Updated Final

TARGETED MONITORING PLAN RESOURCE-SPECIFIC MONITORING & MANAGEMENT

2023 Annual Report

Prepared for
Department of Parks and Recreation
County of San Diego
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San Diego, CA 92123
Contact: Ms. Jennifer Price

March 2024

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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)
cm	centimeter
County	County of San Diego
DPR	Department of Parks and Recreation
ESA	Environmental Science Associates
FESA	federal Endangered Species Act
Field Maps	ArcGIS Field Maps mobile application
GPS	Global Positioning System
HCP	Habitat Conservation Plan
HDS	Harbison's dun skipper
lb/acre	pounds per acre
MBC	Mulligan Biological Consulting
MSCP	Multiple Species Conservation Program
MSP	Management and Monitoring Strategic Plan
NCCP	Natural Community Conservation Plan
RDM	residual dry matter
ROE	Right-of-Entry
SDMMP	San Diego Management and Monitoring Program
SKR	Stephens' kangaroo rat
SR	State Route
TMP	Targeted Monitoring Plan
UCANR	University of California Agriculture and Natural Resources
USACE	U.S. Army Corps of Engineers
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 update (ESA and ICF 2022).

The TMP was prepared by the County Department of Parks and Recreation (DPR), with review and input by the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) (collectively known as the Wildlife Agencies), along with review and input from the San Diego Management and Monitoring Program (SDMMP) 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 20 DPR parks and preserves for 22 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 2023 included habitat and resource-specific monitoring and adaptive management. Resource-specific monitoring was conducted in 12 DPR parks and preserves: Tijuana River Valley Regional Park, and Boulder Oaks, Del Dios Highlands, Furby-North, Hellhole Canyon, Lusardi Creek, Mount Olympus, Ramona Grasslands, Santa Margarita, Simon, Sycamore Canyon/Goodan Ranch, and Wilderness Gardens County Preserves. Resource-specific adaptive management was conducted in nine DPR parks and preserves: Tijuana River Valley Regional Park and Boulder Oaks, Furby-North, Hellhole Canyon, Lakeside Linkage, Lusardi Creek, Ramona Grasslands, Santa Margarita, and Sycamore Canyon/Goodan Ranch County Preserves.

Monitoring was conducted by Environmental Science Associates (ESA) for the following 15 species and habitats covered in 2023 for the MSCP or draft North County MSCP:

- Vernal pool and alkali playa habitats
- San Diego thornmint (*Acanthomintha ilicifolia*)
- Encinitas baccharis (*Baccharis vanessae*)
- San Miguel savory (*Clinopodium chandleri*)
- Otay tarplant (*Deinandra conjugens*)
- Orcutt's bird's-beak (*Dicranostegia orcuttiana*)

- Variegated dudleya (*Dudleya variegata*)
- 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*)

Golden eagle (*Aquila chrysaetos*) and bald eagle (*Haliaeetus leucocephalus*) monitoring also occurred in 2023 consistent with the TMP. Results are included under separate cover in the *Ramona Grasslands Preserve 2022–2023 Raptor Surveys Summary Report* (ESA 2023a).

Adaptive management was conducted for the following 11 MSCP or draft North County MSCP-covered species and habitats in 2023:

- Vernal pool and alkali playa habitats
- San Diego thornmint
- San Miguel savory
- Otay tarplant
- Orcutt's bird's-beak
- Variegated dudleya
- Willowy monardella
- Harbison's dun skipper
- San Diego cactus wren
- Least Bell's vireo
- Stephens' kangaroo rat

Table ES-1 provides a summary of 2023 TMP monitoring results, and **Table ES-2** provides a summary of 2023 TMP management results.

