at Lusardi Creek County Preserve.

B-6 Willowy Monardella

Sycamore Canyon/Goodan Ranch County Preserve Permanent Photo Points

Photo 31. Willowy monardella photo monitoring at SYC201501. MOLIV_4SYCA006_1_Photo1_0620204

Photo 32. Willowy monardella photo monitoring at SYC201602. MOLIV_4SYCA002_1_Photo1_0620204

Photo 33. Willowy monardella photo monitoring at SYC202103. MOLIV_4SYCA006_2_Photo1_0620204

Sycamore Canyon/Goodan Ranch County Preserve Representative Photographs

Photo 34. Willowy monardella blooming amongst invasive non-native grasses at Sycamore Canyon/Goodan Ranch County Preserve.

Photo 35. Willowy monardella blooming and being visited by Crotch's bumble bee at Sycamore Canyon/Goodan Ranch County Preserve.

Photo 36. Invasive non-native crimson fountaingrass detected upstream of monitoring plot SYC201501 within Sycamore Canyon/Goodan Ranch County Preserve.

Appendix C

MSP Rare Plant Occurrence Monitoring Forms

C-1 San Diego Thornmint

MSP Occurr. ID & Sample Point.	ACIL_4SIPR026_1
Preserve	Simon County Preserve
MgtUnit	4
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
UpdateSampInfo	no
Can this survey be shared publicly?	yes
Scientific Name	Acanthomintha ilicifolia
Date	5/2/2024
Time Start	8:43
Surveyors	Dillon Travis, Stefanie Lehner
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	2,200
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	medium
Sampling Area Radius (meters)	10
Count is clusters or individuals?	individ_plants
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	2
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
GPSAccurracy	1.68
GPSAccurracyUnits	m
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	Photo1_E_UTM
Photo1Y	Photo1_N_UTM
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	Phone10
Photo1Dir	228
Photo1Hei	CamHei_Photo1

MSP Occurr. ID & Sample Point.	ACIL_4SIPR026_1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SIPR026_1_Photo1_05022024
Photo2X	Photo2_E_UTM
Photo2Y	Photo2_N_UTM
Check your location of the PHOTO POINT 2 against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo2Dir	29
Photo2Hei	CamHei_Photo2
Photo2Ang	CamAng_Photo2
UpdatePhoto2Info	no
PhotoNumPhoto2	ACIL_4SIPR026_1_Photo2_05022024
SANDAG2012_VegAllianceAssoc	Adenostoma fasciculatum-Xylococcus bicolor Association
CryptogamicCrustCover	2
ThatchCover	3
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	7
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Hirschfeldia incana
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	60
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	8
Acmispon micranthus - San Diego bird's-foot trefoil	0.2
Adenostoma fasciculatum - chamise	4
Apiastrum angustifolium - mock parsley	0.2
Artemisia californica - coastal sagebrush	0.2
Avena barbata - slender oat	4
Bloomeria crocea - common goldenstar	0.2
Bromus hordeaceus - soft brome	0.2
Bromus rubens - red brome	0.2
Centaurea melitensis - Maltese star-thistle	1
Chlorogalum spp.- soaproot	0.2
Deinandra fasciculata - clustered tarweed	6

MSP Occurr. ID & Sample Point.	ACIL_4SIPR026_1
Erodium cicutarium - redstem stork's bill	0.2
Festuca microstachys - small fescue	0.2
Festuca myuros - annual fescue	1
Fritillaria biflora - chocolate lily	0.2
Harpagonella palmeri - Palmer's grappling-hook	0.2
Hirschfeldia incana - shortpod mustard	0.2
Hypochaeris glabra - smooth cat's ear	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Microseris douglasii - Douglas' silverpuffs	1
Sonchus asper - spiny sowthistle	0.2
Uropappus lindleyi - Silver puffs	0.2
Xylococcus bicolor - mission manzanita	17
Other Associated Species?	yes
othername1	Stylocline gnaphaloides
otherper1	0.2
othername2	Euphorbia spathulata
otherper2	0.2
othername3	Melilotus indicus
otherper3	0.2
othername4	Scutellaria tuberosa
otherper4	1
BareGround	43.4
CrypSoils	2
Rock	4
Litter	3
Water	0
Vegetation	47.6
DeadShrubs	0
TotalPercCover	100.6
Is the maximum extent information already entered?	no
Number of Plants per Current Mapped Extent	2,260
Exact or Estimate for Max Extent Number	estimate
uncertainty_MaxExt	medium
Plants_clusters_vs_individ_MaxExt	individ_plants
Count is flowering or vegetated plants? (only answer for geophytes)	NA
AreaCurrentMappedExtent	313.85
Area_units	sq_m
Area_exact_or_estim	low
CurrentExtentPerimMethod	exact

MSP Occurr. ID & Sample Point.	ACIL_4SIPR026_1
SpeciesLocated_in_maximumExtent	yes
ExpandedEfforty_n	no
SurroundingLandUse	Conserved open space preserve. Surrounded by residential development.
NonnativeForbs	5
NonnativeForbs_desc	Non-native forbs (Centaurea melitensis, Erodium cicutarium, Hirschfeldia incana, Hypochaeris glabra, Logfia gallica, Sonchus asper, Melilotus indicus)
NonnativeGrasses	4
NonnativeGrasses_desc	Non-native grasses (Avena barbata, Bromus spp., Festuca spp.)
NonnativeWoodyPlts	1
NonnativeWoodyPlts_desc	NA
CompetitiveNativePlts	4
CompetitiveNativePlts_desc	Deinandra fasciculata
Dumping_trash	1
Dumping_trash_desc	NA
Encampments	1
Encampments_desc	NA
FeralPig	1
FeralPig_desc	NA
Trampling	3
Trampling_desc	Minimal trampling as a result of IMG monitoring
Vandalism	1
CurrentGrazing	1
CurrentGrazing_desc	NA
HistoricGrazing	no
HistoricGrazing_desc	NA
HistoricAgriculture	no
HistoricAgriculture_desc	NA
AlteredHydrology	1
AlteredHydrology_desc	NA
Erosion	1
Erosion_desc	NA
UrbanRunoff	1
UrbanRunoff_desc	NA
SlopeMovement	1
SlopeMovement_desc	NA
SoilCompaction	1
SoilCompaction_desc	NA
FuelModZone_FireBreak	1

MSP Occurr. ID & Sample Point.	ACIL_4SIPR026_1
FuelModZone_FireBreak_desc	NA
RoadConst_Mainten	1
RoadConst_Mainten_descrip	NA
VegClearing	1
VegClearing_descript	NA
Restoration	1
Restoration_desc	NA
ORV_MtnBikeActivity_disturb	1
ORV_MtnBikeActivity_type	NA
EvidenceRecentFire	no
YearBurned	NA
Trails_disturbance	1
Trails_authorized	NA
TrailUse_Hiking	NA
TrailUse_Biking	NA
TrailUse_Equestrian	NA
TrailUse_Dog	NA
TrailUse_ServiceVehicles	NA
TrailUse_Other	NA
TrailUse_illegal_descript	NA
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Continued monitoring. Hand weeding of competitive invasive non-native grasses (Avena, Bromus spp., Festuca spp.) and native plants (Deinandra fasciculata)
ManageActions_PastYr	None
CNDDB_SppDetected	Acanthomintha ilicifolia, Harpagonella palmeri
Notes	NA
Time Finish	11:09

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_1
Preserve	Sycamore Canyon And Goodan Ranch Preserves
MgtUnit	4
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
UpdateSampInfo	no
Can this survey be shared publicly?	yes
Scientific Name	Acanthomintha ilicifolia
Date	5/7/2024
Time Start	11:47
Surveyors	Amy Orduño-Baez and Dillon Travis
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	1100
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	medium
Sampling Area Radius (meters)	10
Count is clusters or individuals?	individ_plants
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	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
GPSAccurracy	1.83
GPSAccurracyUnits	m
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	Photo1_E_UTM
Photo1Y	Photo1_N_UTM
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 10
Photo1Dir	203 Degrees
Photo1Hei	CamHei_Photo1

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SYCA027_1_Photo1_05072024
SANDAG2012_VegAllianceAssoc	Brachypodium distachyon Semi-Natural Stand Type
CryptogamicCrustCover	2
ThatchCover	4
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	3
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Centaurea melitensis
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	26
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	0.2
Acmispon glaber - deerweed	0.2
Apiastrum angustifolium - mock parsley	0.2
Artemisia californica - coastal sagebrush	0.2
Baccharis sarothroides - desertbroom	2
Brachypodium distachyon - purple false brome	40
Bromus madritensis - compact brome	0.2
Calochortus spp. - mariposa lily	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Chlorogalum parviflorum - smallflower soap plant	0.2
Convolvulus simulans - field bindweed	0.2
Crassula connata - sand pygmyweed	0.2
Deinandra fasciculata - clustered tarweed	8
Erodium botrys - longbeak stork's bill	0.2
Festuca myuros - annual fescue	0.2
Gastridium phleoides - nit grass	0.2
Harpagonella palmeri - Palmer's grappling-hook	0.2
Heteromeles arbutifolia - toyon	2
Hypochaeris glabra - smooth cat's ear	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Lysimachia arvensis – scarlet pimpernel	0.2
Malosma laurina - laurel sumac	1

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_1
Mirabilis laevis - wishbone bush	0.2
Plantago erecta - California plantain	0.2
Rhamnus crocea - spiny redberry	1
Salvia mellifera - black sage	1
Sisyrinchium bellum - western blue-eyed grass	0.2
Sonchus asper - spiny sowthistle	1
Other Associated Species?	no
BareGround	28.4
CrypSoils	1
Rock	5
Litter	2
Water	0
Vegetation	62.6
DeadShrubs	1
TotalPercCover	100
Alreadyentered	no
Ifyes_whichsurvey	
Number of Plants per Current Mapped Extent	3,575
Exact or Estimate for Max Extent Number	estimate
uncertainty_MaxExt	medium
Plants_clusters_vs_individ_MaxExt	individ_plants
Count is flowering or vegetated plants? (only answer for geophytes)	NA
AreaCurrentMappedExtent	1,299.55
Area_units	sq_m
Area_exact_or_estim	low
CurrentExtentPerimMethod	exact
SpeciesLocated_in_maximumExtent	yes
ExpandedEfforty_n	no
SurroundingLandUse	Conserved open space preserve, open to hiking, mountain biking, equestrian use.
NonnativeForbs	6
NonnativeForbs_desc	Erodium spp., Centaurea melitensis, Sonchus spp., Logfia gallica, Hypochaeris glabra
NonnativeGrasses	7
NonnativeGrasses_desc	Brachypodium distachyon, Bromus spp., Festuca myuros
NonnativeWoodyPlts	1
NonnativeWoodyPlts_desc	NA
CompetitiveNativePlts	5
CompetitiveNativePlts_desc	Deinandra fasciculata decreased in cover from last year.
Dumping_trash	1

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_1
Dumping_trash_desc	NA
Encampments	1
Encampments_desc	NA
FeralPig	1
FeralPig_desc	NA
Trampling	3
Trampling_desc	Light trampling as a result of TMP monitoring
Vandalism	1
Vandalism_desc	NA
CurrentGrazing	1
CurrentGrazing_desc	NA
HistoricGrazing	unknown
HistoricGrazing_desc	NA
HistoricAgriculture	no
HistoricAgriculture_desc	NA
AlteredHydrology	1
AlteredHydrology_desc	NA
Erosion	1
Erosion_desc	NA
UrbanRunoff	1
UrbanRunoff_desc	NA
SlopeMovement	1
SlopeMovement_desc	NA
SoilCompaction	1
SoilCompaction_desc	NA
FuelModZone_FireBreak	1
FuelModZone_FireBreak_desc	NA
RoadConst_Mainten	1
RoadConst_Mainten_descrip	NA
VegClearing	1
VegClearing_descript	NA
Restoration	1
Restoration_desc	NA
ORV_MtnBikeActivity_disturb	1
ORV_MtnBikeActivity_type	NA
EvidenceRecentFire	no
YearBurned	NA
Trails_disturbance	1
Trails_authorized	NA

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_1
TrailUse_Hiking	NA
TrailUse_Biking	NA
TrailUse_Equestrian	NA
TrailUse_Dog	NA
TrailUse_ServiceVehicles	NA
TrailUse_Other	NA
TrailUse_illegal_descript	NA
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Continued monitoring and invasive non-native grass and forb treatment.
ManageActions_PastYr	Dethatching non-native grasses, hand weeding forbs and line trimming outside max extent in buffer.
CNDDB_SppDetected	Acanthomintha ilicifolia, Convolvulus simulans, Harpagonella palmeri.
Notes	NA
Time Finish	12:48

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_5
Preserve	Sycamore Canyon And Goodan Ranch Preserves
MgtUnit	4
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
UpdateSampInfo	no
Public	yes
Scientific Name	Acanthomintha ilicifolia
Date	5/9/2024
Time Start	08:24
Surveyors	Dillon Travis and Karla Alcaraz
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	344
Exact or Estimate for Number in Sampling Area	exact
Uncertainty for Sampling Area	low
Sampling Area Radius (meters)	10
Count is clusters or individuals?	individ_plants
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	2
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
GPSAccurracy	1.52
GPSAccurracyUnits	m
PlotX	502915
PlotY	3643523
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	Photo1_E_UTM
Photo1Y	Photo1_N_UTM
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 10
Photo1Dir	150 Degrees
Photo1Hei	CamHei_Photo1

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_5
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SYCA027_5_Photo1_05092024
SANDAG2012_VegAllianceAssoc	Adenostoma fasciculatum-Xylococcus bicolor Association
CryptogamicCrustCover	2
ThatchCover	2
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	3
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Deinandra fasciculata and Centaurea melitensis
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	25
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	3
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	1
Acmispon glaber - deerweed	1
Adenostoma fasciculatum - chamise	6
Allium sp. - onion	0.2
Apiastrum angustifolium - mock parsley	0.2
Brachypodium distachyon - purple false brome	12
Bromus hordeaceus - soft brome	0.2
Bromus rubens - red brome	0.2
Calochortus splendens - splendid mariposa lily	0.2
Centaurea melitensis - Maltese star-thistle	1
Cercocarpus betuloides - birch-leaf mountain-mahogany	1
Deinandra fasciculata - clustered tarweed	2
Dipterostemon capitatus - bluedicks	0.2
Dudleya variegata - Variegated dudleya	0.2
Eriophyllum confertiflorum - golden-yarrow	0.2
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	1
Hypochaeris glabra - smooth cat's ear	0.2
Lepidium spp. - pepperweed	0.2
Logfia gallica - narrowleaf cottonrose	0.2

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_5
Lonicera subspicata - southern honeysuckle	1
Malosma laurina - laurel sumac	5
Plantago erecta - California plantain	1
Quercus X acutidens - Oak hybrid	2
Rhamnus crocea - spiny redberry	2
Salvia apiana - white sage	0.2
Sanicula arguta - sharptooth blacksnakeroot	0.2
Sisyrinchium bellum - western blue-eyed grass	0.2
Sonchus asper - spiny sowthistle	0.2
Stipa pulchra - Purple needle grass	0.2
Uropappus lindleyi - Silver puffs	0.2
Xylococcus bicolor - mission manzanita	20
Other Associated Species?	no
BareGround	26.6
CrypSoils	1
Rock	10
Litter	1
Water	0
Vegetation	60.4
DeadShrubs	1
TotalPercCover	100
Alreadyentered	no
Ifyes_whichsurvey	NA
Number of Plants per Current Mapped Extent	815
Exact or Estimate for Max Extent Number	estimate
uncertainty_MaxExt	medium
Plants_clusters_vs_individ_MaxExt	individ_plants
Count is flowering or vegetated plants? (only answer for geophytes)	NA
AreaCurrentMappedExtent	82.94
Area_units	sq_m
Area_exact_or_estim	low
CurrentExtentPerimMethod	exact
SpeciesLocated_in_maximumExtent	yes
ExpandedEfforty_n	no
SurroundingLandUse	Open Space preserve open to hiking and biking and horse riding
NonnativeForbs	5
NonnativeForbs_desc	Erodium spp., Centaurea melitensis, Sonchus spp., Logfia gallica, Hypochaeris glabra
NonnativeGrasses	6

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_5
NonnativeGrasses_desc	Brachypodium distachyon, Bromus spp., Festuca myuros
NonnativeWoodyPlts	1
NonnativeWoodyPlts_desc	NA
CompetitiveNativePlts	3
CompetitiveNativePlts_desc	Deinandra fasciculata decreased in cover from last year.
Dumping_trash	1
Dumping_trash_desc	NA
Encampments	1
Encampments_desc	NA
FeralPig	1
FeralPig_desc	NA
Trampling	3
Trampling_desc	Light trampling as a result of TMP monitoring
Vandalism	1
Vandalism_desc	NA
CurrentGrazing	1
CurrentGrazing_desc	NA
HistoricGrazing	unknown
HistoricGrazing_desc	NA
HistoricAgriculture	no
HistoricAgriculture_desc	NA
AlteredHydrology	1
AlteredHydrology_desc	NA
Erosion	1
Erosion_desc	NA
UrbanRunoff	1
UrbanRunoff_desc	NA
SlopeMovement	1
SlopeMovement_desc	NA
SoilCompaction	1
SoilCompaction_desc	NA
FuelModZone_FireBreak	1
FuelModZone_FireBreak_desc	NA
RoadConst_Mainten	1
RoadConst_Mainten_descrip	NA
VegClearing	1
VegClearing_descript	NA
Restoration	1
Restoration_desc	NA

MSP Occurr. ID & Sample Point.	**ACIL_4SYCA027_5**
ORV_MtnBikeActivity_disturb	1
ORV_MtnBikeActivity_type	NA
EvidenceRecentFire	no
YearBurned	NA
Trails_disturbance	1
Trails_authorized	NA
TrailUse_Hiking	NA
TrailUse_Biking	NA
TrailUse_Equestrian	NA
TrailUse_Dog	NA
TrailUse_ServiceVehicles	NA
TrailUse_Other	NA
TrailUse_illegal_descript	NA
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Continued monitoring, hand weeding of non-native invasive forbs and grasses, specifically Brachypodium distachyon.
ManageActions_PastYr	Dethatching non-native grasses, hand weeding forbs and line trimming outside max extent in buffer.
CNDDB_SppDetected	Acanthomintha ilicifolia, Harpagonella palmeri, Dudleya variegata
Notes	Significantly less Deinandra fasciculata here compared to 2023.
Time Finish	09:08

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_6
Preserve	Sycamore Canyon And Goodan Ranch Preserves
MgtUnit	4
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
UpdateSampInfo	no
Public	yes
Scientific Name	Acanthomintha ilicifolia
Date	5/8/2024
Time Start	11:01
Surveyors	Dillon Travis and Karla Alcaraz
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	3,300
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	medium
Sampling Area Radius (meters)	10
Count is clusters or individuals?	individ_plants
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	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
GPSAccurracy	10
GPSAccurracyUnits	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	Photo1_E_UTM
Photo1Y	Photo1_N_UTM
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 10
Photo1Dir	333 Degrees
Photo1Hei	CamHei_Photo1

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_6
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SYCA027_6_Photo1_05082024
SANDAG2012_VegAllianceAssoc	Deinandra fasciculata Association
CryptogamicCrustCover	1
ThatchCover	2
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	1
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Centaurea melitensis, Deinandra fasciculata
DeadStanding_CoverClass	3
DeadStandingHeightAverage_cm	28
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	2
Apiastrum angustifolium - mock parsley	1
Artemisia californica - coastal sagebrush	1
Avena barbata - slender oat	0.2
Bloomeria crocea - common goldenstar	0.2
Brachypodium distachyon - purple false brome	3
Bromus hordeaceus - soft brome	0.2
Bromus rubens - red brome	0.2
Centaurea melitensis - Maltese star-thistle	4
Cneoridium dumosum - bush rue	0.2
Deinandra fasciculata - clustered tarweed	6
Eriophyllum confertiflorum - golden-yarrow	0.2
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
Hypochaeris glabra - smooth cat's ear	0.2
Lysimachia arvensis - scarlet pimpernel	0.2
Malosma laurina - laurel sumac	5
Quercus X acutidens - Oak hybrid	5
Rhus integrifolia - lemonade sumac	6
Salvia apiana - white sage	0.2

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_6
Salvia mellifera - black sage	3
Sonchus asper - spiny sowthistle	0.2
Xylococcus bicolor - mission manzanita	6
Other Associated Species?	no
BareGround	48.4
CrypSoils	0
Rock	1
Litter	2
Water	0
Vegetation	47.6
DeadShrubs	1
TotalPercCover	100
Alreadyentered	no
Ifyes_whichsurvey	NA
Number of Plants per Current Mapped Extent	3,800
Exact or Estimate for Max Extent Number	estimate
uncertainty_MaxExt	medium
Plants_clusters_vs_individ_MaxExt	individ_plants
Count is flowering or vegetated plants? (only answer for geophytes)	NA
AreaCurrentMappedExtent	222.74
Area_units	sq_m
Area_exact_or_estim	low
CurrentExtentPerimMethod	exact
SpeciesLocated_in_maximumExtent	yes
ExpandedEfforty_n	no
SurroundingLandUse	Open Space preserve open to hiking and biking and horse riding
NonnativeForbs	4
NonnativeForbs_desc	Erodium spp., Centaurea melitensis, Sonchus spp., Hypochaeris glabra, Lysimachia arvensis
NonnativeGrasses	3
NonnativeGrasses_desc	Brachypodium distachyon, Bromus spp., Festuca myuros
NonnativeWoodyPlts	1
NonnativeWoodyPlts_desc	NA
CompetitiveNativePlts	4
CompetitiveNativePlts_desc	Deinandra fasciculata may be encroaching into plot.
Dumping_trash	1
Dumping_trash_desc	NA
Encampments	1
Encampments_desc	NA

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_6
FeralPig	1
FeralPig_desc	NA
Trampling	3
Trampling_desc	Light trampling as a result of TMP monitoring
Vandalism	1
Vandalism_desc	NA
CurrentGrazing	1
CurrentGrazing_desc	NA
HistoricGrazing	no
HistoricGrazing_desc	NA
HistoricAgriculture	no
HistoricAgriculture_desc	NA
AlteredHydrology	1
AlteredHydrology_desc	NA
Erosion	1
Erosion_desc	NA
UrbanRunoff	1
UrbanRunoff_desc	NA
SlopeMovement	1
SlopeMovement_desc	NA
SoilCompaction	1
SoilCompaction_desc	NA
FuelModZone_FireBreak	1
FuelModZone_FireBreak_desc	NA
RoadConst_Mainten	1
RoadConst_Mainten_descrip	NA
VegClearing	1
VegClearing_descript	NA
Restoration	1
Restoration_desc	NA
ORV_MtnBikeActivity_disturb	1
ORV_MtnBikeActivity_type	NA
EvidenceRecentFire	no
YearBurned	NA
Trails_disturbance	1
Trails_authorized	NA
TrailUse_Hiking	NA
TrailUse_Biking	NA
TrailUse_Equestrian	NA

MSP Occurr. ID & Sample Point.	**ACIL_4SYCA027_6**
TrailUse_Dog	NA
TrailUse_ServiceVehicles	NA
TrailUse_Other	NA
TrailUse_illegal_descript	NA
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Continued monitoring. Invasive forb control (Centaurea melitensis), thin native Deinandra fasciculata specifically around ACIL patches.
ManageActions_PastYr	None
CNDDB_SppDetected	Acanthomintha ilicifolia, Harpagonella palmeri
Notes	none
Time Finish	11:32

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_8
Preserve	Sycamore Canyon And Goodan Ranch Preserves
MgtUnit	4
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
SampID	197
UpdateSampInfo	no
Public	yes
Scientific Name	Acanthomintha ilicifolia
Date	5/8/2024
Time Start	09:33
Surveyors	Dillon Travis and Karla Alcaraz
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	1,142
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	medium
Sampling Area Radius (meters)	10
Count is clusters or individuals?	individ_plants
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	2
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	3.11
GPSAccurracyUnits	m
PlotX	502267
PlotY	3644249
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	Photo1_E_UTM
Photo1Y	Photo1_N_UTM
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 10
Photo1Dir	121 Degrees

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_8
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SYCA027_8_Photo1_05082024
SANDAG2012_VegAllianceAssoc	Brachypodium distachyon Semi-Natural Stand Type
CryptogamicCrustCover	1
ThatchCover	5
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	2
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Deinandra fasciculata, Centaurea melitensis
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	20
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	2
Apiastrum angustifolium - mock parsley	2
Avena barbata - slender oat	0.2
Bloomeria crocea - common goldenstar	0.2
Brachypodium distachyon - purple false brome	25
Bromus hordeaceus - soft brome	0.2
Calochortus splendens - splendid mariposa lily	0.2
Ceanothus tomentosus - woolyleaf ceanothus	1
Centaurea melitensis - Maltese star-thistle	5
Chlorogalum parviflorum - smallflower soap plant	0.2
Convolvulus arvensis - field bindweed	0.2
Deinandra fasciculata - clustered tarweed	0.2
Dipterostemon capitatus - bluedick	0.2
Eriophyllum confertiflorum - golden-yarrow	0.2
Euphorbia peplus - petty spurge	0.2
Festuca microstachys - small fescue	0.2
Harpagonella palmeri - Palmer's grappling-hook	0.2
Heteromeles arbutifolia - toyon	0.2
Hypochaeris glabra - smooth cat's ear	0.2
Lonicera subspicata - southern honeysuckle	0.2
Lysimachia arvensis – scarlet pimpernel	0.2

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_8
Malosma laurina - laurel sumac	1
Quercus X acutidens - Oak hybrid	2
Rhamnus crocea - spiny redberry	0.2
Rhus integrifolia - lemonade sumac	3
Sisyrinchium bellum - western blue-eyed grass	0.2
Sonchus asper - spiny sowthistle	0.2
Sonchus oleraceus - common sowthistle	0.2
Uropappus lindleyi - Silver puffs	0.2
Other Associated Species?	no
BareGround	51.2
CrypSoils	0
Rock	2
Litter	4
Water	0
Vegetation	43.6
DeadShrubs	0.2
TotalPercCover	100
Alreadyentered	no
Ifyes_whichsurvey	NA
Number of Plants per Current Mapped Extent	3,500
Exact or Estimate for Max Extent Number	estimate
uncertainty_MaxExt	medium
Plants_clusters_vs_individ_MaxExt	individ_plants
Count is flowering or vegetated plants? (only answer for geophytes)	NA
AreaCurrentMappedExtent	138.26
Area_units	sq_m
Area_exact_or_estim	low
CurrentExtentPerimMethod	exact
SpeciesLocated_in_maximumExtent	yes
ExpandedEfforty_n	no
SurroundingLandUse	Open Space preserve open to hiking and biking and horse riding
NonnativeForbs	4
NonnativeForbs_desc	Centaurea melitensis, Sonchus spp., Hypochaeris glabra, Lysimachia arvensis, Convolvulus arvensis
NonnativeGrasses	3
NonnativeGrasses_desc	Brachypodium distachyon, Bromus hordeaceus
NonnativeWoodyPlts	1
NonnativeWoodyPlts_desc	NA
CompetitiveNativePlts	3

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_8
CompetitiveNativePlts_desc	Deinandra fasciculata may be encroaching into plot.
Dumping_trash	1
Dumping_trash_desc	NA
Encampments	1
Encampments_desc	NA
FeralPig	1
FeralPig_desc	NA
Trampling	3
Trampling_desc	Light trampling as a result of TMP monitoring
Vandalism	1
Vandalism_desc	NA
CurrentGrazing	1
CurrentGrazing_desc	NA
HistoricGrazing	no
HistoricGrazing_desc	NA
HistoricAgriculture	no
HistoricAgriculture_desc	NA
AlteredHydrology	1
AlteredHydrology_desc	NA
Erosion	1
Erosion_desc	NA
UrbanRunoff	1
UrbanRunoff_desc	NA
SlopeMovement	1
SlopeMovement_desc	NA
SoilCompaction	1
SoilCompaction_desc	NA
FuelModZone_FireBreak	1
FuelModZone_FireBreak_desc	NA
RoadConst_Mainten	1
RoadConst_Mainten_descrip	NA
VegClearing	1
VegClearing_descript	NA
Restoration	1
Restoration_desc	NA
ORV_MtnBikeActivity_disturb	1
ORV_MtnBikeActivity_type	NA
EvidenceRecentFire	no
YearBurned	NA

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_8
Trails_disturbance	1
Trails_authorized	NA
TrailUse_Hiking	NA
TrailUse_Biking	NA
TrailUse_Equestrian	NA
TrailUse_Dog	NA
TrailUse_ServiceVehicles	NA
TrailUse_Other	NA
TrailUse_illegal_descript	NA
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Continued monitoring and invasive non-native grass and forb hand weeding or line trimming.
ManageActions_PastYr	Dethatching non-native grasses, hand weeding forbs and line trimming outside max extent in buffer.
CNDDB_SppDetected	Acanthomintha ilicifolia, Harpagonella palmeri
Notes	NA
Time Finish	10:10

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_10
Preserve	Sycamore Canyon and Goodan Ranch Preserves
MgtUnit	4
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
SampID	199
UpdateSampInfo	no
Public	yes
Scientific Name	Acanthomintha ilicifolia
Date	5/7/2024
Time Start	08:27
Surveyors	Dillon Travis and Amy Orduño-Baez
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	1,200
Exact or Estimate for Number in Sampling Area	estimate
Uncertainty for Sampling Area	medium
Sampling Area Radius (meters)	10
Count is clusters or individuals?	individ_plants
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	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
GPSAccurracy	1.28
GPSAccurracyUnits	m
PlotX	501927
PlotY	3644367
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	Photo1_E_UTM
Photo1Y	Photo1_N_UTM
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	iPhone10
Photo1Dir	093 Degrees

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_10
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SYCA027_10_Photo1_05072024
SANDAG2012_VegAllianceAssoc	Salvia mellifera-Malosma laurina Association
CryptogamicCrustCover	1
ThatchCover	2
ThatchDepthAverage_cat	2
ThatchDepthMax_cm	2
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Centaurea melitensis
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	60
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	4
Adenostoma fasciculatum - chamise	0.2
Apiastrum angustifolium - mock parsley	8
Artemisia californica – coastal sagebrush	1
Bromus rubens - red brome	0.2
Ceanothus tomentosus - woolyleaf ceanothus	0.2
Centaurea melitensis - Maltese star-thistle	1
Cneoridium dumosum - bush rue	0.2
Deinandra fasciculata - clustered tarweed	2
Dipterostemon capitatus - bluedicks	0.2
Eriophyllum confertiflorum - golden-yarrow	2
Erodium cicutarium - redstem stork's bill	0.2
Euphorbia peplus - petty spurge	0.2
Harpagonella palmeri - Palmer's grappling-hook	0.2
Hesperoyucca whipplei - chaparral yucca	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Lupinus succulentus - Hollowleaf annual lupine	0.2
Lysimachia arvensis - Scarlet pimpernel	0.2
Malosma laurina - laurel sumac	1
Quercus X acutidens - Oak hybrid	8
Rhus ovata – sugar bush	6

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_10
Salvia apiana - white sage	5
Salvia mellifera – black sage	8
Sonchus asper - spiny sowthistle	0.2
Xylococcus bicolor - mission manzanita	4
Other Associated Species	no
BareGround	43.6
CrypSoils	0
Rock	1
Litter	3
Water	0
Vegetation	52.4
DeadShrubs	NA
TotalPercCover	100
Alreadyentered	no
Ifyes_whichsurvey	NA
Number of Plants per Current Mapped Extent	3,500
Exact or Estimate for Max Extent Number	estimate
uncertainty_MaxExt	medium
Plants_clusters_vs_individ_MaxExt	individ_plants
Count is flowering or vegetated plants? (only answer for geophytes)	NA
AreaCurrentMappedExtent	138.26
Area_units	sq_m
Area_exact_or_estim	low
CurrentExtentPerimMethod	exact
SpeciesLocated_in_maximumExtent	yes
ExpandedEfforty_n	no
SurroundingLandUse	Open Space preserve open to hiking and biking and horse riding
NonnativeForbs	4
NonnativeForbs_desc	Centaurea melitensis, Sonchus spp., Erodium spp., Lysimachia arvensis, Logfia gallica, Euphorbia peplus
NonnativeGrasses	3
NonnativeGrasses_desc	Bromus rubens
NonnativeWoodyPlts	1
NonnativeWoodyPlts_desc	NA
CompetitiveNativePlts	3
CompetitiveNativePlts_desc	Deinandra fasciculata may be encroaching into plot.
Dumping_trash	1
Dumping_trash_desc	NA
Encampments	1

MSP Occurr. ID & Sample Point.	ACIL_4SYCA027_10
Encampments_desc	NA
FeralPig	1
FeralPig_desc	NA
Trampling	3
Trampling_desc	Light trampling as a result of TMP monitoring
Vandalism	1
Vandalism_desc	NA
CurrentGrazing	1
CurrentGrazing_desc	NA
HistoricGrazing	no
HistoricGrazing_desc	NA
HistoricAgriculture	no
HistoricAgriculture_desc	NA
AlteredHydrology	1
AlteredHydrology_desc	NA
Erosion	1
Erosion_desc	NA
UrbanRunoff	1
UrbanRunoff_desc	NA
SlopeMovement	1
SlopeMovement_desc	NA
SoilCompaction	1
SoilCompaction_desc	NA
FuelModZone_FireBreak	1
FuelModZone_FireBreak_desc	NA
RoadConst_Mainten	1
RoadConst_Mainten_descrip	NA
VegClearing	1
VegClearing_descript	NA
Restoration	1
Restoration_desc	NA
ORV_MtnBikeActivity_disturb	1
ORV_MtnBikeActivity_type	NA
EvidenceRecentFire	no
YearBurned	NA
Trails_disturbance	1
Trails_authorized	NA
TrailUse_Hiking	NA
TrailUse_Biking	NA

MSP Occurr. ID & Sample Point.	**ACIL_4SYCA027_10**
TrailUse_Equestrian	NA
TrailUse_Dog	NA
TrailUse_ServiceVehicles	NA
TrailUse_Other	NA
TrailUse_illegal_descript	NA
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Continued monitoring and Hand weeding of Apiastrum angustifolium, Centaurea melitensis, and Deinandra fasciculata.
ManageActions_PastYr	None
CNDDB_SppDetected	Acanthomintha ilicifolia, Harpagonella palmeri
Notes	NA
TimeFinish	09:30

C-2 Willowy Monardella

MSP Occurr. ID & Sample Point.	MOLIV_4SYCA006_1
Preserve	Sycamore Canyon and Goodan Ranch Preserves
MgtUnit	4
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
SampID	172
UpdateSampInfo	no
Public	yes
Scientific Name	Monardella viminea
Date	6/20/2024
Time Start	08:58
Surveyors	Adrienne Lee and Dillon Travis
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	47
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	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
GPSAccurracy	1.52
GPSAccurracyUnits	m
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	Photo1_E_UTM
Photo1Y	Photo1_N_UTM
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	South, 176 Degrees

MSP Occurr. ID & Sample Point.	MOLIV_4SYCA006_1
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	MOLIV_4SYCA006_1_Photo1_0620204
SANDAG2012_VegAllianceAssoc	Eriogonum fasciculatum Association
CryptogamicCrustCover	2
ThatchCover	4
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	5
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Eriogonum fasciculatum, Rhamnus crocea
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	35
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acmispon glaber - deerweed	0.2
Artemisia californica - coastal sagebrush	2
Avena barbata - slender oat	2
Brachypodium distachyon - purple false brome	1
Bromus diandrus - ripgut brome	2
Bromus hordeaceus - soft brome	1
Bromus madritensis - compact brome	1
Calystegia macrostegia - island false bindweed	0.2
Centaurea melitensis - Maltese star-thistle	1
Deinandra fasciculata - clustered tarweed	0.2
Eriogonum fasciculatum - California buckwheat	12
Eriophyllum confertiflorum - golden-yarrow	0.2
Festuca myuros - annual fescue	1
Galium angustifolium - bedstraw	1
Helianthus gracilentus - slender sunflower	0.2
Lactuca serriola - prickly lettuce	0.2
Malosma laurina - laurel sumac	1
Mirabilis laevis - desert wishbone-bush	0.2
Monardella viminea - Willowy monardella	5
Osmadenia tenella - false rosinweed	0.2
Prunus ilicifolia - hollyleaf cherry	1

MSP Occurr. ID & Sample Point.	MOLIV_4SYCA006_1
Rhamnus crocea - spiny redberry	4
Salvia apiana - white sage	0.2
Salvia mellifera - black sage	3
Selaginella bigelovii - bushy spikemoss	0.2
Sisyrinchium bellum - western blue-eyed grass	0.2
Other Associated Species?	yes
othername1	Cirsium sp.
otherper1	0.2
BareGround	23.2
CrypSoils	0.2
Rock	25
Litter	11
Water	0
Vegetation	40.6
DeadShrubs	1
TotalPercCover	101
Alreadyentered	no
NumPlantsperCurrentMappedExtent	442
ExactorEstimate_MaxExt	exact
uncertainty_MaxExt	very_low
Plants_clusters_vs_individ_MaxExt	clusters
Flower_Veget_MaxExt	NA
AreaCurrentMappedExtent	3,923.31
Area_units	sq_m
Area_exact_or_estim	very_low
CurrentExtentPerimMethod	exact
SpeciesLocated_in_maximumExtent	yes
Reason_IfNotFound	NA
ExpandedEfforty_n	no
SurroundingLandUse	Conserved open space preserve, open to hiking, mountain biking, equestrian use
NonnativeForbs	3
NonnativeForbs_desc	Centaurea melitensis, Cirsium spp.
NonnativeGrasses	5
NonnativeGrasses_desc	Avena barbata, Bromus spp., Brachypodium distachyon, Festuca myuros
NonnativeWoodyPlts	1
NonnativeWoodyPlts_desc	NA
CompetitiveNativePlts	1
CompetitiveNativePlts_desc	Eriogonum fasciculatum

MSP Occurr. ID & Sample Point.	MOLIV_4SYCA006_1
Dumping_trash	1
Dumping_trash_desc	NA
Encampments	1
Encampments_desc	NA
FeralPig	1
FeralPig_desc	NA
Trampling	1
Trampling_desc	NA
Vandalism	1
Vandalism_desc	NA
CurrentGrazing	1
CurrentGrazing_desc	NA
HistoricGrazing	unknown
HistoricGrazing_desc	NA
HistoricAgriculture	unknown
HistoricAgriculture_desc	NA
AlteredHydrology	1
AlteredHydrology_desc	Creek bed channel
Erosion	3
Erosion_desc	Creek bed channel erosion
UrbanRunoff	1
UrbanRunoff_desc	NA
SlopeMovement	1
SlopeMovement_desc	NA
SoilCompaction	1
SoilCompaction_desc	NA
FuelModZone_FireBreak	1
FuelModZone_FireBreak_desc	NA
RoadConst_Mainten	1
RoadConst_Mainten_descrip	NA
VegClearing	1
VegClearing_descript	NA
Restoration	1
Restoration_desc	NA
ORV_MtnBikeActivity_disturb	1
ORV_MtnBikeActivity_type	NA
EvidenceRecentFire	No
YearBurned	NA
Trails_disturbance	1

MSP Occurr. ID & Sample Point.	MOLIV_4SYCA006_1
Trails_authorized	NA
TrailUse_Hiking	NA
TrailUse_Biking	NA
TrailUse_Equestrian	NA
TrailUse_Dog	NA
TrailUse_ServiceVehicles	NA
TrailUse_Other	NA
TrailUse_illegal_descript	NA
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Continued monitoring, invasive forb/grass treatment
ManageActions_PastYr	None
CNDDB_SppDetected	Monardella viminea
Notes	NA
Time Finish	10:07

MSP Occurr. ID & Sample Point.	MOLIV_4SYCA002_1
Preserve	Sycamore Canyon And Goodan Ranch Preserves
MgtUnit	4
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
SampID	328
UpdateSampInfo	no
Public	yes
Scientific Name	Monardella viminea
Date	6/20/2024
Time Start	13:21
Surveyors	Adrienne Lee and Dillon Travis
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	2
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	1
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
GPSAccurracy	1.25
GPSAccurracyUnits	m
PlotX	501045
PlotY	3642551
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	Photo1_E_UTM
Photo1Y	Photo1_N_UTM
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	200

MSP Occurr. ID & Sample Point.	MOLIV_4SYCA002_1
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	MOLIV_4SYCA002_1_Photo1_06202024
SANDAG2012_VegAllianceAssoc	Eriogonum fasciculatum Association
CryptogamicCrustCover	1
ThatchCover	4
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	5.1
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Salvia apiana, Hirschfeldia incana, Acmispon glaber
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	40
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acmispon glaber - deerweed	0.2
Artemisia californica - coastal sagebrush	0.2
Avena barbata - slender oat	0.2
Brachypodium distachyon - purple false brome	1
Bromus diandrus - ripgut brome	2
Bromus hordeaceus - soft brome	1
Bromus madritensis - compact brome	1
Carduus pycnocephalus - Italian plumeless thistle	0.2
Cercocarpus minutiflorus - smooth mountain-mahogany	3
Eriogonum fasciculatum - California buckwheat	7
Erodium spp. - stork's bill	1
Festuca myuros - annual fescue	1
Festuca perennis - Italian rye grass	0.2
Heteromeles arbutifolia - toyon	1
Hirschfeldia incana - shortpod mustard	1
Hypochaeris glabra - smooth cat's ear	1
Lonicera subspicata - southern honeysuckle	0.2
Monardella viminea - Willowy monardella	0.2
Prunus ilicifolia - hollyleaf cherry	3
Salvia apiana - white sage	0.2
Silene gallica - common catchfly	0.2

MSP Occurr. ID & Sample Point.	MOLIV_4SYCA002_1
Other Associated Species?	no
BareGround	24.2
CrypSoils	0
Rock	45
Litter	6
Water	0
Vegetation	24.8
DeadShrubs	0.2
TotalPercCover	100.2
Alreadyentered	no
NumPlantsperCurrentMappedExtent	2
ExactorEstimate_MaxExt	exact
uncertainty_MaxExt	very_low
Plants_clusters_vs_individ_MaxExt	clusters
Flower_Veget_MaxExt	NA
AreaCurrentMappedExtent	Polygon submitted
Area_exact_or_estim	very_low
CurrentExtentPerimMethod	exact
SpeciesLocated_in_maximumExtent	yes
Reason_IfNotFound	NA
ExpandedEfforty_n	no
SurroundingLandUse	Conserved open space preserve, open to hiking, mountain biking, equestrian use
NonnativeForbs	4
NonnativeForbs_desc	Erodium spp., Carduus pycnocephalus, Hirschfeldia incana, Hypochaeris glabra, Silene gallica
NonnativeGrasses	5
NonnativeGrasses_desc	Avena barbata, Brachypodium distachyon, Bromus spp., Festuca myuros, Festuca perennis
NonnativeWoodyPlts	1
NonnativeWoodyPlts_desc	NA
CompetitiveNativePlts	1
CompetitiveNativePlts_desc	NA
Dumping_trash	1
Dumping_trash_desc	NA
Encampments	1
Encampments_desc	NA
FeralPig	1
FeralPig_desc	NA
Trampling	1
Trampling_desc	NA

MSP Occurr. ID & Sample Point.	MOLIV_4SYCA002_1
Vandalism	1
Vandalism_desc	NA
CurrentGrazing	1
CurrentGrazing_desc	NA
HistoricGrazing	yes
HistoricGrazing_desc	Invasive grassland adjacent to plot
HistoricAgriculture	no
HistoricAgriculture_desc	NA
AlteredHydrology	1
AlteredHydrology_desc	NA
Erosion	1
Erosion_desc	NA
UrbanRunoff	1
UrbanRunoff_desc	NA
SlopeMovement	1
SlopeMovement_desc	NA
SoilCompaction	1
SoilCompaction_desc	NA
FuelModZone_FireBreak	1
FuelModZone_FireBreak_desc	NA
RoadConst_Mainten	2
RoadConst_Mainten_descrip	Hiking and biking trail adjacent to plot
VegClearing	1
VegClearing_descript	NA
Restoration	3
Restoration_desc	Appears some grass was removed last year in monardella patch
ORV_MtnBikeActivity_disturb	1
ORV_MtnBikeActivity_type	NA
EvidenceRecentFire	No
YearBurned	NA
Trails_disturbance	2
Trails_authorized	yes
TrailUse_Hiking	yes
TrailUse_Biking	yes
TrailUse_Equestrian	yes
TrailUse_Dog	unknown
TrailUse_ServiceVehicles	unknown
TrailUse_Other	no
TrailUse_illegal_descript	Hiking, biking and equestrian use likely

MSP Occurr. ID & Sample Point.	**MOLIV_4SYCA002_1**
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Continued monitoring, invasive forb and grass treatment
ManageActions_PastYr	Thinning of Eriogonum fasciculatum, and weeding of non-native grasses
CNDDB_SppDetected	Monardella viminea
Notes	NA
Time Finish	13:38

MSP Occurr. ID & Sample Point.	MOLIV_4SYCA006_2
Preserve	Sycamore Canyon and Goodan Ranch Preserves
Other Occ ID	MOLIV_4SPCA006_2
MgtUnit	4
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
SampID	202157
UpdateSampInfo	no
Public	yes
Scientific Name	Monardella viminea
Date	6/20/2024
Time Start	12:13
Surveyors	Adrienne Lee and Dillon Travis
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	7
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	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
GPSAccurracy	1.22
GPSAccurracyUnits	m
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	
Photo1Y	
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

MSP Occurr. ID & Sample Point.	MOLIV_4SYCA006_2
Photo1Dir	
Photo1Hei	
Photo1Ang	
UpdatePhotoInfo	no
PhotoNumPhoto1	MOLIV_4SYCA006_2_Photo1_0620204
SANDAG2012_VegAllianceAssoc	Eriogonum fasciculatum-Salvia apiana Association
CryptogamicCrustCover	2
ThatchCover	4
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	4
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Rhamnus crocea
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	32
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acmispon glaber - deerweed	0.2
Ambrosia psilostachya - Cuman ragweed	0.2
Artemisia californica - coastal sagebrush	3
Avena barbata - slender oat	3
Baccharis pilularis – coyote brush	0.2
Brachypodium distachyon - purple false brome	2
Bromus diandrus - ripgut brome	1
Bromus hordeaceus - soft brome	0.2
Bromus madritensis - compact brome	2
Calystegia macrostegia - island false bindweed	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Cuscuta californica - California dodder	0.2
Eriogonum fasciculatum - California buckwheat	16
Festuca myuros - annual fescue	1
Hirschfeldia incana - shortpod mustard	0.2
Hypochaeris glabra - smooth cat's ear	0.2
Mirabilis laevis - desert wishbone-bush	0.2
Monardella viminea - Willowy monardella	1
Pentagramma triangularis - goldbeck fern	0.2
Rhamnus crocea - spiny redberry	1
Salvia apiana - white sage	1

MSP Occurr. ID & Sample Point.	MOLIV_4SYCA006_2
Stephanomeria spp. - wirelettuce	0.2
Other Associated Species?	no
BareGround	28.8
CrypSoils	0.2
Rock	35
Litter	3
Water	0
Vegetation	33.2
DeadShrubs	1
TotalPercCover	100.4
Alreadyentered	yes
Ifyes_whichsurvey	MOLIV_4SYCA006_1
ManageRecomm	Continued monitoring, invasive grass/forb treatment
ManageActions_PastYr	None
CNDDB_SppDetected	Monardella viminea Crotch’s bumble bee
Notes	Unofficial use of trails by public vehicles
Time Finish	12:29

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Appendix D

Harbison's Dun Skipper Representative Photographs and Field Forms

D-1 Representative Monitoring Photographs

Hellhole Canyon County Preserve Harbison's Dun Skipper Monitoring Representative Photographs

Photo 1. Harbison's dun skipper larval host plant San Diego sedge (*Carex spissa*) observed during adult flight surveys at Hellhole Canyon County Preserve.