TABLE ES-1
2023 TMP MONITORING RESULTS

Species	County Preserve	Monitoring Results
Vernal pools/Alkali playas: Hydrological monitoring	Ramona Grasslands	17 vernal pools and one alkali playa monitored. All pools inundated.
Vernal pools/Alkali playas: Qualitative monitoring	Ramona Grasslands	19 vernal pools and one alkali playa monitored. All monitored pools supported at least one faunal vernal pool indicator species, except pools e82 and raap17. All monitored pools supported at least one floral vernal pool indicator species. All monitored pools supported invasive non-native plant species.
San Diego thornmint	Simon	IMG plot: 6,000 individuals Total On-site Population: 6,000 individuals
	Sycamore Canyon/Goodan Ranch	IMG plots: 12,877 individuals Total On-site Population: 46,032 individuals
Encinitas baccharis	Del Dios Highlands	IMG plots: 40 individuals Total On-site Population: 177 individuals
San Miguel savory	Boulder Oaks	IMG plots: 132 individuals Total On-site Population: 607 individuals
Otay tarplant[1]	Furby-North 1	IMG plot: 43 individuals Total On-site Population: 555 individuals
	Furby-North 2	IMG plot: 468 individuals Total On-site Population: 3,112 individuals
Orcutt's bird's-beak[2]	Tijuana River Valley Regional Park 1	IMG plot: 298 individuals Total On-site Population: 6,298 individuals[3]
	Tijuana River Valley Regional Park 2	IMG plot: 0 individuals Total On-site Population: 3,000 individuals[3]
	Tijuana River Valley Regional Park 3	Total On-site Population: 370 individuals[3]
Variegated dudleya	Lusardi Creek	IMG plot: 1 individual Total On-site Population: 9 individuals
	Sycamore Canyon/ Goodan Ranch	IMG plots: 588 individuals Total On-site Population: 1,348 individuals
Willowy monardella[4]	Sycamore Canyon/ Goodan Ranch 1	IMG plot: 58 individuals Total On-site Population: 444 individuals
	Sycamore Canyon/ Goodan Ranch 2	IMG plot: 4 individuals Total On-site Population: 4 individuals
	Sycamore Canyon/ Goodan Ranch 3	IMG plot: 6 individuals Total On-site Population: 47 individuals
Harbison's dun skipper	Hellhole Canyon	Total individuals: 4 adults (0 adults)[5]
Arroyo toad	Ramona Grasslands	Adult/Juveniles: 0 (0)[6] Larvae: 8,565 individuals (14)[6]
Tricolored blackbird	Ramona Grasslands	(Individuals: 12)[7]
Burrowing owl[8]	Ramona Grasslands	Burrowing owl sign (i.e., whitewash, pellet, potential burrows) incidentally detected during Stephens' kangaroo rat surveys (no sign detected)

Species	County Preserve	Monitoring Results
Northern harrier	Tijuana River Valley	Territories: 2–5 Pairs: 2 Total Individuals: 4 adults, 2 juveniles
Least Bell's vireo	Santa Margarita	Territories: 13 Pairs: 7 Single males: 6
Stephens' kangaroo rat	Ramona Grasslands	Habitat assessment: 8 of 28 sample plots with high potential 14 sample plots considered occupied based on sign
	Hellhole Canyon	Habitat assessment: 1 of 3 sample plots with high potential[9] 2 considered occupied based on sign[9]
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:

MU = Management Unit. N/A = not applicable.

1. Furby-North 1 = MSP Occurrence ID DECO13_3OMEA026_1. Furby-North 2 = MSP Occurrence ID DECO13_3OMEA040_1.
2. Tijuana River Valley Regional Park 1 = MSP Occurrence ID COOR7_1TIRI009. Tijuana River Valley Regional Park 2 = MSP Occurrence ID COOR7_SMGU006. Tijuana River Valley Regional Park 3 = MSP Occurrence ID COOR7_1ESGU010_1.
3. Orcutt's bird's beak MSP rare plant monitoring maximum extent results incorporate results from Mulligan Biological Consulting (MBC).
4. 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.
5 Harbison's dun skipper monitoring results from Dr. Daniel Marschalek are provided in parentheses.
6. Arroyo toad monitoring results from the U.S. Geological Survey (USGS) are provided in parentheses.
7. Tricolored blackbird monitoring results from AECOM are provided in parentheses. These tricolored blackbirds were observed on the adjacent Ramona Municipal Water District property and not on the Ramona Grasslands County Preserve.
8. Burrowing owl monitoring results from the San Diego Zoo Institute for Conservation Research are provided in parentheses.9 SKR occupancy at Hellhole Canyon County Preserve in fall 2023 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 2 and 3 during fall 2023 monitoring, 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 ES-2
2023 TMP MANAGEMENT RESULTS

Species	County Preserve	Management
Vernal pools/ Alkali playas	Ramona Grasslands	Management area: 15 pools and 4 alkali playas, totaling 2.64 acres
San Diego thornmint	Sycamore Canyon/ Goodan Ranch	Management area: 1.10 acres within and surrounding 8 monitoring plots
San Miguel savory	Boulder Oaks	Management area: 0.55 acre within and surrounding 1 monitoring plot
Otay tarplant	Furby-North	Management area: 0.11 acre within and surrounding 1 monitoring plot
Orcutt's bird's-beak	Tijuana River Valley	Management area: 0.35 acre within and surrounding 2 monitoring plots
Variegated dudleya	Lusardi Creek	Management area: 0.09 acre within and surrounding 1 monitoring plot
	Sycamore Canyon/ Goodan Ranch	Management area: 0.05 acre within and surrounding 2 monitoring plots
Willowy monardella	Sycamore Canyon/ Goodan Ranch	Management area: 0.0003 acre within 1 monitoring plot
Harbison's dun skipper	Hellhole Canyon	Management area: 0.36 acres
San Diego cactus wren	Lakeside Linkage	Management area: 0.63 acres
Least Bell's vireo[1]	Santa Margarita	BHCO trapped: 7 individuals
Stephens' kangaroo rat	Hellhole Canyon	Management area: 5.86 acres within and surrounding the 3 SKR monitoring plots

NOTES:
BHCO = brown-headed cowbird. SKR = Stephens' kangaroo rat.
1. Two BHCO traps were installed at Santa Margarita County Preserve in 2023.

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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 (DPR parks and preserves) (Preserve Group 1) overseen by DPR. The TMP was revised in December 2022 (ESA and ICF 2022) to incorporate 10 additional DPR parks and preserves (Preserve Group 2). These 10 additional DPR parks and preserves include 5 in the South County MSCP Subarea Plan Area and 5 in 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 20 DPR parks and preserves for 22 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 20 DPR parks and preserves: Louis A. Stelzer County Park, El Monte County Park, and Tijuana River Valley Regional Park, and Barnett Ranch, Boulder Oaks, Del Dios Highlands, El Capitan, Furby-North, Hellhole Canyon, Lakeside Linkage, Lawrence and Barbara Daley, Lusardi Creek, Mount Olympus, Oakoasis, Ramona Grasslands, Santa Margarita, Simon, Stoneridge, Sycamore Canyon/Goodan Ranch, and Wilderness Gardens County Preserves.

In 2023, resource-specific monitoring and management was conducted in 13 parks and preserves identified in the TMP: Tijuana River Valley Regional Park, and Boulder Oaks, Del Dios Highlands, Furby-North, Hellhole Canyon, Lakeside Linkage, Lusardi Creek, Mount Olympus, Ramona Grasslands, Santa Margarita, Simon, Sycamore Canyon/Goodan Ranch, and Wilderness Gardens County Preserves.

Table 1 presents the monitoring conducted by Environmental Science Associates (ESA) for the following 15 MSCP- or draft North County MSCP-covered species and habitats in 2023.

TABLE 1
TMP SPECIES AND HABITATS MONITORED IN 2023

	Covered by		
TMP Species/Habitat	**MSCP**	**Draft North County MSCP**	**Monitored**
Vernal pool and alkali playa habitat	✓	✓	✓
San Diego thornmint *Acanthomintha ilicifolia*	✓	✓	✓
Encinitas baccharis (*Baccharis vanessae*)	✓	✓	✓
San Miguel savory (*Clinopodium chandleri*)	✓		✓
Otay tarplant (*Deinandra conjugens*)	✓		✓
Orcutt's bird's-beak (*Dicranostegia orcuttiana*)	✓		✓
Variegated dudleya (*Dudleya variegata*)	✓		✓
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 HCP pursuant to Section 10(a)(1)(B) of the federal Endangered Species Act (FESA) and a Natural Community Conservation Plan (NCCP) pursuant to the California NCCP Act of 1991 (amended in 2001) and the state Endangered Species Act.

The South County MSCP Subarea Plan was adopted in October 1997 and covers 23 vegetation communities and 85 species (County of San Diego 1997). The County is preparing the 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 2023 reporting period, ESA performed resource-specific monitoring and management in the following 13 parks and preserves identified in the TMP: Tijuana River Valley Regional Park and Boulder Oaks, Del Dios Highlands, Furby-North, Hellhole Canyon, Lakeside Linkage, Lusardi Creek, Mount Olympus, Ramona Grasslands, Santa Margarita, Simon, Sycamore Canyon/Goodan Ranch, and Wilderness Gardens County Preserves (**Figure 1**).

Boulder Oaks, Furby-North, Lakeside Linkage, Lusardi Creek, and Sycamore Canyon/Goodan Ranch County Preserves and Tijuana River Valley Regional Park are located entirely within the South County MSCP Subarea Plan Area and are monitored and managed in accordance with the Implementing Agreement (County of San Diego 1998). Del Dios Highlands and Ramona Grasslands County Preserves 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 their conservation and management.