Photo 2. Harbison's dun skipper observed nectaring on shortpod mustard (*Hirschfeldia incana*) at Hellhole Canyon County Preserve.

Photo 3. Harbison's dun skipper observed nectaring on Hemp dogbane (*Apocynum cannabinum*) at Hellhole Canyon County Preserve.

Photo 4. Harbison's dun skipper observed sunning at Hellhole Canyon County Preserve.

D-2 Field Forms

Hellhole Canyon County Preserve Harbison's Dun Skipper Field Forms

HARBISON'S DUN SKIPPER HABITAT AND THREATS ASSESSMENT MATRIX AT HELLHOLE CANYON COUNTY PRESERVE

				Oaks					Sycamores					Willows				
Site	Date	Latitude	Longitude	% 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	5/28/24	33.22113196	-116.93281752	15	100	0	0	0	30	90	10	0	0	40	80	20	0	0
Hellhole Canyon County Preserve	5/28/24	33.22609057	-116.94489268	30	70	20	10	0	15	85	15	0	0	55	90	10	0	0

				Cottonwoods					Eucalyptus					Ornamental				
Site	Date	Latitude	Longitude	% 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	5/28/24	33.22113196	-116.93281752	15	90	10	0	0	0	0	0	0	0	0	0	0	0	0
Hellhole Canyon County Preserve	5/28/24	33.22609057	-116.94489268	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

				Royal Empress Tree				Ash				*Carex spissa*			Water			
Site	**Date**	**Latitude**	**Longitude**	**% 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	5/28/24	33.22113196	-116.93281752	0	0	0	0	0	0	0	0	0	0	25	65	10	Y	N
Hellhole Canyon County Preserve	5/28/24	33.22609057	-116.94489268	0	0	0	0	0	0	0	0	0	0	70	30	0	Y	N

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	U	U	N	Y	N	N	N	U	N	N	N	N	N	Y	N	Y	N	N	N	N	N	N	Y	N
Hellhole Canyon County Preserve	N	N	N	N	N	U	Y	N	Y	N	N	N	N	N	Y	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N

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.)

Arundo: *Arundo donax*

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

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D-3 Harbison's Dun Skipper Focused Management Representative Photographs

Hellhole Canyon County Preserve Harbison's Dun Skipper Representative Management Photographs

Photo 5. Habitat West crew using line trimmers and raking 11.5.24.

Photo 6. Management Area 7 before dethatching 11.5.24.

Photo 7. Management Area 7 after dethatching 11.5.24.

Photo 8. Management Area 8 before dethatching 11.5.24.

Photo 9. Management Area 8 after dethatching 11.6.24.

Photo 10. Habitat West crew mixing native seeds 11.27.24.

Photo 11. Habitat West crew dispersing native seeds 11.27.24.

Appendix E

Arroyo Toad Representative Photographs

Reach 22A

Photo 1. Photo taken at downstream end of Reach 22A, facing upstream.

Photo 2. Photo taken at upstream end of Reach 22A, facing downstream.

Reach 22B

Photo 3. Photo taken at downstream end of Reach 22B, facing upstream.

Photo 4. Photo taken at upstream end of Reach 22B, facing downstream.

Reach 23A

Photo 5. Photo taken at downstream end of Reach 23A, facing upstream.

Photo 6. Photo taken within Reach 23A, facing upstream.

Photo 7. Photo taken at upstream end of Reach 23A, facing downstream.

Reach 23B

Photo 8. Photo taken at downstream end of Reach 23B, facing upstream.

Photo 9. Photo taken at upstream end of Reach 23B, facing downstream.

Photo 10. Photo of pool within Reach 23B where arroyo toad tadpole was observed.

Reach 24A

Photo 11. Photo taken at downstream end of Reach 24A, facing upstream.

Photo 12. Photo taken at upstream end of Reach 24A, facing downstream.

Reach 24B

Photo 13. Photo taken at downstream end of Reach 24B, facing upstream.

Photo 14. Photo taken at upstream end of Reach 24B, facing downstream.

Reach 26A

Photo 15. Photo taken at downstream end of Reach 26A, facing upstream.

Photo 16. Photo taken at upstream end of Reach 26A, facing downstream.

Photo 17. Photo of arroyo toad tadpole taken within Reach 26A.

Photo 18. Photo of arroyo toad tadpole taken within Reach 26A.

Reach 26B

Photo 19. Photo taken at downstream end of Reach 26B, facing upstream.

Photo 20. Photo taken at upstream end of Reach 26B, facing downstream.

Photo 21. Arroyo toad suitable habitat within Reach 26B.

Photo 22. Arroyo toad tadpole observed within Reach 26B.

Reach 27A

Photo 23. Photo taken at downstream end of Reach 27A, facing upstream.

Photo 24. Photo taken at upstream end of Reach 27A, facing downstream.

Photo 25. Arroyo toad tadpole observed within Reach 27A.

Photo 26. Algal matting surrounding open pool with arroyo toad tadpoles within Reach 27A.

Photo 27. Margins of Reach 27A lined with dense algae.

Reach 27B

Photo 28. Photo taken at downstream end of Reach 27B, facing upstream.

Photo 29. Photo taken at upstream end of Reach 27B, facing downstream.

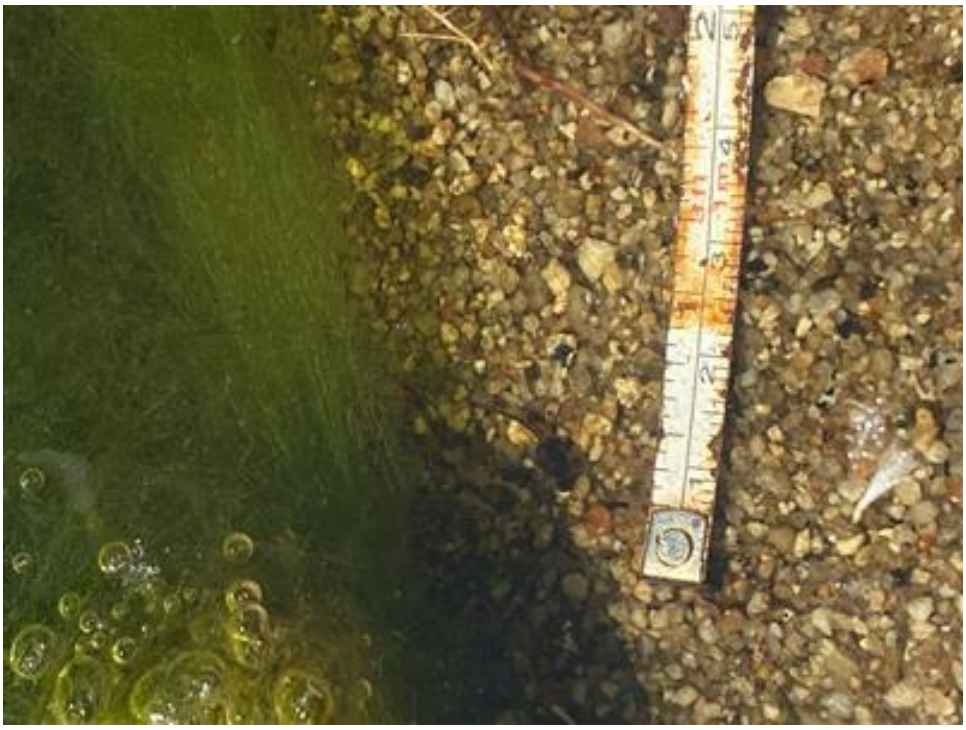

Photo 30. Arryo toad tadpole observed within Reach 27B.

Photo 31. Arryo toad tadpole observed within Reach 27B.

Photo 32. Arryo toad tadpole observed within Reach 27B.

Photo 33. Habitat within Reach 27B with approximately 60 arroyo toad tadpoles.

Reach 28A

Photo 34. Photo taken at downstream end of Reach 28A, facing upstream.

Photo 35. Photo taken at upstream end of Reach 28A, facing downstream.

Reach 28B

Photo 36. Photo taken at downstream end of Reach 28B, facing upstream.

Photo 37. Photo taken at upstream end of Reach 28B, facing downstream.

Reach 30A

Photo 38. Photo taken at upstream end of Reach 30A, facing downstream.

Photo 39. Photo taken at downstream end of Reach 30A, facing upstream.

Reach 33A

Photo 40. Photo taken at downstream end of Reach 33A, facing upstream,

Photo 41. Photo taken at upstream end of Reach 33A, facing downstream.

Reach 33B

Photo 42. Photo taken at downstream end of Reach 33B, facing upstream.

Photo 43. Photo taken at upstream end of Reach 33B, facing downstream.

Reach 35A

Photo 44. Photo taken at downstream end of Reach 35A, facing upstream.

Photo 45. Photo taken at upstream end of Reach 35A, facing downstream.

Reach 35B

Photo 46. Photo taken at downstream end of Reach 35B, facing upstream.

Photo 47. Photo taken at upstream end of Reach 35B, facing downstream.

Reach 36A

Photo 48. Photo taken at downstream end of Reach 36A, facing upstream.

Photo 49. Photo taken at upstream end of Reach 36A, facing downstream.

Reach 36B

Photo 50. Photo taken at downstream end of Reach 36B, facing upstream.

Photo 51. Photo taken at upstream end of Reach 36B, facing downstream.

Reach 37A

Photo 52. Photo taken at downstream end of Reach 37A, facing upstream.

Photo 53. Photo taken at upstream end of Reach of 37A, facing downstream.

Reach 37B

Photo 54. Photo taken at downstream end of Reach 37B, facing upstream.

Photo 55. Photo taken at upstream end of Reach 37B, facing downstream.

Reach 38A

Photo 56. Photo taken at downstream end of Reach 38A, facing upstream.

Photo 57. Photo taken at upstream end of Reach 38A, facing downstream.

Reach 38B

Photo 58. Photo taken at downstream end of Reach 38B, facing upstream.

Photo 59. Photo taken at upstream end of Reach 38B, facing downstream.

Reach 40A

Photo 60. Photo taken at downstream end of Reach 40A, facing upstream.

Photo 61. Photo taken at upstream end of Reach 40B, facing downstream.

Reach 40B

Photo 62. Photo taken at downstream end of Reach 40B, facing upstream.

Photo 63. Photo taken at upstream end of Reach 40B, facing downstream.

Reach 41A

Photo 64. Photo taken at downstream end of Reach 41A, facing upstream.

Photo 65. Photo taken at upstream end of Reach 41A, facing downstream.

Reach 41B

Photo 66. Photo taken at downstream end of Reach 41B, facing upstream.

Photo 67. Photo taken at upstream end of Reach 41B, facing downstream.

Reach 42A

Photo 68. Photo taken at downstream end of Reach 42A, facing upstream.

Photo 69. Photo taken at upstream end of Reach 42A, facing downstream.

Reach 45A

Photo 70. Photo taken at downstream end of Reach 45A, facing upstream.

Photo 71. Photo taken at upstream end of Reach 45A, facing downstream.

Photo 72. Photo of suitable arroyo toad habitat within Reach 45A.

Photo 73. Photo of suitable arroyo toad habitat within Reach 45A.

Reach 52A

Photo 74. Photo taken at downstream end of Reach 52A, facing upstream.

Photo 75. Photo taken at upstream end of Reach 52A, facing downstream.

Reach 52B

Photo 76. Photo taken at downstream end of Reach 52B, facing upstream.

Photo 77. Photo taken at upstream end of Reach 52B, facing downstream.

Reach 53A

Photo 78. Photo taken at downstream end of Reach 53A, facing upstream.

Photo 79. Photo taken at upstream end of Reach 53A, facing downstream.

Appendix F

Northern Harrier Representative Photographs and Survey Forms

F-1 Representative Photographs

Tijuana River Valley Regional Park Northern Harrier Monitoring Representative Photographs

Photo 1. Habitat (coastal sage scrub) in Territory 1 where a pair of northern harriers were seen carrying food to a presumed nest in 2024. Habitat is still suitable in good condition.

Photo 2. Habitat (coastal sage scrub) in Territory 2. A pair, including a male carrying prey, were seen only during the June survey.

Photo 3. Habitat (mule fat and coastal sage scrub) in Territory 5. An adult male was seen carrying food during the June Survey, but breeding activity was never confirmed in this territory in 2024.

Photo 4. Habitat (mule fat, Baccharis scrub) in Territory 3. A pair of northern harriers was seen carrying food to a nest with that was confirmed to contain chicks during the July survey.

F-2 Field Forms

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Northern Harrier

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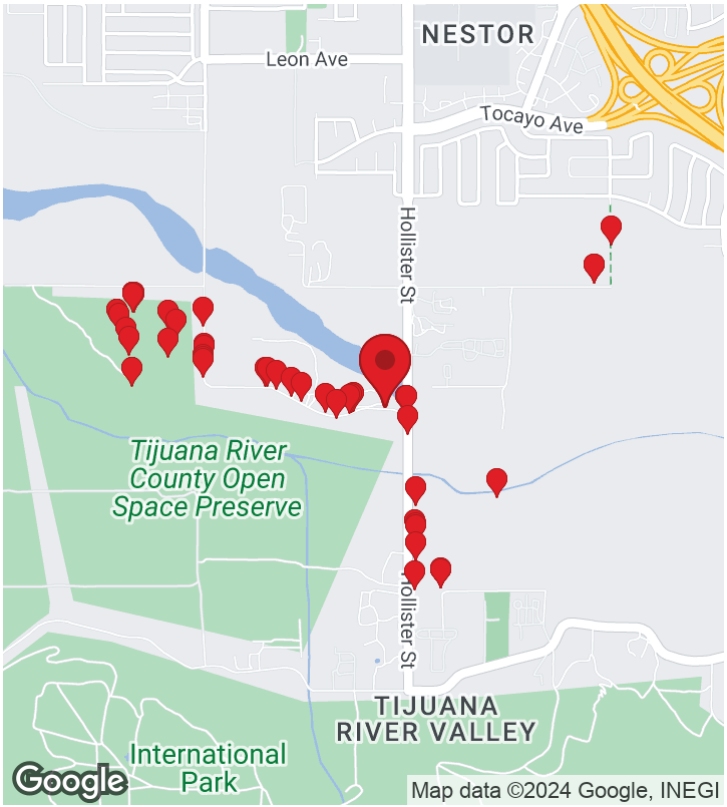


CREATED

4/3/2024, 2:07:40 PM UTC
by SC Fulcrum03

UPDATED

4/3/2024, 5:17:27 PM UTC
by SC Fulcrum03

LOCATION

32.553833, -117.085067

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:	Brennan Mulrooney
Date:	April 3, 2024

START Weather Details:

Start - Time:	07:00
Start - Temperature:	55
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 (%):	0
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Start - Notes (if applicable):	

END Weather Details:

Time Out:	10:15
End - Temperature:	68
End - Wind Direction From (select one):	SE
End - Low Wind Speed:	1
End - High Wind Speed:	3
End - Average Wind Speed:	2
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	Order: sunset area, hollister area, ball fields

Notes	Couldn’t get to Campground due to monument rd flooding.
Observation Type:	Bird
Photos	

Bird

Bird Observation: (51 Items)

Bird Observation: - 1. 1 record

Bird (Common or Scientific Name):	Orange-crowned Warbler; Leiothlypis celata; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 2. 1 record

Bird (Common or Scientific Name):	Cassin's Vireo; Vireo cassinii; CAVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record

Bird (Common or Scientific Name):	Northern Waterthrush; Parkesia noveboracensis; NOWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record

Bird (Common or Scientific Name):	Hutton's Vireo; Vireo huttoni; HUVI
Is the Bird Sensitive ?	no

Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record

Bird (Common or Scientific Name):	Brown-headed Cowbird; Molothrus ater; BHCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record

Bird (Common or Scientific Name):	Allen's Hummingbird; Selasphorus sasin; ALHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record

Bird (Common or Scientific Name):	Gadwall; Mareca strepera; GADW
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	3
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Female, Male
Bird Age (check all that apply):	Adult

Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 13. 1 record

Bird (Common or Scientific Name):	White-crowned Sparrow; Zonotrichia leucophrys; WCSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record

Bird (Common or Scientific Name):	Lincoln's Sparrow; Melospiza lincolnii; LISP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record

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):	Foraging
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 16. 1 record

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; Polioptila caerulea; BGGN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 17. 1 record

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
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 18. 1 record

Bird (Common or Scientific Name):	Common Gallinule; Gallinula galeata; COGA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 20. 1 record

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:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 21. 1 record

Bird (Common or Scientific Name):	Black-crowned Night-Heron; Nycticorax nycticorax; BCNH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 22. 1 record

Bird (Common or Scientific Name):	Townsend's Warbler; Setophaga townsendi; TOWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 23. 1 record

Bird (Common or Scientific Name):	Yellow-rumped Warbler; Setophaga coronata; YRWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 24. 1 record

Bird (Common or Scientific Name):	Mallard; Anas platyrhynchos; MALL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 25. 1 record

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
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 26. 1 record

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, Unknown
Bird Age (check all that apply):	Adult, Subadult
Additional Notes:	

Photo(s) of Bird:

Photo(s) of Bird:

Notes:

Bird Observation: - 27. 1 record

Bird (Common or Scientific Name):	American Goldfinch; Spinus tristis; AGOL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Photo(s) of Bird:

Notes:

Bird Observation: - 28. 1 record

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Photo(s) of Bird:

Notes:

Bird Observation: - 29. 1 record

Bird (Common or Scientific Name):	Red-winged Blackbird; Agelaius phoeniceus; RWBL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 30. 1 record

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:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 31. 1 record

Bird (Common or Scientific Name):	California Thrasher; Toxostoma redivivum; CATH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 32. 1 record

Bird (Common or Scientific Name):	Hermit Thrush; Catharus guttatus; HETH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 33. 1 record

Bird (Common or Scientific Name):	Red-breasted Nuthatch; Sitta canadensis; RBNU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 34. 1 record

Bird (Common or Scientific Name):	Cassin's Kingbird; Tyrannus vociferans; CAKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 35. 1 record

Bird (Common or Scientific Name):	Black Phoebe; Sayornis nigricans; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 36. 1 record

Bird (Common or Scientific Name):	Northern Rough-winged Swallow; Stelgidopteryx serripennis; NRWS
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	

Notes:	

Bird Observation: - 37. 1 record

Bird (Common or Scientific Name):	Western Flycatcher; Empidonax difficilis; WEFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 38. 1 record

Bird (Common or Scientific Name):	Great-tailed Grackle; Quiscalus mexicanus; GTGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 39. 1 record

Bird (Common or Scientific Name):	Greater Yellowlegs; Tringa melanoleuca; GRYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 40. 1 record

Bird (Common or Scientific Name):	Greater Roadrunner; Geococcyx californianus; GRRO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 41. 1 record

Bird (Common or Scientific Name):	Bullock's Oriole; Icterus bullockii; BUOR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 42. 1 record

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 43. 1 record

Bird (Common or Scientific Name):	Snowy Egret; Egretta thula; SNEG
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 44. 1 record

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
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 45. 1 record

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 46. 1 record

Bird (Common or Scientific Name):	American Pipit; Anthus rubescens; AMPI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 47. 1 record

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):	Unknown
Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 48. 1 record

Bird (Common or Scientific Name):	Cinnamon Teal; Spatula cyanoptera; CITE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 49. 1 record

Bird (Common or Scientific Name):	Western Kingbird; Tyrannus verticalis; WEKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 50. 1 record

Bird (Common or Scientific Name):	House Finch; Haemorhous mexicanus; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 51. 1 record

Bird (Common or Scientific Name):	House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

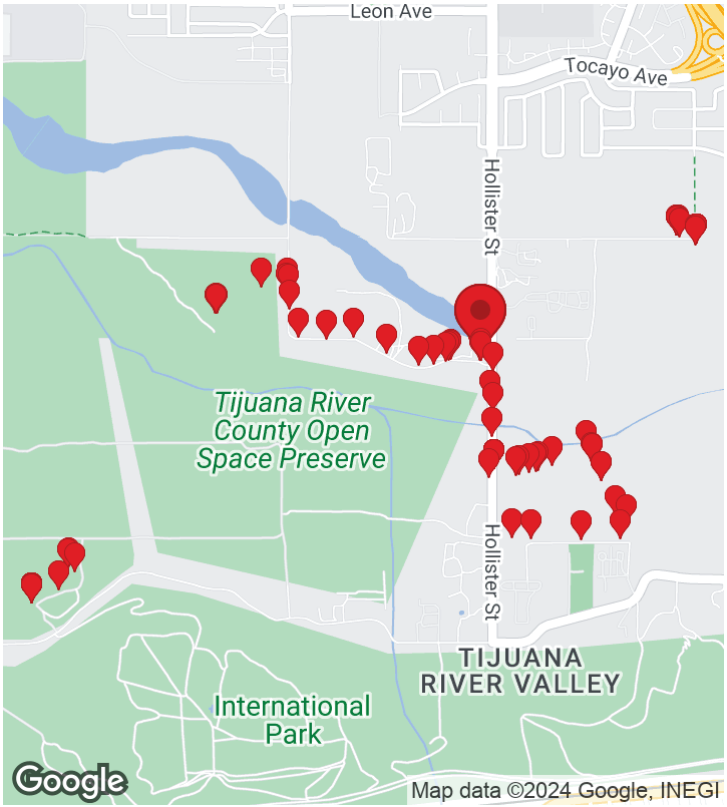
2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Northern Harrier

5/5/2024, 7:51:50 AM UTC

View of campground.



CREATED

5/2/2024, 1:28:46 PM UTC
by SC Fulcrum11

UPDATED

5/5/2024, 7:51:50 AM UTC
by SC Fulcrum11

LOCATION

32.553889, -117.084589

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:	Karla Alcaraz
Date:	May 2, 2024

START Weather Details:

Start - Time:	06:40
Start - Temperature:	57
Start - Wind Direction From (select one):	SE
Start - Low Wind Speed:	2
Start - High Wind Speed:	9
Start - Average Wind Speed:	
Start - Cloud Cover (%):	100
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Start - Notes (if applicable):	

END Weather Details:

Time Out:	12:18
End - Temperature:	68
End - Wind Direction From (select one):	SW
End - Low Wind Speed:	2
End - High Wind Speed:	9
End - Average Wind Speed:	5.5
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	Good
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	

Notes	Started in the campground (nesting NOHA observed), ball fields (no NOHA observed), Hollister Street (no NOHA observed), sunset avenue area (2 possible pair of NOHA observed).
Observation Type:	Bird, Mammal, Nesting Bird Behavior, Plant, Invertebrate, Amphibian, Butterfly/Moth, Reptile

Photos

View of campground.

Opposite of ball fields area, facing E.

Across sunset avenue, Facing N.

Hollister street, Facing W

Hollister street, Facing W.

View from mountaintop, facing SE.

View of sunset area, facing NW.

Amphibian

Amphibian Observation: (1 Item)

Amphibian Observation: - 1.

Amphibian (Common or Scientific Name):	
Other Amphibian Species	
Is the Amphibian Sensitive ?	
Is the Amphibian Sensitive ?	
Sub-Species Info:	
Photo(s) of Amphibian:	
Notes:	

Bird

Bird Observation: (73 Items)

Bird Observation: - 1. 1 record

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 2. 1 record

Bird (Common or Scientific Name):	Black Phoebe; Sayornis nigricans; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record

Bird (Common or Scientific Name):	House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record

Bird (Common or Scientific Name):	Red-winged Blackbird; Agelaius phoeniceus; RWBL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record

Bird (Common or Scientific Name):	Mallard; Anas platyrhynchos; MALL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record

Bird (Common or Scientific Name):	Black-necked Stilt; Himantopus mexicanus; BNST
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record

Bird (Common or Scientific Name):	American Coot; Fulica americana; AMCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record

Bird (Common or Scientific Name):	Wilson's Warbler; Cardellina pusilla; WIWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record

Bird (Common or Scientific Name):	Killdeer; Charadrius vociferus; KILL
Is the Bird Sensitive ?	no

Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 13. 1 record

Bird (Common or Scientific Name):	American Crow; Corvus brachyrhynchos; AMCR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record

Bird (Common or Scientific Name):	Greater Yellowlegs; Tringa melanoleuca; GRYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record

Bird (Common or Scientific Name):	Common Gallinule; Gallinula galeata; COGA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 16. 1 record

Bird (Common or Scientific Name):	White-faced Ibis; Plegadis chihi; WFIB
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
Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 17. 1 record

Bird (Common or Scientific Name):	Long-billed Dowitcher; Limnodromus scolopaceus; LBDO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 18. 1 record

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):	Unknown
Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record

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
Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 20. 1 record

Bird (Common or Scientific Name):	Snowy Egret; Egretta thula; SNEG
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 21. 1 record

Bird (Common or Scientific Name):	White-throated Swift; Aeronautes saxatalis; WTSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 22. 1 record

Bird (Common or Scientific Name):	House Finch; Haemorhous mexicanus; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 23. 1 record

Bird (Common or Scientific Name):	Double-crested Cormorant; Nannopterum auritum; 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
Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 24. 1 record

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:	Visual
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

Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 25. 1 record

Bird (Common or Scientific Name):	Green Heron; Butorides virescens; GRHE
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:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 26. 1 record

Bird (Common or Scientific Name):	Rock Pigeon; Columba livia; ROPI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 27. 1 record

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Photo(s) of Bird:	
Notes:	

Bird Observation: - 28. 1 record

Bird (Common or Scientific Name):	Hooded Oriole; Icterus cucullatus; HOOR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 29. 1 record

Bird (Common or Scientific Name):	Great-tailed Grackle; Quiscalus mexicanus; GTGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 30. 1 record

Bird (Common or Scientific Name):	Say's Phoebe; Sayornis saya; SAPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 31. 1 record

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:	Visual
Number of individuals observed:	1

Behavior (check all that apply):	Perched (not singing), Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 32. 1 record

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 33. 1 record

Bird (Common or Scientific Name):	Western Kingbird; Tyrannus verticalis; WEKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 34. 1 record

Bird (Common or Scientific Name):	Western Gull; Larus occidentalis; WEGU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 35. 1 record

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):	Unknown
Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 36. 1 record

Bird (Common or Scientific Name):	Western Flycatcher; Empidonax difficilis; WEFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 37. 1 record

Bird (Common or Scientific Name):	Swainson's Thrush; Catharus ustulatus; SWTH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 38. 1 record

Bird (Common or Scientific Name):	Cassin's Kingbird; Tyrannus vociferans; CAKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	

Notes:	

Bird Observation: - 39. 1 record

Bird (Common or Scientific Name):	Orange-crowned Warbler; Leiothlypis celata; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 40. 1 record

Bird (Common or Scientific Name):	Cliff Swallow; Petrochelidon pyrrhonota; CLSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 41. 1 record

Bird (Common or Scientific Name):	Canada Goose; Branta canadensis; CANG
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
Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 42. 1 record

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:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 43. 1 record

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):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 44. 1 record

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
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:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 45. 1 record

Bird (Common or Scientific Name):	Black-crowned Night-Heron; Nycticorax nycticorax; BCNH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 46. 1 record

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 47. 1 record

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 48. 1 record

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 49.

Bird (Common or Scientific Name):	
Other Bird Species	Calocitta colliei
Is the Bird Sensitive ?	
Is the Bird Sensitive ?	
Sub-Species Info:	
Photo(s) of Bird:	
Notes:	Black-throated magpie-jay

Bird Observation: - 50. 1 record

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

Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 51. 1 record

Bird (Common or Scientific Name):	Tree Swallow; Tachycineta bicolor; TRES
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 52. 1 record

Bird (Common or Scientific Name):	Allen's Hummingbird; Selasphorus sasin; ALHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 53. 1 record

Bird (Common or Scientific Name):	European Starling; Sturnus vulgaris; EUST
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 54. 1 record

Bird (Common or Scientific Name):	Black-headed Grosbeak; Pheucticus melanocephalus; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	

Notes:	

Bird Observation: - 55. 1 record

Bird (Common or Scientific Name):	Blue Grosbeak; Passerina caerulea; BLGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 56. 1 record

Bird (Common or Scientific Name):	Northern Rough-winged Swallow; Stelgidopteryx serripennis; NRWS
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 57. 1 record

Bird (Common or Scientific Name):	Hutton's Vireo; Vireo huttoni; HUVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 58. 1 record

Bird (Common or Scientific Name):	Common Ground Dove; Columbina passerina; CGDO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 59. 1 record

Bird (Common or Scientific Name):	American Goldfinch; Spinus tristis; AGOL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 60. 1 record

Bird (Common or Scientific Name):	Black-chinned Hummingbird; Archilochus alexandri; BCHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 61. 1 record

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):	Unknown
Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 62. 1 record

Bird (Common or Scientific Name):	Pied-billed Grebe; Podilymbus podiceps; PBGR
Is the Bird Sensitive ?	no

Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 63. 1 record

Bird (Common or Scientific Name):	Western Tanager; Piranga ludoviciana; WETA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 64. 1 record

Bird (Common or Scientific Name):	Warbling Vireo; Vireo gilvus; WAVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 65. 1 record

Bird (Common or Scientific Name):	Common Raven; Corvus corax; CORA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 66. 1 record

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):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Circling in the far distance. Carrying prey item (orange-throated whiptail lizard?). Flew west near sunset avenue.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 67. 1 record

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:	Circle soaring then gliding then circle soaring again. Flying west, same as previous male NOHA.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 68. 1 record

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):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Gliding W. Prey transfer with female NOHA. Not incubating, already have chicks?
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 69. 1 record

Bird (Common or Scientific Name):	Hermit Warbler; Setophaga occidentalis; HEWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 70. 1 record

Bird (Common or Scientific Name):	White-crowned Sparrow; Zonotrichia leucophrys; WCSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	Dark lore

Bird Observation: - 71. 1 record

Bird (Common or Scientific Name):	Nashville Warbler; Leiothlypis ruficapilla; NAWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 72. 1 record

Bird (Common or Scientific Name):	Townsend's Warbler; Setophaga townsendi; TOWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 73.

Bird (Common or Scientific Name):	
Other Bird Species	Swinhoe’s white-eye
Is the Bird Sensitive ?	
Is the Bird Sensitive ?	
Sub-Species Info:	
Photo(s) of Bird:	
Notes:	

Nesting Bird Behavior

Nesting Bird Behavior Observation: (2 Items)

Nesting Bird Behavior Observation: - 1. 1 record

Status of Nest:	Active
Activity Status of Nest:	Prey transfer observed, nesting assumed.
Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Bird Nest Observation

Observation Type:	Visual
Number of individuals observed:	2
Behavior (check all that apply):	Prey transfer observed, nesting assumed.
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	Female took prey item to the ground in area of historic nest site. Found on Campground site.
Photo(s) of Bird:	

Photo(s) of Nesting Bird Behavior:	
Notes:	

Nesting Bird Behavior Observation: - 2. 1 record

Status of Nest:	Active
Activity Status of Nest:	Confirmed nestlings
Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Bird Nest Observation

Observation Type:	Visual
Number of individuals observed:	2
Behavior (check all that apply):	Prey transfer
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	Possible nesting in the ground. Saw a food transfer and separate deliver of material and or food to possible nest.
Photo(s) of Bird:	
Photo(s) of Nesting Bird Behavior:	
Notes:	

Butterfly/Moth

Butterfly/Moth Observation: (3 Items)

Butterfly/Moth Observation: - 1. 1 record

Butterfly/Moth (Common or Scientific Name):	Mourning Cloak; Nymphalis antiopa
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A
Number of individuals observed:	

Butterfly/Moth Observation: - 2. 1 record

Butterfly/Moth (Common or Scientific Name):	Western Tiger Swallowtail; Papilio rutulus
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A
Number of individuals observed:	

Butterfly/Moth Observation: - 3. 1 record

Butterfly/Moth (Common or Scientific Name):	Monarch; Danaus plexippus
Is the Butterfly/Moth Sensitive ?	yes
Sub-Species Info:	N/A
Number of individuals observed:	

Sensitive Butterfly/Moth Observation

Observation Type:	Visual sighting
Behavior (check all that apply):	Feeding
Butterfly Sex (check all that apply):	Unknown
Butterfly Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Butterfly:	

Photo(s) of Butterfly/Moth:

Notes:	

Invertebrate

Invertebrate Observation: (3 Items)

Invertebrate Observation: - 1.

Invertebrate (Common or Scientific Name):	
Other Invertebrate Species	Variegated meadowhawk
Is the Invertebrate Sensitive ?	

Is the Invertebrate Sensitive ?	
Sub-Species Info:	

Invertebrate Observation: - 2.

Invertebrate (Common or Scientific Name):	
Other Invertebrate Species	Apis mellifera
Is the Invertebrate Sensitive ?	
Is the Invertebrate Sensitive ?	
Sub-Species Info:	

Invertebrate Observation: - 3.