2.2 Project Location

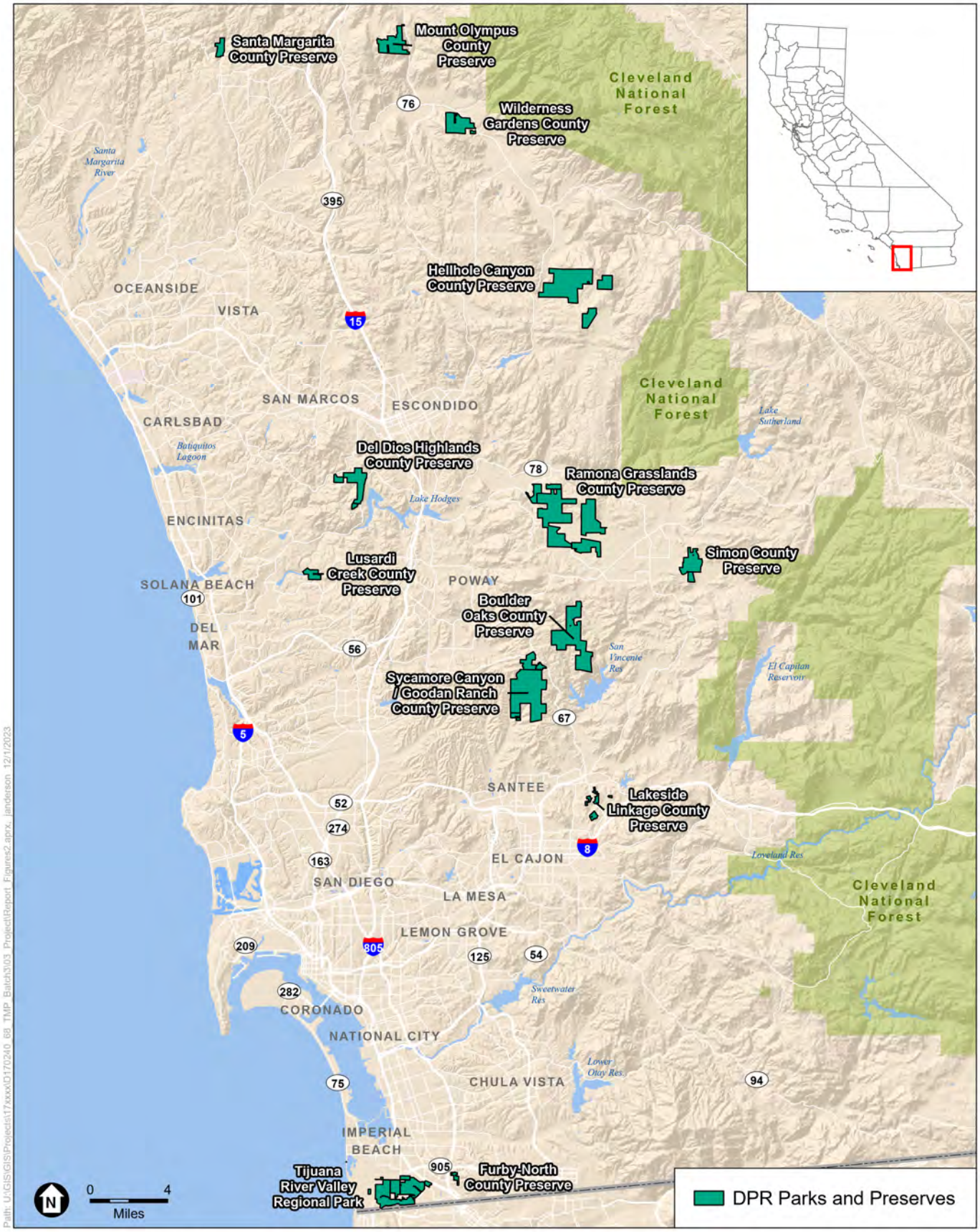
Descriptions of the 13 DPR park and preserve locations monitored and managed in 2023 are provided below.

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 Del Dios Highlands County Preserve

Del Dios Highlands County Preserve is located southwest of the city of Escondido, west of Del Dios Highway, and northwest of Lake Hodges, within an unincorporated area of San Diego County. It is located at 9860 Del Dios Highway, Escondido, adjacent to Lake Hodges, within the coastal foothills of the Peninsular Ranges of Southern California.



SOURCE: ESRI; SanGIS, 2023.

COSD DPR 557744 TO 68 – Implementation of Targeted Monitoring Plan – 2023 Resource-Specific Monitoring and Management

Targeted Monitoring Plan Resource-Specific Monitoring and Management 2023 Annual Report

Figure 1

Project Location

ESA

2.2.3 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.

2.2.4 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.

2.2.5 Lakeside Linkage County Preserve

Lakeside Linkage County Preserve is a preserve composed of four non-contiguous properties: (1) western property, located west of Los Coches Road between Calle Lucia Terrace on the south and a private drive south of Rock Crest Lane on the north; (2) central property, located east of Los Coches Road between Ha Hana Road on the south and extending slightly north of Casa Vista Road on the north; (3) eastern property, located approximately one block northwest of the junction of Lakeview and East Lakeview Roads; and (4) southwest property, located directly south of the western property. The Preserve is located along both sides of Los Coches Road between SR 67 and Interstate 8 within Lakeside, Lakeview, and Winter Gardens, which are unincorporated communities of San Diego County.

2.2.6 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.

2.2.7 Mount Olympus County Preserve

Mount Olympus County Preserve is comprised of 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.

2.2.8 Ramona Grasslands County Preserve

Ramona Grasslands County Preserve is comprised of 56 near contiguous parcels. The Preserve is located 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.

2.2.9 Santa Margarita County Preserve

Santa Margarita County Preserve is located in northern San Diego County, west of Interstate 15 and north of SR 76. The Preserve is located just east of the northeastern portion of Camp Pendleton Marine Corps Base and is directly west of Sandia Creek Drive and the southern portion of the Preserve is bisected by De Luz Road.

2.2.10 Simon County Preserve

Simon County Preserve is located within Ramona, an unincorporated community of San Diego County and within the San Dieguito and San Diego River Watersheds.

2.2.11 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.

2.2.12 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.

2.2.13 Wilderness Gardens County Preserve

Wilderness Gardens County Preserve is comprised of 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).

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 Hydrological Monitoring

Hydrological monitoring followed the methodology outlined in the TMP. Quantitative hydrological monitoring consisted of measuring water depth, total number of days inundated at the deepest point; maximum number of days continuously inundated at deepest point; coefficient of variation of water depth at deepest point; mean water depth at deepest point; and number of times drained completely during the wet season. In addition, hydrological and ecological functions were investigated as part of the hydrological monitoring study, which was analyzed to assess the relative functionality and integrity of the pools. Water depth measurements were to be initiated 24 hours after the end of a significant rain event (0.5 inches or more of precipitation) and subsequently repeated every 3 to 5 days until the study location was completely drained. The first significant rain event occurred between December 11 and December 12, 2022; however, due to contract timing, ESA's first hydrological monitoring visit was conducted on February 27, 2023, 72 days after the first major storm event. Once a vernal pool or playa was fully drained, surveys were discontinued for the remainder of the study unless a measurable rain event occurred and refilled the vernal pool or playa.

ESA biologists conducted a total of 13 hydrological monitoring surveys within the Ramona Grasslands County Preserve between February 27, 2023, and May 1, 2023 (**Table 2**). Based on above average precipitation, the vernal pools remained wet for longer periods of time, requiring adjustments to frequency of follow-up visits to every 3–7 days. Hydrological monitoring was conducted at 17 vernal pools (p7, p13, p14, e59, e63, e56, e58, e61, c20, e82, e62, e53, e77, e52, e48, e45, and ev3) and one alkali playa (raap17). Vernal pool c3e, which occurs outside of the Ramona Grasslands County Preserve boundary, was not surveyed until April 17, 2023. The Cagney Swale was initially included in the hydrological monitoring surveys; however, it was observed to be functioning as an ephemeral aquatic feature serving as a tributary to the Santa Maria Creek rather than a vernal pool. After discussion with DPR, it was agreed that the Cagney Swale would not be included as part of this hydrological monitoring methodology approach. The Cagney Swale was surveyed during five hydrological monitoring visits and was removed from the hydrological study after March 17, 2023.