Invertebrate (Common or Scientific Name):	
Other Invertebrate Species	Tarantula hawk sp.
Is the Invertebrate Sensitive ?	
Is the Invertebrate Sensitive ?	
Sub-Species Info:	

Photo(s) of Invertebrate:

Notes:	

Mammal

Mammal Observation: (1 Item)

Mammal Observation: - 1. 1 record

Mammal (Common or Scientific Name):	Desert Cottontail; Sylvilagus audubonii
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Photo(s) of Mammal:

Notes:	

Plants

Plant Observation: (12 Items)

Plant Observation: - 1. 1 record

Plant (Common or Scientific Name):	Glebionis coronaria
Is the Plant Sensitive ?	no
State	N/A
Federal	N/A
CA Rare Plant Rank	N/A
Number of individuals observed:	
Additional Notes:	
Photo(s) of Plant:	

Plant Observation: - 2. 1 record

Plant (Common or Scientific Name):	Ricinus communis
Is the Plant Sensitive ?	no
State	N/A
Federal	N/A
CA Rare Plant Rank	N/A
Number of individuals observed:	
Additional Notes:	
Photo(s) of Plant:	

Plant Observation: - 3. 1 record

Plant (Common or Scientific Name):	Mesembryanthemum crystallinum
Is the Plant Sensitive ?	no
State	N/A
Federal	N/A
CA Rare Plant Rank	N/A
Number of individuals observed:	
Additional Notes:	
Photo(s) of Plant:	

Plant Observation: - 4. 1 record

Plant (Common or Scientific Name):	Phytolacca icosandra
Is the Plant Sensitive ?	no
State	N/A
Federal	N/A
CA Rare Plant Rank	N/A
Number of individuals observed:	
Additional Notes:	
Photo(s) of Plant:	

Plant Observation: - 5. 1 record

Plant (Common or Scientific Name):	Nicotiana glauca
Is the Plant Sensitive ?	no
State	N/A
Federal	N/A
CA Rare Plant Rank	N/A
Number of individuals observed:	
Additional Notes:	
Photo(s) of Plant:	

Plant Observation: - 6. 1 record

Plant (Common or Scientific Name):	Foeniculum vulgare
Is the Plant Sensitive ?	no
State	N/A
Federal	N/A
CA Rare Plant Rank	N/A
Number of individuals observed:	
Additional Notes:	
Photo(s) of Plant:	

Plant Observation: - 7. 1 record

Plant (Common or Scientific Name):	Matricaria discoidea
Is the Plant Sensitive ?	no
State	N/A
Federal	N/A

CA Rare Plant Rank	N/A
Number of individuals observed:	
Additional Notes:	
Photo(s) of Plant:	

Plant Observation: - 8. 1 record

Plant (Common or Scientific Name):	Italian Thistle
Is the Plant Sensitive ?	no
State	N/A
Federal	N/A
CA Rare Plant Rank	N/A
Number of individuals observed:	
Additional Notes:	Carduus pycnocephalus
Photo(s) of Plant:	

Plant Observation: - 9. 1 record

Plant (Common or Scientific Name):	Tropaeolum majus
Is the Plant Sensitive ?	no
State	N/A
Federal	N/A
CA Rare Plant Rank	N/A
Number of individuals observed:	
Additional Notes:	
Photo(s) of Plant:	

Plant Observation: - 10. 1 record

Plant (Common or Scientific Name):	Arundo donax
Is the Plant Sensitive ?	no
State	N/A
Federal	N/A
CA Rare Plant Rank	N/A
Number of individuals observed:	
Additional Notes:	
Photo(s) of Plant:	

Plant Observation: - 11. 1 record

Plant (Common or Scientific Name):	Silybum marianum
Is the Plant Sensitive ?	no
State	N/A
Federal	N/A
CA Rare Plant Rank	N/A
Number of individuals observed:	
Additional Notes:	
Photo(s) of Plant:	

Plant Observation: - 12. 1 record

Plant (Common or Scientific Name):	Atriplex lentiformis
Is the Plant Sensitive ?	no
State	N/A
Federal	N/A
CA Rare Plant Rank	N/A
Number of individuals observed:	
Additional Notes:	
Photo(s) of Plant:	

Reptile

Reptile Observation: (1 Item)

Reptile Observation: - 1. 1 record

Reptile (Common or Scientific Name):	Western Fence Lizard; Sceloporus occidentalis
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Reptile:	
Notes:	

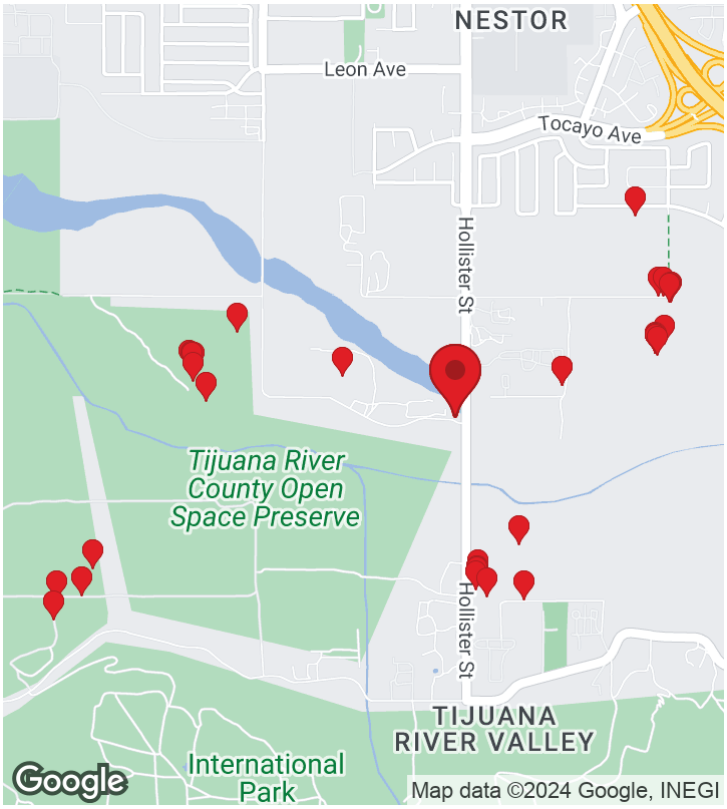
2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Northern Harrier

6/5/2024, 1:15:02 AM UTC

Ball field polygon, facing south



CREATED

6/4/2024, 1:37:48 PM UTC
by SC Fulcrum03

UPDATED

6/5/2024, 1:15:02 AM UTC
by SC Fulcrum03

LOCATION

32.553842, -117.084575

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:	Alissa Lun
Date:	June 4, 2024

START Weather Details:

Start - Time:	06:37
Start - Temperature:	60
Start - Wind Direction From (select one):	S
Start - Low Wind Speed:	1
Start - High Wind Speed:	3
Start - Average Wind Speed:	2
Start - Cloud Cover (%):	100
Start - Precipitation (select one):	None
Start - Visibility (select one):	
Start - Notes (if applicable):	

END Weather Details:

Time Out:	12:49
End - Temperature:	67
End - Wind Direction From (select one):	SW
End - Low Wind Speed:	3
End - High Wind Speed:	5
End - Average Wind Speed:	4
End - Cloud Cover (%):	80
End - Precipitation (select one):	None
End - Visibility (select one):	Good
End - Notes (if applicable):	
Total Hours:	

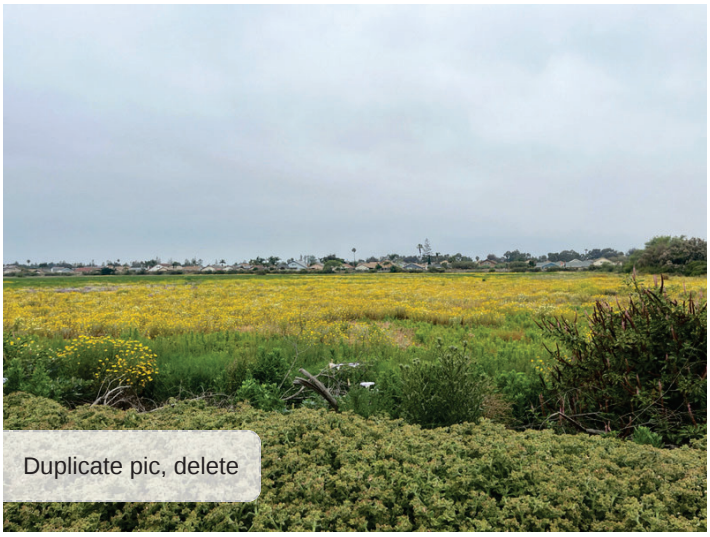
Project Location (description):	

Notes	Started at the ball fields (1 male NOHA observed), Hollister Street (1 female and 1 male NOHA observed, possible nest), sunset avenue area (pair of NOHA with nest observed), campground (pair of nesting NOHA observed)
Observation Type:	Bird

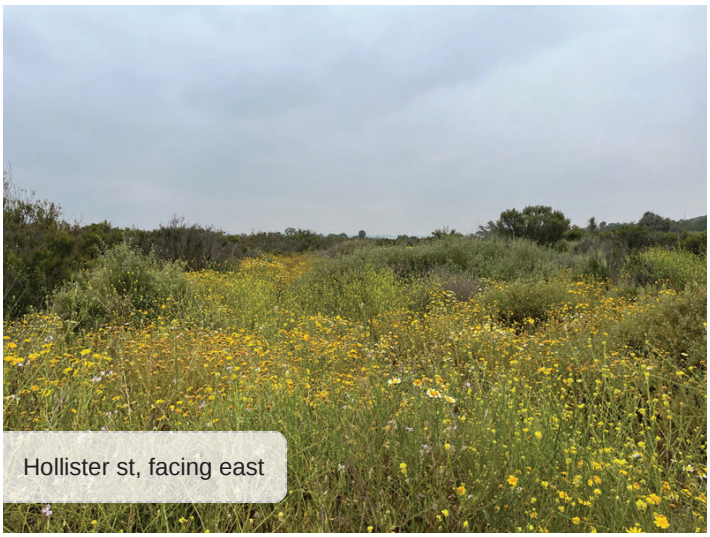
Photos

Ball field polygon, facing south

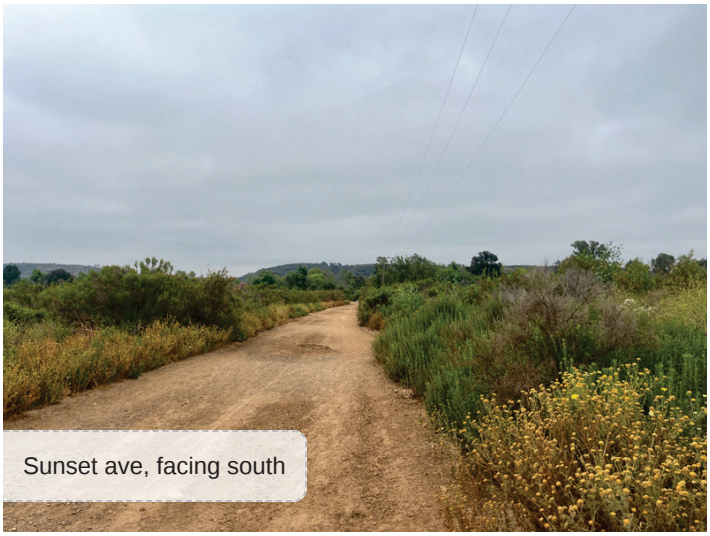
Ball field polygon, facing east


Duplicate pic, delete

Hollister st, facing west



Hollister st, facing east



Sunset ave, facing south

Campground, facing west

Campground, facing south

Bird

Bird Observation: (53 Items)

Bird Observation: - 1. 1 record

Bird (Common or Scientific Name):	American Crow; Corvus brachyrhynchos; AMCR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 2. 1 record

Bird (Common or Scientific Name):	Eurasian Collared-Dove; Streptopelia decaocto; EUCD

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record

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
Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	

Notes:	

Bird Observation: - 6. 1 record

Bird (Common or Scientific Name):	House Finch; Haemorhous mexicanus; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record

Bird (Common or Scientific Name):	Black Phoebe; Sayornis nigricans; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record

Bird (Common or Scientific Name):	Western Gull; Larus occidentalis; WEGU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record

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, In flight

Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Seen flying southwest, carrying food, lost sight of it south of ballfields.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record

Bird (Common or Scientific Name):	Black-crowned Night-Heron; Nycticorax nycticorax; BCNH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 13. 1 record

Bird (Common or Scientific Name):	California Thrasher; Toxostoma redivivum; CATH
Is the Bird Sensitive ?	no

Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record

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
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record

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:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 16. 1 record

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 17. 1 record

Bird (Common or Scientific Name):	Black-headed Grosbeak; Pheucticus melanocephalus; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 18. 1 record

Bird (Common or Scientific Name):	Downy Woodpecker; Dryobates pubescens; DOWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record

Bird (Common or Scientific Name):	Western Flycatcher; Empidonax difficilis; WEFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 20. 1 record

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 21. 1 record

Bird (Common or Scientific Name):	Cliff Swallow; Petrochelidon pyrrhonota; CLSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 22. 1 record

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 23. 1 record

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:	2
Behavior (check all that apply):	In flight, Perched (not singing)
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult, Juvenile

Additional Notes:	Perched next to each other
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 24. 1 record

Bird (Common or Scientific Name):	White-throated Swift; Aeronautes saxatalis; WTSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 25. 1 record

Bird (Common or Scientific Name):	Double-crested Cormorant; Nannopterum auritum; DCCO
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):	Unknown
Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 26. 1 record

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
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 27. 1 record

Bird (Common or Scientific Name):	Ash-throated Flycatcher; Myiarchus cinerascens; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	

Notes:

Bird Observation: - 28. 1 record

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):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 29. 1 record

Bird (Common or Scientific Name):	Rock Pigeon; Columba livia; ROPI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 30. 1 record

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:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 31. 1 record

Bird (Common or Scientific Name):	Cassin's Kingbird; Tyrannus vociferans; CAKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 32. 1 record

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 33. 1 record

Bird (Common or Scientific Name):	Greater Roadrunner; Geococcyx californianus; GRRO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 34. 1 record

Bird (Common or Scientific Name):	American Goldfinch; Spinus tristis; AGOL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 35. 1 record

Bird (Common or Scientific Name):	Red-winged Blackbird; Agelaius phoeniceus; RWBL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 36. 1 record

Bird (Common or Scientific Name):	Mallard; Anas platyrhynchos; MALL
Is the Bird Sensitive ?	no

Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 37. 1 record

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, In flight
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Might have been seen going to the ground.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 38. 1 record

Bird (Common or Scientific Name):	Hooded Oriole; Icterus cucullatus; HOOR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 39. 1 record

Bird (Common or Scientific Name):	Blue Grosbeak; Passerina caerulea; BLGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	

Notes:	

Bird Observation: - 40. 1 record

Bird (Common or Scientific Name):	Snowy Egret; Egretta thula; SNEG
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 41. 1 record

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:	Seen flying high, heading east.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 42. 1 record

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:	Both
Number of individuals observed:	2

Behavior (check all that apply):	Perched (not singing), In flight, Foraging
Bird Sex (check all that apply):	Female, Male
Bird Age (check all that apply):	Adult
Additional Notes:	Observed multiple prey transfers and delivery to unseen nests. Approximate nest location on field map.

Photo(s) of Bird:

Female perched on a branch for a few minutes

Photo(s) of Bird:

Notes:

Bird Observation: - 43. 1 record

Bird (Common or Scientific Name):	Pied-billed Grebe; Podilymbus podiceps; PBGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 44. 1 record

Bird (Common or Scientific Name):	Tree Swallow; Tachycineta bicolor; TRES
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 45. 1 record

Bird (Common or Scientific Name):	American Coot; Fulica americana; AMCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 46. 1 record

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):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Heading west.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 47. 1 record

Bird (Common or Scientific Name):	Common Gallinule; Gallinula galeata; COGA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 48. 1 record

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 49. 1 record

Bird (Common or Scientific Name):	Hutton's Vireo; Vireo huttoni; HUVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 50. 1 record

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, In flight
Bird Sex (check all that apply):	Female, Male
Bird Age (check all that apply):	Adult
Additional Notes:	Prey transfer between male and female; female deliver food to unseen nest. Nest location on fieldmaps.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 51. 1 record

Bird (Common or Scientific Name):	Gull-billed Tern; Gelochelidon nilotica; GBTE
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):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	Flying west
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 52. 1 record

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 53. 1 record

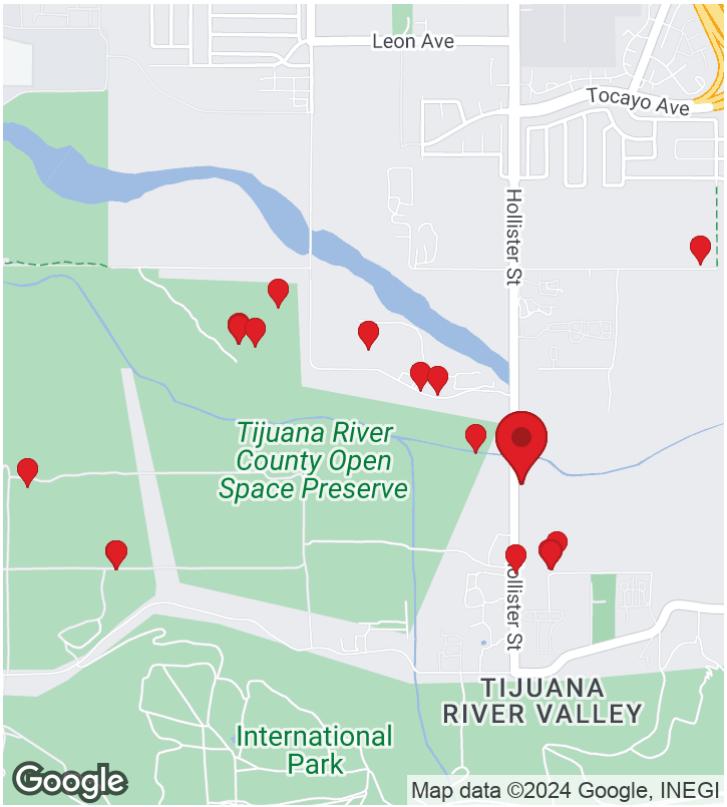
Bird (Common or Scientific Name):	Black-necked Stilt; Himantopus mexicanus; BNST
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Northern Harrier

7/12/2024, 3:01:02 AM UTC



CREATED

7/2/2024, 1:49:29 PM UTC
by SC Fulcrum03

UPDATED

7/12/2024, 3:01:02 AM UTC
by SC Fulcrum18

LOCATION

32.550390, -117.083773

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:	Jaclyn Catino-Davenport
Date:	July 2, 2024

START Weather Details:

Start - Time:	06:10
Start - Temperature:	63
Start - Wind Direction From (select one):	W
Start - Low Wind Speed:	0
Start - High Wind Speed:	2
Start - Average Wind Speed:	1
Start - Cloud Cover (%):	100
Start - Precipitation (select one):	None
Start - Visibility (select one):	
Start - Notes (if applicable):	

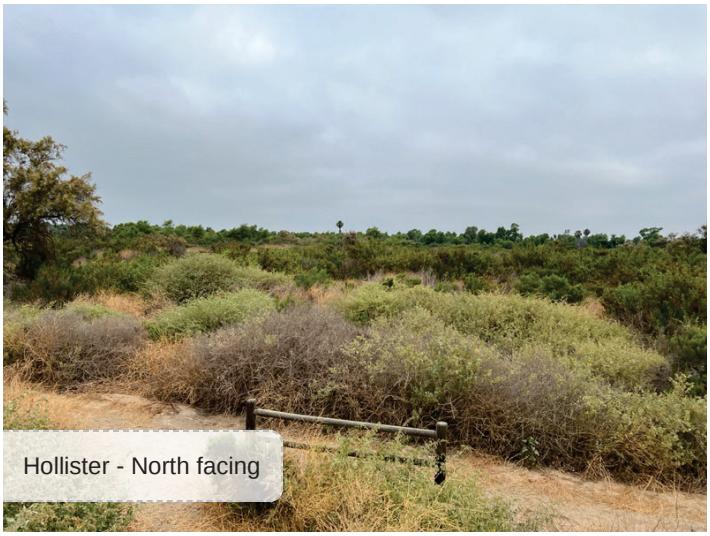
END Weather Details:

Time Out:	10:58
End - Temperature:	70
End - Wind Direction From (select one):	SW
End - Low Wind Speed:	1
End - High Wind Speed:	3
End - Average Wind Speed:	2
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	

Notes	Started at Hollister, no NOHA Then Sunset, pair seen taking food to nest where chicks could be heard, and possibly second pair seen on walk in that did a food exchange and the female took it to the ground in an area where we have not previously seen nesting activity. Then Campground, single male NOHA Lastly, Ballfields, no NOHA
Observation Type:	Bird

Photos


Hollister - North facing

Campground north facing

North facing at ball fields

Bird

Bird Observation: (33 Items)

Bird Observation: - 1. 1 record

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:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 2. 1 record

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
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 3. 1 record

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:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 4. 1 record

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record

Bird (Common or Scientific Name):	Black Phoebe; Sayornis nigricans; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record

Bird (Common or Scientific Name):	California Thrasher; Toxostoma redivivum; CATH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record

Bird (Common or Scientific Name):	Cliff Swallow; Petrochelidon pyrrhonota; CLSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record

Bird (Common or Scientific Name):	Allen's Hummingbird; Selasphorus sasin; ALHU
Is the Bird Sensitive ?	no

Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record

Bird (Common or Scientific Name):	Western Gull; Larus occidentalis; WEGU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 13. 1 record

Bird (Common or Scientific Name):	American Goldfinch; Spinus tristis; AGOL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record

Bird (Common or Scientific Name):	Mallard; Anas platyrhynchos; MALL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record

Bird (Common or Scientific Name):	American Crow; Corvus brachyrhynchos; AMCR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 16. 1 record

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:	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
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 17. 1 record

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
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 18. 1 record

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:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Foraging, In flight
Bird Sex (check all that apply):	Female, Male
Bird Age (check all that apply):	Adult
Additional Notes:	Food exchange, male to female, then female went to the ground, but not at the nest
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record

Bird (Common or Scientific Name):	Black-crowned Night-Heron; Nycticorax nycticorax; BCNH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 20. 1 record

Bird (Common or Scientific Name):	Common Gallinule; Gallinula galeata; COGA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 21. 1 record

Bird (Common or Scientific Name):	Pied-billed Grebe; Podilymbus podiceps; PBGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 22. 1 record

Bird (Common or Scientific Name):	Green Heron; Butorides virescens; GRHE
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:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 23. 1 record

Bird (Common or Scientific Name):	Mallard; Anas platyrhynchos; MALL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 24. 1 record

Bird (Common or Scientific Name):	American Coot; Fulica americana; AMCO
Is the Bird Sensitive ?	no

Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 25. 1 record

Bird (Common or Scientific Name):	Tree Swallow; Tachycineta bicolor; TRES
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 26. 1 record

Bird (Common or Scientific Name):	Common Raven; Corvus corax; CORA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 27. 1 record

Bird (Common or Scientific Name):	Black-headed Grosbeak; Pheucticus melanocephalus; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 28. 1 record

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 29. 1 record

Bird (Common or Scientific Name):	House Finch; Haemorhous mexicanus; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 30. 1 record

Bird (Common or Scientific Name):	Blue Grosbeak; Passerina caerulea; BLGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 31. 1 record

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:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Foraging, Perched (not singing), Territorial display
Bird Sex (check all that apply):	Female, Male
Bird Age (check all that apply):	Adult
Additional Notes:	Seen doing food exchanges and taking food to nest where chicks could be heard.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 32. 1 record

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:	Seemed to later go to ground in the NE corner of this field, but never carried food.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 33. 1 record

Bird (Common or Scientific Name):	Northern Rough-winged Swallow; Stelgidopteryx serripennis; NRWS
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

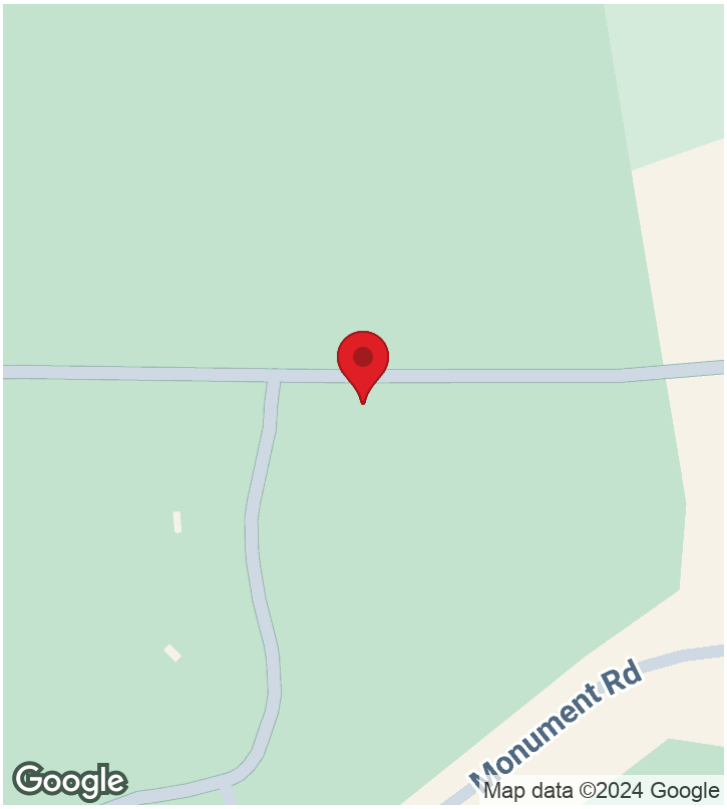
F-3 Threat Assessment Form

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Northern Harrier

7/2/2024, 4:52:05 PM UTC



CREATED

7/2/2024, 4:16:24 PM UTC
by SC Fulcrum05

UPDATED

7/2/2024, 4:52:05 PM UTC
by SC Fulcrum05

LOCATION

32.547255, -117.101146

Parent Form

Project Name:	TMP Monitoring ▸ Northern Harrier
Preserve/Park Name	Tijuana River Valley Regional Park
General Survey Type	TMP Monitoring
Specific Survey Type	NOHA Threats Assessment
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Jaclyn Catino-Davenport
Date:	July 2, 2024

START Weather Details:

Start - Time:	09:16
Start - Temperature:	
Start - Wind Direction From (select one):	
Start - Low Wind Speed:	
Start - High Wind Speed:	
Start - Average Wind Speed:	
Start - Cloud Cover (%):	
Start - Precipitation (select one):	None
Start - Visibility (select one):	
Start - Notes (if applicable):	

END Weather Details:

Time Out:	09:41
End - Temperature:	
End - Wind Direction From (select one):	
End - Low Wind Speed:	
End - High Wind Speed:	
End - Average Wind Speed:	
End - Cloud Cover (%):	
End - Precipitation (select one):	None
End - Visibility (select one):	
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	

Notes	
Observation Type:	Bird

Photos

Bird

Bird Observation:

NOHA Threats Assessment

Survey Round	Round 4
Subpolygon Name	Tijuana Estuary 02
Is this an existing subpolygon?	Yes
Date	July 2, 2024
Primary Observer	Brennan Mulrooney
Secondary Observer	Jaclyn Catino-Davenport

Suitable For Nesting?	Yes
Subpolygon Occupied?	Yes

Occupied Subpolygon

Breeding Behavior Observed?	Yes
If yes, what breeding behavior was observed?	
Other Behavior	
Nest Site Located?	No
Foraging Behavior Observed?	Yes
Foraging Habitat	Coastal Scrub
# Fledglings	
NOHA Comments	

Habitat Description	Coastal scrub habitat surrounded by riparian vegetation and disturbed habitat.
Habitat Management Recs	Remove non-native weeds and plants from habitat.
Invasive Species Risk	Yes
If yes, Invasive Species Description	Castor bean, Tamarisk, tree tobacco, daisy, sweet fennel, black mustard, arundo
Invasive Spp Management Recs	Remove non-native weeds and plants from habitat.
Risk from Ag Practices	No
Other Habitat Risks?	
NOHA Foraging Habitat at Risk?	Yes
If yes, describe NOHA Foraging Habitat	Invasive non-native
Foraging Habitat Management Recs	Remove non-native weeds and plants from habitat.
Predators Present?	Yes
Predation Risk Level	Medium
Description of Predation Risk	Red-tailed hawk
Predator Management Recs	While not observed during today's survey, raccoon, coyote, and Corvids (common raven, American crow) are likely predators.
Risk from Humans?	Yes
Description of Human Risks	Authorized Trail Use, Unauthorized Trail Use, Border Patrol Activities
Human Management Recs	Close unauthorized trails.
Description of Other Threats	
Management Recs Other Threats	
Dominant Surrounding Land Use	Disturbed Habitat, Urban/Developed, Riparian Forest/Woodland
Subpolygon Notes	
Subpolygon Photos	

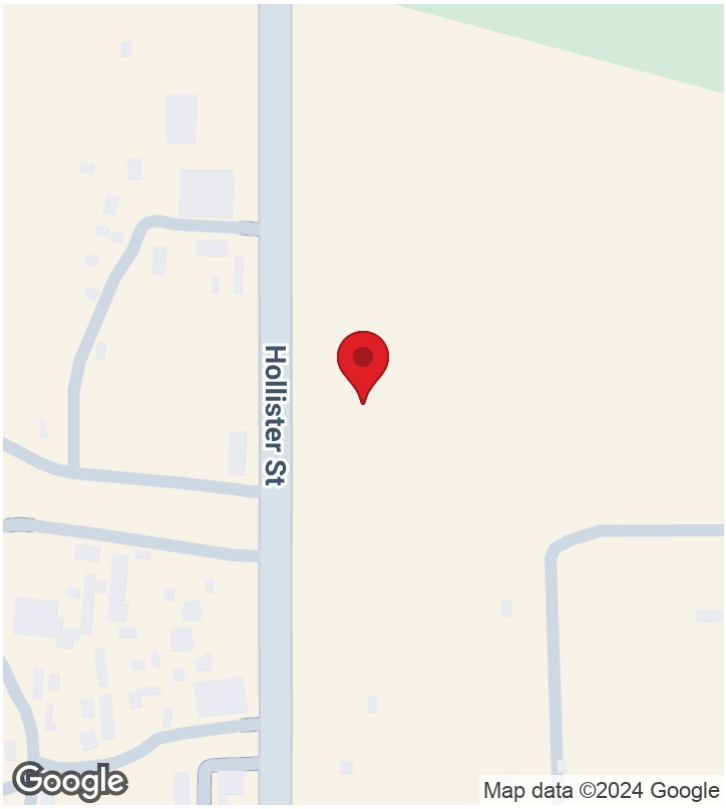
07/02/2024 09:41:33

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Northern Harrier

7/2/2024, 2:57:48 PM UTC



CREATED

6/4/2024, 3:36:28 PM UTC
by SC Fulcrum03

UPDATED

7/2/2024, 2:57:48 PM UTC
by SC Fulcrum05

LOCATION

32.547782, -117.083629

Parent Form

Project Name:	TMP Monitoring ▸ Northern Harrier
Preserve/Park Name	Tijuana River Valley Regional Park
General Survey Type	TMP Monitoring
Specific Survey Type	NOHA Threats Assessment
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Alissa Lun
Date:	June 4, 2024

START Weather Details:

Start - Time:	08:36
Start - Temperature:	
Start - Wind Direction From (select one):	
Start - Low Wind Speed:	
Start - High Wind Speed:	
Start - Average Wind Speed:	
Start - Cloud Cover (%):	
Start - Precipitation (select one):	None
Start - Visibility (select one):	
Start - Notes (if applicable):	

END Weather Details:

Time Out:	09:19
End - Temperature:	
End - Wind Direction From (select one):	
End - Low Wind Speed:	
End - High Wind Speed:	
End - Average Wind Speed:	
End - Cloud Cover (%):	
End - Precipitation (select one):	None
End - Visibility (select one):	
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	Hollister area

Notes	
Observation Type:	Bird

Photos

Bird

Bird Observation:

NOHA Threats Assessment

Survey Round	Round 3
Subpolygon Name	Tijuana Estuary 05
Is this an existing subpolygon?	Yes
Date	June 4, 2024
Primary Observer	Brennan Mulrooney
Secondary Observer	Alissa Lun
Suitable For Nesting?	Yes
Subpolygon Occupied?	Yes

Occupied Subpolygon

Breeding Behavior Observed?	
Nest Site Located?	
Foraging Behavior Observed?	
# Fledglings	
NOHA Comments	
Habitat Description	Mix of riparian scrub, salt bush scrub and non-native weeds

Habitat Management Recs	Removing non-native weeds from habitat.
Invasive Species Risk	Yes
If yes, Invasive Species Description	Shortpod mustard, Daisy, tamarisk, radish, artichoke thistle, fennel, tree tobacco, castor bean, Peruvian peppertree
Invasive Spp Management Recs	Remove non-native weeds and plants from habitat.
Risk from Ag Practices	No
Other Habitat Risks?	No
NOHA Foraging Habitat at Risk?	Yes
If yes, describe NOHA Foraging Habitat	Salt bush scrub
Foraging Habitat Management Recs	Remove non-native weeds and plants from habitat.
Predators Present?	Yes
Predation Risk Level	Medium
Description of Predation Risk	Raccoon, coyote, crows
Predator Management Recs	None
Risk from Humans?	Yes
Description of Human Risks	Unauthorized Trail Use, Border Patrol Activities
Human Management Recs	Close unauthorized trails.
Description of Other Threats	N/A
Management Recs Other Threats	N/A
Dominant Surrounding Land Use	Agriculture, Urban/Developed, Riparian Forest/Woodland
Subpolygon Notes	Adjacent to ponyland and other horse facilities.

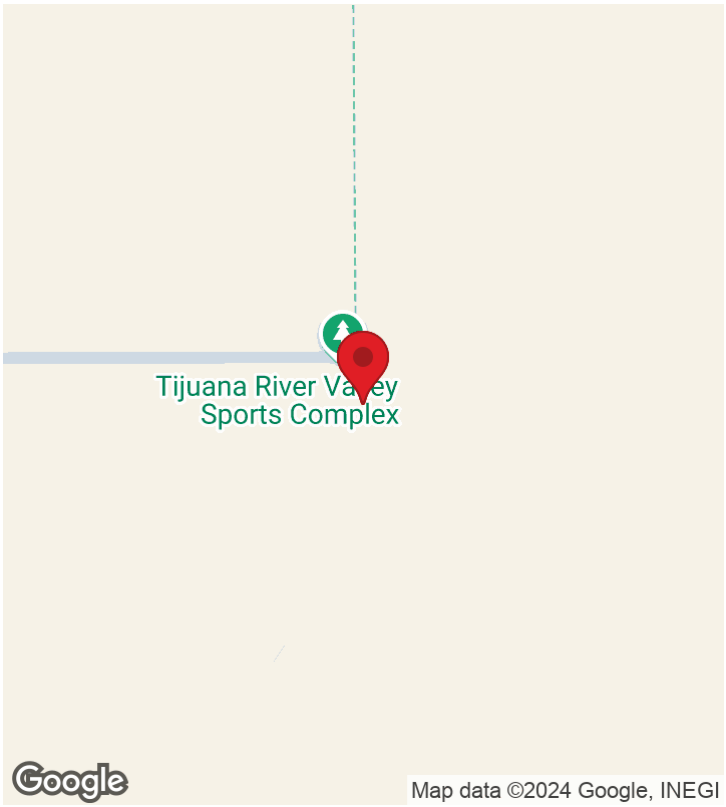
Subpolygon Photos

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Northern Harrier

7/2/2024, 5:44:59 PM UTC



CREATED

6/4/2024, 1:58:17 PM UTC
by SC Fulcrum03

UPDATED

7/2/2024, 5:44:59 PM UTC
by SC Fulcrum05

LOCATION

32.558001, -117.075377

Parent Form

Project Name:	TMP Monitoring ▸ Northern Harrier
Preserve/Park Name	Tijuana River Valley Regional Park
General Survey Type	TMP Monitoring
Specific Survey Type	NOHA Threats Assessment
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Alissa Lun
Date:	June 4, 2024

START Weather Details:

Start - Time:	06:58
Start - Temperature:	
Start - Wind Direction From (select one):	
Start - Low Wind Speed:	
Start - High Wind Speed:	
Start - Average Wind Speed:	
Start - Cloud Cover (%):	
Start - Precipitation (select one):	None
Start - Visibility (select one):	
Start - Notes (if applicable):	

END Weather Details:

Time Out:	08:00
End - Temperature:	
End - Wind Direction From (select one):	
End - Low Wind Speed:	
End - High Wind Speed:	
End - Average Wind Speed:	
End - Cloud Cover (%):	
End - Precipitation (select one):	None
End - Visibility (select one):	
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	

Notes	
Observation Type:	Bird

Photos

Bird

Bird Observation:

NOHA Threats Assessment

Survey Round	Round 3
Subpolygon Name	Tijuana Estuary 12 (ESA)
Is this an existing subpolygon?	No

New Subpolygon

Primary Habitat	Riparian Scrub
% Primary Habitat	60
Secondary Habitat	Disturbed Habitat
% Secondary Habitat	40
Other Habitat	
% Other Habitat	

Date	June 4, 2024
Primary Observer	Brennan Mulrooney
Secondary Observer	Alissa Lin
Suitable For Nesting?	Yes
Subpolygon Occupied?	Yes

Occupied Subpolygon

Breeding Behavior Observed?	Yes
If yes, what breeding behavior was observed?	Prey Delivery
Other Behavior	
Nest Site Located?	No
Foraging Behavior Observed?	Yes
Foraging Habitat	Non-native Grassland
# Fledglings	
NOHA Comments	Just seen carrying prey item to the SW. Maybe the same territory by Hollister.
Habitat Description	Mix riparian scrub and non-native weedy scrub (Glebonius and Conium)
Habitat Management Recs	Removing non-native plants
Invasive Species Risk	Yes
If yes, Invasive Species Description	Non-native weeds (Glebonius and Conium)
Invasive Spp Management Recs	Remove non-native weeds
Risk from Ag Practices	No
Other Habitat Risks?	No
NOHA Foraging Habitat at Risk?	Yes
If yes, describe NOHA Foraging Habitat	Invasive non-native weeds and plants.
Foraging Habitat Management Recs	
Predators Present?	Yes
Predation Risk Level	Medium
Description of Predation Risk	American crow
Predator Management Recs	None.
Risk from Humans?	Yes
Description of Human Risks	Unauthorized Trail Use, Off-leash Dog(s), Border Patrol Activities
Human Management Recs	Close unauthorized trails and enforce off-leash dog policy.
Description of Other Threats	
Management Recs Other Threats	
Dominant Surrounding Land Use	Urban/Developed, Riparian Forest/Woodland
Subpolygon Notes	
Subpolygon Photos	

Facing NW from Sunset Ave
06/04/2024 07:57:21

NO AVAILABLE DATA

Facing north from south of ball field
NO AVAILABLE DATA

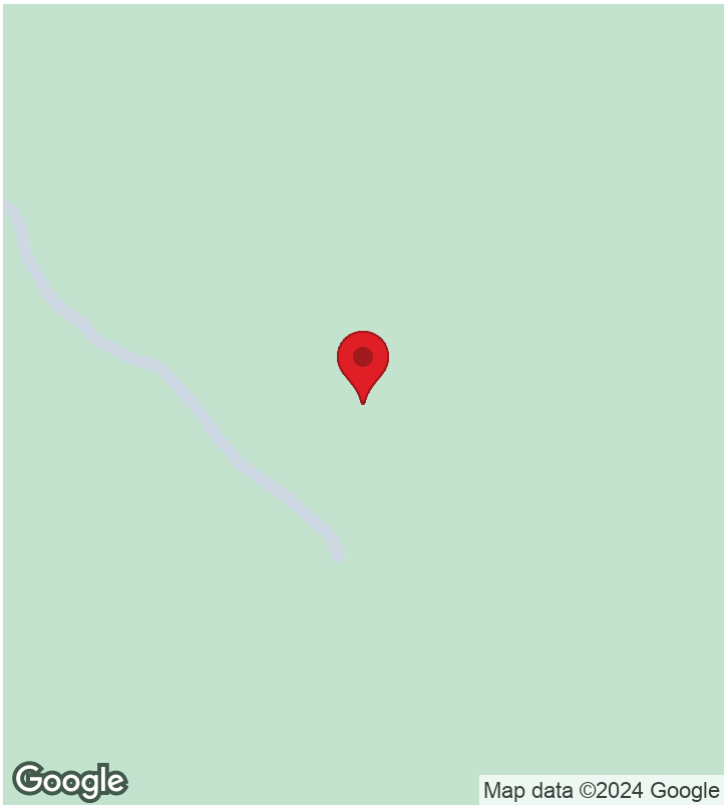
Facing east from end of sunset
NO AVAILABLE DATA

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Northern Harrier

7/2/2024, 4:51:29 PM UTC



CREATED

6/4/2024, 5:23:55 PM UTC
by SC Fulcrum03

UPDATED

7/2/2024, 4:51:29 PM UTC
by SC Fulcrum05

LOCATION

32.555497, -117.095855

Parent Form

Project Name:	TMP Monitoring ▸ Northern Harrier
Preserve/Park Name	Tijuana River Valley Regional Park
General Survey Type	TMP Monitoring
Specific Survey Type	NOHA Threats Assessment
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Alissa Lun
Date:	June 4, 2024

START Weather Details:

Start - Time:	10:23
Start - Temperature:	
Start - Wind Direction From (select one):	
Start - Low Wind Speed:	
Start - High Wind Speed:	
Start - Average Wind Speed:	
Start - Cloud Cover (%):	
Start - Precipitation (select one):	None
Start - Visibility (select one):	
Start - Notes (if applicable):	

END Weather Details:

Time Out:	11:06
End - Temperature:	
End - Wind Direction From (select one):	
End - Low Wind Speed:	
End - High Wind Speed:	
End - Average Wind Speed:	
End - Cloud Cover (%):	
End - Precipitation (select one):	None
End - Visibility (select one):	
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	

Notes	
Observation Type:	Bird

Photos

Bird

Bird Observation:

NOHA Threats Assessment

Survey Round	Round 3
Subpolygon Name	Tijuana Estuary 13 (ESA)
Is this an existing subpolygon?	No

New Subpolygon

Primary Habitat	Riparian Scrub
% Primary Habitat	50
Secondary Habitat	Coastal Scrub
% Secondary Habitat	40
Other Habitat	Disturbed, Wetland
% Other Habitat	10
Date	June 4, 2024
Primary Observer	Brennan Mulrooney
Secondary Observer	Alissa Lun
Suitable For Nesting?	Yes
Subpolygon Occupied?	Yes

Occupied Subpolygon

Breeding Behavior Observed?	Yes
If yes, what breeding behavior was observed?	Prey Delivery, Territorial Display
Other Behavior	
Nest Site Located?	Yes
Nesting Habitat	Coastal Scrub
Foraging Behavior Observed?	Yes
Foraging Habitat	Disturbed Habitat, Coastal Scrub, Riparian Scrub
# Fledglings	
NOHA Comments	Prey deliverable from the male to the female. Female took prey to nest site. Female would not come back to nest when surveyors were on trail, likely disturbed due to human presence.
Habitat Description	Mix of Mule fat, Baccharis scrub, riparian trees, weedy undergrowth, and pond with wetland habitat.
Habitat Management Recs	Remove non-native weeds and plants from habitat.
Invasive Species Risk	Yes
If yes, Invasive Species Description	Tamarisk, arundo, daisy, tree tobacco, caster bean, Mexican fan palm
Invasive Spp Management Recs	Remove non-native weeds and plants from habitat.
Risk from Ag Practices	No
Other Habitat Risks?	No
NOHA Foraging Habitat at Risk?	Yes
If yes, describe NOHA Foraging Habitat	Non-native plant species are reducing the quality of NOHA foraging habitat.
Foraging Habitat Management Recs	Remove non-native weeds and plants from habitat.
Predators Present?	Yes
Predation Risk Level	Medium

Description of Predation Risk	Raccoon, coyote, crows
Predator Management Recs	None
Risk from Humans?	Yes
Description of Human Risks	Unauthorized Trail Use, Border Patrol Activities
Human Management Recs	Close unauthorized trails.
Description of Other Threats	N/A
Management Recs Other Threats	N/A
Dominant Surrounding Land Use	Urban/Developed, Agriculture, Riparian Forest/Woodland
Subpolygon Notes	

Subpolygon Photos

East facing from SW corner on hill over pond

West facing view from northern hilltop south of sunset

Appendix G

Least Bell's Vireo USFWS 45-Day Report and Brown-Headed Cowbird Trapping Annual Report

G-1 Least Bell's Vireo USFWS 45-Day Report

ESA

2355 Northside Drive
Suite 100
San Diego, CA 92108
619.719.4200 phone
619.719.4201 fax

esassoc.com

August 27, 2024

Stacey Love
Carlsbad Fish and Wildlife Service Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: Results of 2024 Least Bell's Vireo Nest Monitoring Study at Santa Margarita County Preserve, Unincorporated San Diego County, California – Implementation of Targeted Monitoring Plan

Dear Ms. Love:

This letter report presents the methodology and results of nest monitoring conducted for least Bell's vireo (*Vireo bellii pusillus*; LBVI) at the Santa Margarita County Preserve (Preserve) located in unincorporated San Diego County, California. Surveys and nest monitoring were conducted by Environmental Science Associates (ESA) biologist Florence Chan under U.S. Fish and Wildlife Service (USFWS) Section 10(a)(1)(A) recovery permit TE ES06873C-2. Nest monitoring of the species within the Preserve was recommended based on 2023 least Bell's vireo presence/absence survey and brown-headed cowbird (BHCO; *Molothrus ater*) trapping results associated with the implementation of the County of San Diego (County) Department of Parks and Recreation (DPR) Targeted Monitoring Plan (TMP) (ESA 2024).

Project Description and Location

The Preserve is approximately 211acres 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 the 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 Preserve contains a total of 21 vegetation communities and land cover types (**Figure 3**). For the purposes of LBVI nest monitoring, vegetation communities that support potentially suitable nesting habitat within the Santa Margarita River channel were surveyed, including southern riparian forest (13.41 acres), southern coast live oak riparian forest (0.43 acres), southern cottonwood-willow riparian forest (2.71 acres), southern sycamore-alder riparian woodland (0.47 acres), southern riparian woodland (20.41 acres), southern riparian scrub (0.67 acres), and southern willow scrub (4.94 acres), all together totaling 43.04 acres. Brief descriptions of suitable LBVI vegetation communities within the Preserve are presented below.