TABLE 2
VERNAL POOLS AND ALKALI PLAYA HYDROLOGICAL MONITORING SUMMARY

2023 Monitoring Date	Reason for Visit	Names of Biologists
February 27–28	Initial inundation check after rain event Hydrological monitoring	Brenda McMillan, Rachel Le
March 3	Inundation check after rain event Hydrological monitoring	Brenda McMillan, Bailey Setzler
March 7	Follow-up hydrological monitoring	Brenda McMillan, Jack Quinzon
March 10	Follow-up hydrological monitoring	Brenda McMillan, Bailey Setzler
March 13	Inundation check after rain event Hydrological monitoring	Brenda McMillan, Bailey Setzler
March 17	Inundation check after rain event Hydrological monitoring	Brenda McMillan, Karla Alcaraz
March 24	Inundation check after rain event Hydrological monitoring	Brenda McMillan, Bailey Setzler
March 28	Follow-up hydrological monitoring	Brenda McMillan, Karla Alcaraz
April 4	Inundation check after rain event Follow-up hydrological monitoring	Brenda McMillan, Karla Alcaraz
April 10	Follow-up hydrological monitoring	Brenda McMillan, Bailey Setzler
April 17	Follow-up hydrological monitoring	Brenda McMillan, Karla Alcaraz
April 24	Follow-up hydrological monitoring	Brenda McMillan, Karla Alcaraz
May 1	Follow-up hydrological monitoring	Brenda McMillan, Bailey Setzler

Biologists used an extension pole with a ruler attached at its end to dip into each study location to identify and measure the deepest point at each of the study locations. Many of the pools had PVC pipe installed at the deepest point and were used when found for consistency. To avoid walking in the pools during the inundation period, no rulers were installed within the vernal pool basins. Pool margins were difficult to locate at times due to extensive ponding throughout the Preserve in 2023 (e.g., vernal pools e58, e61, and e62 located in the vernal swale were difficult to separate

until inundation receded and the individual pool margins were more easily discernable). Depth measurement points shifted over time as the vernal pool boundaries became more visible, and some points were moved to the deepest point that was previously marked by a white PVC pipe whenever possible. The decision to shift points was made to capture the hydrological features of the pool consistently. In vernal pools that did not have an existing depth point marked with PVC pipe, the deepest point was estimated based on the pool topography and did not include hoof prints or other topographical disturbances.

Length and width measurements were collected during each visit at the edge of inundation at the time of the survey. Qualitative features such as dominant plant species or significant change in the vernal pool functionality were noted.

Representative photographs at each pool/playa were taken facing north during each hydrological monitoring visit to document inundation. Vernal pool boundaries were adjusted in the field as needed using a Global Positioning System (GPS) to capture maximum inundation areas and areas that best represented ecologically functioning vernal pools.

3.2.2 Qualitative Monitoring

ESA biologists conducted two qualitative monitoring surveys of vernal pools/alkali playas within the Ramona Grasslands County Preserve (**Table 3**). The first survey was conducted during the wet season when pools were inundated with water. The second survey was conducted during the dry season when most pools had stopped holding water. Qualitative monitoring was performed within the subset of 20 vernal pools within the Ramona Airport mitigation, Cagney, Oak Country, and Cumming Ranch vernal pools as described in the TMP (ESA and ICF 2022).

TABLE 3
VERNAL POOLS AND ALKALI PLAYA QUALITATIVE MONITORING SUMMARY

2023 Monitoring Date	Reason for Visit	Names of Biologists
February 27–28	Qualitative site visit #1	Brenda McMillan, Rachel Le
May 17	Qualitative site visit #2	Brenda McMillan, Bailey Setzler

Qualitative monitoring consisted of a pedestrian survey of the pools and immediate upland areas around the pool perimeters. The survey included inspections of the pools to determine water quality, edge effects, topographic disturbance, trespass, as well as recording a species list of observed vernal pool fauna (visual only, no netting), invasive non-native plant species, sensitive plant species, and vernal pool indicator species. Vernal pool indicator species followed those listed in the City of San Diego Vernal Pool Habitat Conservation Plan (City of San Diego 2017).

3.2.3 Focused Management

The control of invasive non-native plant species is a primary concern for vernal pool and alkali playa habitat in Ramona Grasslands County Preserve. The TMP recommends invasive non-native plant cover be maintained to less than 20 percent (ESA and ICF 2022). Focused invasive non-native plant management was conducted at a total of 19 vernal pool/alkali playa features within

Ramona Grasslands County Preserve in 2023 based on 2021 TMP monitoring results and 2022 incidental observations and adaptive management recommendations (ESA 2023b). Management was conducted at the 15 previously managed vernal pools (p13, p14, p7, e56, e58, e61, e82, e62, e53, e77, e52, e48, e45, ev3, e59) and one alkali playa (raap17), as well as the 3 alkali playas that supported Parish's brittlescale (*Atriplex parishii*) (raap4, raap6, and raap14).

ESA subconsultant Habitat West conducted two focused invasive non-native plant management visits for vernal pools and alkali playas within Ramona Grasslands County Preserve. The first management visit was conducted between June 1 and June 7, 2023, and the second management visit was conducted between September 5 and September 6, 2023. The first management visit was conducted after vernal pool and alkali playa features were no longer holding water and the soil substrate was firm. Vernal pool and alkali playa plant species were still growing during this visit; however, ESA biologist Mark Dodero met Habitat West staff on June 1, 2023, to orient staff and flag sensitive native plant species to avoid, and on June 6, 2023, to check on management progress. Management consisted of hand weeding invasive non-native plant species within the vernal pool basins and line trimming a 3-foot buffer around the pools, for a total management area of 2.64 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 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 2 inches above ground where there was limited native plant growth. Additional line trimming was used to touch up the 3-foot buffer where needed. Biomass was then manually collected, bagged, and properly disposed of at an approved off-site facility. Herbicide was not used within vernal pool basins or within 10 feet of basin margins.

3.3 Rare Plant Monitoring

ESA biologists and volunteers conducted resource-specific monitoring in 2023 for seven 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 Encinitas baccharis (*Baccharis vanessae*) at Del Dios Highlands County Preserve and willowy monardella (*Monardella viminea*) at Sycamore Canyon/Goodan Ranch County Preserve, as required by the TMP. A reconnaissance survey for Otay tarplant (*Deinandra conjugens*) was conducted at Furby-North County Preserve, as described by the TMP (ESA and ICF 2022), and a new monitoring plot was established. 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**.

Established permanent monitoring plots were monitored for each species. The history of monitoring plot establishment is as follows:

- **San Diego thornmint** (*Acanthomintha ilicifolia*). One permanent monitoring plot was established for San Diego thornmint within Simon County Preserve by the Conservation Biology Institute (CBI) in 2016. Ten permanent monitoring plots were established for San Diego thornmint within Sycamore Canyon/Goodan Ranch County Preserve by ICF in 2016, and an eleventh permanent monitoring plot was added by ICF in 2017.

TABLE 4
MSP RARE PLANT MONITORING SURVEY SUMMARY

Species	Plot Establishment Date	2023 Monitoring Date	# of Permanent Monitoring Plots	County Preserve	Names of Biologists (and volunteers)[a]
San Diego thornmint	April 26, 2016	May 8	1	Simon	Brenda McMillan and Dillon Travis
San Diego thornmint	April 22, May 4–5, 2016; and May 4, 2017	May 11, 12, and 15	11	Sycamore Canyon/ Goodan Ranch	Sonya Vargas, Brenda McMillan, Dillon Travis, Bailey Setzler, (Robert Laudy and Maureen Abare-Laudy)
Encinitas baccharis	July 24 and 30, 2015	July 18[b] and August 8	3	Del Dios Highlands	Brenda McMillan and Dillon Travis
San Miguel savory	April 6 and 16, 2016	April 26	2	Boulder Oaks	Sonya Vargas and Karla Alcaraz
Otay tarplant	June 29, 2016, and June 2, 2023	May 19[b], 26[b], and June 2	2	Furby-North	Adrienne Lee, Brenda McMillan, and Bailey Setzler
Orcutt's bird's-beak	June 29, 2016; and June 5, 2017	May 26[b] and June 14	2	Tijuana River Valley Regional Park	Brenda McMillan and Bailey Setzler
Variegated dudleya	April 27, 2016	April 7[b], 24[b], and 28	1	Lusardi Creek	Adrienne Lee, Brenda McMillan, and Dillon Travis
Variegated dudleya	June 23, 2017, and April 14, 2021	April 7[b] and 14	2	Sycamore Canyon/ Goodan Ranch	Adrienne Lee and Dillon Travis
Willowy monardella	July 7, 2015; June 22, 2016; June 9, 2021	June 15 and 27	3	Sycamore Canyon/ Goodan Ranch	Adrienne Lee, Sonya Vargas, Amy Orduño-Baez, (Robert Laudy and Maureen Abare-Laudy)

NOTES:
a. Names in parentheses are of volunteers from the Friends of Goodan Ranch and Sycamore Canyon Open Space who participated and were trained during the survey.
b. This monitoring date was to conduct a bloom check to determine appropriate timing of monitoring.

- **Encinitas baccharis.** Three permanent monitoring plots were established for Encinitas baccharis within Del Dios Highlands County Preserve by ICF in 2015.
- **San Miguel savory** (*Clinopodium chandleri*). Two permanent monitoring plots were established for San Miguel savory within Boulder Oaks County Preserve by ICF in 2016.
- **Otay tarplant**. One permanent monitoring plot was established for Otay tarplant within Furby-North County Preserve by CBI in 2016, and a second permanent monitoring plot was established by ESA in 2023.
- **Orcutt's bird's-beak** (*Dicranostegia orcuttiana*). One permanent monitoring plot was established for Orcutt's bird's-beak within Tijuana River Valley Regional Park by CBI in 2016, and a second permanent monitoring plot was added by CBI in 2017.