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 (*Populus fremontii*), Goodding's black willow (*Salix gooddingii*), red willow (*Salix laevigata*), and arroyo willow (*Salix lasiolepis*). Associated sub-dominant shrubs in this community include mulefat (*Baccharis*

salicifolia), poison oak (*Toxicodendron diversilobum*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), desert wild grape (*Vitis girdiana*), 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 Coast Live Oak Riparian Forest (0.43 acres)

In this vegetation community, western sycamore (*Platanus racemosa*) and coast live oak (*Quercus agrifolia*) are codominant in an open to closed tree canopy. Scattered within this community are red willow, Gooding's black willow, and Fremont's cottonwood trees. Associated understory plant species include blue elderberry, mugwort, poison oak, desert wild grape, and California rose.

Southern Cottonwood–Willow Riparian Forest (2.71 acres)

This 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 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 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 Riparian Woodland (20.41 acres)

Within this community, red willow, western sycamore, Fremont's cottonwood, coast live oak, and arroyo willow are dominant in an open tree canopy. Shrub species in the understory include mulefat, coyote brush (*Baccharis pilularis*), poison oak, desert wild grape, and blue elderberry.

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 sub-dominant 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 Willow Scrub (4.94 acres)

Several willow species (red willow, arroyo willow, narrowleaf willow [*Salix exigua*], Pacific willow [*Salix lasiandra*], and Goodding's black willow) 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.

Methodology

Nest monitoring for LBVI was conducted and led by ESA biologist Florence Chan (TE ES06873C-2) and assisted by Brennan Mulrooney, Dillon Travis, Mary Cozy, and Stefanie Lehner. Survey and monitoring methodology followed the USFWS's *Least Bell's Vireo Survey Guidelines* issued January 19, 2001 (USFWS 2001) and Pike et al. (1999) *The Status and Management of the Least Bell's Vireo and Southwestern Willow Flycatcher within the Prado Basin, California, 1986–1999*. Weekly surveys were conducted between April 4 and July 30, 2024, 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. Monitoring was conducted between 6:05 a.m. and 12:57 p.m. Weather conditions were suitable for all surveys, with overcast to clear skies, winds of 7 miles per hour or less, and temperatures between 47°F and 85°F.

Results

Monitoring results are summarized in **Table 1** and depicted in **Figure 4**. Brown-headed cowbirds, which are brood parasites, were detected within the survey area during LBVI surveys as summarized in **Table 2** below. BHCO trapping occurred within the Preserve from April 1 to June 30, 2024, and trap locations are depicted in Figure 4. A total of eleven brown-headed cowbirds, including four adult males and seven adult females, were removed from the Preserve in 2024.

TABLE 1
LBVI MONITORING RESULTS

Category	Count
Number of territorial males	15
Number of known pairs	15
Number of known breeding (nesting) pairs	15
Number of known successful breeding pairs	14
Number of known fledged young observed	35
Number of nests that were discovered	13
Number of successful nests	8
Number of nests that failed as a result of reproductive failure	0
Number of nests that failed as a result of predation	4
Number of nests that failed as a result of parasitism	0
Number of nests that failed for unknown reasons	1

TABLE 2
BROWN-HEADED COWBIRD DETECTIONS

Date	Count	Latitude (Y)[a]	Longitude (X)[a]
4/24/2024	2	33.406922	-117.250035
5/08/2024	1	33.407813	-117.249821
6/26/2024	2	33.409073	-117.249368

a. Coordinates are in WGS 84

Incidental Observations

A complete list of all wildlife observed during the surveys is included in **Attachment B**. Incidentally observed special-status species included Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), red diamond rattlesnake (*Crotalus ruber*), great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), turkey vulture (*Cathartes aura*), Cooper's hawk (*Accipiter cooperii*), 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. Red diamond rattlesnake and yellow warbler are CDFW species of special concern and County Group 2 species. Cooper's hawk is a CDFW watch list species and a County Group 1 species. Great blue heron and green heron are County Group 2 species. Red-shouldered hawk and turkey vulture 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. CDFW California Natural Diversity Database forms for all state and federal special-status species are provided in **Attachment C**. Locations of special-status species are shown in Figure 4, with the exception of yellow warbler and yellow-breasted chat. These two species were very common in the survey area and the location for each individual was not recorded as this was not the focus of the survey.

On May 22, 2024, during the weekly LBVI nest monitoring survey, utility contractors were observed working on overhead powerlines in the area. This work involved flying a helicopter low and placing safety ball markers on an electrical line crossing the Preserve. The helicopter operations caused mature riparian trees to shake and sway violently due to the strong downdrafts. After the helicopter departed, numerous avian alarm calls were heard throughout the habitat beneath the powerlines. Due to the stress response exhibited, the biologists immediately halted the monitoring survey and left the area.

Nest Parasitism by Brown-Headed Cowbird

A parasitized song sparrow (*Melospiza melodia*) nest was incidentally detected during the April 24, 2024, survey within an active LBVI territory. A BHCO chick, a BHCO egg, and a song sparrow egg were found in the nest and adult song sparrows were observed feeding the BHCO chick. This nest was found to be empty during the following survey.

Discussion

In 2024, fifteen LBVI territories were detected in the Preserve, an increase of two territories from 2023. Of the fifteen LBVI pairs, fourteen pairs successfully produced at least one fledgling, and one pair produced six fledglings over the course of two broods. Two LBVI pairs attempted and successfully completed second broods. No parasitized LBVI nests were found and no juvenile BHCO were observed during the season. It is highly likely that ongoing BHCO trapping has had a positive impact on the success of common avian species and LBVI in the Preserve.

Conclusion

Based on the results of LBVI nest monitoring, fifteen LBVI territories were documented within the Preserve this season. No juvenile BHCOs were observed during the season, which could be attributed to ongoing BHCO trapping efforts.

If there are any questions regarding this report or the results, please feel free to reach out to Florence Chan at 949.491.2528 or fchan@esassoc.com.

Sincerely,

Florence Chan
Senior Biologist

Attachments:

Attachment A: Figures

- Figure 1: Regional Location
- Figure 2: Vicinity Map
- Figure 3: Vegetation Communities – Holland-Oberbauer Classification
- Figure 4: Least Bell's Vireo Nest Monitoring and Management Results

Attachment B: Wildlife Compendium
Attachment C: California Natural Diversity Database Forms

Certification Statement

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

Florence Chan
Senior Biologist

References

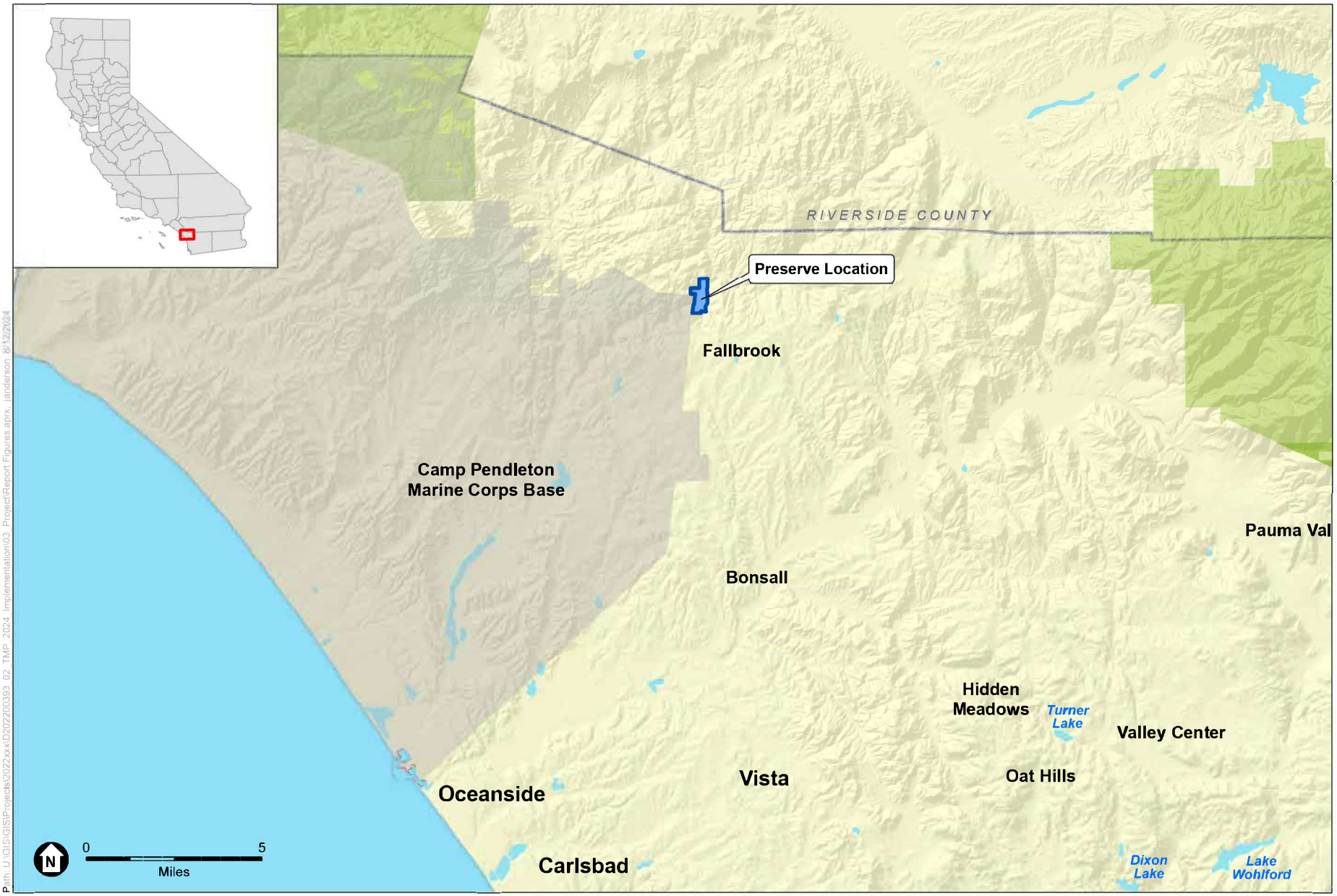
ESA (Environmental Science Associates). 2024. *Updated Final Targeted Monitoring Plan Resource-Specific Monitoring & Management 2023 Annual Report*. Prepared for the County of San Diego Department of Parks and Recreation. March 2024.

Pike, J., D. Pellegrini, S. Reynolds, and L.R. Hays. 1999. *The status and management of the Least Bell's Vireo and Southwestern Willow Flycatcher within the Prado Basin, California, 1986–1999*.

San Diego Association of Governments. 2011. *Vegetation Classification Manual for Western San Diego County*. First ed. February 2011.

USFWS (U.S. Fish and Wildlife Service). 2001. *Least Bell's Vireo Survey Guidelines*. January 19, 2001.

Attachment A
Figures

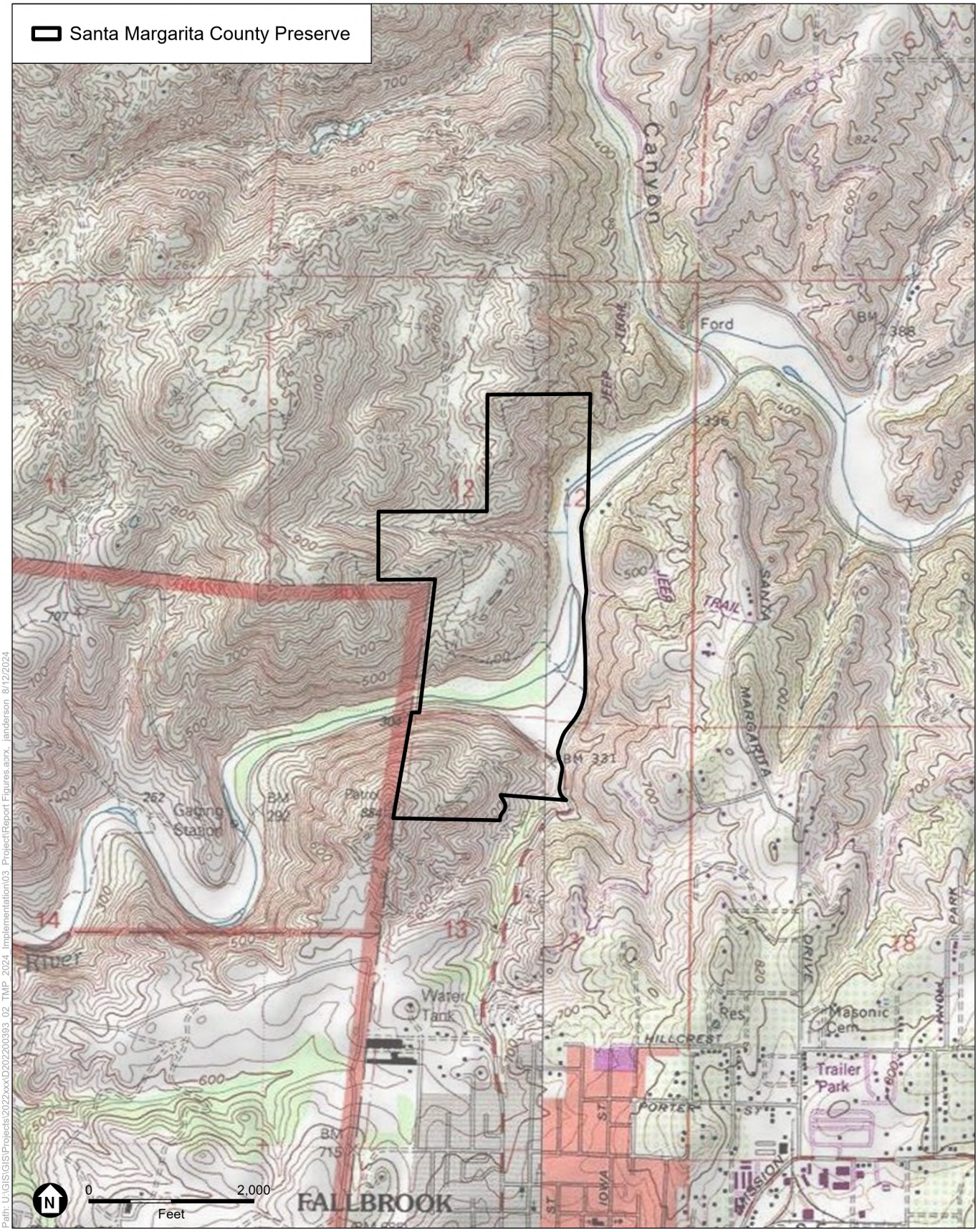


SOURCE: SanGIS

COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan –
2024 Resource-Specific Monitoring and Management
2024 Focused Least Bell's Vireo Nest Monitoring for the Santa Margarita County Preserve

Figure 1
Regional Location

ESA



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SOURCE: USGS Topoquads
Fallbrook and Temecula

COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan –
2024 Resource-Specific Monitoring and Management
2024 Focused Least Bell's Vireo Nest Monitoring for the Santa Margarita County Preserve

Figure 2
Vicinity Map

ESA

Santa Margarita County Preserve

Holland-Oberbauer

Scrub
- 32500 Diegan Coastal Sage Scrub
- 32520 Diegan Coastal Sage Scrub: Inland form

Chaparral
- 37120 Southern Mixed Chaparral
- 37200 Chamise Chaparral
- 37900 Scrub Oak Chaparral
- 37G00 Coastal Sage-Chaparral Transition

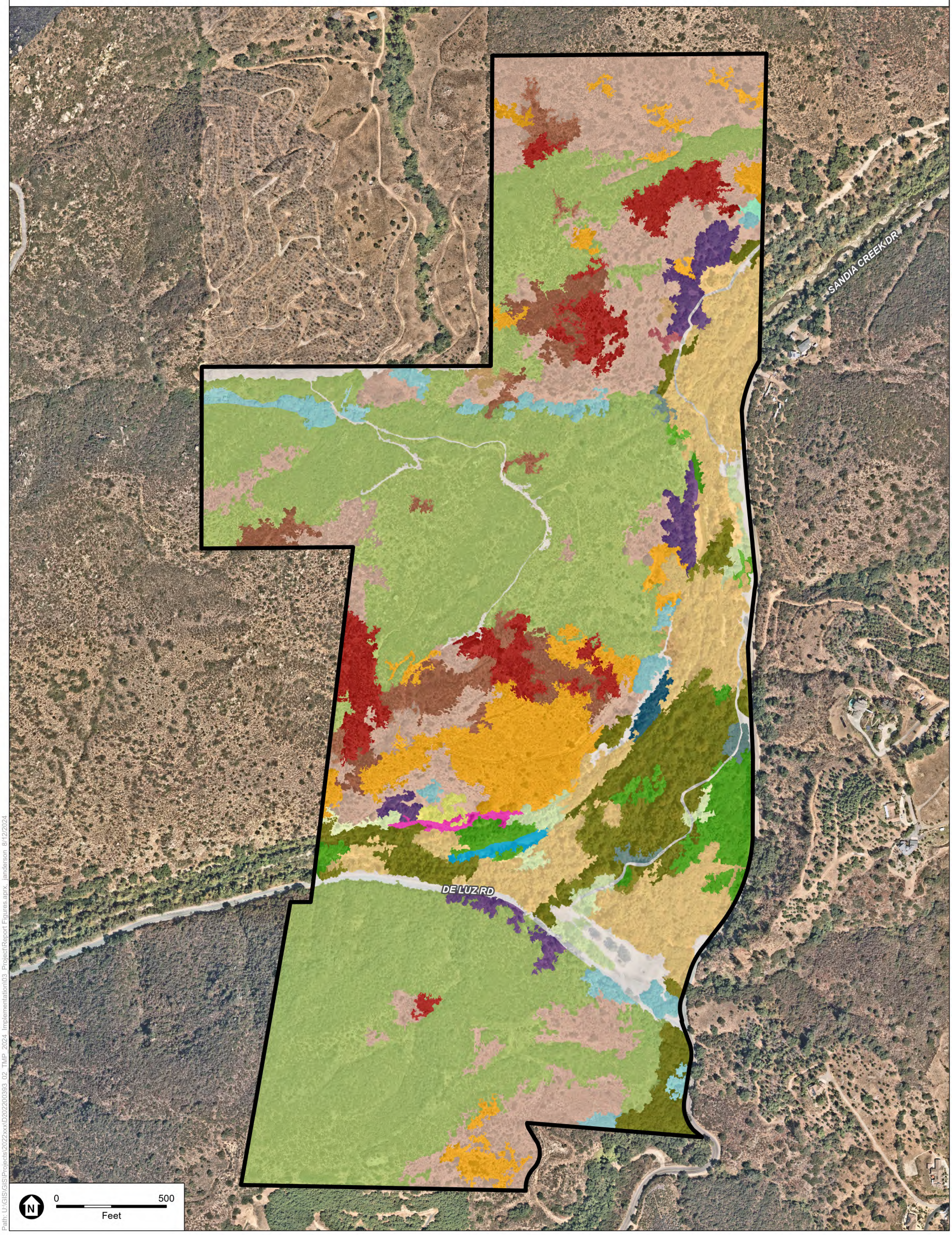
Herbaceous
- 42200 Non-Native Grassland
- 42300 Wildflower Field

Riparian
- 61300 Southern Riparian Forest
- 61310 Southern Coast Live Oak Riparian Forest
- 61330 Southern Cottonwood-Willow Riparian Forest
- 62400 Southern Sycamore-Alder Riparian Woodland
- 62500 Southern Riparian Woodland
- 63300 Southern Riparian Scrub
- 63320 Southern Willow Scrub

Woodland
- 71160 Coast Live Oak Woodland
- 71161 Open Coast Live Oak Woodland

Forest
- 81310 Coast Live Oak Forest

Disturbed/Developed
- 11300 Disturbed Habitat
- Open Water



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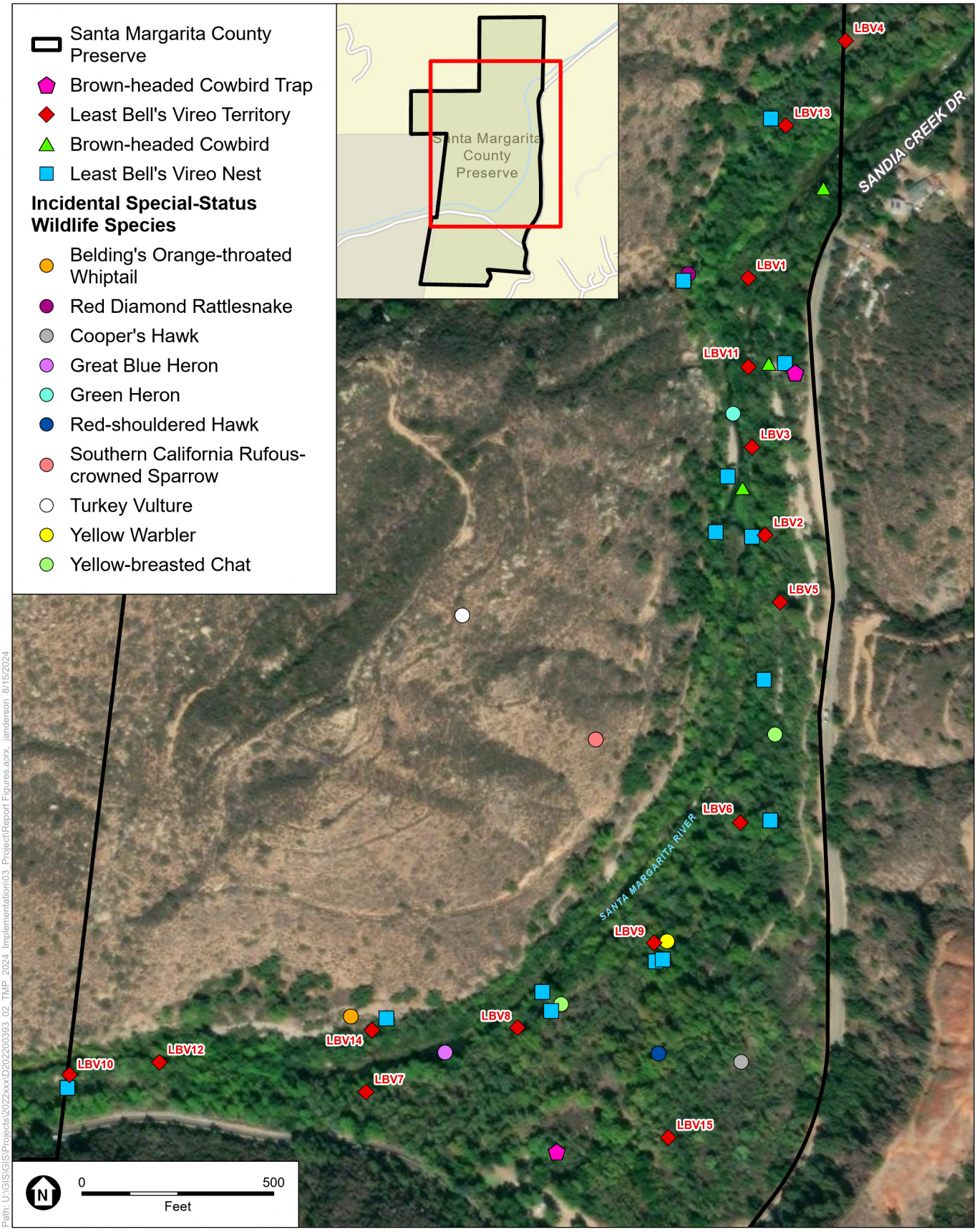
SOURCE: Nearmap, 9/5/2020; ESA, 2023.

COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management
2024 Focused Least Bell's Vireo Nest Monitoring for the Santa Margarita County Preserve

Figure 3
Vegetation Communities - Holland-Oberbauer Classification
Santa Margarita County Preserve

ESA



SOURCE: ESRI, 2021; ESA, 2024

COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management
2024 Focused Least Bell's Vireo Nest Monitoring for the Santa Margarita County Preserve

Figure 4
Least Bell's Vireo Nest Monitoring and Management Results
Santa Margarita County Preserve

ESA

Attachment B
Wildlife Compendium

ATTACHMENT B
Wildlife Compendium

Scientific Name	Common Name	Status (Federal/State/Local)
AMPHIBIANS		
Ranidae	**True Frogs**	
**Lithobates catesbeianus*	American bullfrog	None/None/None
REPTILES		
Phrynosomatidae	**Zebratail, Earless, Horned, Spiny, Fringe-Toed Lizards**	
Sceloporus occidentalis	Western fence lizard	None/None/None
Uta stansburiana	Common side-blotched lizard	None/None/None
Teiidae	**Whiptail Lizards**	
Aspidoscelis hyperythra beldingi	Belding's orange-throated whiptail	None/WL/Group 2
Viperidae	**Vipers**	
Crotalus ruber	Red diamond rattlesnake	None/SSC/Group 2
BIRDS		
ANSERIFORMES		
Anatidae	**Waterfowl**	
Anas platyrhynchos	Mallard	None/None/None
COLUMBIFORMES		
Columbidae	**Pigeons and Doves**	
Patagioenas fasciata	Band-tailed pigeon	None/None/None
**Streptopelia decaocto*	Eurasian collared-dove	None/None/None
Zenaida macroura	Mourning dove	None/None/None
CAPRIMULGIFORMES		
Apodidae	**Swifts**	
Aeronautes saxatalis	White-throated swift	None/None/None
Trochilidae	**Hummingbirds**	
Archilochus alexandri	Black-chinned hummingbird	None/None/None
Calypte anna	Anna's hummingbird	None/None/None
Calypte costae	Costa's hummingbird	None/None/None
Selasphorus sasin	Allen's hummingbird	None/None/None

Scientific Name	Common Name	Status (Federal/State/Local)
PELECANIFORMES		
Ardeidae	**Herons and Egrets**	
Ardea herodias	Great blue heron	None/None/Group 2
Butorides virescens	Green heron	None/None/Group 2
CATHARTIFORMES		
Cathartidae	**New World Vultures**	
Cathartes aura	Turkey vulture	None/None/Group 1
ACCIPITRIFORMES		
Accipitridae	**Hawks**	
Accipiter cooperii	Cooper's hawk	None/WL/Group 1
Buteo jamaicensis	Red-tailed hawk	None/None/None
Buteo lineatus	Red-shouldered hawk	None/None/Group 1
STRIGIFORMES		
Strigidae	**Typical Owls**	
Bubo virginianus	Great horned owl	None/None/None
CORACIIFORMES		
Alcedinidae	**Kingfishers**	
Megaceryle alcyon	Belted kingfisher	None/None/None
PICIFORMES		
Picidae	**Woodpeckers**	
Colaptes auratus	Northern flicker	None/None/None
Dryobates pubescens	Downy woodpecker	None/None/None
Melanerpes formicivorus	Acorn woodpecker	None/None/None
Picoides nuttallii	Nuttall's woodpecker	None/None/None
PASSERIFORMES		
Tyrannidae	**Tyrant Flycatchers**	
Empidonax difficilis	Western flycatcher	None/None/None
Myiarchus cinerascens	Ash-throated flycatcher	None/None/None
Sayornis nigricans	Black phoebe	None/None/None
Vireonidae	**Vireo**	
Vireo bellii pusillus	Least Bell’s vireo	FE/SE/Draft North County MSCP, Group 1
Vireo gilvus	Warbling vireo	None/None/None
Vireo huttoni	Hutton’s vireo	None/None/None
Corvidae	**Jays and Crows**	
Aphelocoma californica	California scrub-jay	None/None/None
Corvus brachyrhynchos	American crow	None/None/None
Corvus corax	Common raven	None/None/None
Paridae	**Chickadees and Tits**	
Baeolophus inornatus	Oak titmouse	None/None/None

Scientific Name	Common Name	Status (Federal/State/Local)
Hirundinidae	**Swallows and Martins**	
Stelgidopteryx serripennis	Northern rough-winged swallow	None/None/None
Tachycineta bicolor	Tree swallow	None/None/None
Aegithalidae	**Bushtits**	
Psaltriparus minimus	Bushtit	None/None/None
Sylviidae	**Wrentits**	
Chamaea fasciata	Wrentit	None/None/None
Regulidae	**Kinglets**	
Corthylio calendula	Ruby-crowned kinglet	None/None/None
Sittidae	**Nuthatches**	
Sitta carolinensis	White-breasted nuthatch	None/None/None
Polioptilidae	**Gnatcatchers and Allies**	
Polioptila caerulea	Blue-gray gnatcatcher	None/None/None
Troglodytidae	**Wrens**	
Catherpes mexicanus	Canyon wren	None/None/None
Salpinctes obsoletus	Rock wren	None/None/None
Troglodytes aedon	House wren	None/None/None
Thryomanes bewickii	Bewick's wren	None/None/None
Turdidae	**True Thrushes**	
Catharus guttatus	Hermit thrush	None/None/None
Fringillidae	**Finches**	
Haemorhous mexicanus	House finch	None/None/None
Spinus psaltria	Lesser goldfinch	None/None/None
Passerellidae	**New World Sparrows**	
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	None/WL/Group 1
Melospiza lincolnii	Lincoln’s sparrow	None/None/None
Melospiza melodia	Song sparrow	None/None/None
Melozone crissalis	California towhee	None/None/None
Pipilo maculatus	Spotted towhee	None/None/None
Icteriidae	**Chats**	
Icteria virens	Yellow-breasted chat	None/SSC/Group 1
Icteridae	**Orioles, Grackles, and Cowbirds**	
Icterus bullockii	Bullock’s oriole	None/None/None
Icterus cucullatus	Hooded oriole	None/None/None
Molothrus ater	Brown-headed cowbird	None/None/None

Scientific Name	Common Name	Status (Federal/State/Local)
Parulidae	**Wood Warblers**	
Cardellina pusilla	Wilson's warbler	None/None/None
Geothlypis trichas	Common yellowthroat	None/None/None
Leiothlypis celata	Orange-crowned warbler	None/None/None
Setophaga coronata	Yellow-rumped warbler	None/None/None
Setophaga petechia	Yellow warbler	None/SSC/Group 2
Setophaga townsendi	Townsend's warbler	None/None/None
Cardinalidae	**Buntings, Grosbeaks, and Tanagers**	
Passerina amoena	Lazuli bunting	None/None/None
Pheucticus melanocephalus	Black-headed grosbeak	None/None/None
Piranga ludoviciana	Western tanager	None/None/None
MAMMALS		
Canidae	**Canines**	
Canis latrans	Coyote	None/None/None
Leporidae	**Rabbits and Hares**	
Sylvilagus audubonii	Audubon's cottontail	None/None/None
Talpidae	**Moles and Desmans**	
Scapanus latimanus	Broad-footed mole	None/None/None

NOTES:

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
   Draft North County MSCP: Covered under the 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 Forms

Attachment C. California Natural Diversity Database (CNDDB) 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	5/1/2024	2			adult	foraging, nesting	singing, foraging, nesting activity
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	5/1/2024	2			adult	foraging, nesting	singing, foraging, nesting activity
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	5/1/2024	2			adult	foraging, nesting	singing, foraging, nesting activity
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	5/1/2024	2			adult	foraging, nesting	singing, foraging, nesting activity
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	5/1/2024	2			adult	foraging, nesting	singing, foraging, nesting activity
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	5/1/2024	2			adult	foraging, nesting	singing, foraging, nesting activity
Florence Chan	fchan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	5/8/2024	2			adult	foraging, nesting	singing, foraging, nesting activity
Florence Chan	fchan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	5/8/2024	2			adult	foraging, nesting	singing, foraging, nesting activity
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	5/8/2024	2			adult	foraging, nesting	singing, foraging, nesting activity
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	5/15/2024	2			adult	foraging, nesting	singing, foraging, nesting activity
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	6/12/2024	2			adult	foraging, nesting	singing, foraging, nesting activity
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	6/19/2024	2			adult	foraging, nesting	singing, foraging, nesting activity
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	4/4/2024	10			10 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	7/3/2024	3			3 adult	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	5/8/2024	3			3 adult	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Cathartes aura	Turkey Vulture	y		very confident	7/30/2024	1			1 unknown age	foraging	in flight
Brennan Mulrooney	bmulrooney@esassoc.com	Buteo lineatus	Red-shouldered Hawk	y		very confident	7/17/2024	1			1 unknown age	foraging, nesting	singing/calling
Brennan Mulrooney	bmulrooney@esassoc.com	Butorides virescens	Green Heron	y		very confident	7/30/2024	1			1 unknown age	foraging	in flight
Brennan Mulrooney	bmulrooney@esassoc.com	Ardea herodias	Great Blue Heron	y		very confident	7/30/2024	1			1 adult	foraging	foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Accipter cooperii	Cooper's Hawk	y		very confident	4/10/2024	1			1 unknown age	foraging, nesting	calling/in flight
Brennan Mulrooney	bmulrooney@esassoc.com	Aimophila ruficeps canescens	Southern California Rufous-crow	y		very confident	7/30/2024	1			1 adult	foraging	singing/calling
Brennan Mulrooney	bmulrooney@esassoc.com	Crotalus ruber	Red Diamond Rattlesnake	y		very confident	5/1/2024	1			adult	foraging	
Brennan Mulrooney	bmulrooney@esassoc.com	Aspidoscelis hyperythra	Orange-throated Whiptail	y		very confident	6/19/2024	3			3 unknown age	foraging	

Attachment C. California Natural Diversity Database (CNDDB) 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	Santa Margarita County	33.403512	-117.250726			GoogleEarth		LBVI Nest Monitoring								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard	Santa Margarita County	33.404528	-117.249758			GoogleEarth		LBVI Nest Monitoring								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard	Santa Margarita County	33.406563	-117.249937			GoogleEarth		LBVI Nest Monitoring								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard	Santa Margarita County	33.406993	-117.25015			GoogleEarth		LBVI Nest Monitoring								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard	Santa Margarita County	33.40839	-117.250545			GoogleEarth		LBVI Nest Monitoring								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard	Santa Margarita County	33.407808	-117.249671			GoogleEarth		LBVI Nest Monitoring								
Florence Chan	fchan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard	Santa Margarita County	33.403085	-117.253022			GoogleEarth		LBVI Nest Monitoring								
Florence Chan	fchan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard	Santa Margarita County	33.403285	-117.251692			GoogleEarth		LBVI Nest Monitoring								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard	Santa Margarita County	33.409557	-117.24981			GoogleEarth		LBVI Nest Monitoring								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard	Santa Margarita County	33.40554	-117.249824			GoogleEarth		LBVI Nest Monitoring								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard	Santa Margarita County	33.406594	-117.250247			GoogleEarth		LBVI Nest Monitoring								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard	Santa Margarita County	33.402565	-117.255741			GoogleEarth		LBVI Nest Monitoring								
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	seen and heard	Santa Margarita County	33.403656	-117.250629			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	seen and heard	Santa Margarita County	33.405149	-117.249725			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	seen and heard	Santa Margarita County	33.403199	-117.25153			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Cathartes aura	Turkey Vulture	seen	Santa Margarita County	33.40598	-117.252406			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Buteo lineatus	Red-shouldered Hawk	heard	Santa Margarita County	33.402852	-117.250693			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Butorides virescens	Green Heron	seen	Santa Margarita County	33.407443	-117.250109			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Ardea herodias	Great Blue Heron	seen	Santa Margarita County	33.402845	-117.252517			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Accipter cooperii	Cooper's Hawk	seen and heard	Santa Margarita County	33.402798	-117.249987			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Aimophila ruficeps canescens	Southern California Rufous-cro	heard	Santa Margarita County	33.405101	-117.251256			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Crotalus ruber	Red Diamond Rattlesnake	seen	Santa Margarita County	33.408438	-117.250504			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Aspidoscelis hyperythra	Orange-throated Whiptail	seen	Santa Margarita County	33.403096	-117.253326			GoogleEarth		Incidental								

G-2 Brown-Headed Cowbird Trapping Annual Report

SANTA MARGARITA COUNTY PRESERVE
BROWN-HEADED COWBIRD TRAPPING PROGRAM 2024

PREPARED FOR
COUNTY OF SAN DIEGO DEPARTMENT OF PARKS AND RECREATION
5500 OVERLAND AVENUE, SUITE 410
SAN DIEGO, CA 92123

SEPTEMBER 2024

SANTA MARGARITA COUNTY PRESERVE
BROWN-HEADED COWBIRD TRAPPING PROGRAM 2024

PREPARED FOR

COUNTY OF SAN DIEGO DEPARTMENT OF PARKS AND RECREATION
5500 OVERLAND AVENUE, SUITE 410
SAN DIEGO, CA 92123

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UNDER SUBCONTRACT TO

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SEPTEMBER 2024

SANTA MARGARITA COUNTY PRESERVE
BROWN-HEADED COWBIRD TRAPPING PROGRAM 2024

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EXECUTIVE SUMMARY

A brown-headed cowbird (*Molothrus ater*) trapping program was implemented on Santa Margarita County Preserve (Preserve), San Diego County, California, in 2022, to reduce the threat and impact of brown-headed cowbird brood parasitism on least Bell's vireo (*Vireo bellii pusillus*). The trapping program was initiated in 2022 in response to detections of least Bell's vireo nest parasitism incidentally observed during 2021 Targeted Monitoring Plan (TMP) surveys (ESA 2022). Trapping continued in 2023 based on 2022 brown-headed cowbird trappings results (ESA 2023) and was recommended to continue in 2024 based on 2023 brown-headed cowbird trapping results (ESA 2024). The trapping program is consistent with the TMP's management goals and objectives for least Bell's vireo (ESA and ICF 2022).

A total of two brown-headed cowbird traps were operated along the Santa Margarita River within the Preserve in 2024. Traps were placed within riparian habitat that provides suitable nesting habitat for the vireo.

A total of eleven brown-headed cowbirds were removed from the project area between April 1 and June 30, 2024. Captures included four adult males, and seven adult females. Newly captured cowbirds not used as decoys were removed daily and humanely euthanized. There were six non-target species capture events in the project area in 2024. Non-target captures included four California towhees (*Melozone crissalis*), one song sparrow (*Melospiza melodia*), and one house finch (*Haemorhous mexicanus*). All non-targets were captured in Trap #1 and were released from the trap site unharmed the same day they were captured.

1. INTRODUCTION

A brown-headed cowbird (*Molothrus ater*) trapping program was implemented beginning in 2022 within the Santa Margarita County Preserve (Preserve) on behalf of the County of San Diego Department of Parks and Recreation. The purpose of the trapping program was to reduce the threat and impact of brown-headed cowbird brood parasitism on the Preserve's least Bell's vireo (*Vireo bellii pusillus*) population. The least Bell's vireo is a federally and state endangered migratory songbird species that nests in riparian habitat within the Preserve. The least Bell's vireo is subject to reproductive pressure through nest parasitism by the brown-headed cowbird. Studies have shown that a program of cowbird trapping effectively reduces this reproductive pressure (Kus and Whitfield 2005). The trapping program was initiated in 2022 in response to detections of least Bell's vireo nest parasitism incidentally observed during 2021 Targeted Monitoring Plan (TMP) surveys (ESA 2022). Trapping continued in 2023 based on 2022 brown-headed cowbird trappings results (ESA 2023) and was recommended to continue in 2024 based on 2023 brown-headed cowbird trapping results (ESA 2024). The trapping program is consistent with the management goals and objectives detailed in the TMP 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 Santa Margarita County Preserve.
- **Management Objective**: Control brown-headed cowbird parasitism through trapping and removal program, as necessary based on monitoring results.

2. BACKGROUND

During 2021 TMP surveys, Environmental Science Associates (ESA) biologists detected a brown-headed cowbird adult, fledgling, and egg in a least Bell's vireo nest (ESA 2022). A pair of cowbirds was observed copulating during the first survey and cowbirds were observed during five out of the eight protocol surveys (ESA 2022). While the number of observations of cowbirds was relatively low, at least 2 of 11 least Bell's vireo territories suffered direct impacts to productivity during the 2021 season (ESA 2022). These results were indicative of parasitism occurring within the Preserve. In response to these results, a brown-headed cowbird trapping program was established in 2022 within the Preserve to reduce the threat of brood parasitism on least Bell's vireo and other native songbirds.

During 2022 TMP surveys, ESA biologists did not observe direct evidence of cowbird parasitism; however, cowbirds were observed during three out of the eight protocol surveys and 20 cowbirds, including 1 juvenile, were captured during 2022 cowbird trapping, suggesting parasitism still occurred within the Preserve (ESA 2023). As a result, implementation of the cowbird trapping program was recommended to continue in 2023.

During 2023 TMP surveys, ESA biologists incidentally discovered a parasitized least Bell's vireo nest that was subsequently abandoned by the vireo pair. Additionally, cowbirds were observed during two out of the eight protocol surveys and 7 cowbirds, including 1 juvenile, were captured during 2023 cowbird trapping, suggesting parasitism still occurred within the Preserve (ESA 2024). As a result, implementation of the cowbird trapping program was recommended to continue in 2024.

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-1900s, 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 5-year study completed 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 tenfold population increase from the number that existed at the time of listing.

2.2 Brown-Headed Cowbird

The brown-headed 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 to 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 past 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, 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 dwarf cowbird 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 April 1 and May 15, 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 (km) between foraging and breeding sites (Robinson et al. 1993; Rothstein et al. 1984).

2.3 Brown-Headed Cowbird Control

Brown-headed 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; this method was initially used 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 (*Empidonax traillii extimus*) (Whitfield et al. 1999). A study was conducted in 2005 to evaluate the effectiveness of cowbird trapping on California 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

The Preserve is approximately 211acres located just east of Camp Pendleton Marine Corps Base and north of the city of Fallbrook (Appendix A: Figure A-1). Trapping in 2024 was conducted along a 1.25 km section of the Santa Margarita River where it passes through the Preserve. The southerly edge of the river is bordered by De Luz Road and Sandia Creek Drive, and the northerly edge of the river is bordered by undeveloped hilly terrain that rises to the north and northwest.

4. TRAP LOCATIONS

In 2024, two traps were placed along the Santa Margarita River within the Preserve in the same general areas trapped in 2023 (Appendix A: Figure A-2). The area around Trap #1 developed an overgrowth of grapevine during the 2023 trapping period. This trap in 2024 was moved approximately 170 feet east of the 2023 location to a somewhat less vegetated area. 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 April 1 through June 30, 2024. The two traps were delivered to the project area, assembled, and activated on April 1, 2024. Upon activation, the traps were supplied 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. 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). A sign was placed on each trap providing trap information and contact phone numbers (Appendix C).

Traps were checked daily, during daylight hours, from April 1 through June 30, 2024. 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 used 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, 2024, both traps were deactivated and on July 6, 2024, the traps were dismantled and removed from the project area.

6. RESULTS

6.1 Brown-Headed Cowbird Captures

A total of eleven cowbirds were captured within the Preserve between April 1 and June 30, 2024 (Table 6-1; Appendix B: Table B-2). These included four adult males, seven adult females. The first adult male and female cowbird captures occurred on April 11, 2024. There were 181 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. One trap day was lost as a result of vandalism to Trap #1 on June 18 as discussed below. There were 0.06 cowbirds captured per trap day during the 2024 project period. The ratio of male to female captures was 0.57:1.

Table 6-1
Brown-Headed Cowbirds Captured per Trap in 2024

	Cowbirds Captured			
Trap Number	**Adult Male**	**Adult Female**	**Juvenile**	**Total**
1	2	3	0	**5**
2	2	4	0	**6**
Total	**4**	**7**	**0**	**11**

6.2 Non-Target Species

There were six non-target species capture events in the project area in 2024 (Table 6-2). Non-target captures included four California towhees, one song sparrow, and one house finch. All non-targets were captured in Trap #1 and were released from the trap site unharmed the same day they were captured.

Table 6-2
Non-Target Species Capture Events in 2024

Common Name	Scientific Name	Capture Events
California Towhee	*Melozone crissalis*	4
Song Sparrow	*Melospiza melodia*	1
House Finch	*Haemorhous mexicanus*	1
Total		6

6.3 Trap Vandalism

One incident of vandalism occurred during the 2024 trapping period. On June 18 the slot board of Trap#1 was removed by an unknown individual. As a result, 3 male and 2 female bait birds escaped. The trap was repaired and re-activated with new cowbirds on June 19. This vandalism event resulted in the loss of one trap day. All decoy cowbirds were wing-clipped, reducing the likelihood of survival in the wild.

6.4 Parasitism

No parasitism to least Bell's vireo was observed during the 2024 trapping period; however, a parasitized song sparrow (*Melospiza melodia*) nest was incidentally detected during the April 24, 2024 nest monitoring survey within an active least Bell's vireo territory.

7. DISCUSSION AND RECOMMENDATIONS

A total of eleven brown-headed cowbirds, including four adult males, and seven adult females were removed from the project area in 2024.

Total capture numbers in Trap #2 have not varied significantly between 2022 and 2024. Captures in Trap #1 have varied over the same period with significantly fewer captures in 2023 than in 2022, and higher captures in 2024 than in 2023 (Table 7-1). In general, variations in capture numbers in individual traps can vary from one year to the next. The Trap #1 location experienced a rapid growth of wild grape during the 2023 trapping period – probably the result of increased rainfall in 2023 compared to 2022. Trap #1 was moved to a more open location in 2024. This may have contributed to improved capture results. The significance of the capture numbers for this trap is difficult to assess given the limited number of years for comparison.

Table 7-1
Brown-Headed Cowbirds Captured per Trap from 2022-2024

	Trap #1				Trap #2			
	Number of Cowbirds Removed				Number of Cowbirds Removed			
Year	Male	Female	Juvenile	Total	Male	Female	Juvenile	Total
2022	8	5	0	13	4	2	1	7
2023	1	0	0	1	3	2	1	6
2024	2	3	0	5	2	4	0	6

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.

TW Biological Services considers the current general trap placement on the Preserve to be 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. 2023. Targeted Monitoring Plan Resource-Specific Monitoring 2022 Annual Report. Prepared for the County of San Diego Department of Parks and Recreation. January 2023.

ESA. 2024. Updated Final Targeted Monitoring Plan Resource-Specific Monitoring & Management 2023 Annual Report. Prepared for the County of San Diego Department of Parks and Recreation. March 2024.

ESA and ICF. 2022. Targeted Monitoring Plan. Prepared for the County of San Diego Department of Parks and Recreation. December 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.

Kus, B.E. 2009. Timing of Brown-headed Cowbird Parasitism on local Least Bell's Vireo Question. Conversation between B. Kus (United States Geological Survey) and J. Sexton (TW Biological Services). December 07, 2009.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, R. I. 1994. The Cowbirds Invasion of the Far West: History, Causes and Consequences Experienced by Host Species. Studies in Avian Biology:301-314.

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.

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.

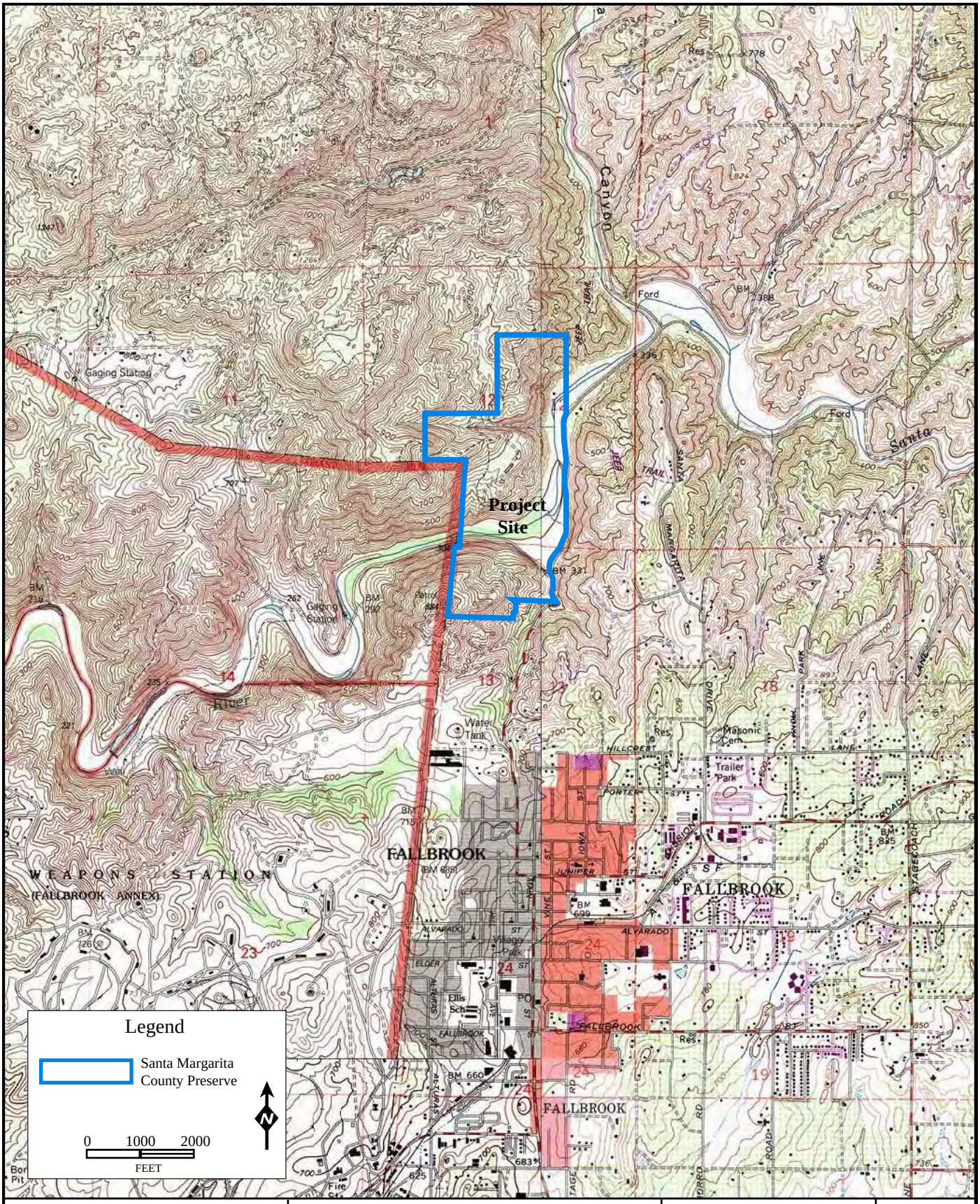
Unitt, P. 2004. San Diego County Bird Atlas. No. 39, Proceedings of the San Diego Society of Natural History. San Diego, CA. 645 pp.

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.

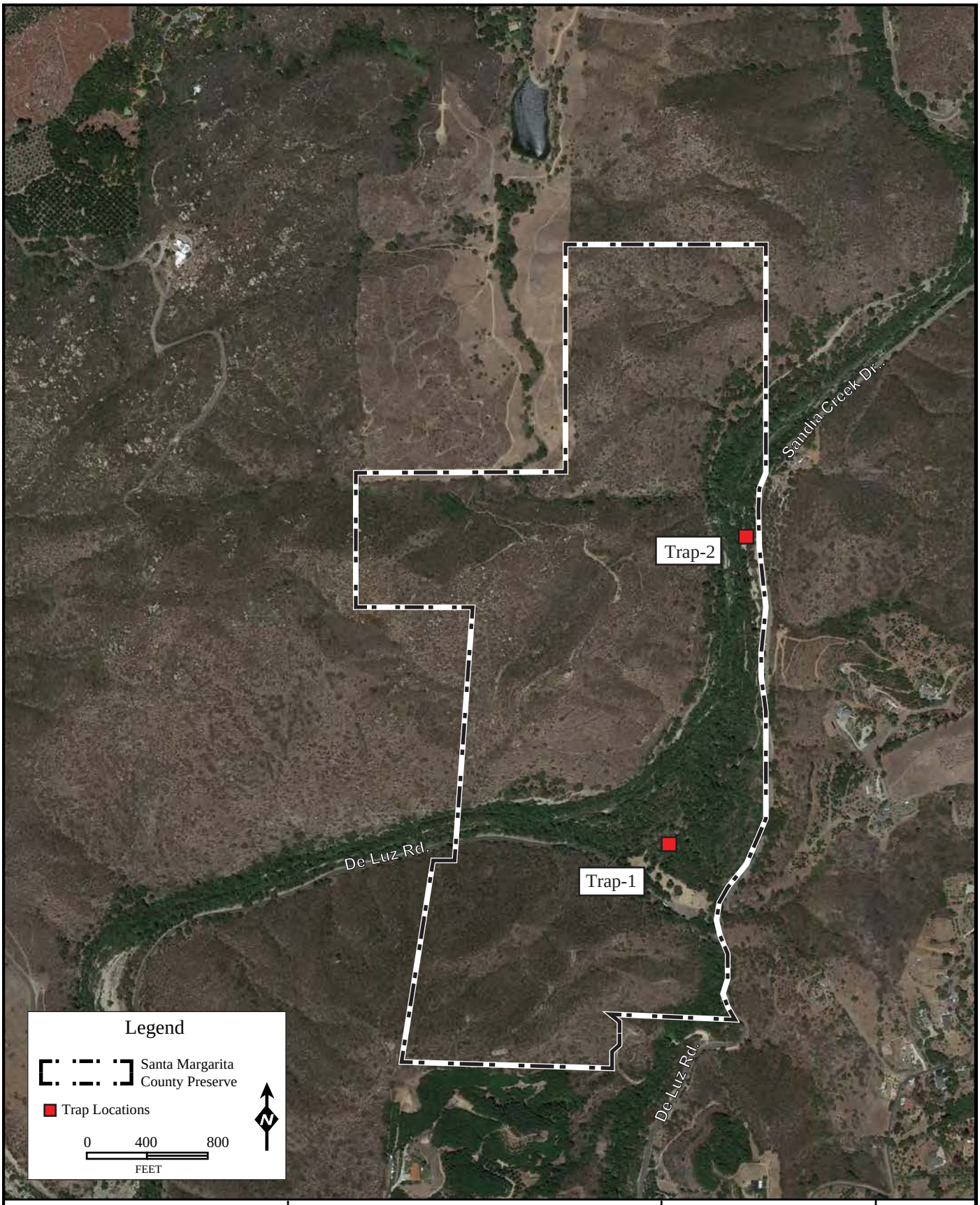
Willett, G. 1933. A Revised List of the Birds of Southwestern California. Pacific Coast Avifauna No. 2.

APPENDIX A

FIGURES



TW Biological Services	2024 SANTA MARGARITA COUNTY PRESERVE BROWN-HEADED COWBIRD TRAPPING PROJECT Project No: SMCP-01-24	Project Site Map Source: Fallbrook and Temecula 7.5' USGS Quadrangle Maps	FIGURE A-1



TW Biological Services

2024 SANTA MARGARITA COUNTY PRESERVE
BROWN-HEADED COWBIRD
TRAPPING PROJECT

Project No: SMCP-01-24

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 2024

	Trap GPS Coordinates (Decimal Degrees WGS84)		
Trap Number	**Y-North**	**X-West**	**Elevation (feet)**
1	33.40226	-117.25130	326
2	33.40774	-117.24958	317

TABLE B-2
Brown-Headed Cowbirds Captured per Trap per Week in 2024

		Trap 1			Trap 2			Total		
Week No.	**Date**	**M**	**F**	**J**	**M**	**F**	**J**	**M**	**F**	**J**
1	1-7 April	0	0	0	0	0	0	**0**	**0**	**0**
2	8-14 April	1	1	0	0	0	0	**1**	**1**	**0**
3	15-21 April	0	1	0	0	1	0	**0**	**2**	**0**
4	22-28 April	0	0	0	0	0	0	**0**	**0**	**0**
5	29 April-5 May	1	0	0	0	0	0	**1**	**0**	**0**
6	6-12 May	0	0	0	0	2	0	**0**	**2**	**0**
7	13-19 May	0	1	0	0	0	0	**0**	**1**	**0**
8	20-26 May	0	0	0	0	0	0	**0**	**0**	**0**
9	27 May-2 June	0	0	0	0	0	0	**0**	**0**	**0**
10	3-9 June	0	0	0	1	1	0	**1**	**1**	**0**
11	10-16 June	0	0	0	0	0	0	**0**	**0**	**0**
12	17-23 June	0	0	0	0	0	0	**0**	**0**	**0**
13	24-30 June	0	0	0	1	0	0	**1**	**0**	**0**
Total		**2**	**3**	**0**	**2**	**4**	**0**	**4**	**7**	**0**

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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
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Appendix H

Stephens' Kangaroo Rat Habitat Monitoring Memorandums

H-1 Stephens' Kangaroo Rat Habitat Assessment Memorandum: Ramona Grasslands County Preserve

FALL 2024 STEPHENS' KANGAROO RAT MONITORING

RAMONA GRASSLANDS COUNTY PRESERVE

RAMONA, SAN DIEGO COUNTY, CALIFORNIA

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November 27, 2024

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LIST OF ATTACHMENTS

A: FIGURES
B: FIELD FORMS AND SITE PHOTOGRAPHS

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. 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 2024. Survey methodology followed the Targeted Monitoring Plan (ESA and ICF 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 6 within the SKR monitoring area and 6 within the SKR discovery area.

This report summarizes results of the SKR habitat assessment within the Preserve for the fall of 2024. While fall 2024 monitoring was conducted at a similar time of year compared to previous monitoring efforts, because of the above-average rainfall for 2 years in a row between fall 2022 and fall 2024, there was a continued increase in percentage of annual vegetation living/standing compared to the typical dry and largely senesced conditions observed during 2022 and previous monitoring years. 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. In 2023, monitoring results found an increase in vegetation coverage compared to 2022 after an above-average rain year, and this year, that trend has continued with a subsequent above-average rain year between fall 2023 and fall 2024. As a result, monitoring plots in fall 2024 showed even more of an increase in living herb density, dense grasses, and obstruction factors as compared to fall 2023 and other previous monitoring years. This, in turn, resulted in lower evidence of SKR runways, tracks, scat, dust-bathing sites, and other surface SKR sign in 2024 compared to 2023 monitoring. While several sites saw an increase in the herbaceous layer and obstruction factors, there were still several sites that consisted of low-growing annual plants, resulting in generally low obstruction factors and thus the potential for SKR occupancy.

The fall 2024 monitoring results demonstrated a decrease in occupancy compared to all other monitoring years, and there was a notable reduction in SKR habitat suitability when compared to the fall 2023 monitoring. While there was a slight increase in the number of high-potential plots in 2024 compared to the previous year, there was also a significant increase in the number of low-potential plots, indicating that conditions were less favorable for SKR from 2023 to 2024. This result is likely due to a subsequent year consisting of above-average rainfall between 2023 and 2024 in the greater San Diego area, similar to what was observed between 2022 and 2023. These findings could also be due to a combination of other factors, such as annual fluctuations in habitat characteristics, SKR population dynamics, grazing regimes, different timings of monitoring, 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, despite a reduction in occupancy and suitability over the past 2 years, 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 MSCP South County 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. The County Department of Parks and Recreation (DPR) prepared the 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 Targeted Monitoring Plan (TMP) was revised in December 2022 (ESA and ICF 2022) to incorporate 10 additional open space parks and preserves (Preserve Group 2) and again in August 2024 (ESA 2024) to incorporate 11 additional open space parks and preserves (Preserve Group 3). The revised TMP also confirmed 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. 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, California Department of Fish and Wildlife, 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 currently addresses monitoring within the following 31 open space parks and preserves: Barnett Ranch County Preserve, Bottle Peak County Preserve, Boulder Oaks County Preserve, Del Dios Highlands County Preserve, Dictionary Hill County Preserve, El Capitan County Preserve, El Monte Regional Park, Escondido Creek County Preserve, Furby-North Property, Hellhole Canyon County Preserve, Iron Mountain County Preserve, Keys Creek County Preserve, Lakeside Linkage County Preserve, Lawrence and Barbara Daley County Preserve, Los Peñasquitos Canyon County Preserve, Louis A. Stelzer County Park, Lusardi Creek County Preserve, Mount Olympus County Preserve, Mountain Meadow County Preserve, Oakoasis County Preserve, Peutz Valley County Preserve, Ramona Grasslands County Preserve, Sage Hill County Preserve, San Luis Rey River Park, Santa Margarita County Preserve, Simon County Preserve, Skyline County Preserve, Stoneridge County Preserve, Sycamore Canyon/Goodan Ranch County Preserve, Tijuana River Valley Regional Park, and Wilderness Gardens County Preserve.

Project Location and Description

Ramona Grasslands County Preserve (Preserve) is located within both the MSCP South County Subarea Plan Area and the draft North County MSCP Plan Area. The Preserve is in the Santa Maria Valley west of the unincorporated community of Ramona, San Diego County, California.

Ramona Grasslands County Preserve is within part of the historic Santa Maria Rancho in the western portion of the Santa Maria Valley, approximately 2 miles west of downtown Ramona, California, and 6 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 occurs 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 the 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 eastern 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 (which contains portions of SKR Management Area 1), 2B (which contains portions of SKR Management Areas 1 and 2), 3A, 3B (which contains 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 it 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-meter by 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 2024 SKR monitoring sampled these 16 permanent sampling plots for consistency with previous monitoring, 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. Monitoring details, including dates, weather conditions, and personnel are shown in Table 1.

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 Dillon Travis	10-17-24	0850–1450	62–67	0 / 2–8	100 / 100	None
Kris Alberts Dillon Travis	10-18-24	0845–1235	63–70	0–2 / 2–6	40 / 20	None

All monitoring plots were located in the field using the cellular ArcGIS FieldMaps 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 percent 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 B). 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 using primarily the following criteria:

- High Potential
    - Readily apparent potential SKR sign (particularly scat and burrows)
    - Relatively flat to gently sloping topography
    - Presence of bare ground common
    - Relatively low living herb density
    - Extremely low to no shrub cover
    - Relatively low obstruction factor (O.F.)[1]

[1] Obstruction 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.

- 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.

3.0 RESULTS

A comparison between the overall rating of SKR potential at each plot from the winter of 2017–2018 (ICF 2018), winter of 2019 (ESA and Blackhawk Environmental, Inc. 2019), fall of 2021 (ESA and Blackhawk Environmental, Inc. 2021), fall of 2022 (ESA and Blackhawk Environmental, Inc. 2022), fall of 2023 (ESA and Blackhawk Environmental, Inc. 2023), and fall of 2024 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 2023 and fall 2024 results only. Results of the 2024 SKR habitat assessment for each sample plot are provided in Table 3. In 2024, habitat assessments were conducted at 28 sample plots; 10 were determined to be potentially or likely occupied by SKR, and 18 were determined to be unoccupied. Each plot was rated for SKR potential and, in total, 10 sample plots were characterized as having a high potential, 1 was characterized as having a medium potential, 17 were characterized as having low potential, and none were characterized as having no potential (Attachment A, Figure 4).

Table 2. SKR Habitat Assessment Comparison

		Winter 2017–2018	Winter 2019	Fall 2021	Fall 2022	Fall 2023	Fall 2024	2023–2024 Change
SKR Occupancy	**Occupied**	14	19	14	15	14	10	-4
	Unoccupied	14	9	14	13	14	18	+4
SKR Potential	**High**	11	21	17	15	8	10	+2
	Medium	5	1	5	7	10	1	-9
	Low	7	6	6	5	10	17	+7
	No	5	0	0	1	0	0	0

Table 3. SKR Habitat Assessment Summary

Fall 2024										Fall 2023
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**	**High**	**0**	**75–95**	**Low/Medium**	**High**	**None**	**Not Occupied**	**Low**	**Medium****
A1-2	**0–5**	**High**	**0**	**75–95**	**Low/Low**	**High**	**None**	**Not Occupied**	**Low**	**Low**
A1-3	**0–5**	**Medium**	**0**	**75–95**	**Low/Medium**	**Medium**	**None**	**Occupied**	**High****	**Medium**
A1-4	**0–5**	**High**	**0**	**75–95**	**Medium/Medium**	**High**	**None**	**Not Occupied**	**Low**	**Low**
A1-5	**0–5**	**High**	**0–5**	**75–95**	**Medium/Low**	**High**	**None**	**Not Occupied**	**Low**	**Low**
A1-6	**0–5**	**Low**	**5–25**	**75–95**	**Medium/Low**	**Low**	**None**	**Not Occupied**	**Low**	**Medium****
A2-1	**5–25**	**Low**	**0–5**	**75–95**	**Medium/Medium**	**Low**	**B, S**	**Occupied**	**High****	**High****
A2-6	**5–25**	**Medium**	**0**	**75–95**	**Medium/Low**	**Medium**	**B, S, CF**	**Occupied**	**High****	**High****
A2-7	**0–5**	**High**	**0**	**50–75**	**Low/Medium**	**High**	**B, S, CF**	**Occupied**	**High****	**Low**
A3-1	**50–75**	**Low**	**0**	**50–75**	**Low/Low**	**Low**	**B, S, CF**	**Occupied**	**High****	**High****
A3-2	**50–75**	**Low**	**0**	**25–50**	**Low/Medium**	**Low**	**B, S, TD, CF**	**Occupied**	**High****	**High****
A3-3	**50–75**	**Low**	**0**	**25–50**	**Low/Medium**	**Low**	**S, TD, CF**	**Occupied**	**High****	**High****
2A-1	0–5	High	5–25	75–95	Medium/Medium	High	None	Not Occupied	Low	Low
2B-1	0–5	Medium	0	75–95	Low/Low	Low	None	Not Occupied	Medium	High**
2B-2	0–5	High	0–5	50–75	Medium/Low	High	None	Not Occupied	Low	Low**
2B-3	0–5	Medium	0–5	75–95	Medium/Low	High	None	Not Occupied	Low	High**
2B-4	0–5	High	0–5	75–95	Medium/Low	High	None	Not Occupied	Low	Low
3A-1	**0**	**High**	**0**	**50–75**	**Low/Low**	**High**	**None**	**Not Occupied**	**Low**	**Low**
3A-6	**0–5**	**Medium**	**0**	**75–95**	**Medium/Medium**	**Medium**	**None**	**Not Occupied**	**Low**	**Medium**
3A-7	**0–5**	**High**	**0**	**75–95**	**Medium/Low**	**High**	**None**	**Not Occupied**	**Low**	**Medium****
3A-8	**0–5**	**Medium**	**0**	**75–95**	**Medium/Low**	**High**	**None**	**Not Occupied**	**Low**	**Medium**
3B-1	0–5	Medium	5–25	50–75	Medium/High	Medium	B, S, CF	Occupied	High**	Low
3B-2	0–5	Medium	0–5	75–95	Low/Medium	Medium	B, S, CF	Occupied	High**	Medium
3B-3	0–5	Low	0	75–95	Low/Medium	Medium	S, CF	Occupied	High**	Medium
3C-1	0-5	Medium	0–5	75–95	High/Low	Medium	B	Not Occupied	Low	NA
3C-2	0–5	Medium	0–5	75–95	High/Low	Medium	None	Not Occupied	Low	NA
3C-3	0–5	Medium	5–25	75–95	High/Low	Medium	None	Not Occupied	Low	NA
3C-4	0–5	High	0–5	50–75	High/Low	High	None	Not Occupied	Low	NA

^= Active gopher excavation density ratings used; inactive excavations excluded.
* = Potential Kangaroo Rat Sign: B = Burrow(s); S = Scat; T = Tracks; TD = Tail Drag; TV = Trails in Vegetation; CF = Caching/Foraging Craters; 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.
bold = permanent sampling plot

4.0 DISCUSSION

Overall occupancy for fall 2024 showed a decrease in occupied plots from previous years, with only 10 plots occupied or assumed occupied. This is the lowest occupancy observed since these monitoring efforts have been conducted, with previous years ranging from 14 to 19 occupied plots (Table 2). The fall 2024 monitoring resulted in 10 plots with high potential for SKR compared to 8 plots in fall 2023, 15 plots in fall 2022, 17 plots in fall 2021, 21 plots in fall 2019, and 11 plots in winter 2017–2018 (Table 2). While there was a slight increase in the number of high-potential plots in 2024 compared to the previous year, there was also a significant increase in the number of low-potential plots. There were 17 plots categorized as low potential in fall of 2024, compared to only 10 plots in fall 2023 and other previous years ranging from 5 to 7 low-potential plots (Table 2). When assessing only the 16 permanent plots, fall 2024 resulted in 7 plots with high SKR potential and 9 plots with low potential; no plots were categorized as medium or no potential (Table 3). Comparatively, fall 2023 resulted in five plots with high SKR potential, six plots with medium potential, five plots with low potential, and zero plots with no potential. These results indicate similar findings as the whole 28 plots, with a slight increase in high-potential plots, but also a significant increase in the number of low-potential plots in 2024.

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 certain variables. Various factors that can affect suitability include 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.

The findings of fall 2024 monitoring efforts showed an overall decrease in SKR potential and occupancy, similar to the fall 2023 monitoring efforts. This continued decrease may be partly attributed to the heavy above-average rainfall observed in the greater San Diego region between fall 2022 and fall 2024. An increase in overall rainfall can be beneficial for SKR suitability in that it can increase food availability; however, significant increases in rainfall is likely to increase vegetation density and height, which may increase obstruction factors. In an ecological regime that is free of anthropogenic influences such as cattle grazing, consistently higher rainfall could result in a reduction of suitable habitat for SKR by promoting vegetation cover that excludes SKR.

Historically, much of the SKR monitoring areas are actively grazed, thereby helping to reduce significant vegetative growth during years of above-average rainfall. However, grazing was suspended from May through December of 2022 and reinstated in January 2023. This change in grazing regime likely contributed to the continued decrease in SKR potential and occupancy within the Preserve.

While grazing can help reduce vegetation coverage, thus potentially increasing SKR suitability, it does not always result in highly suitable SKR habitat. In 2024, monitoring results found that areas in which grazing was observed within the past 3 to 6 months did not directly correlate to high SKR potential. Two areas in particular (3B-1 and 3B-2) showed no signs of grazing, with medium living vegetation coverage and medium obstruction factors, but were determined to have high-potential for SKR based on habitat and observed sign. Furthermore, several of the areas determined to have low potential for SKR had been grazed within the past 3 months, yet still maintained high living vegetative cover. These findings indicate that while grazing can increase SKR suitability, there are several other factors that influence overall habitat suitability.

The majority of the annual vegetation present in the high- or medium-potential SKR monitoring plots consisted of red stemmed filaree (*Erodium cicutarium*), doveweed (*Croton setiger*), western ragweed (*Ambrosia psilostachya*), short pod mustard (*Hirschfeldia incana*), and vinegar weed (*Trichostema lanceolatum*). Annual vegetation in the low-potential areas comprised similar species, as well as curly dock (*Rumex crispus*). Dense annual grasses were also observed in several low-potential plots, which may preclude or reduce SKR movement.

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, Inc.

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
2024 Targeted Monitoring Plan Update. Prepared for the County of San Diego Department of Parks and Recreation. August 2024.

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.

2022 Fall 2022 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. December 22, 2022.

2023 Fall 2023 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. December 5, 2023.

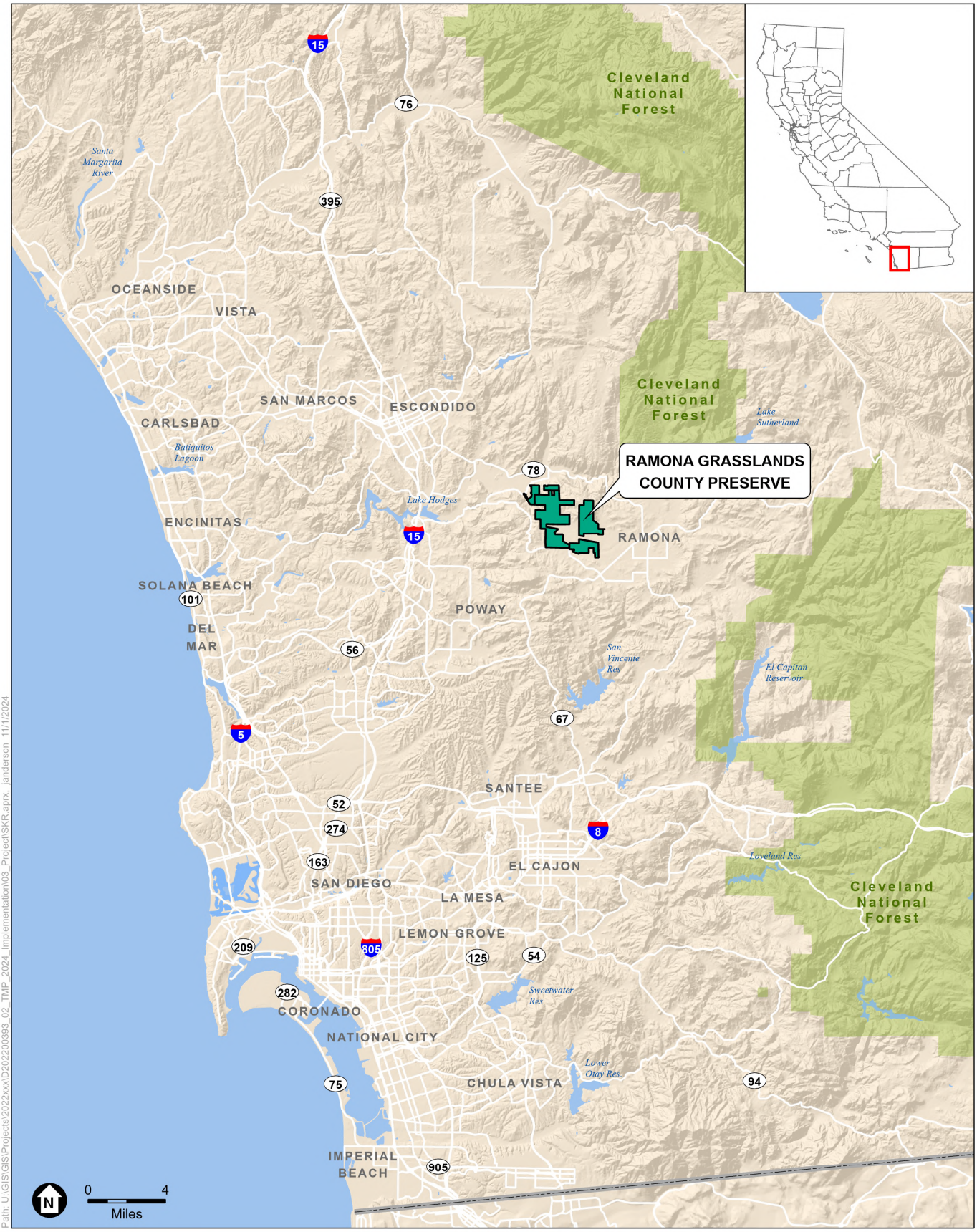
ESA and ICF
2015 Comprehensive Monitoring Plan (now referred to as the "Targeted Monitoring Plan." Prepared for the County of San Diego Department of Parks and Recreation. July 2015.
2022 Targeted Monitoring Plan Update. Prepared for the County of San Diego Department of Parks and Recreation. December 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.

ATTACHMENT A
FIGURES



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SOURCE: ESRI; SanGIS, 2024

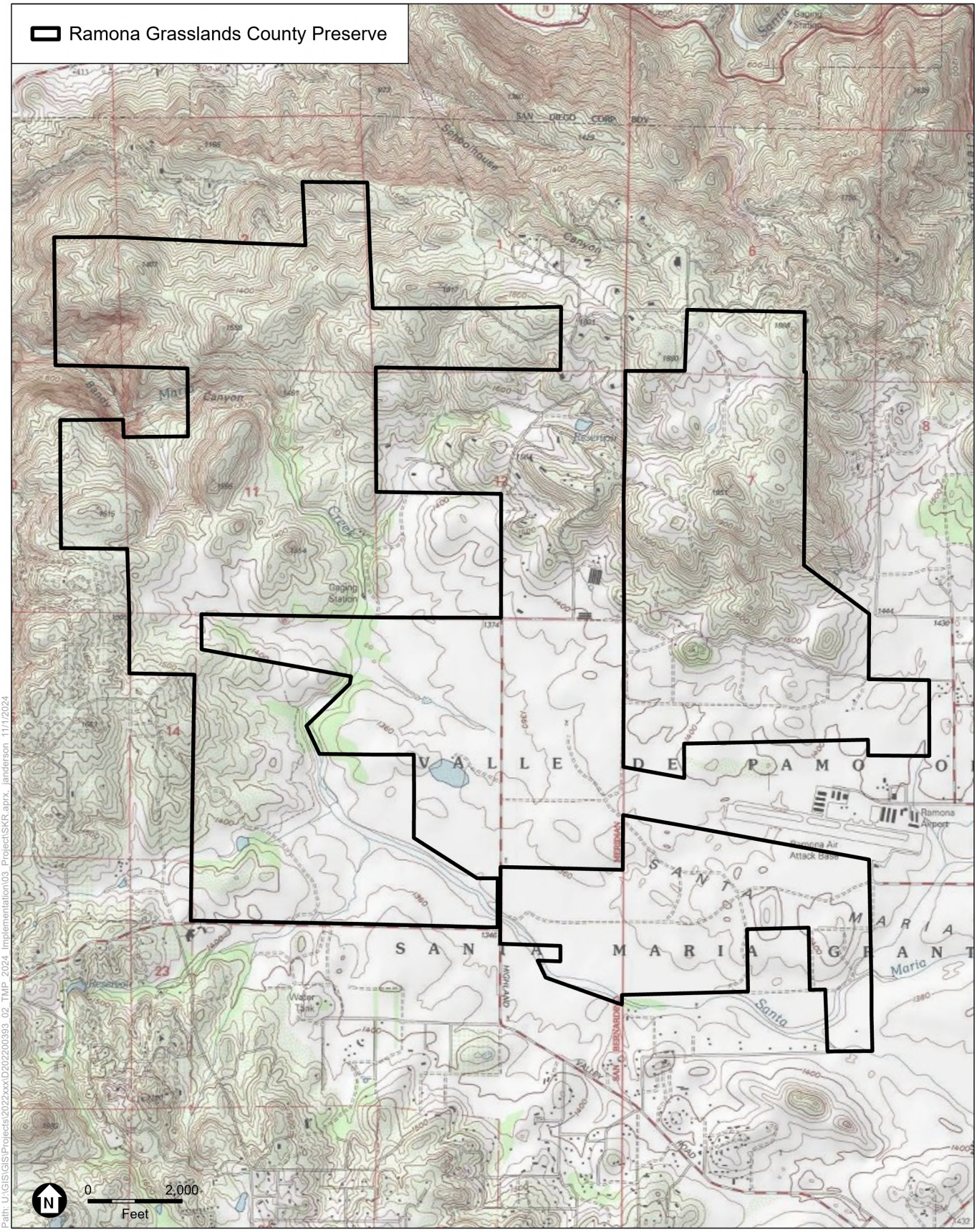
COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management

Fall 2024 SKR Habitat Monitoring Memorandum – Ramona Grasslands County Preserve

Figure 1

Regional Location

ESA



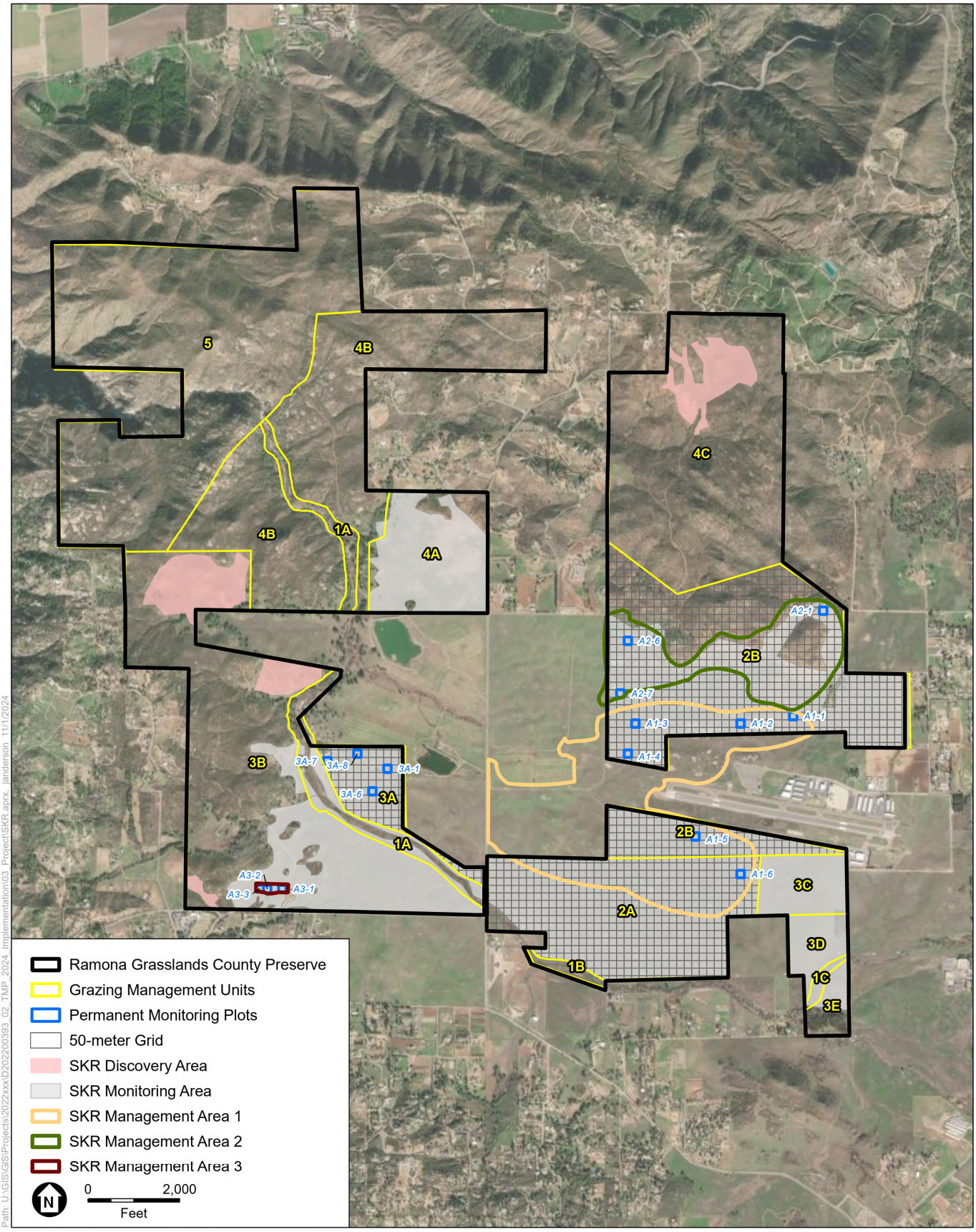
Path: U:\GIS\GIS\Projects\2022xxx\D2022000393_02_TMP_2024_Implementation\03_Project\SKR aprx, janderson 11/1/2024

SOURCE: USGS 7.5 minute, San Pasqual quadrangle

COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management
Fall 2024 SKR Habitat Monitoring Memorandum – Ramona Grasslands County Preserve

Figure 2
Project Location

ESA

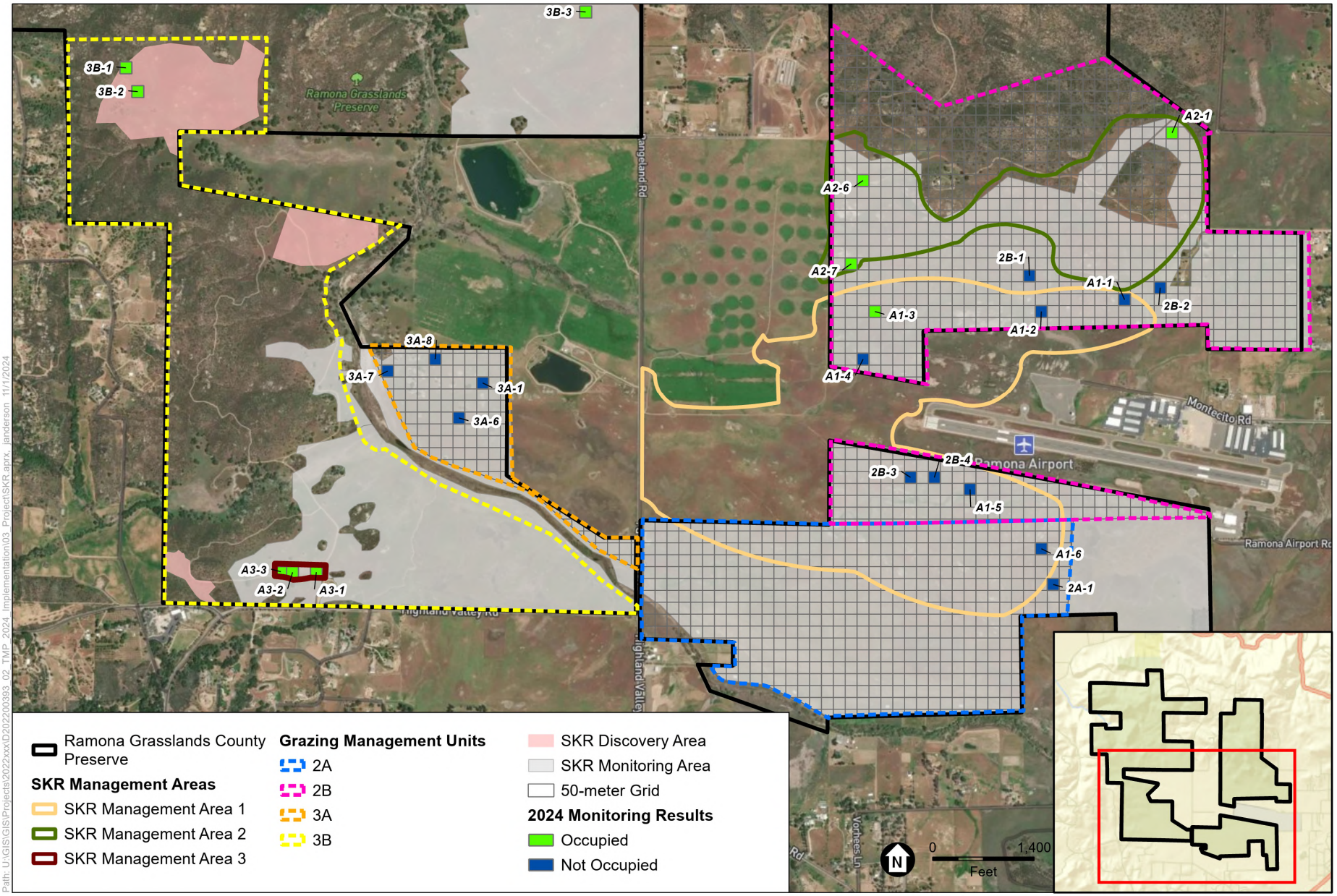


SOURCE: ESRI, 2024

COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management
Fall 2024 SKR Habitat Monitoring Memorandum – Ramona Grasslands County Preserve

Figure 3
SKR Monitoring and Management Areas

ESA



SOURCE: Mapbox; ESA, 2024

COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management

Fall 2024 SKR Habitat Monitoring Memorandum – Ramona Grasslands County Preserve

Figure 4

2024 SKR Monitoring Results

ESA

ATTACHMENT B
FIELD FORMS WITH SITE PHOTOGRAPHS

SKR Monitoring – Habitat Assessment Form

Plot Number: A1-1 **Date/ Time:** 10/17/2024 08:52

Grazing Management Unit: 2B **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: High vegetation density. No SKR sign.

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% ☑ 75-95%

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: Croton setiger, Ambrosia psilostachya, Hirschfeldia incana.

Grasses - List 3 Dominant Species: Avena sp., Bromus diandrus, Bromus madritensis.

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 17, 2024 8:52 AM	**Preserve:** Ramona Grasslands Preserve
Plot: A1-1	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A1-2 **Date/ Time:** 10/17/2024 11:15

Grazing Management Unit: 2B **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Wet grassland/ wetland area. No SKR sign.

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% ☑ 75-95%

Forb Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☑ 50-75%

Grass Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75% ☑ 75-95%

Shrub Cover: ☑ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75%

Forbs - List 3 Dominant Species: Ambrosia psilostachya, Rumex crispus, Herschfeldia incana.

Grasses - List 3 Dominant Species: Avena sp., Bromus sp., Distichlis spicata.

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 17, 2024 11:15 AM	**Preserve:** Ramona Grasslands Preserve
Plot: A1-2	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A1-3 **Date/ Time:** 10/17/2024 10:37

Grazing Management Unit: 2B **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: No SKR sign, but low stature of biomass.

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% ☑ 75-95%

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: Croton setiger, Ambrosia psilostachya, Hirschfeldia incana.

Grasses - List 3 Dominant Species: Distichlis spicata, Avena sp., Bromus madritensis.

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 17, 2024 10:37 AM	**Preserve:** Ramona Grasslands Preserve
Plot: A1-3	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A1-4 **Date/ Time:** 10/17/2024 10:46

Grazing Management Unit: 2B **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: No SKR sign.

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% ☑ 75-95%

Forb Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☑ 50-75%

Grass Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75% ☑ 75-95%

Shrub Cover: ☑ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75%

Forbs - List 3 Dominant Species: Ambrosia psilostachya, Rumex crispus, Croton setiger.

Grasses - List 3 Dominant Species: Distichlis spicata, Avena sp., Bromus hordaceous.

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 17, 2024 10:46 AM	**Preserve:** Ramona Grasslands Preserve
Plot: A1-4	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A1-5 **Date/ Time:** 10/17/2024 14:11

Grazing Management Unit: 2B **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: No SKR sign.

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% ☑ 75-95%

Forb Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☑ 25-50% ☐ 50-75%

Grass Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75% ☑ 75-95%

Shrub Cover: ☐ 0 ☑ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75%

Forbs - List 3 Dominant Species: Ambrosia psilostachya, Rumex crispus, Lactuca serriola.

Grasses - List 3 Dominant Species: Distichlis spicata, Avena sp., Bromus diandrus, Bromus hordaceous.

Shrubs - List 3 Dominant Species: Isocoma menzesii, Corethrogyne filaginifolia.

Trees - Dominant Species: NA

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 17, 2024 2:11 PM	**Preserve:** Ramona Grasslands Preserve
Plot: A1-5	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A1-6 **Date/ Time:** 10/17/2024 14:26

Grazing Management Unit: 2B **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: No SKR sign.

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% ☑ 75-95%

Forb Cover: ☐ 0 ☐ 0-5% ☑ 5-25% ☐ 25-50% ☐ 50-75%

Grass Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75% ☐ 75-95% ☑ 95-100%

Shrub Cover: ☐ 0 ☐ 0-5% ☑ 5-25% ☐ 25-50% ☐ 50-75%

Forbs - List 3 Dominant Species: Croton setiger, Ambrosia psilostachya.

Grasses - List 3 Dominant Species: Avena sp., Bromus sp., Distichlis spicata.

Shrubs - List 3 Dominant Species: Corethrogyne filaginifolia, Isocoma menzesii.

Trees - Dominant Species: NA

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 17, 2024 2:26 PM	**Preserve:** Ramona Grasslands Preserve
Plot: A1-6	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A2-1 **Date/ Time:** 10/17/2024 09:31

Grazing Management Unit: 2B **SKR Management Area:** 2

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: On edge of shrub habitat, so recommend trapping for SKR. Recent, active KR sign.

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% ☑ 75-95%

Forb Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75% ☑ 75-95%

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: Croton setiger, Hirschfeldia incana, Eriodium sp.

Grasses - List 3 Dominant Species: Bromus madritensis, Bromus sp.

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Artemisia californica.

Trees - Dominant Species: NA

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 17, 2024 9:31 AM	**Preserve:** Ramona Grasslands Preserve
Plot: A2-1	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A2-6 **Date/ Time:** 10/17/2024 10:07

Grazing Management Unit: 2B **SKR Management Area:** 2

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Recent, active SKR sign.

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% ☑ 75-95%

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: Ambrosia psilostachya, Hirschfeldia incana, Croton setiger.

Grasses - List 3 Dominant Species: Bromus diandrus, Bromus hordaceous, Avena sp.

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 17, 2024 10:07 AM	**Preserve:** Ramona Grasslands Preserve
Plot: A2-6	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A2-7 **Date/ Time:** 10/17/2024 10:24

Grazing Management Unit: 2B **SKR Management Area:** 2

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Recent, active SKR sign.

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: Ambrosia psilostachya, Croton setiger, Herschfeldia incana

Grasses - List 3 Dominant Species: Avena sp, Bromus diandrus, Distichlis spicata

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 17, 2024 10:24 AM	**Preserve:** Ramona Grasslands Preserve
Plot: A2-7	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A3-1 **Date/ Time:** 10/18/2024 11:21

Grazing Management Unit: NA **SKR Management Area:** 3

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Recent, active SKR sign.

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% ☐ 75-95%

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: Croton setiger, Trichostema lanceolatum, Hirschfeldia incana.

Grasses - List 3 Dominant Species: Bromus sp.

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 18, 2024 11:21 AM	**Preserve:** Ramona Grasslands Preserve
Plot: A3-1	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A3-2 **Date/ Time:** 10/18/2024 11:36

Grazing Management Unit: NA **SKR Management Area:** 3

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Recent, active SKR sign.

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: Croton setiger, Hirschfeldia incana, Trichostema lanceolatum.

Grasses - List 3 Dominant Species: Bromus sp.

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 18, 2024 11:36 AM	**Preserve:** Ramona Grasslands Preserve
Plot: A3-2	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A3-3 **Date/ Time:** 10/18/2024 11:43

Grazing Management Unit: NA **SKR Management Area:** 3

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Recent, active SKR sign.

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: Ambrosia psilostachya, Croton setiger, Hirschfeldia incana.

Grasses - List 3 Dominant Species: Bromus sp.

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 18, 2024 11:43 AM	**Preserve:** Ramona Grasslands Preserve
Plot: A3-3	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 2A-1 **Date/ Time:** 10/17/2024 14:34

Grazing Management Unit: 2A **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: No SKR sign.

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% ☑ 75-95%

Forb Cover: ☐ 0 ☐ 0-5% ☑ 5-25% ☐ 25-50% ☐ 50-75%

Grass Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75% ☑ 75-95%

Shrub Cover: ☐ 0 ☐ 0-5% ☑ 5-25% ☐ 25-50% ☐ 50-75%

Forbs - List 3 Dominant Species: Croton setiger, Hirschfeldia incana, Trichostema lanceolatum

Grasses - List 3 Dominant Species: Avena sp., Bromus madritensis, Bromus hordaceous

Shrubs - List 3 Dominant Species: Isocoma menzesii, Corethrogyne filaginifolia, Eriogonum fasciculatum

Trees - Dominant Species: NA

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 17, 2024 2:34 PM	**Preserve:** Ramona Grasslands Preserve
Plot: 2A-1	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 2B-1 **Date/ Time:** 10/17/2024 11:06

Grazing Management Unit: 2B **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☑ Medium ☐ Low ☐ None

Comments: Low vegetative cover and height, but no SKR sign.

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% ☑ 75-95%

Forb Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☑ 25-50% ☐ 50-75%

Grass Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75% ☑ 75-95%

Shrub Cover: ☑ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75%

Forbs - List 3 Dominant Species: Ambrosia psilostachya, Croton setiger

Grasses - List 3 Dominant Species: Avena sp., Bromus hordaceous, Bromus sp.

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 17, 2024 11:06 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 2B-1	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 2B-2 **Date/ Time:** 10/17/2024 09:14

Grazing Management Unit: 2B **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Wetland indicator plants in plot; no SKR sign.

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: Ambrosia psilostachya, Rumex crispus, Hirschfeldia incana

Grasses - List 3 Dominant Species: Distichlis spicata, Bromus sp., Avena sp.

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 17, 2024 9:14 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 2B-2	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 2B-3 **Date/ Time:** 10/17/2024 13:58

Grazing Management Unit: 2B **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: No SKR sign.

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% ☑ 75-95%

Forb Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☑ 25-50% ☐ 50-75%

Grass Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75%, ☑ 75-95%

Shrub Cover: ☐ 0 ☑ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75%

Forbs - List 3 Dominant Species: Ambrosia psilostachya, Croton setiger, Hirschfeldia incana

Grasses - List 3 Dominant Species: Avena sp., Bromus hordaceous, Bromus diandrus

Shrubs - List 3 Dominant Species: Corethrogyne filaginifolia

Trees - Dominant Species: NA

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 17, 2024 1:58 PM	**Preserve:** Ramona Grasslands Preserve
Plot: 2B-3	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 2B-4 **Date/ Time:** 10/17/2024 14:04

Grazing Management Unit: 2B **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Contains wetland area in plot. No SKR sign.

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% ☑ 75-95%

Forb Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☑ 25-50% ☐ 50-75%

Grass Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75% ☑ 75-95%

Shrub Cover: ☐ 0 ☑ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75%

Forbs - List 3 Dominant Species: Ambrosia psilostachya, Rumex crispus, Heterotheca grandiflora

Grasses - List 3 Dominant Species: Distichlis spicata, Avena sp., Bromus sp.

Shrubs - List 3 Dominant Species: Isocoma menzesii

Trees - Dominant Species: NA

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 17, 2024 2:04 PM	**Preserve:** Ramona Grasslands Preserve
Plot: 2B-4	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 3A-1 **Date/ Time:** 10/18/2024 10:47

Grazing Management Unit: 3A **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Plot contains wetland. No SKR sign.

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% ☑ 75-95%

Grass Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75% ☑ 75-95%

Shrub Cover: ☑ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75%

Forbs - List 3 Dominant Species: Ambrosia psilostachya, Carex sp., Rumex crispus

Grasses - List 3 Dominant Species: Avena sp., Bromus diandrus, Distichlis spicata

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 18, 2024 10:47 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 3A-1	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 3A-6 **Date/ Time:** 10/18/2024 10:59

Grazing Management Unit: 3A **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: No SKR sign.

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% ☑ 75-95%

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: Ambrosia psilostachya, Croton setiger, Hirschfeldia incana

Grasses - List 3 Dominant Species: Bromus diandrus, Bromus madritensis, Bromus sp.

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 18, 2024 10:59 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 3A-6	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 3A-7 **Date/ Time:** 10/18/2024 10:26

Grazing Management Unit: 3A **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: No SKR sign.

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% ☑ 75-95%

Forb Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☑ 50-75%

Grass Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75% ☑ 75-95%

Shrub Cover: ☑ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75%

Forbs - List 3 Dominant Species: Ambrosia psilostachya, Hirschfeldia incana, Croton setiger

Grasses - List 3 Dominant Species: Avena sp., Distichlis spicata, Bromus sp.

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 18, 2024 10:26 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 3A-7	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 3A-8 **Date/ Time:** 10/18/2024 10:36

Grazing Management Unit: 3A **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: No SKR sign.

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% ☑ 75-95%

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: Croton setiger, Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Avena sp., Bromus madritensis, Distichlis spicata

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 18, 2024 10:36 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 3A-8	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 3B-1 **Date/ Time:** 10/18/2024 09:30

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Need to trap for SKR. A lot of KR burrows near NW border of plot next to scrub.

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: Croton setiger, Erodium sp., Ambrosia psilostachya

Grasses - List 3 Dominant Species: Bromus sp.

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Artemisia californica, Salvia apiana

Trees - Dominant Species: Quercus sp., Malosma laurina

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 18, 2024 9:30 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 3B-1	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 3B-2 **Date/ Time:** 10/18/2024 09:44

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: KR burrows found on border of scrub area. Trap for SKR or DKR.

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% ☑ 75-95%

Forb Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75% ☑ 75-95%

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: Croton setiger, Deinandra fasciculata, Trichostema lanceolatum

Grasses - List 3 Dominant Species: Distichlis spicata, Bromus sp.

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Artemisia californica

Trees - Dominant Species: NA

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 18, 2024 9:44 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 3B-2	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 3B-3 **Date/ Time:** 10/18/2024 12:21

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Trapping recommended at this site. KR sign found.

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% ☑ 75-95%

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: Croton setiger, Hirschfeldia incana

Grasses - List 3 Dominant Species: Distichlis spicata, Avena sp., Bromus madritensis

Shrubs - List 3 Dominant Species: NA

Trees - Dominant Species: NA

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 18, 2024 12:21 PM	**Preserve:** Ramona Grasslands Preserve
Plot: 3B-3	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 3C-1 **Date/ Time:** 10/17/2024 12:38

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Active KR burrows and scat found close to this plot.

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% ☑ 75-95%

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: Croton setiger, Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Avena sp., Bromus diandrus, Bromus madritensis

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Acmispon glaber

Trees - Dominant Species: NA

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 17, 2024 12:38 PM	**Preserve:** Ramona Grasslands Preserve
Plot: 3C-1	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 3C-2 **Date/ Time:** 10/17/2024 12:57

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Adjacent burrows may be SKR. North of this plot.

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% ☑ 75-95%

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: Croton setiger, Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Avena sp., Bromus diandrus, Bromus sp.

Shrubs - List 3 Dominant Species: Artemisia californica, Eriogonum fasciculatum

Trees - Dominant Species: NA

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 17, 2024 12:57 PM	**Preserve:** Ramona Grasslands Preserve
Plot: 3C-2	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 3C-3 **Date/ Time:** 10/17/2024 13:09

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: No SKR sign.

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% ☑ 75-95%

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: Croton setiger, Hirschfeldia incana.

Grasses - List 3 Dominant Species: Avena sp., Bromus sp.

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Corethrogyne filaginifolia

Trees - Dominant Species: NA

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 17, 2024 1:09 PM	**Preserve:** Ramona Grasslands Preserve
Plot: 3C-3	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 3C-4 **Date/ Time:** 10/17/2024 12:27

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Plot includes wetland area. No SKR sign. Plot is in area that is not contiguous with the main SKR plot in the preserve, so trap to determine if SKR or DKR.

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: Ambrosia psilostachya, Hirschfeldia incana, Pseudognaphalium confertiflorum.

Grasses - List 3 Dominant Species: Avena sp., Bromus hordaceous, Bromus madritensis

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Artemisia californica

Trees - Dominant Species: NA

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

Date: October 17, 2024 12:27 PM	**Preserve:** Ramona Grasslands Preserve
Plot: 3C-4	**Observers:** Dillon Travis and Kris Alberts

Potential Kangaroo Rat Sign? ☐ Scat ☐ Burrow(s) ☐ Tracks ☐ Tail Drag ☐ Caching/foraging craters
Other(Describe):

H-2 Stephens' Kangaroo Rat Habitat Assessment Memorandum: Hellhole Canyon County Preserve

FALL 2024 STEPHENS' KANGAROO RAT MONITORING

HELLHOLE CANYON COUNTY PRESERVE

VALLEY CENTER, SAN DIEGO COUNTY, CALIFORNIA

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November 27, 2024

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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. 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 2024. Survey methodology followed the Targeted Monitoring Plan (TMP) (ESA and ICF 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, 2022, and 2023 SKR habitat assessments (ESA and Blackhawk Environmental, Inc. 2021, 2022, 2023) associated with 2021, 2022, and 2023 TMP resource-specific monitoring (ESA 2022, 2023, 2024).

This report summarizes results of the SKR habitat assessment within the Preserve for the fall of 2024. The fall 2024 monitoring was conducted at a similar time of year compared to previous monitoring efforts, but no mowing/weed whipping had occurred, as was the case in 2023. Therefore, a greater percentage of annual vegetation was standing, compared to the typical dry and largely senesced conditions observed during the 2020 trapping surveys, the fall 2021 and 2022 monitoring efforts, and the mowed/weed whipped conditions present during the 2023 monitoring effort. As a result, monitoring plots in fall 2024 were anticipated to yield lower SKR presence results. Some of the SKR monitoring areas in 2024 consisted of an herbaceous layer comprising low-growing annual plants interspersed among open coastal sage scrub habitat, resulting in generally low SKR obstruction factors similar to those in 2020–2023; however, more areas saw an increase in obstruction factors, thus decreasing suitable habitat for SKR.

The fall 2024 monitoring results demonstrated a reduction in SKR habitat suitability compared to that of the fall 2020 trapping survey and fall 2021, 2022, and 2023 monitoring efforts. The fall 2020 live trapping survey yielded 1 SKR in plot 2 and 17 Dulzura kangaroo rats (*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. In 2021, 2022, and 2023, kangaroo rat sign was detected at all three monitoring plots; therefore, all three plots were assumed potentially occupied by SKR. This assumption considered the positive detection of SKR in plot 2 in fall 2020; kangaroo rat sign in all three plots in fall 2021, fall 2022, and fall 2023; and the lack of obstruction factors that would preclude SKR potential between the three proximal plots. In 2024, only inactive burrows were observed in plot 1, with no recent kangaroo rat sign observed, suggesting plot 1 is potentially not currently occupied. However, since at least one inactive burrow was found, the finding was defaulted to "occupied." Additionally, the potential for SKR was reduced to medium for plots 2 and 3, respectively, compared to high potential ratings in one to three plots in previous years. Kangaroo rat sign was significantly reduced across all three plots in 2024 compared with previous years, with scant recent sign found only in plot 3. Despite these 2024 findings, 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, given that anthropogenic influence is minimal within the monitoring area.

1.0 INTRODUCTION

Purpose and Regulatory Background

As a participant in the Multiple Species Conservation Program (MSCP) and the adopted MSCP South County 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. The 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 and updated in December 2022 (ESA and ICF 2022) to incorporate 10 additional open space parks and preserves (Preserve Group 2) and again in August 2024 (ESA 2024) to incorporate 11 additional open space parks and preserves (Preserve Group 3). The revised TMP also confirmed 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. 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, California Department of Fish and Wildlife, 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 31 open space parks and preserves: Barnett Ranch County Preserve, Bottle Peak County Preserve, Boulder Oaks County Preserve, Del Dios Highlands County Preserve, Dictionary Hill County Preserve, El Capitan County Preserve, El Monte Regional Park, Escondido Creek County Preserve, Furby-North Property, Hellhole Canyon County Preserve, Iron Mountain County Preserve, Keys Creek County Preserve, Lakeside Linkage County Preserve, Lawrence and Barbara Daley County Preserve, Los Peñasquitos Canyon County Preserve, Louis A. Stelzer County Park, Lusardi Creek County Preserve, Mount Olympus County Preserve, Mountain Meadow County Preserve, Oakoasis County Preserve, Peutz Valley County Preserve, Ramona Grasslands County Preserve, Sage Hill County Preserve, San Luis Rey River Park, Santa Margarita County Preserve, Simon County Preserve, Skyline County Preserve, Stoneridge County Preserve, Sycamore Canyon/Goodan Ranch County Preserve, Tijuana River Valley Regional Park, and Wilderness Gardens County Preserve.

Project Location and Description

Hellhole Canyon County Preserve (Preserve) is located within the draft North County MSCP Plan Area. The Preserve is located northeast of Escondido within Valley Center, an unincorporated community of San Diego County.

The 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 property (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 2024 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). Monitoring details, including dates, weather conditions, and field personnel are listed in Table 1.

Table 1. Survey Conditions

Biologists	Date	Start/End Time	Start/End Air Temperature (°F)	Start/End Wind Speed (mph)	Start/End Cloud Cover (%)	Precipitation
Kris Alberts Dillon Travis	10-9-24	1000–1130	84–87	0 / 0	0 / 0	None

A cellular ArcGIS Collector application was used to determine the locations of all monitoring plots in the field. 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 percent 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 B). 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 using primarily the following criteria:

- High Potential
  - Readily apparent potential SKR sign (particularly scat and burrows)
  - Relatively flat to gently sloping topography
  - 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

[1] Obstruction 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

A comparison between the overall rating of SKR potential at each plot from the fall 2020 trapping survey to the fall 2021, fall 2022, fall 2023, and fall 2024 monitoring is included in Table 2; increased or decreased changes for the analyzed elements are provided in the final column of Table 2 comparing fall 2023 to fall 2024 (ESA and Blackhawk Environmental, Inc. 2022, 2023). Results of the 2024 SKR habitat assessment for each sample plot are provided in Table 3. In 2024, habitat assessments were conducted at three monitoring plots, and all three were determined to be occupied or potentially occupied by SKR. Each plot was rated for SKR potential; two plots were characterized as medium potential and one as low potential. None of the sample plots were found to have high or no potential for SKR (Attachment A, Figure 4).

Table 2. SKR Habitat Assessment Comparison

		Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	2023–2024 Change
SKR Occupancy	**Occupied**	1	3*	3*	2*	3*	+1
	Unoccupied	2	0	0	1	0	-1
SKR Potential	**High**	3	3	3	1	0	-1
	Medium	0	0	0	1	2	+1
	Low	0	0	0	1	1	0
	No	0	0	0	0	0	0
	*Occupancy status in fall 2024 was determined as "potentially occupied" based on the positive detection of one SKR in plot 2 in fall 2020 live-trapping surveys, as well as positive but scant and/or dated kangaroo rat sign in plots 1, 2, and 3 during fall 2024; the proximity of the two plots (within 150 feet of one another); and no factors that could reasonably be expected to entirely preclude SKR movement between the two plots.						

Table 3. SKR Habitat Assessment Summary

Fall 2024										Fall 2023
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	0–5	Medium	5–25	50–75	High/Low	Medium	B	Occupied	Low	Low
2	5–25	Medium	5–25	50–75	High/Low	Medium	B	Occupied	Medium**	High**
3	0–5	High	25–50	50–75	Med/Low	High	B, S	Occupied	Medium**	Medium**

^ = Active gopher excavation density ratings used; inactive excavation density ratings excluded.
* = 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 2024 was determined as "potentially occupied," as described in the footnote on Table 2.

4.0 DISCUSSION

SKR sign decreased in both abundance and recentness in 2024 at all monitoring plots compared to 2023. Occupancy potential in plot 2 also decreased slightly in fall 2024 compared to prior monitoring efforts in fall 2023 and previous years, while plots 1 and 3 remained unchanged for occupancy potential from 2023. SKR was found present at only 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, 2022, and 2023 habitat assessments. During the 2024 monitoring efforts, monitoring at all three plots detected potential for SKR, though all sign was minimal, apparently inactive, and/or dated (Table 3). Differentiating between SKR and Dulzura kangaroo rat 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, monitoring results from 2021 and 2022 suggested high potential for SKR in all three plots, whereas in 2023, potential for SKR was high only in plot 2. In 2024, potential for SKR remained low in plot 1 and was medium in plots 2 and 3, indicating a trend toward declining potential as evidenced by the near absence of any recent sign in fall 2024. The results indicate seasonal SKR occupancy can increase or decrease at given sites between monitoring years due to variables such as precipitation, survey timing, predation, weather, food availability, competition among sympatric species, microtopographic differences, proximity of groundwater, habitat maintenance activities, 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.

An increase in overall rainfall can be beneficial for SKR suitability in that it can increase food availability; however, significant increases in rainfall are likely to increase vegetation density and height, which may increase obstruction factors. The period between the fall 2023 and fall 2024 monitoring efforts was marked by a slightly above-average rainfall year in the greater San Diego region. 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.

During the 2024 monitoring effort, none of the plots were observed to have had any mowing conducted, unlike the 2023 monitoring effort. As a result, and in conjunction with slightly above-average rainfall amounts during the previous rainy season, an increase in living/standing herb density and overall vegetation coverage was broadly observed across all three plots. Plot 2 presented similar findings as previous years, with more open areas primarily vegetated with low-growing filarees (*Erodium spp.*), which facilitates SKR movement and is a potential food source. Comparatively, plots 1 and 3 presented with higher percentages of taller-growing ruderal species (i.e., tocalote [*Centaurea melitensis*] and short-pod mustard [*Hirschfeldia incana*]) that increase obstruction factors and may preclude or reduce SKR movement. Obstruction factors were thus increased for plots 1, 2, and 3, compared to findings from 2021 to 2023, reducing the potential for SKR. Also of note is the significant increase in active gopher excavations observed, most notably in plots 1 and 2.

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 2020–2024 monitoring efforts. Annual weather patterns within the greater San Diego region are known to have significant variability in rainfall quantities, while generally dry conditions prevail for most 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, Inc.

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.

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

2024 Targeted Monitoring Plan Resource-Specific Monitoring & Management 2023 Annual Report. Prepared for the County of San Diego Department of Parks and Recreation. March 2024.

2024 Targeted Monitoring Plan Update. Prepared for the County of San Diego Department of Parks and Recreation. August 2024.

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.

2022 Fall 2022 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. December 22, 2022.

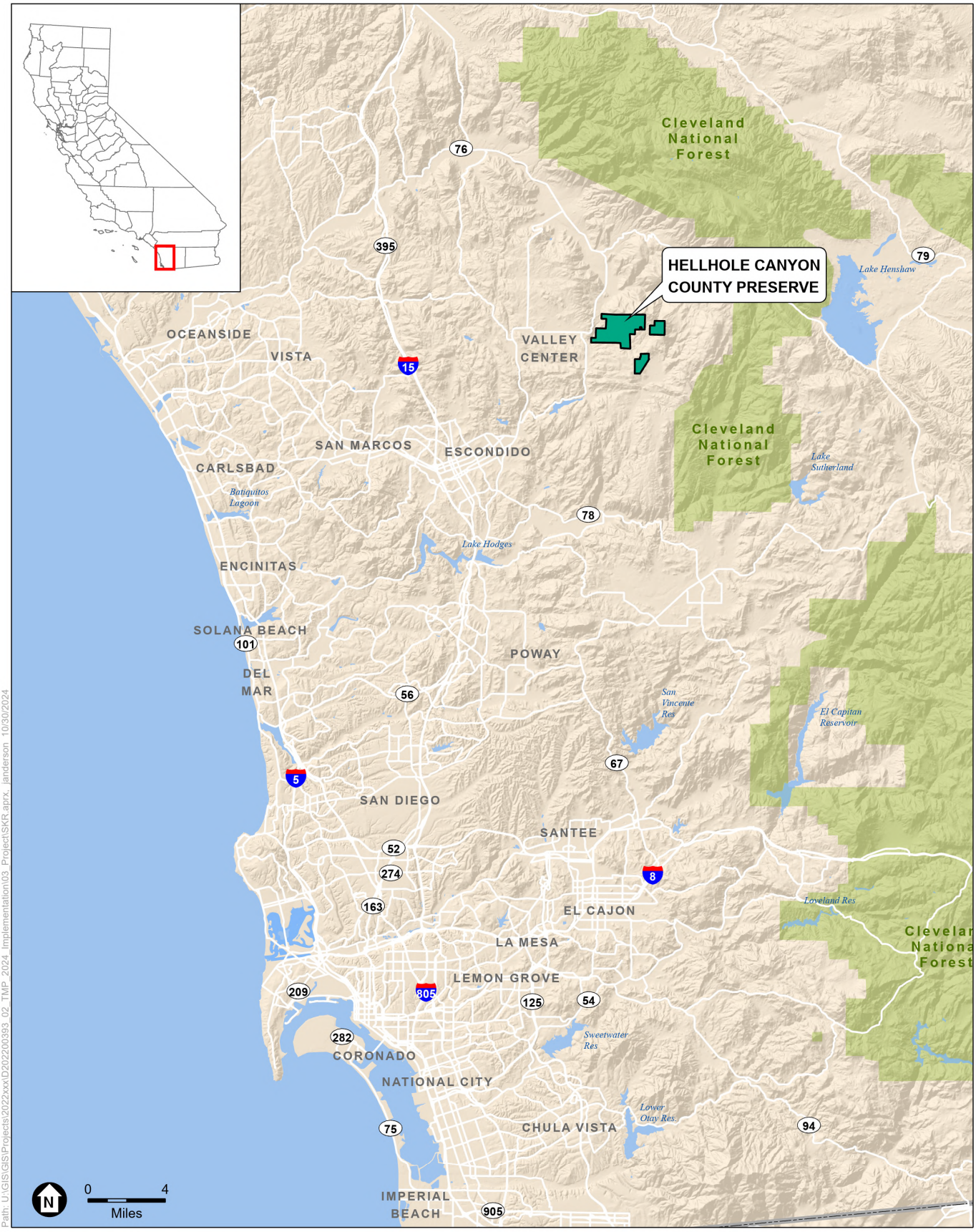
2023 Fall 2023 Stephens' Kangaroo Rat Monitoring, Hellhole Canyon County Preserve, Valley Center, San Diego County, California. Prepared for the County of San Diego Department of Parks and Recreation. December 5, 2023.

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.

2022 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.

ATTACHMENT A
FIGURES



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SOURCE: ESRI; SanGIS, 2024

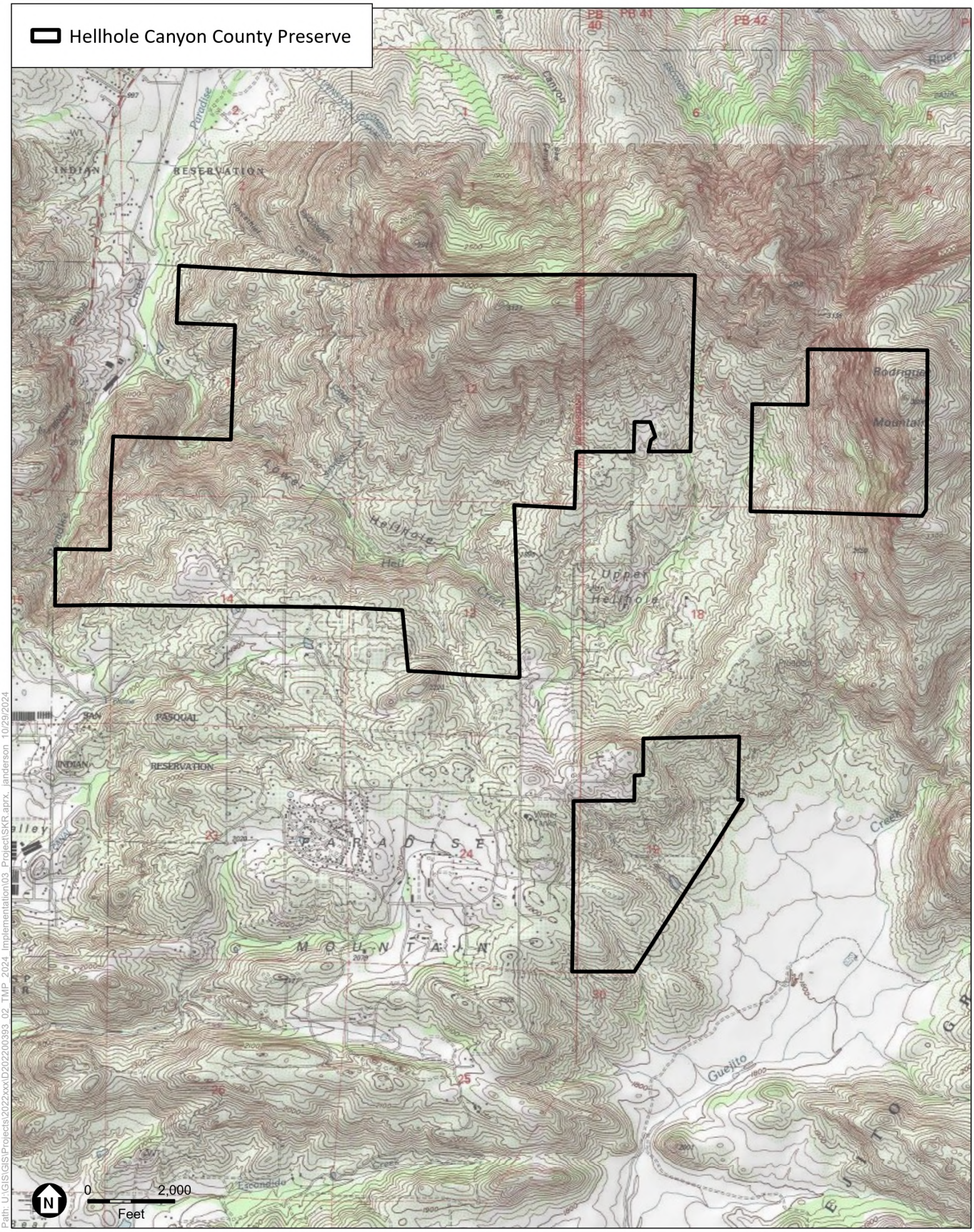
COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management

Fall 2024 SKR Habitat Monitoring Memorandum – Hellhole Canyon County Preserve

Figure 1

Regional Location

ESA



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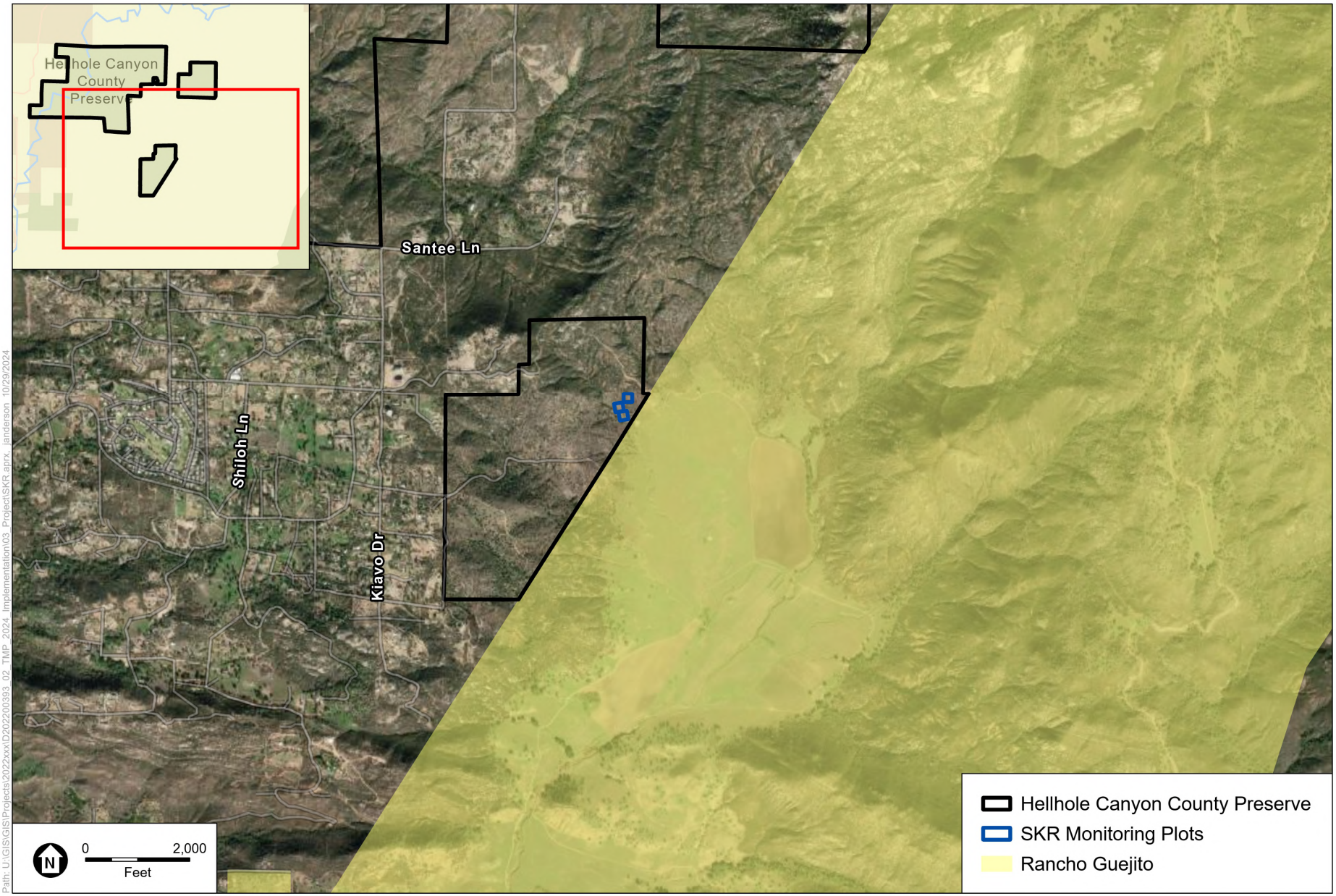
SOURCE: USGS 7.5 minute,
Rodriguez Mountain quadrangle

COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan –
2024 Resource-Specific Monitoring and Management
Fall 2024 SKR Habitat Monitoring Memorandum – Hellhole Canyon County Preserve

Figure 2
Project Location

ESA



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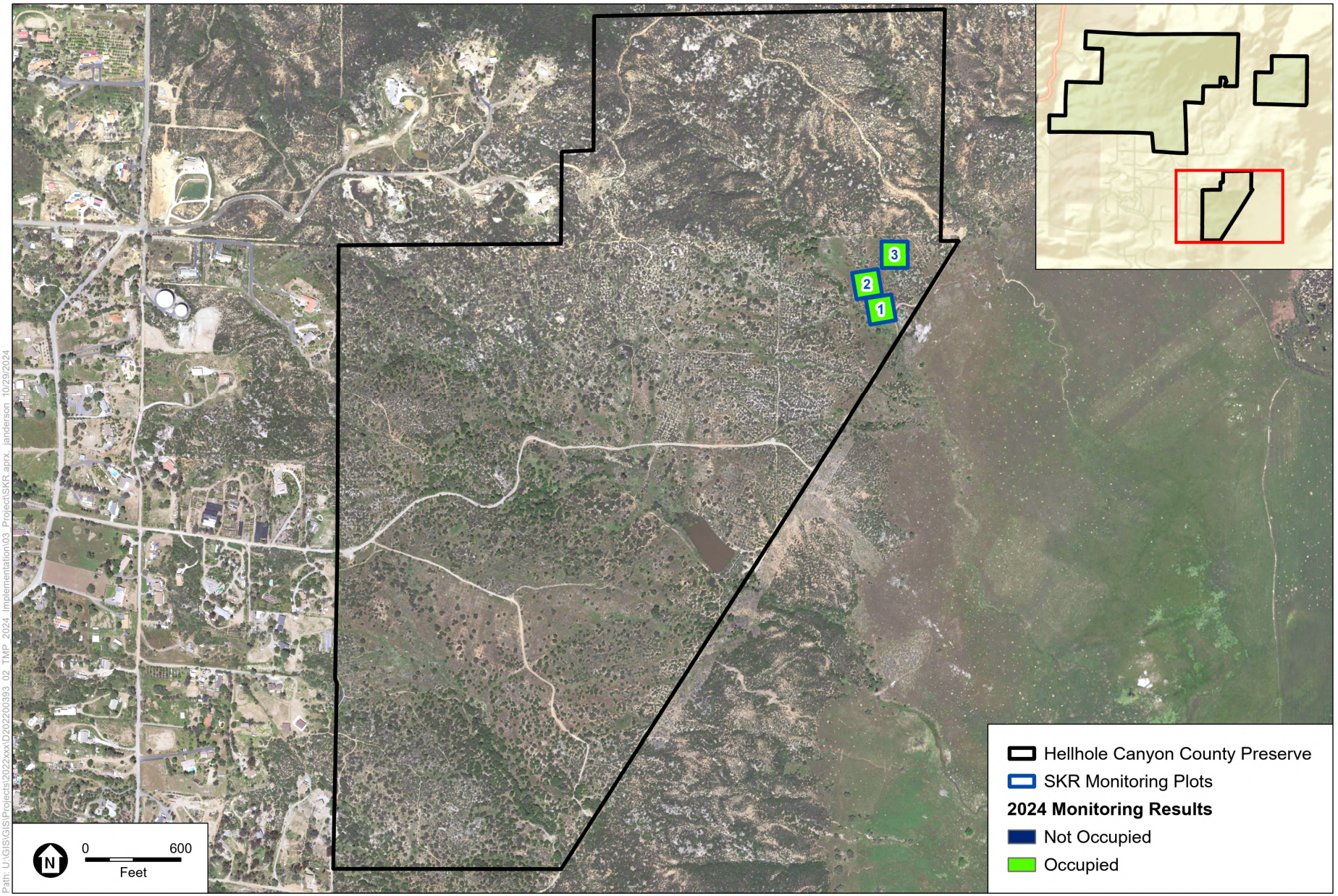
SOURCE: ESRI, 2024; SanGIS, 2024

COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management
Fall 2024 SKR Habitat Monitoring Memorandum – Hellhole Canyon County Preserve

Figure 3
SKR Monitoring Area

ESA



SOURCE: NAIP, 2020; SanGIS, 2024; ESA, 2024.

COSD DPR 569744 TO 4 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management

Fall 2024 SKR Habitat Monitoring Memorandum – Hellhole Canyon County Preserve

Figure 4

2024 SKR Monitoring Results

ESA

ATTACHMENT B
FIELD FORMS WITH SITE PHOTOGRAPHS

SKR Monitoring – Habitat Assessment Form

Plot Number: 1 **Date/ Time:** 10/09/2024 09:48

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: SKR burrows appear inactive. No other sign than burrows.

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: Hirschfelida incana, Erodium cicutartium, Croton setiger

Grasses - List 3 Dominant Species: Bromus diandrus, Bromus madritensis, Bromus hordaceous

Shrubs - List 3 Dominant Species: Quercus berbidifolia, Eriogonum fasciculatum, Mule fat

Trees - Dominant Species: NA

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 9, 2024 9:48 AM	**Preserve:** Hellhole Canyon Preserve
Plot: 1	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 2 **Date/ Time:** 10/09/2024 11:00

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☑ Medium ☐ Low ☐ None

Comments:

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: Hirschfeldia incana, Croton setiger, Centaurea melitensis

Grasses - List 3 Dominant Species: Bromus hordaceous, Bromus madritensis, Bromus diandrus

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Gutierrezia californica, Acmispon glaber

Trees - Dominant Species: Quercus sp, Malosma laurina

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 9, 2024 11:00 AM	**Preserve:** Hellhole Canyon Preserve
Plot: 2	**Observers:** Dillon Travis and Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 3 **Date/ Time:** 10/09/2024 10:51

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis and Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☑ Medium ☐ Low ☐ None

Comments: Burrows, tracks, and scat 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: Herschfeldia incana, Croton setiger, Centauera melitensis

Grasses - List 3 Dominant Species: Bromus hordaceous, Bromus madritensis

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Quercus berbidifolia

Trees - Dominant Species: Orange trees

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 9, 2024 10:51 AM	**Preserve:** Hellhole Canyon Preserve
Plot: 3	**Observers:** Dillon Travis and Kris Alberts

Appendix I

Bat Survey & Habitat Assessment Field Forms and Representative Photograph

Appendix I

Bat Survey & Habitat Assessment Field Forms and Representative Photograph

I-1 Survey Field Forms

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Pallid/Townsends Bat

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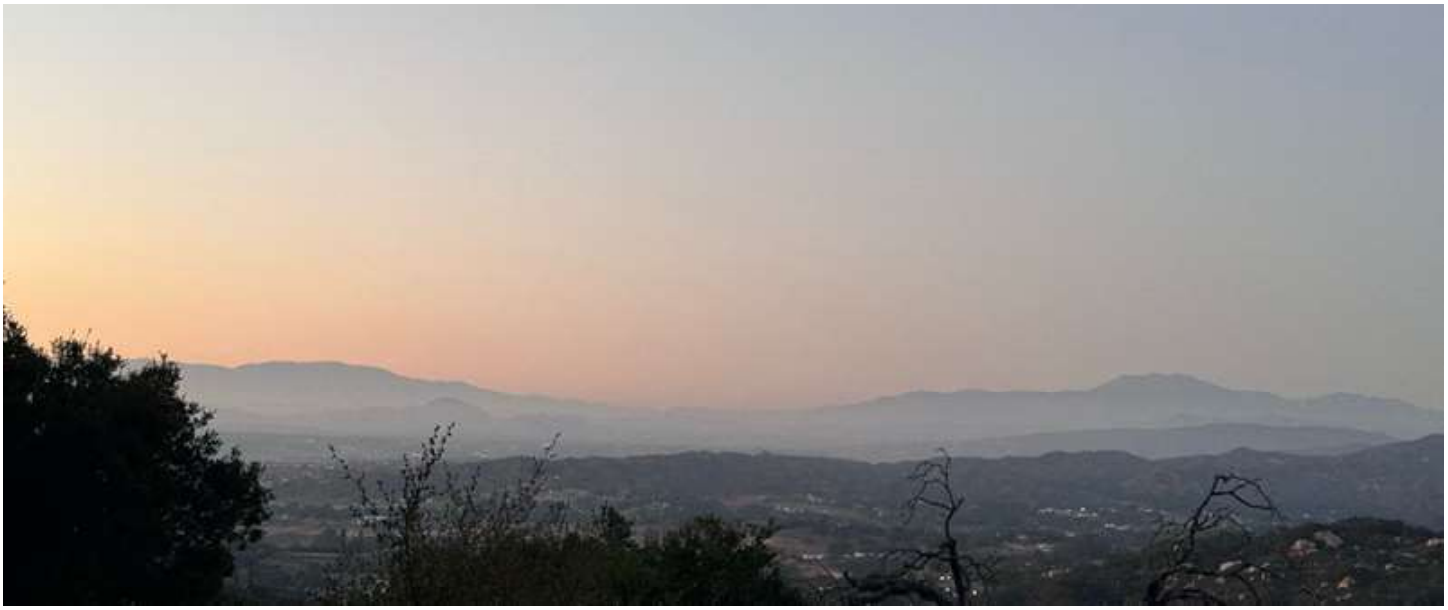
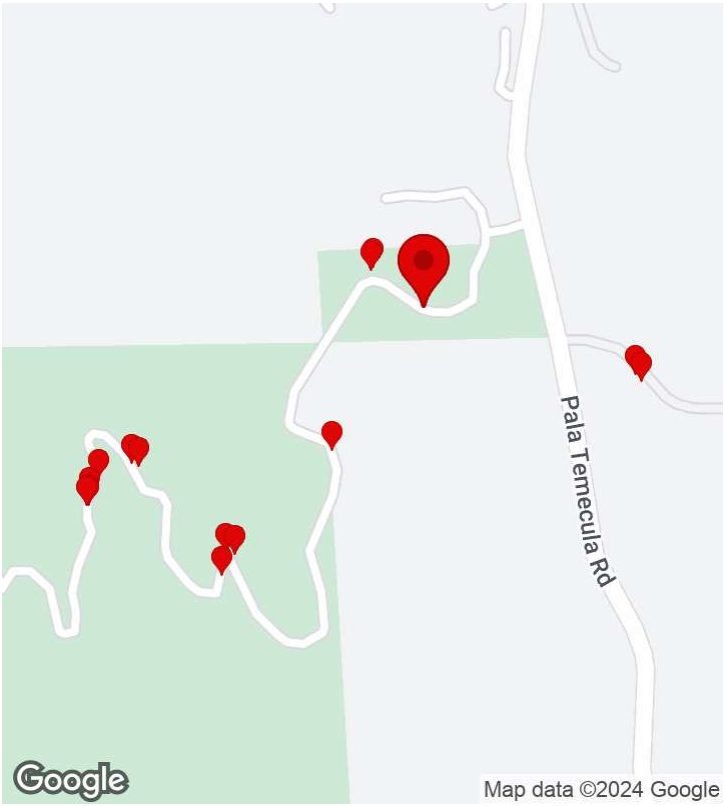




CREATED

7/4/2024, 2:29:35 AM UTC
by SC Fulcrum26

UPDATED

7/12/2024, 5:51:48 PM UTC
by SC Fulcrum26

LOCATION

33.423274, -117.089883

Parent Form

Project Name:	TMP Monitoring ▸ Pallid/Townsends Bat
Preserve/Park Name	Mt. Olympus
General Survey Type	TMP Monitoring
Specific Survey Type	Bat Echo Meter Survey
Observer/Surveyor:	Jaclyn Catino-Davenport
Assistant Observer/Surveyor:	Karla Alcaraz
Date:	July 3, 2024

START Weather Details:

Start - Time:	19:29
Start - Temperature:	75.4
Start - Wind Direction From (select one):	SW
Start - Low Wind Speed:	0.2
Start - High Wind Speed:	2.6
Start - Average Wind Speed:	1.2
Start - Cloud Cover (%):	0
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Start - Notes (if applicable):	Clear for night survey.

END Weather Details:

Time Out:	21:51
End - Temperature:	72
End - Wind Direction From (select one):	SW
End - Low Wind Speed:	0.7
End - High Wind Speed:	1.1
End - Average Wind Speed:	0.9
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	Good
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	

Notes	Talked to adj land owners, next to parking location. Started taking data at 2013.
Observation Type:	Bird, Mammal

Photos

Bird

Bird Observation: (7 Items)

Bird Observation: - 1. 1 record

Bird (Common or Scientific Name):	Phainopepla; Phainopepla nitens; PHAI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 2. 1 record

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record

Bird (Common or Scientific Name):	Common Poorwill; Phalaenoptilus nuttallii; COPO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	

Notes:	

Mammal

Mammal Observation: (1 Item)

Mammal Observation: - 1. 1 record

Mammal (Common or Scientific Name):	Coyote; Canis latrans
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Mammal:	
Notes:	

Bat Echo Meter Survey Details

Survey Station/Location (number)	Transect
Survey Duration (minutes)	50
General Notes (detectability, habitat, etc.)	
Photos	

Observation (8 Items)

Observation - 1. Western pipistrelle (Parastrellus hesperus)

Species Observed	Western pipistrelle (Parastrellus hesperus)
Observation Notes	30/37 2028, visually seen

Observation - 2. Silver-haired bat (Lasionycteris noctivagans)

Species Observed	Silver-haired bat (Lasionycteris noctivagans)
Observation Notes	2/4 2029

Observation - 3. Mexican free-tailed bat (Tadarida brasiliensis)

Species Observed	Mexican free-tailed bat (Tadarida brasiliensis)
Observation Notes	15/21 2031

Observation - 4. Big brown bat (Eptesicus fuscus)

Species Observed	Big brown bat (Eptesicus fuscus)
Observation Notes	2036 3/17 visually seen, 5/14 2036

Observation - 5. Western pipistrelle (Parastrellus hesperus)

Species Observed	Western pipistrelle (Parastrellus hesperus)
Observation Notes	46/49 2047, 1/2 2036, 11/11 2040

Observation - 6. Western small-footed myotis (Myotis ciliolabrum)

Species Observed	Western small-footed myotis (Myotis ciliolabrum)
Observation Notes	32/57 2048

Observation - 7. Mexican free-tailed bat (Tadarida brasiliensis)

Species Observed	Mexican free-tailed bat (Tadarida brasiliensis)
Observation Notes	2/2 2056, 2059 2/2

Observation - 8. Western pipistrelle (Parastrellus hesperus)

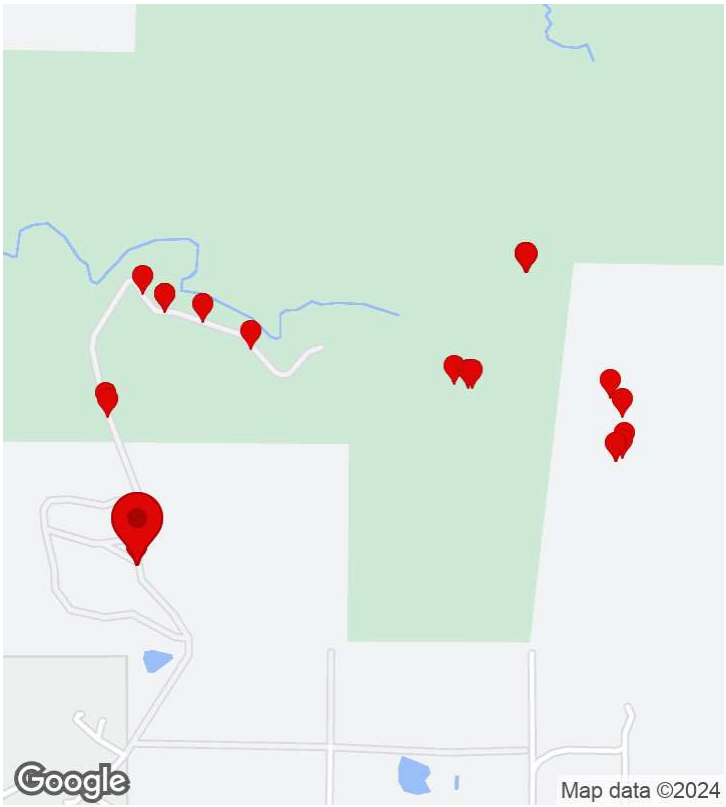
Species Observed	Western pipistrelle (Parastrellus hesperus)
Observation Notes	2107 41/56,

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Pallid/Townsends Bat

7/12/2024, 5:52:51 PM UTC



CREATED

7/11/2024, 2:21:22 AM UTC
by SC Fulcrum26

UPDATED

7/12/2024, 5:52:51 PM UTC
by SC Fulcrum26

LOCATION

33.221906, -116.953730

Parent Form

Project Name:	TMP Monitoring ▸ Pallid/Townsends Bat
Preserve/Park Name	Hellhole Canyon
General Survey Type	TMP Monitoring
Specific Survey Type	Bat Echo Meter Survey
Observer/Surveyor:	Jaclyn Catino-Davenport
Assistant Observer/Surveyor:	Karla Alcaraz
Date:	July 10, 2024

START Weather Details:

Start - Time:	19:21
Start - Temperature:	86.2
Start - Wind Direction From (select one):	W
Start - Low Wind Speed:	0.2
Start - High Wind Speed:	1.8
Start - Average Wind Speed:	1
Start - Cloud Cover (%):	30
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Start - Notes (if applicable):	

END Weather Details:

Time Out:	21:36
End - Temperature:	76.8
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
End - Visibility (select one):	Fair
End - Notes (if applicable):	Clear for night survey
Total Hours:	

Project Location (description):	

Notes	Stopped at 33.2271656, -116.9453890 and set up acoustic equipment at 2000. SM4 unit started collecting at 2003. About quarter moonlight.
Observation Type:	Amphibian, Bird, Mammal, Reptile

Photos

Amphibian

Amphibian Observation: (1 Item)

Amphibian Observation: - 1. 1 record

Amphibian (Common or Scientific Name):	Western Toad; Anaxyrus boreas
Is the Amphibian Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Amphibian:	
Notes:	

Bird

Bird Observation: (18 Items)

Bird Observation: - 1. 1 record

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no

Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 2. 1 record

Bird (Common or Scientific Name):	Ash-throated Flycatcher; Myiarchus cinerascens; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record

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:	2
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	

Notes:	

Bird Observation: - 5. 1 record

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record

Bird (Common or Scientific Name):	Oak Titmouse; Baeolophus inornatus; OATI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record

Bird (Common or Scientific Name):	Acorn Woodpecker; Melanerpes formicivorus; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 13. 1 record

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	

Notes:	

Bird Observation: - 14. 1 record

Bird (Common or Scientific Name):	California Quail; Callipepla californica; CAQU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record

Bird (Common or Scientific Name):	Common Poorwill; Phalaenoptilus nuttallii; COPO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 16. 1 record

Bird (Common or Scientific Name):	Common Raven; Corvus corax; CORA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 17. 1 record

Bird (Common or Scientific Name):	California Scrub-Jay; Aphelocoma californica; CASJ
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 18. 1 record

Bird (Common or Scientific Name):	Oak Titmouse; Baeolophus inornatus; OATI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Mammal

Mammal Observation: (1 Item)

Mammal Observation: - 1. 1 record

Mammal (Common or Scientific Name):	Desert Cottontail; Sylvilagus audubonii
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Mammal:	
Notes:	

Reptile

Reptile Observation: (1 Item)

Reptile Observation: - 1. 1 record

Reptile (Common or Scientific Name):	Western Rattlesnake; Crotalus oreganus
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Reptile:	
Notes:	

Bat Echo Meter Survey Details

Survey Station/Location (number)	1
Survey Duration (minutes)	90

General Notes (detectability, habitat, etc.)	
Photos	

Observation (8 Items)

Observation - 1. California myotis (Myotis californicus)

Species Observed	California myotis (Myotis californicus)
Observation Notes	2053, 5/5

Observation - 2. Pallid bat (Antrozous pallidus)

Species Observed	Pallid bat (Antrozous pallidus)
Observation Notes	2054, 45/41

Observation - 3. Western small-footed myotis (Myotis ciliolabrum)

Species Observed	Western small-footed myotis (Myotis ciliolabrum)
Observation Notes	2057, 35/48

Observation - 4. California myotis (Myotis californicus)

Species Observed	California myotis (Myotis californicus)
Observation Notes	2105, 31/35

Observation - 5. Western small-footed myotis (Myotis ciliolabrum)

Species Observed	Western small-footed myotis (Myotis ciliolabrum)
Observation Notes	2111, 32/64

Observation - 6. Western yellow bat (Lasiurus xanthinus)

Species Observed	Western yellow bat (Lasiurus xanthinus)
Observation Notes	2111, 1/2

Observation - 7. Hoary bat (Lasiurus cinereus)

Species Observed	Hoary bat (Lasiurus cinereus)
Observation Notes	2128, 1/2

Observation - 8. Pocketed free-tail (Nyctinomops femorosaccus)

Species Observed	Pocketed free-tail (Nyctinomops femorosaccus)
Observation Notes	2128, 1/3

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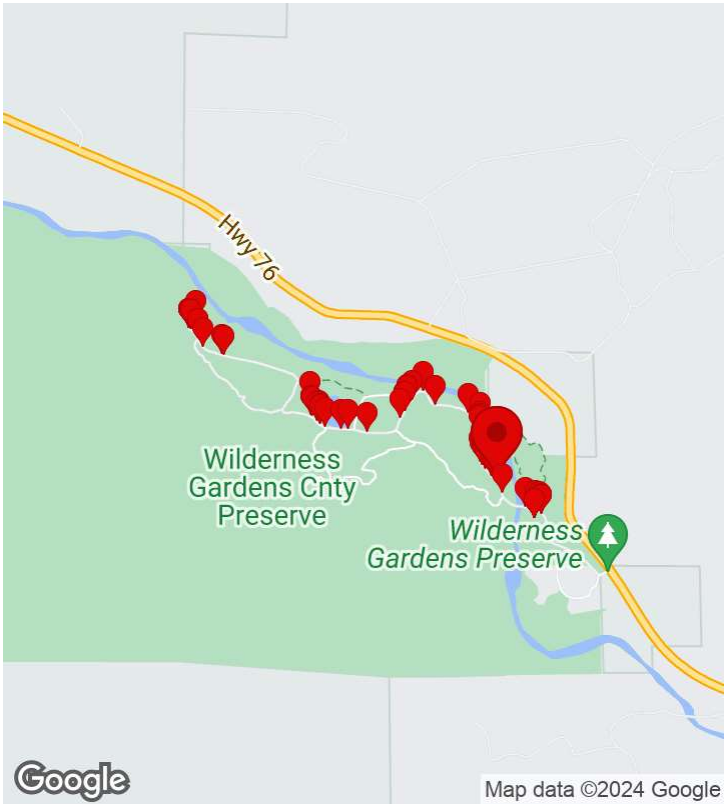
Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Pallid/Townsends Bat

8/12/2024, 7:13:22 AM UTC



CREATED

7/12/2024, 2:07:10 AM UTC
by SC Fulcrum18

UPDATED

8/12/2024, 7:13:22 AM UTC
by SC Fulcrum11

LOCATION

33.349588, -117.028665

Parent Form

Project Name:	TMP Monitoring ▸ Pallid/Townsends Bat
Preserve/Park Name	Wilderness Gardens
General Survey Type	TMP Monitoring
Specific Survey Type	Bat Echo Meter Survey
Observer/Surveyor:	Karla Alcaraz
Assistant Observer/Surveyor:	Amy Orduño-Baez
Date:	July 11, 2024

START Weather Details:

Start - Time:	19:07
Start - Temperature:	79.7
Start - Wind Direction From (select one):	NW
Start - Low Wind Speed:	1.2
Start - High Wind Speed:	4.6
Start - Average Wind Speed:	1.7
Start - Cloud Cover (%):	0
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Start - Notes (if applicable):	Clear for night survey.

END Weather Details:

Time Out:	21:12
End - Temperature:	72.9
End - Wind Direction From (select one):	NW
End - Low Wind Speed:	1.1
End - High Wind Speed:	2.9
End - Average Wind Speed:	0.9
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	Good
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	

Notes	
Observation Type:	Bird, Mammal, Reptile, Amphibian, Invertebrate

Photos

Amphibian

Amphibian Observation: (3 Items)

Amphibian Observation: - 1. 1 record

Amphibian (Common or Scientific Name):	American Bullfrog; Lithobates catesbeianus
Is the Amphibian Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Amphibian:	
Notes:	

Amphibian Observation: - 2. 1 record

Amphibian (Common or Scientific Name):	Western Toad; Anaxyrus boreas
Is the Amphibian Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Amphibian:	
Notes:	

Amphibian Observation: - 3. 1 record

Amphibian (Common or Scientific Name):	Baja California Treefrog; Pseudacris hypochondriaca
Is the Amphibian Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Amphibian:	
Notes:	

Bird

Bird Observation: (17 Items)

Bird Observation: - 1. 1 record

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 2. 1 record

Bird (Common or Scientific Name):	Northern Mockingbird; Mimus polyglottos; NOMO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	

Notes:	

Bird Observation: - 4. 1 record

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record

Bird (Common or Scientific Name):	House Finch; Haemorhous mexicanus; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record

Bird (Common or Scientific Name):	American Robin; Turdus migratorius; AMRO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record

Bird (Common or Scientific Name):	Common Raven; Corvus corax; CORA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record

Bird (Common or Scientific Name):	Ash-throated Flycatcher; Myiarchus cinerascens; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record

Bird (Common or Scientific Name):	Acorn Woodpecker; Melanerpes formicivorus; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	

Notes:	

Bird Observation: - 13. 1 record

Bird (Common or Scientific Name):	Phainopepla; Phainopepla nitens; PHAI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record

Bird (Common or Scientific Name):	American Kestrel; Falco sparverius; AMKE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 16. 1 record

Bird (Common or Scientific Name):	Great Horned Owl; Bubo virginianus; GHOW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Bird Observation: - 17. 1 record

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Bird:	
Notes:	

Invertebrate

Invertebrate Observation: (4 Items)

Invertebrate Observation: - 1.

Invertebrate (Common or Scientific Name):	
Other Invertebrate Species	Wolf spider (Family Lycosidae)
Is the Invertebrate Sensitive ?	No
Is the Invertebrate Sensitive ?	
Sub-Species Info:	

Invertebrate Observation: - 2.

Invertebrate (Common or Scientific Name):	
Other Invertebrate Species	Pogonomyrmex rugosus
Is the Invertebrate Sensitive ?	No
Is the Invertebrate Sensitive ?	
Sub-Species Info:	

Invertebrate Observation: - 3.

Invertebrate (Common or Scientific Name):	
Other Invertebrate Species	Paruroctonus silvestrii
Is the Invertebrate Sensitive ?	No
Is the Invertebrate Sensitive ?	
Sub-Species Info:	

Invertebrate Observation: - 4.

Invertebrate (Common or Scientific Name):	
Other Invertebrate Species	Eleodes sp. (desert stink beetles)
Is the Invertebrate Sensitive ?	No
Is the Invertebrate Sensitive ?	
Sub-Species Info:	

Photo(s) of Invertebrate:

Notes:	

Mammal

Mammal Observation: (2 Items)

Mammal Observation: - 1. 1 record

Mammal (Common or Scientific Name):	Desert Cottontail; Sylvilagus audubonii
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Photo(s) of Mammal:

Notes:	

Mammal Observation: - 2. 1 record

Mammal (Common or Scientific Name):	California Ground Squirrel; Ostospermophilus beecheyi
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A

Photo(s) of Mammal:

Notes:	

Reptile

Reptile Observation: (2 Items)

Reptile Observation: - 1. 1 record

Reptile (Common or Scientific Name):	Western Fence Lizard; Sceloporus occidentalis
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Reptile:	
Notes:	

Reptile Observation: - 2. 1 record

Reptile (Common or Scientific Name):	Western Rattlesnake; Crotalus oreganus
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Reptile:	
Notes:	

Bat Echo Meter Survey Details

Survey Station/Location (number)	Wilderness Gardens
Survey Duration (minutes)	60
General Notes (detectability, habitat, etc.)	SM started collecting data at 8000. First bats seen at 8008.
Photos	

Observation (44 Items)

Observation - 1. Silver-haired bat (Lasionycteris noctivagans)

Species Observed	Silver-haired bat (Lasionycteris noctivagans)
Observation Notes	24/30 2009

Observation - 2. Big brown bat (Eptesicus fuscus)

Species Observed	Big brown bat (Eptesicus fuscus)
Observation Notes	40/124 2010, 18/89 2010, 15/76 2010, 6/40 2010, observed 3 plus

Observation - 3. Silver-haired bat (Lasionycteris noctivagans)

Species Observed	Silver-haired bat (Lasionycteris noctivagans)
Observation Notes	2 observed 2011 16/28, 4/5, 15/36, 6/13, 69/115, 77/134, 13/19

Observation - 4. Big brown bat (Eptesicus fuscus)

Species Observed	Big brown bat (Eptesicus fuscus)
Observation Notes	2012 2 observed

Observation - 5. Mexican free-tailed bat (Tadarida brasiliensis)

Species Observed	Mexican free-tailed bat (Tadarida brasiliensis)
Observation Notes	11/20 2013, 4/4 2013

Observation - 6. Mexican free-tailed bat (Tadarida brasiliensis)

Species Observed	Mexican free-tailed bat (Tadarida brasiliensis)
Observation Notes	2/2 likely noise 2027

Observation - 7. Pallid bat (Antrozous pallidus)

Species Observed	Pallid bat (Antrozous pallidus)
Observation Notes	2/3 2028

Observation - 8. Big brown bat (Eptesicus fuscus)

Species Observed	Big brown bat (Eptesicus fuscus)
Observation Notes	36/103 2029

Observation - 9. Big brown bat (Eptesicus fuscus)

Species Observed	Big brown bat (Eptesicus fuscus)
Observation Notes	2/9 2030

Observation - 10. California myotis (Myotis californicus)

Species Observed	California myotis (Myotis californicus)
Observation Notes	10/12 2031

Observation - 11. Western small-footed myotis (Myotis ciliolabrum)

Species Observed	Western small-footed myotis (Myotis ciliolabrum)
Observation Notes	2031 46/73

Observation - 12. Yuma myotis (Myotis yumanensis)

Species Observed	Yuma myotis (Myotis yumanensis)
Observation Notes	2/3, 56/68, 20/15, 11/17, 9/28 2033

Observation - 13. Yuma myotis (Myotis yumanensis)

Species Observed	Yuma myotis (Myotis yumanensis)
Observation Notes	33/50 2037

Observation - 14. Yuma myotis (Myotis yumanensis)

Species Observed	Yuma myotis (Myotis yumanensis)
Observation Notes	8/16 2038

Observation - 15. Silver-haired bat (Lasionycteris noctivagans)

Species Observed	Silver-haired bat (Lasionycteris noctivagans)
Observation Notes	36/42 2040

Observation - 16. Western yellow bat (Lasiurus xanthinus)

Species Observed	Western yellow bat (Lasiurus xanthinus)
Observation Notes	18/37 2045

Observation - 17. Silver-haired bat (Lasionycteris noctivagans)

Species Observed	Silver-haired bat (Lasionycteris noctivagans)
Observation Notes	6/7 2046

Observation - 18. Hoary bat (Lasiurus cinereus)

Species Observed	Hoary bat (Lasiurus cinereus)

Observation Notes	1/2 likely noise 2047

Observation - 19. Big brown bat (Eptesicus fuscus)

Species Observed	Big brown bat (Eptesicus fuscus)
Observation Notes	3/8, 3/5 2051

Observation - 20. Silver-haired bat (Lasionycteris noctivagans)

Species Observed	Silver-haired bat (Lasionycteris noctivagans)
Observation Notes	11/16 2059

Observation - 21. Yuma myotis (Myotis yumanensis)

Species Observed	Yuma myotis (Myotis yumanensis)
Observation Notes	54/83 2059

Observation - 22. Greater mastiff bat (Eumops perotis)

Species Observed	Greater mastiff bat (Eumops perotis)
Observation Notes	2102 4/7, 4/5

Observation - 23. Mexican free-tailed bat (Tadarida brasiliensis)

Species Observed	Mexican free-tailed bat (Tadarida brasiliensis)
Observation Notes	17/37 2104

Observation - 24. California myotis (Myotis californicus)

Species Observed	California myotis (Myotis californicus)
Observation Notes	1/4 2105

Observation - 25. Yuma myotis (Myotis yumanensis)

Species Observed	Yuma myotis (Myotis yumanensis)
Observation Notes	29/75 2105

Observation - 26. Pallid bat (Antrozous pallidus)

Species Observed	Pallid bat (Antrozous pallidus)
Observation Notes	32/70 2106

Observation - 27. Big brown bat (Eptesicus fuscus)

Species Observed	Big brown bat (Eptesicus fuscus)
Observation Notes	41/66, 14/29 2106

Observation - 28. Mexican free-tailed bat (Tadarida brasiliensis)

Species Observed	Mexican free-tailed bat (Tadarida brasiliensis)
Observation Notes	38/64, 19/32 2107

Observation - 29. California myotis (Myotis californicus)

Species Observed	California myotis (Myotis californicus)
Observation Notes	8/11 2033

Observation - 30. Cave myotis (Myotis velifer)

Species Observed	Cave myotis (Myotis velifer)
Observation Notes	2035 1/2 likely noise

Observation - 31. Western yellow bat (Lasiurus xanthinus)

Species Observed	Western yellow bat (Lasiurus xanthinus)
Observation Notes	2036 2/2

Observation - 32. Western yellow bat (Lasiurus xanthinus)

Species Observed	Western yellow bat (Lasiurus xanthinus)
Observation Notes	2/2 2037

Observation - 33. Silver-haired bat (Lasionycteris noctivagans)

Species Observed	Silver-haired bat (Lasionycteris noctivagans)
Observation Notes	2042 1/3

Observation - 34. Hoary bat (Lasiurus cinereus)

Species Observed	Hoary bat (Lasiurus cinereus)
Observation Notes	2042 1/3

Observation - 35. Silver-haired bat (Lasionycteris noctivagans)

Species Observed	Silver-haired bat (Lasionycteris noctivagans)
Observation Notes	2043 1/2

Observation - 36. Mexican free-tailed bat (Tadarida brasiliensis)

Species Observed	Mexican free-tailed bat (Tadarida brasiliensis)
Observation Notes	8/19 2043

Observation - 37. Silver-haired bat (Lasionycteris noctivagans)

Species Observed	Silver-haired bat (Lasionycteris noctivagans)
Observation Notes	2043 7/15

Observation - 38. Hoary bat (Lasiurus cinereus)

Species Observed	Hoary bat (Lasiurus cinereus)
Observation Notes	2043 1/3

Observation - 39. Silver-haired bat (Lasionycteris noctivagans)

Species Observed	Silver-haired bat (Lasionycteris noctivagans)
Observation Notes	2045 3/3

Observation - 40. Silver-haired bat (Lasionycteris noctivagans)

Species Observed	Silver-haired bat (Lasionycteris noctivagans)
Observation Notes	8/11 2045

Observation - 41. Mexican free-tailed bat (Tadarida brasiliensis)

Species Observed	Mexican free-tailed bat (Tadarida brasiliensis)

Observation Notes	2049 1/2

Observation - 42. California myotis (Myotis californicus)

Species Observed	California myotis (Myotis californicus)
Observation Notes	2050 1/2

Observation - 43. Western yellow bat (Lasiurus xanthinus)

Species Observed	Western yellow bat (Lasiurus xanthinus)
Observation Notes	1/2 2057 Likely noise

Observation - 44. Western yellow bat (Lasiurus xanthinus)

Species Observed	Western yellow bat (Lasiurus xanthinus)
Observation Notes	2103 1/3

I-2 Threat Assessment Forms

Scientific Name: Antrozous pallidus / Corynorhinus townsendii *Common Name: Pallid Bat / Townsend's big-eared bat*

MSP Occurrence ID: *New MSP Occurrence? Yes:____, No:____, Unknown:____*

Sample Point #: *New Sample Point? Yes:____, No:____, Unknown:____*

Occurrence Name: *CNDDB EO#:* *Translocated? Yes:____, No:____, Unknown:____*

Preserve: Mt Olympus

Land Owner: County of San Diego, DPR *Land Manager:*

Surveyors & Affiliation: Jaclyn Catino-Davenport (ESA), Karla Alcaraz (ESA)

Date: July 3, 2024 *Time Start: 1929*

I. SAMPLE PLOT INFORMATION. *Count # plants in 10m radius sample plot, see p. 4 for category definitions for phenology, herbivory, disease & stunted growth. Record notes on p. 3.*

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?_____Yes_____No

II. SAMPLE PLOT LOCATION & SITE PHOTOMONITORING - *consult SDMMP list of GPS coordinates for plot center and photo locations. Enter here only if new habitat plot location or to make a correction to coordinates in list provided.*

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 Up or Down Photo #

E:_____N:_____ _____ _____ _____ _____ _____ _____

Photo Location 2 [Coordinates] Direction (facing) Height (m) Camera Angle Up or Down Photo #

III. SAMPLE PLOT ASSESSMENT - *Assess habitat covariates in **10m radius sample t 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.*

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 (≥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 (≥ 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 ***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.*

Species	% Cover	Species	% Cover

Bare Ground:_____Cryptogamic Soil Crust:_____ Rock:_____ Litter:_____

Water:_____ Total Live Vegetation:_____ Dead Shrubs:_____ Total Cover:_____(∑ =100%)

Scientific Name: Antrozous pallidus / Corynorhinus townsendii | *MSP Occurrence ID:*

Preserve: Mt. Olympus | *Occurrence Name:*

Date: July 3, 2024 | *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, Rural Development

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 exent, and 7 = disturbance occurs within ≥75% of maximum extent.

Non-Native Forbs	3	Feral Pig Activity	1	Erosion	4
Non-Native Grasses	3	Trampling	1	Urban Runoff	1
Non-Native Woody Plants	3	Vandalism	1	Slope Movement	1
Competitive Native Plants	3	Grazing (Y/N/UNK)	Unknown	Soil Compaction	1
Dumping/Trash	1	Historic Agriculture (Y/N/Unk)	Unknown		
Encampments	1	Altered Hydrology	1		

Fuel Modification Zone/Fire Break 1

Road Construction/Maintenance: 1 If Observed, Briefly Describe: _____

Vegetation Clearing: 3 If Observed, Briefly Describe:_____

Restoration Project (Impacts): 1 If Observed, Briefly Describe: _____

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? 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: No Dog: No 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: July 3, 2024

VI. MANAGEMENT RECOMMENDATIONS

Continue to reduce potential illegal access to closed trails.

Reduce non-native plant species along trails, roads, disturbed areas that to provide more foraging opportunities for bats.

Clean up/remove fallen trees along trails.

VII. MANAGEMENT ACTIONS IN LAST YEAR

Stopping illegal access where trails are coming in from BLM land at the top of the Preserve.

VIII. CNDDB SPECIES DETECTED & NOTES

List any sensitive plant or animal species to add to the CNDDB:

N/A

Time Finish: 2151

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 = ≥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 = ≥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 = ≥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.

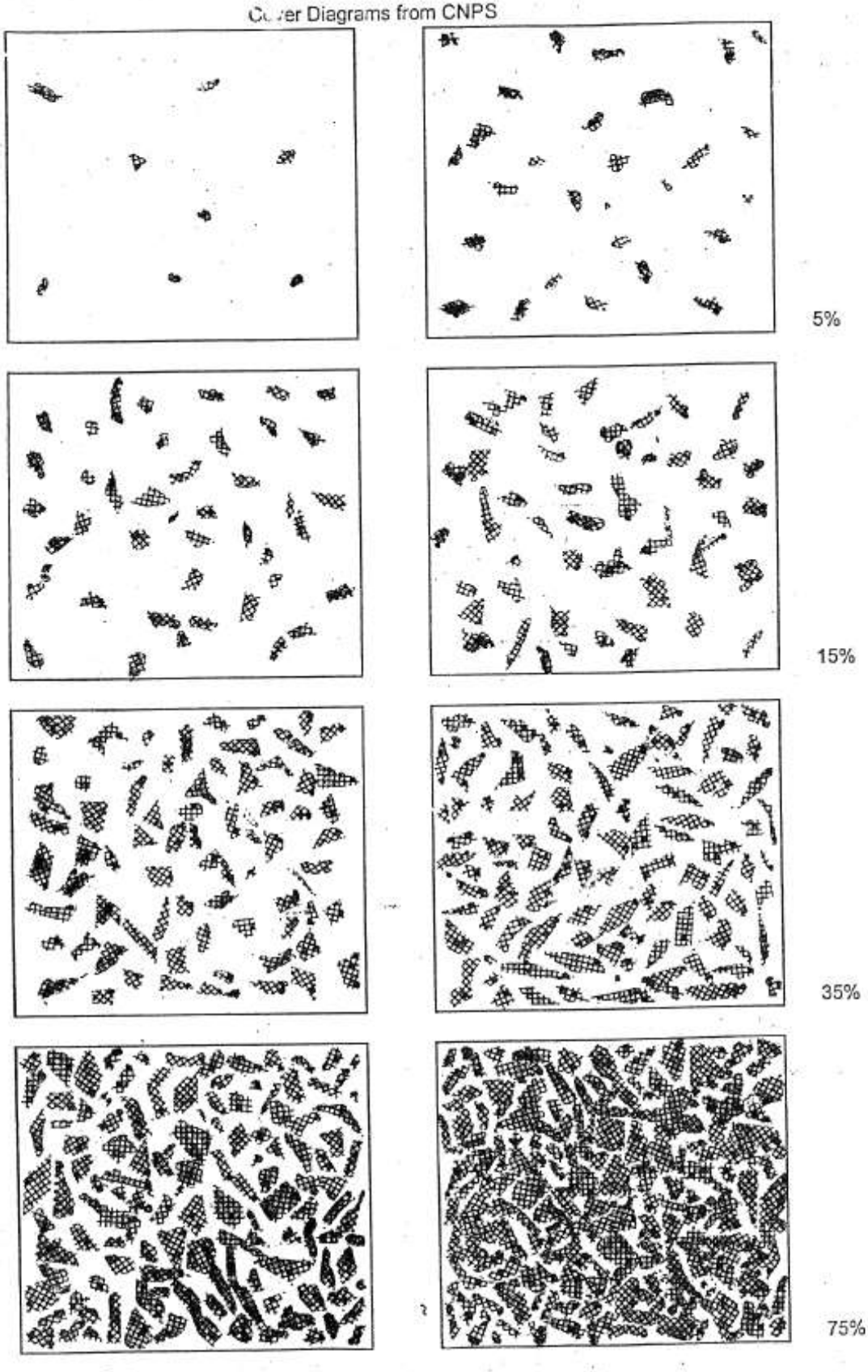
5 = Disturbance occurs in 25% to <50% of area within maximum extent.

6 = Disturbance occurs 50% to <75% of area within maximum extent.

7 = Disturbance occurs ≥75% of area within maximum extent.

CNPS Cover Diagram Page 5

Cover Diagrams from CNPS



Scientific Name: Antrozous pallidus / Corynorhinus townsendii *Common Name: Pallid Bat / Townsend's big-eared bat*

MSP Occurrence ID: *New MSP Occurrence? Yes:____, No:____, Unknown:____*

Sample Point #: *New Sample Point? Yes:____, No:____, Unknown:____*

Occurrence Name: *CNDDB EO#:* *Translocated? Yes:____, No:____, Unknown:____*

Preserve: Hellhole Canyon

Land Owner: County of San Diego, DPR *Land Manager:*

Surveyors & Affiliation: Jaclyn Catino-Davenport (ESA), Karla Alcaraz (ESA)

Date: July 10, 2024 *Time Start: 1921*

I. SAMPLE PLOT INFORMATION. *Count # plants in 10m radius sample plot, see p. 4 for category definitions for phenology, herbivory, disease & stunted growth. Record notes on p. 3.*

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?_____Yes_____No

II. SAMPLE PLOT LOCATION & SITE PHOTOMONITORING - *consult SDMMP list of GPS coordinates for plot center and photo locations. Enter here only if new habitat plot location or to make a correction to coordinates in list provided.*

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 Up or Down Photo #

E:_____N:_____ _____ _____ _____ _____ _____ _____

Photo Location 2 [Coordinates] Direction (facing) Height (m) Camera Angle Up or Down Photo #

III. SAMPLE PLOT ASSESSMENT - *Assess habitat covariates in **10m radius sample t 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.*

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 (≥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 (≥ 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 ***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.*

Species	% Cover	Species	% Cover

Bare Ground:_____Cryptogamic Soil Crust:_____ Rock:_____ Litter:_____

Water:_____ Total Live Vegetation:_____ Dead Shrubs:_____ Total Cover:_____(∑ =100%)

Scientific Name: Antrozous pallidus / Corynorhinus townsendii *MSP Occurrence ID:*

Preserve: Hellhole Canyon *Occurrence Name:*

Date: July 10, 2024 *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: Rural Development, 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 exent, and 7 = disturbance occurs within ≥75% of maximum extent.

Non-Native Forbs	3	Feral Pig Activity	1	Erosion	3
Non-Native Grasses	3	Trampling	1	Urban Runoff	1
Non-Native Woody Plants	3	Vandalism	1	Slope Movement	1
Competitive Native Plants	3	Grazing (Y/N/UNK)	Unknown	Soil Compaction	1
Dumping/Trash	1	Historic Agriculture (Y/N/Unk)	Unknown		
Encampments	1	Altered Hydrology	1		

Fuel Modification Zone/Fire Break 1

Road Construction/Maintenance: 1 If Observed, Briefly Describe: _____

Vegetation Clearing: 3 If Observed, Briefly Describe:_____

Restoration Project (Impacts): 1 If Observed, Briefly Describe: _____

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? 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): Escondido Canal

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: July 10, 2024

VI. MANAGEMENT RECOMMENDATIONS

Continue to reduce potential illegal access to closed trails.

VII. MANAGEMENT ACTIONS IN LAST YEAR

Reducing unauthorized/illegal access to closed trails.

VIII. CNDDB SPECIES DETECTED & NOTES

List any sensitive plant or animal species to add to the CNDDB:

Time Finish: 2136

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 = ≥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 = ≥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 = ≥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.

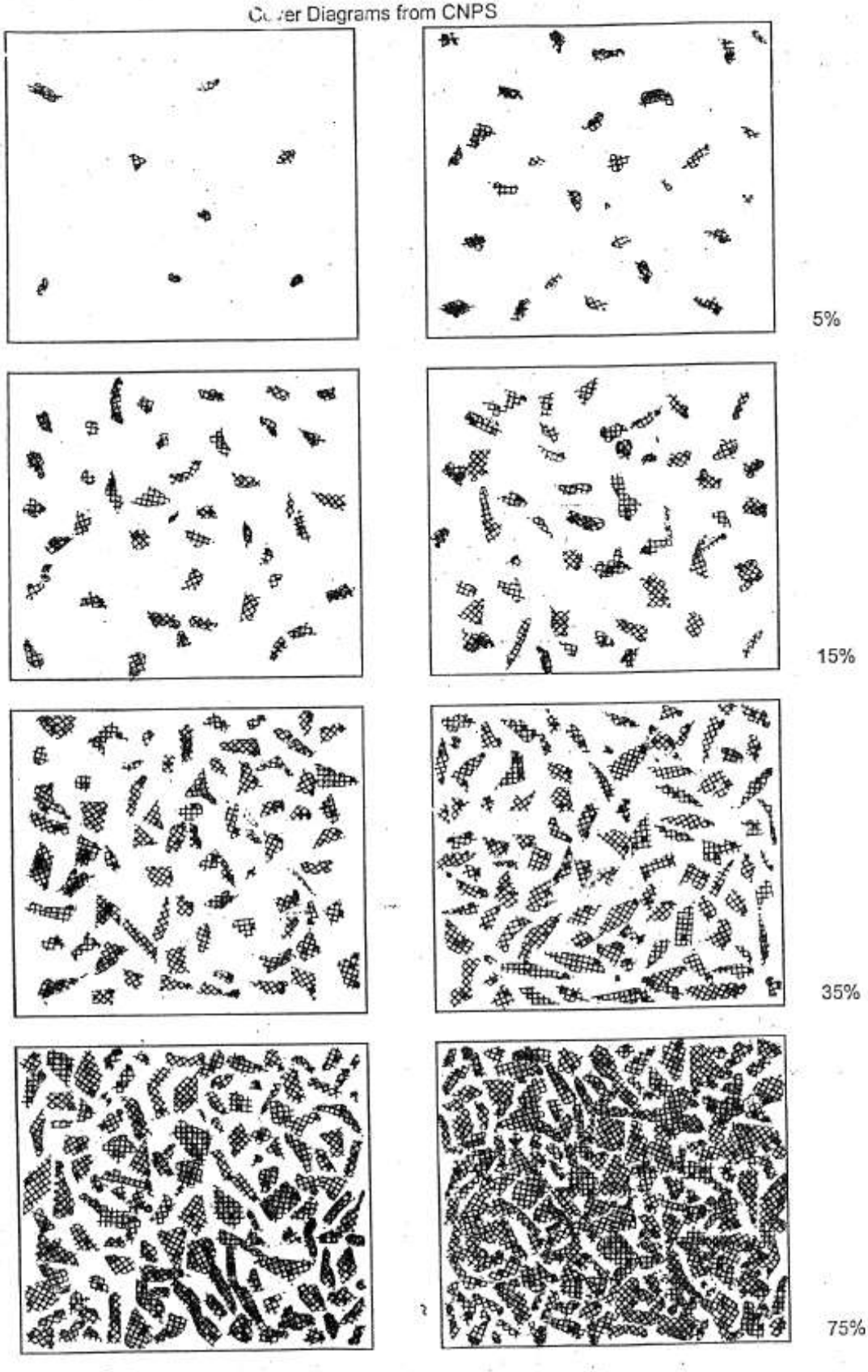
5 = Disturbance occurs in 25% to <50% of area within maximum extent.

6 = Disturbance occurs 50% to <75% of area within maximum extent.

7 = Disturbance occurs ≥75% of area within maximum extent.

CNPS Cover Diagram Page 5

Cover Diagrams from CNPS



Scientific Name: Antrozous pallidus / Corynorhinus townsendii *Common Name: Pallid Bat / Townsend's big-eared bat*

MSP Occurrence ID: *New MSP Occurrence? Yes:____, No:____, Unknown:____*

Sample Point #: *New Sample Point? Yes:____, No:____, Unknown:____*

Occurrence Name: *CNDDB EO#:* *Translocated? Yes:____, No:____, Unknown:____*

Preserve: Wilderness Gardens

Land Owner: County of San Diego, DPR *Land Manager:*

Surveyors & Affiliation: Karla Alcaraz (ESA), Amy Orduño-Baez (ESA)

Date: July 11, 2024 *Time Start: 1907*

I. SAMPLE PLOT INFORMATION. *Count # plants in 10m radius sample plot, see p. 4 for category definitions for phenology, herbivory, disease & stunted growth. Record notes on p. 3.*

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?_____Yes_____No

II. SAMPLE PLOT LOCATION & SITE PHOTOMONITORING - *consult SDMMP list of GPS coordinates for plot center and photo locations. Enter here only if new habitat plot location or to make a correction to coordinates in list provided.*

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 Up or Down Photo #

E:_____N:_____ _____ _____ _____ _____ _____ _____

Photo Location 2 [Coordinates] Direction (facing) Height (m) Camera Angle Up or Down Photo #

III. SAMPLE PLOT ASSESSMENT - *Assess habitat covariates in* ***10m radius sample t 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.*

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 (≥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 (≥ 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 ***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.*

Species	% Cover	Species	% Cover

Bare Ground:_____Cryptogamic Soil Crust:_____ Rock:_____ Litter:_____

Water:_____ Total Live Vegetation:_____ Dead Shrubs:_____ Total Cover:_____(∑ =100%)

Scientific Name: Antrozous pallidus / Corynorhinus townsendii | *MSP Occurrence ID:*

Preserve: Wilderness Gardens | *Occurrence Name:*

Date: July 11, 2024 | *Surveyors & Affiliation/Agency: Karla Alcaraz (ESA), Amy Orduño-Baez (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, Rural Development, Orchard

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 exent, and 7 = disturbance occurs within ≥75% of maximum extent.

Non-Native Forbs	3	Feral Pig Activity	1	Erosion	1
Non-Native Grasses	4	Trampling		Urban Runoff	3
Non-Native Woody Plants	3	Vandalism		Slope Movement	1
Competitive Native Plants	3	Grazing (Y/N/UNK)	Unknown	Soil Compaction	1
Dumping/Trash	1	Historic Agriculture (Y/N/Unk)	Yes		
Encampments	1	Altered Hydrology	3		

Fuel Modification Zone/Fire Break 1

Road Construction/Maintenance: 1 If Observed, Briefly Describe: _____

Vegetation Clearing: 3 If Observed, Briefly Describe:_____

Restoration Project (Impacts): 1 If Observed, Briefly Describe: _____

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? Unknown

Disturbance from Trails (authorized & unauthorized)__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: July 11, 2024

VI. MANAGEMENT RECOMMENDATIONS

Continue reducing vegetation height within the retention pond to allow more open areas over the water for bats to drink/forage from.

VII. MANAGEMENT ACTIONS IN LAST YEAR

Reducing vegetation height within the retention pond to allow more open areas over the water for bats to drink/forage from.

VIII. CNDDB SPECIES DETECTED & NOTES

List any sensitive plant or animal species to add to the CNDDB:

Time Finish: 21:12

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 = ≥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 = ≥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 = ≥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.

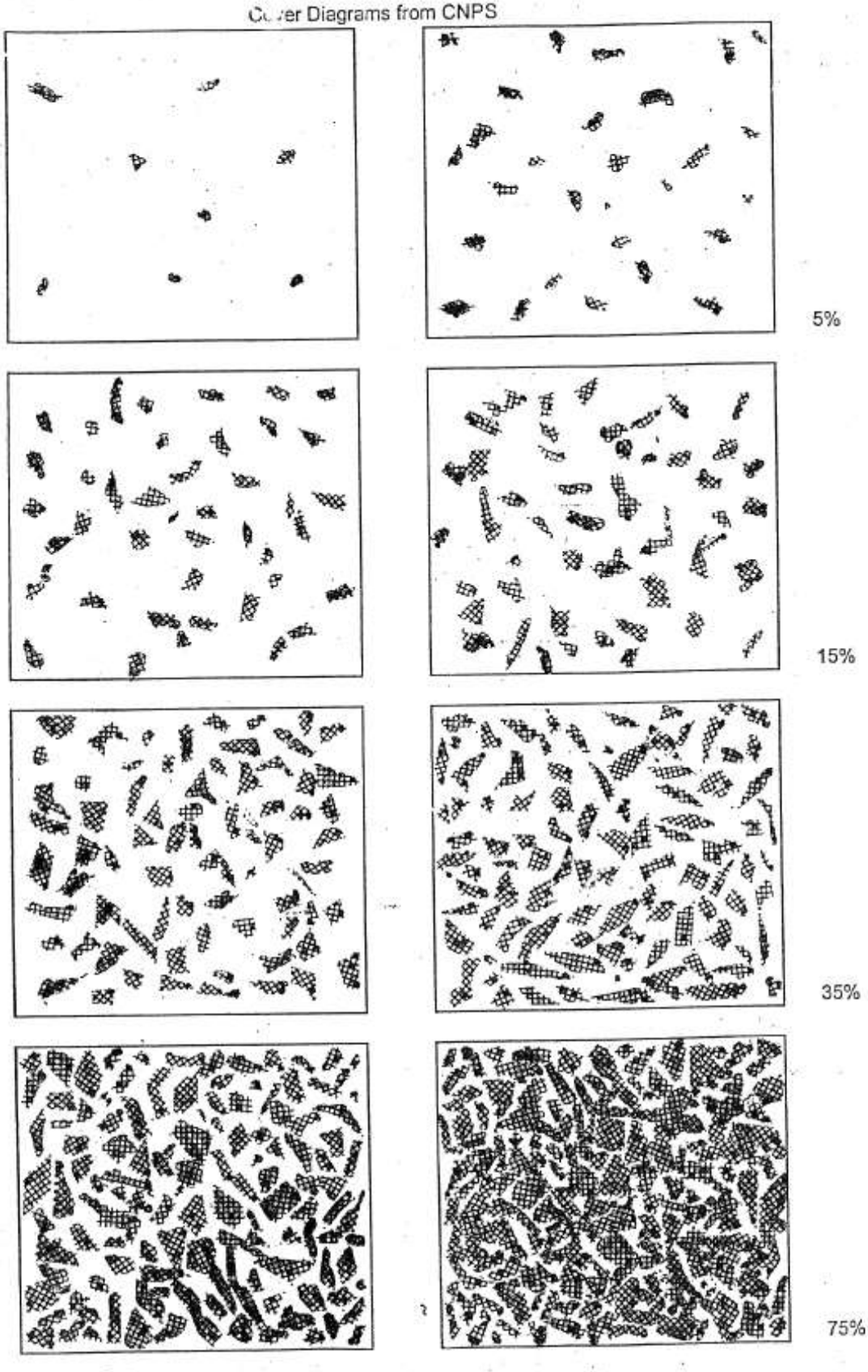
5 = Disturbance occurs in 25% to <50% of area within maximum extent.

6 = Disturbance occurs 50% to <75% of area within maximum extent.

7 = Disturbance occurs ≥75% of area within maximum extent.

CNPS Cover Diagram Page 5

Cover Diagrams from CNPS



I-3 Representative Photograph

Mount Olympus County Preserve Invasive Non-Native Plants Representative Photograph

Photo 1. Invasive non-native plant cover, such as grasses, has increased in density along dirt trails and roads within Mount Olympus County Preserve, reducing suitable foraging habitat for pallid bats.

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Appendix J

Residual Dry Matter Monitoring Report

J-1 Ramona Grasslands County Preserve Residual Dry Matter Monitoring Report

ESA

2355 Northside Drive
Suite 100
San Diego, CA 92108
619.719.4200 phone
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esassoc.com

December 3, 2024

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 2024

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 2024 at 58 predetermined vegetation 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**; see figures attached to the end of this report).

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*).

- 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.

Sunrise Cattle Company currently holds a grazing agreement with DPR. Through this grazing agreement, cattle were added to the Preserve in January 2024. The monthly AUM (animal unit months) reports from the grazing report are provided in **Table 1**.

TABLE 1
SUMMARY OF MONTHLY AUM REPORTS[1]

Management Unit	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024
1A	0	0	0	0	0	0	0	24	24
2A[2]	0	0	0	0	0	67	67	29	40
2B	30	30	30	30	30	0	0	67	45
3A	40	40[3]	0	0	0	0	0	0	0
3B	20	20	19	19	19	25	25	24	24
3C	0	0	0	0	0	0	0	0	0
3D	0	0	0	0	0	0	0	0	0
3E	0	0	0	0	0	0	0	0	0
4A	0	5 bulls[4]	5 bulls	5 bulls	5 bulls	5 bulls	5 bulls	5 bulls	5 bulls
4B	0	0	0	5 bulls	5 bulls	5 bulls	5 bulls	5 bulls	0[5]
4C	Not grazed	Not grazed	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	Not grazed	Not grazed

NOTES:

1 AUM = animal unit months.
2 Unit 2A was closed to cattle for pipeline infrastructure from January to May 2024.
3 40 AUMs were present from 2/1/24–2/15/24.
4 5 AUMs were brought in on 2/15/24.
5 0 cattle were present in Unit 4B during peak trail times for the safety of both hikers and cattle.

SOURCE: Sunrise Cattle Company 2024.

Methods

RDM monitoring for all 58 vegetation monitoring plots was conducted on September 11 and 12, 2024, by ESA biologists Amy Orduño-Baez, Brenda McMillan, Dillon Travis, and Karla Alcaraz (**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 then 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 samples in the ESA office located at 2355 Northside Drive, Suite 100, San Diego, California 92108. All samples were air-dried and weighed in grams using a digital scale. Biologists excluded the weight of 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) are 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 2024: wild oat (*Avena* spp.), brome grass (*Bromus* spp.), western ragweed (*Ambrosia psilostachya*), and short-pod mustard (*Hirschfeldia incana*). Wild oat and brome grass were collected during RDM sampling, while western ragweed and short-pod mustard 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*), California sagebrush (*Artemisia californica*), saltbush (*Atriplex* spp.), mule fat (*Baccharis salicifolia*), thistle (*Carduus* sp.), tocalote (*Centaurea melitensis*), tarweed (*Centromadia* sp.), stiffbranch bird's beak (*Cordylanthus rigidus*), doveweed (*Croton setiger*), Bermuda grass (*Cynodon dactylon*), saltgrass (*Distichlis spicata*), California buckwheat (*Eriogonum fasciculatum*), filaree (*Erodium* spp.), rattail sixweeks grass (*Festuca myuros*), Italian ryegrass (*Festuca perennis*), common sunflower (*Helianthus annus*), barley (*Hordeum* spp.), goldenbush (*Isocoma* sp.), prickly lettuce (*Lactuca serriola*), laurel sumac (*Malosma laurina*), oak (*Quercus* spp.), Goodding's black willow (*Salix gooddingii*), and vinegarweed (*Trichostema lanceolatum*). Bermuda grass, saltgrass, filaree, rattail sixweeks grass, Italian ryegrass, and barley were collected during RDM sampling, per the protocol (Bartolome et al. 2002).

Invasive Non-Native Species Incidental Observations

No high-priority invasive non-native plants or wildlife were observed incidentally during 2024 monitoring.

Special-Status Species Incidental Observations

Turkey vultures (*Cathartes aura*), a County of San Diego Group 1 species, were observed within management unit 2B. San Diego black-tailed jackrabbits (*Lepus californicus bennettii*), a County of San Diego Group 2 species and Multiple Species Conservation Program (MSCP)-covered species, were observed within management unit 2B. Additionally, a vermilion flycatcher (*Pyrocephalus rubinus flammeus*), California Department of Fish and Wildlife Species of Special Concern and a County of San Diego Group 1 species , was observed within management unit 4A. All incidental special-status species observations are depicted in **Figure 3**.

Residual Dry Matter Values and Recommendations

All management units, with the exception of 1A, 4A, and 4B, had RDM values higher than their target values. Management units 1A and 4A fell within their target RDM values, while management unit 4B had a lower RDM value than its target value. Results of the RDM analyses are depicted in Figure 3.

Most management units were above their target RDM values in 2024. This can be attributed to above-average annual rainfall. Ramona Airport reported approximately 13.5 inches of accumulated rainfall from January to September 2024 (NOAA 2024). This increased rainfall in 2024 follows 21.3 inches of rainfall in 2023 (NWS, NOAA 2024). Although 2024 received less rainfall compared to 2023, it still experienced considerable rainfall.

This variability in rainfall over recent years has significantly impacted vegetative growth and RDM levels. 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 2024 RDM values are summarized in **Table 3**. The results of the average RDM values from each of the individual RDM plots from 2011 through 2024 can be found in **Attachment A**.

Management Unit 1A

RDM levels in management unit 1A average 1,867 lb/acre, which is within the target RDM value range of 800 to 2,000 lb/acre in the Grazing Management Plan (Table 3). As prescribed by the Grazing Management Plan, target RDM values for management unit 1A are set to maintain and improve biodiversity for riparian pastures and federally listed arroyo toad habitat.

Cattle grazing should be maintained at its current levels within this management unit to achieve the target grazing intensity proposed by the Grazing Management Plan (800 to 2,000 lb/acre), which is beneficial for arroyo toad. Arroyo toad breeding season extends from February 1 to July 31; therefore, targeted grazing is recommended to occur between August and January. Targeted cattle grazing prevents overgrowth of riparian vegetation, as cattle will keep riparian vegetation at a mid-successional range (Hancock 2009), providing better habitat conditions for arroyo toad. Natural succession of riparian species and increases in density of riparian vegetation can create a loss of breeding habitat for arroyo toad (Hancock 2009; USFWS 2011). Arroyo toad prefers shallow pools and open, sandy stream terraces. This species uses adjacent upland habitat for feeding and shelter in the nonbreeding seasons (USFWS 2011).

Management Unit 2A

RDM levels in management unit 2A average 2,871 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 2025 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*) (California Rare Plant Rank [CRPR] 1B.2), southern tarplant (*Centromadia parryi* ssp. *australis*) (CRPR 1B.1), and graceful tarplant (*Holocarpha virgata subsp. elongata*) (CRPR 1B.2), were not observed during the 2024 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.

TABLE 3
SUMMARY OF 2024 RDM RESULTS

		Average RDM (lb/acre)														
Management Unit	**Target RDM Value**	**2011***	**2012***	**2013***	**2014***	**2015***	**2016***	**2017***	**2018***	**2019***	**2020**	**2021**	**2022**	**2023**	**2024**	**2024 Results**
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	1,333	1,867	Meets 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	3,886	2,871	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	2,881	2,086	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	2,447	1,700	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	2,193	1,720	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	3,600	2,311	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	2,667	5,244	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	6,858	3,300	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	1,800	833	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	1,294	756	Does not meet 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	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	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 2024.

Management Unit 2B

RDM levels in management unit 2B average 2,086 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 2025 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 2024 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 1,700 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.

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 2025 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 2024 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 1,720 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 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 (*Grindelia halli*) were not detected during 2024 surveys but were previously detected during 2023 and 2021 surveys, respectively. 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 2,311 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 (*Branchinecta sandiegonensis*) 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. Cattle grazing frequency and rotations should be carefully monitored to restrict access to vernal pool and playa habitat during the wet season[1] (typically November through March for Southern California), 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 through 2024. 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 5,244 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 target grazing intensity proposed by the Grazing Management Plan (800 to 1,500 lb/acre), which is beneficial for vernal pools. Cattle grazing

[1] The vernal pool wet season can generally be defined as the period between winter and early spring, typically November through March for Southern California. The start of the vernal pool wet season begins each year once a substantial precipitation event occurs (providing at least 0.5 inches) to wet the soil enough to start germination of vernal pool indicator species.

frequency and rotations should be carefully monitored to restrict access to vernal pool and playa habitat during the wet season[2] (typically November through March for Southern California), 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 and was not detected during the 2024 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 3,300 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 (*Salsola* sp.) and saltbush.

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 protocol (CNPS 2000) would provide detailed species composition and cover to the land manager and would capture the presence of biomass from invasive non-native 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 2024 surveys, but 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 833 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 2024

[2] The vernal pool wet season can generally be defined as the period between winter and early spring, typically November through March for Southern California. The start of the vernal pool wet season begins each year once a substantial precipitation event occurs (providing at least 0.5 inches) to wet the soil enough to start germination of vernal pool indicator species.

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 756 lb/acre, which is below 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 2024 surveys. Cattle grazing should be reduced 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 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 2024. This unit consists of southern mixed chaparral, disturbed southern mixed chaparral, and coastal sage scrub (ICF 2012). This unit should be monitored for potential 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 2024. This unit should be monitored for potential invasive non-native plant invasion.

Summary and Recommendations

All RDM values, except for management units 1A, 4A, and 4B, were above the target RDM values. Management units 1A, 4A, were within their target RDM values, while 4B RDM values were just below the target range. In 2024, RDM values in all management units except 1A and 3D decreased from 2023 results. Management unit 3D had the most significant increase in RDM value this season.

Most of management units were above their target RDM values in 2024; however, 2024 RDM values were generally lower than in 2023. Results were likely influenced by the accumulated rainfall in 2024 and the reinstatement of grazing in January 2023. Ramona Airport reported approximately 13.5 inches of accumulated rainfall from January to September 2024 compared to approximately 21.3 inches of accumulated rainfall from January to September 2023 (NWS, NOAA 2024). The significant rainfall from atmospheric river events in February contributed to the overall water availability. 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, drought conditions in 2021 and 2022, and above-average rainfall in 2023 and 2024) drive substantial variability in vegetative cover from year to year. As seen in Table 3 in the *Results* section, the general decrease in RDM values between 2023 and 2024 is likely due to the return of cattle on the Preserve.

Based on the annual RDM monitoring results, the following measures are recommended for all management units:

- Coordinate with the new grazing lessees to provide information on the conservation goals to be fulfilled by grazing on the Preserve and discuss grazing frequency, timing, rotation, and RDM targets to better guide annual grazing practices on the Preserve.
- 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 *Targeted Monitoring Plan* (ESA and ICF 2022).
- Continue active restoration of management unit 3E to remove invasive non-native plant 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 2018–2024 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 on 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 (2011) 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 *Targeted Monitoring Plan* (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[3] (typically November through March for Southern California), as well as when clay soils are still moist and malleable. Quantitative and qualitative monitoring frequency should follow the recommended frequencies in the *Targeted Monitoring Plan* (ESA and ICF 2022).

[3] The vernal pool wet season can generally be defined as the period between winter and early spring, typically November through March for southern California. The start of the vernal pool wet season begins each year once a substantial precipitation event occurs (providing at least 0.5 inches) to wet the soil enough to start germination of vernal pool indicator species.

- Conduct SKR surveys, per the *Targeted Monitoring Plan* (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 (714) 657-8690 or kalcaraz@esassoc.com.

Sincerely,

Karla Alcaraz
Biologist

Attachments:
Figure 1 – Preserve Location
Figure 2 – Monitoring Plot Locations
Figure 3 – RDM Plot Results
Attachment A – Results of 2011–2024 RDM Monitoring at the Preserve

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).

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 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). 2024. AgACIS for San Diego County – Climatological Data for RAMONA, CA. https://agacis.rcc-acis.org/.

National Weather Service, NOAA (NWS, NOAA). 2024. Temperature and Rainfall (RTP) Archive Map for Ramona, CA. https://www.weather.gov/source/sgx/RTP/text/ramona.html.

San Diego Natural History Museum. 2011. Plant Atlas Database. Available at http://www.sdplantatlas.org/. Accessed October 2021.

Sunrise Cattle Company. 2024. County of San Diego Ramona Grasslands Preserve 2024 Monthly AUM 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.

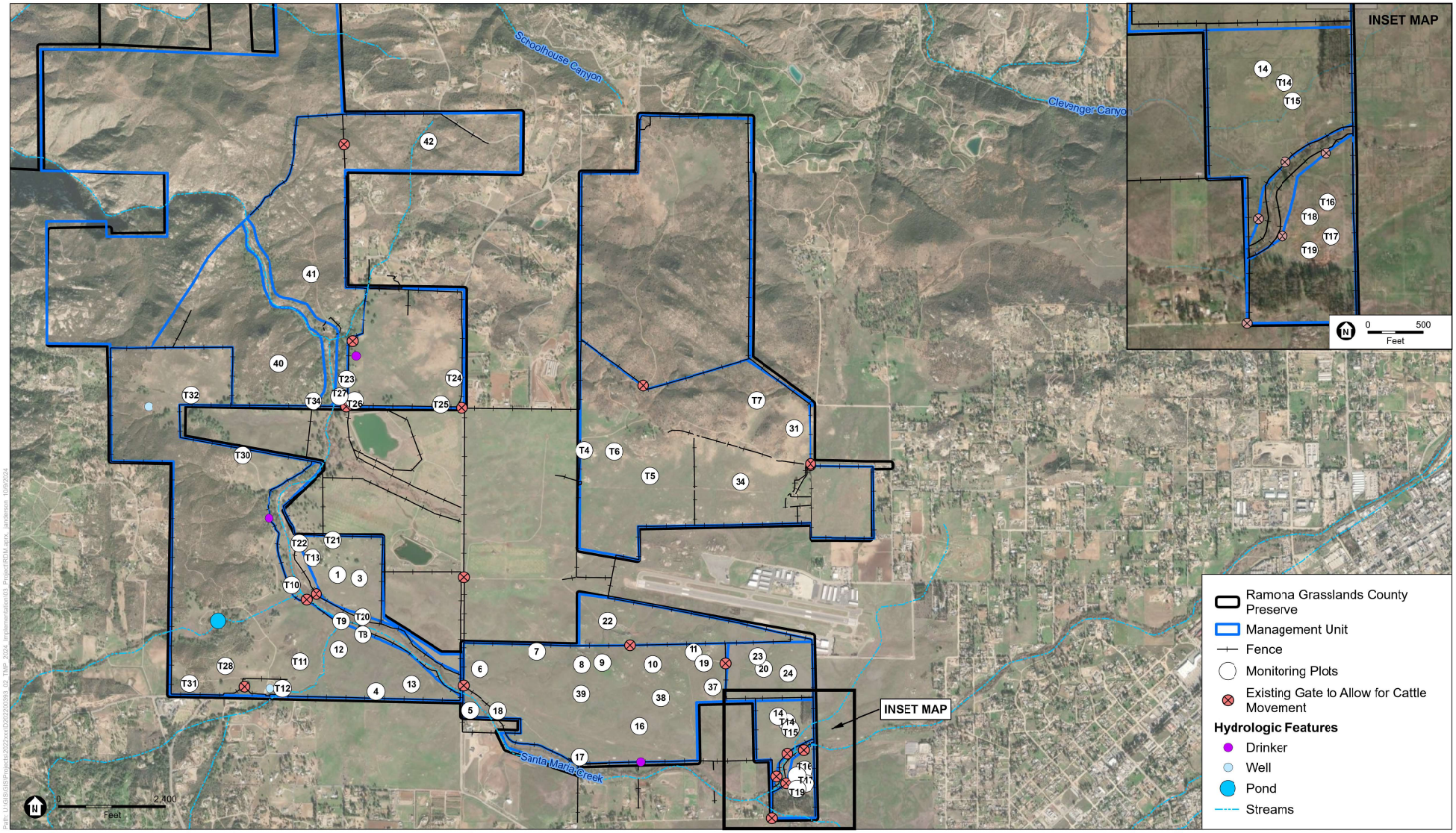
USFWS. 2020. *Endangered and Threatened Wildlife and Plants: Reclassification of Stephens' Kangaroo Rat from Endangered to Threatened With a Section 4(d) Rule*. Federal Register Volume 85, No. 161: 50991–51006.

SOURCE: ESRI

COSD DPR 569744 TO 04 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management
Ramona Grasslands County Preserve Fall 2024 Residual Dry Matter Monitoring Report

Figure 1
Preserve Location

ESA

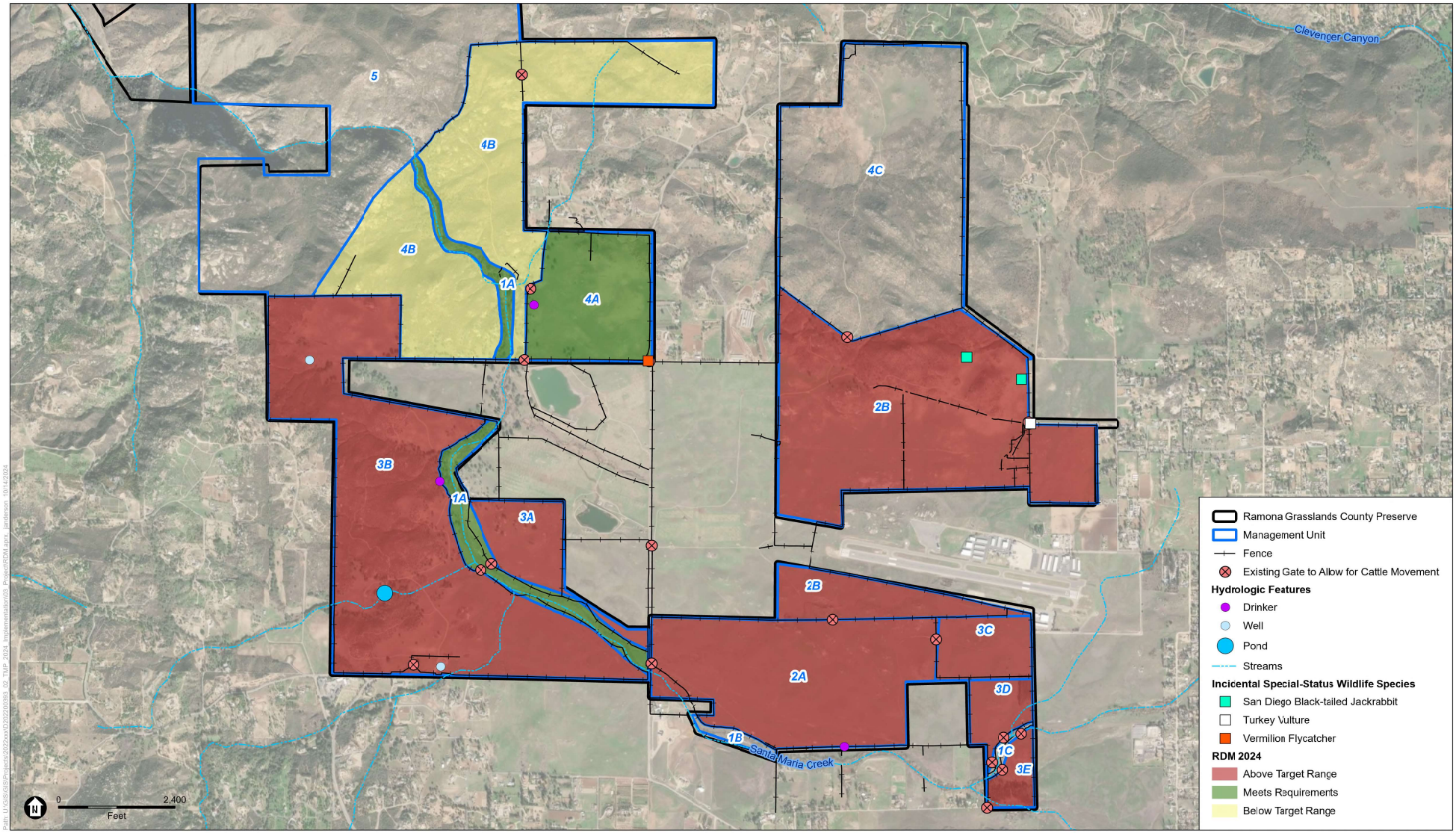


SOURCE: ESRI, AECOM 2017; ESA 2024

COSD DPR 569744 TO 04 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management
Ramona Grasslands County Preserve Fall 2024 Residual Dry Matter Monitoring Report

Figure 2
Monitoring Plot Locations

ESA



SOURCE: ESRI, AECOM 2017; ESA 2024

COSD DPR 569744 TO 04 – Implementation of Targeted Monitoring Plan – 2024 Resource-Specific Monitoring and Management
Ramona Grasslands County Preserve Fall 2024 Residual Dry Matter Monitoring Report

Figure 3
RDM Plot Results

ESA

Attachment A

Results of 2011–2024
RDM Monitoring at the Preserve

TABLE A-1
RESULTS OF 2011–2024 RDM MONITORING AT THE PRESERVE

Management Unit	Plot #	Date Collected	(grams) 2011	Pounds per Acre 2011	Date Collected	(grams) 2012	Pounds per Acre 2012	Date Collected	(grams) 2013	Pounds per Acre 2013	Date Collected	(grams) 2014	Pounds per Acre 2014	Date Collected	(grams) 2015	Pounds per Acre 2015	Date Collected	(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	Date Collected	Monitoring Plot Average (grams) 2023	Pounds per Acre 2023	Date Collected	Monitoring Plot Average (grams) 2024	Pounds per Acre 2024
	T9		51.3						2			2.4			4.8	480		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	9/11/2023	20.3	2033	9/11/2024	20.3	2033
			25									4.9			4.3	430		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	9/11/2023	19.7	1967	9/11/2024	10.0	1000
			70.7				2210		3			6.3			1.4	140		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	9/11/2023	0.0	0	9/11/2024	25.7	2567
	5		93.7												5.6	560		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	9/11/2023	21.7	2167	9/11/2024	25.0	2500
	6		83.3						15			0.5	50		5.9	590		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	9/11/2023	37.3	3733	9/11/2024	47.3	4733
	7		31						11			2.6			12.7			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	9/11/2023	38.7	3867	9/11/2024	39.7	3967
	8		66.7						22			5.4			17.5			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	9/11/2023	29.7	2967	9/11/2024	46.7	4667
	9		60.3						33			5.4			17.8			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	9/11/2023	67.7	6767	9/11/2024	35.7	3567
	10		44.7						17			3.7			4.5	450		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	9/11/2023	25.7	2567	9/11/2024	30.7	3067
	11		56						7.3			3.4			5.2	520		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	9/11/2023	25.7	2567	9/11/2024	28.7	2867
	16		60.7									2.3			5.6	560		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	9/11/2023	18.7	1867	9/11/2024	31.3	3133
	17		83.7									4.2			6.2	620		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	9/11/2023	66.7	6667	9/11/2024	47.3	4733
	18		73									2.9			13.2			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	9/11/2023	85.3	8533	9/11/2024	24.0	2400
	19		40						9.3			0.4	40		31.9			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	9/11/2023	21.7	2167	9/11/2024	13.0	1300
	37		56						7.6						10.3			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	9/11/2023	27.7	2767	9/11/2024	9.0	900
	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	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	9/11/2023	34.0	3400	9/11/2024	15.3	1533
	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	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	9/11/2023	43.7	4367	9/11/2024	8.3	833
	22		60						15			3.1			34.1			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	9/12/2023	56.3	5633	9/11/2024	58.0	5800
	31		26.3						3.6			4.6			7.7	770		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	9/12/2023	22.0	2200	9/12/2024	15.3	1533
	34		48.3						2			2			3.6	360		16	1600	10/25/2017	7.2	720	12/28/2018	0.33	33	10/15/2019	22.3	2333.3	10/29/2020	34.00	3400	10/12/2021	37.33	3733	9/13/2022	18.67	1867	9/12/2023	31.3	3133	9/12/2024	1.7	167
	T4		37.3						9			4.4			6.1	610		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	9/12/2023	15.3	1533	9/12/2024	6.7	667
	T5		39.7						10			0.7	70		21.9			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	9/12/2023	32.0	3200	9/12/2024	46.7	4667
	T6		24						19			3.9			2.1	210		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	9/12/2023	18.3	1833	9/12/2024	13.7	1367
	T7		41.3						6.7			2.4			3.2	320		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	9/12/2023	26.3	2633	9/12/2024	4.0	400
	1		36						4.6			1.1			3.3	330		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	9/12/2023	24.7	2467	9/11/2024	29.0	2900
	3		22.3						1			0.1	10		0.9	90		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	9/12/2023	37.7	3767	9/11/2024	28.0	2800
			50.3			50			4			2.8			1.3	130		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	9/12/2023	11.0	1100	9/11/2024	1.3	133
			17.7				3480		5			2.3			3.7	370		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	9/12/2023	21.3	2133	9/11/2024	10.7	1067
			24.3				810		4.6			0.5	50		2.7	270		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	9/11/2023	27.7	2767	9/11/2024	16.0	1600
	4		10			25			11			2.2			0.5	50		5.6	560	10/24/2017	5.73	573	12/27/2018	0.33	33	10/14/2019	18	1800	10/27/2020	16.67	1667	10/12/2021	36.00	3600	9/13/2022	17.33	1733	9/11/2023	28.0	2800	9/11/2024	18.0	1800
	12		25.7				2140		5.6			8.9			5.9	590		12.7	1270	10/24/2017	10.4	1040	12/27/2018	1.33	133	10/14/2019	8	800	10/27/2020	6.00	600	10/12/2021	32.00	3200	9/13/2022	37.33	3733	9/11/2023	22.0	2200	9/11/2024	24.0	2400
	13		36.7						25						4.9	490		18	1800	10/24/2017	8.47	847	12/27/2018	0.67	67	10/14/2019	0.7	66.7	10/27/2020	13.67	1367	10/12/2021	25.00	2500	9/13/2022	14.67	1467	9/11/2023	9.7	967	9/11/2024	14.0	1400
	T8		33.3						1.6			5.8			2.7	270		9.3	930	10/24/2017	9.33	933	12/27/2018	0.33	33	10/14/2019	12	1200	10/27/2020	26.00	2600	10/12/2021	23.67	2367	9/13/2022	17.00	1700	9/11/2023	20.7	2067	9/11/2024	34.7	3467
			29						0	0		0.6	60		4.1	410		6.7	670	10/24/2017	6.47	647	12/27/2018	0	0	10/14/2019	37.7	3766.7	10/27/2020	57.33	5733	10/12/2021	24.33	2433	9/13/2022	40.67	4067	9/11/2023	27.7	2767	9/11/2024	14.7	1467
			12.3						10			0.8	80		2.6	260		12	1200	10/24/2017	5.33	533	12/27/2018	0	0	10/14/2019	27	2700	10/28/2020	20.00	2000	10/12/2021	19.00	1900	9/13/2022	15.67	1567	9/11/2023	18.3	1833	9/11/2024	6.3	633
			28						4.6			2.1			2.9	290		0	0	10/24/2017	4.53	453	12/27/2018	0	0	10/14/2019	62.3	6233.3	10/28/2020	52.00	5200	10/12/2021	15.67	1567	9/13/2022	29.33	2933	9/11/2023	39.7	3967	9/11/2024	17.3	1733
			31.5						1.6			2.4			5.6	560		0	0	10/24/2017	11.67	1167	12/27/2018	0	0	10/15/2019	35.3	35833.3	10/27/2020	8.33	833	10/12/2021	22.33	2233	9/13/2022	3.00	300	9/11/2023	9.3	933	9/11/2024	1.0	100
			15						2.1			2.6			6.1	610		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	9/11/2023	4.7	467	9/11/2024	7.7	767
			30						2			3.3			3.2	320		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	9/11/2023	39.3	3933	9/11/2024	34.3	3433
	20		58						16			7.7			6.7	670		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	9/11/2023	32.7	3267	9/11/2024	14.7	1467
	23		41						7.7			7.9			5.4	540		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	9/11/2023	28.7	2867	9/11/2024	30.0	3000
	24		22.7						6.7			8.7			0	0		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	9/11/2023	46.7	4667	9/11/2024	24.7	2467
	14		93												0.1	10		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	9/11/2023	38.0	3800	9/11/2024	41.3	4133
			46.3						12						0.4	40		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	9/11/2023	14.0	1400	9/11/2024	50.7	5067
			66.3												10.6			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	9/11/2023	28.0	2800	9/11/2024	65.3	6533
			0	0			330		25			6.7			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	9/11/2023	136.7	13667	9/12/2024	51.7	5167
			0	0		0	0		22			8.5			27.4		*	*	*	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	9/11/2023	0.0	0	9/12/2024	0.0	0
			0	0			160		26						13.6		*	*	*	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	9/11/2023	84.3	8433	9/12/2024	80.3	8033
			0	0		0	0								6.9	690	*	*	*		0	0																				0.0	0
			35.3			24			22			0	0		5.5	550		0.7	70		5.17	517		1.33																		5.0	
			42.7									1.2			1.6	160		7	700		7.93	793		0.33	33																		7.0	
			45.7						29			1.8			8.3	830		19	1900			1317		0.67	67																			
			30.3									4.5			0.2	20		0	0		1.73	173		3.67			5	500																6.3	
			27.3									3.2			30.9			16.3	1630		7.23	723		0.33	33																			
			23			13			1.7			4.3			0.5	50		2.7	270		8.23	823		3.33																				5.7	
	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					0			0				0.0	0		0.0	0
	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																	3.0	
	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														7.3	733		3.0	