- **Variegated dudleya** (*Dudleya variegata*). One permanent monitoring plot was established for variegated dudleya within Lusardi Creek County Preserve by ICF in 2016. One permanent monitoring plot was established for variegated dudleya within Sycamore Canyon/Goodan Ranch County Preserve by ICF in 2017, and a second permanent monitoring plot was established by ESA in 2021.
- **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:

- Mapping 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 2023 extent of the occurrence, no remapping occurred.
- Conducting 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.
- Conducting 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.
- A threats assessment was conducted within the current maximum extent of the occurrence and adjacent 10-meter buffer, and management recommendations were provided for the site using the MSP – 2023 Rare Plant Occurrence Monitoring Form.

Additional data specified in the TMP was collected for two rare plant species: Encinitas baccharis and willowy monardella.

- **Encinitas baccharis**. The sex and age of each shrub within each plot was identified and recorded to determine the male-to-female ratio within each plot.
  - Seedling: 4 inches tall or less
  - Adult: more than 4 inches tall
- **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

A reconnaissance survey was conducted for Otay tarplant at Furby-North County Preserve to determine presence/absence of the species and establish a permanent monitoring plot and associated permanent photo point.

3.4 Rare Plant Focused Management

ESA biologists and volunteers conducted resource-specific management in 2023 for six 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	2023 Management Date	County Preserve	Acres Managed
San Diego thornmint	July 20–21, 24–26, and 31; August 1 and 10	Sycamore Canyon/Goodan Ranch	1.10
San Miguel savory	April 28	Boulder Oaks	0.55
Otay tarplant	July 6	Furby-North	0.11
Orcutt's bird's-beak	July 14	Tijuana River Valley Regional Park	0.35
Variegated dudleya	May 1	Lusardi Creek	0.09
Variegated dudleya	April 26–27	Sycamore Canyon/Goodan Ranch	0.05
Willowy monardella	June 27	Sycamore Canyon/Goodan Ranch	0.0003

3.4.1 San Diego Thornmint Focused Management

The control of invasive non-native plant species is a primary concern for San Diego thornmint. The TMP recommends invasive non-native purple false brome (*Brachypodium distachyon*) cover be maintained to less than 10 percent and all other non-native plant cover be kept to less than 20 percent (ESA and ICF 2022). Focused management was conducted in response to 2022 TMP monitoring results and adaptive management recommendations for Sycamore Canyon/Goodan Ranch County Preserve (ESA 2023b).

ESA subconsultant Habitat West conducted focused management for San Diego thornmint at Sycamore Canyon/Goodan Ranch County Preserve on July 20–21, July 24–26, July 31, August 1, and August 10, 2023, within 8 of the 11 established monitoring plots prioritized for management (ESA 2023b). ESA biologist Mark Dodero met Habitat West staff on July 20, 2023, to orient staff, identify and discuss San Diego thornmint avoidance strategies, and provide management recommendations. ESA biologist Mark Dodero conducted follow-up visits on July 24 and 25, 2023, to provide further direction and document management work progress. Management consisted of carefully hand-pulling target invasive non-native plant species, predominantly purple false brome, within the population maximum extents at plots SYGOACIL01, 02, 04, 05, 07, 08, 09, and 10 with a focus on areas where San Diego thornmint populations were previously detected, for a total of an 1.10-acre management area. Clustered tarweed (*Deinandra fasciculata*)

grew quite large this season and was prolific within the San Diego thornmint populations this year. Where necessary, staff also removed clustered tarweed in order to facilitate removal of non-native grasses and open up space for San Diego thornmint. Once hand-pulling was completed, Habitat West staff used line trimmers to dethatch remaining non-native plant species surrounding San Diego thornmint occurrences within 12-meter radius circles around three established monitoring plot center points (SYGOACIL05, 07, and 08). All biomass was manually collected, bagged, and properly disposed of at an approved off-site facility.

3.4.2 San Miguel Savory Focused Management

The control of invasive non-native plant species is a primary concern for San Miguel savory management. The TMP recommends overall invasive non-native plant cover be kept to less than 20 percent cover (ESA and ICF 2022). Focused management was conducted in response to 2022 TMP adaptive management recommendations for Boulder Oaks County Preserve (ESA 2023b).

ESA subconsultant Habitat West conducted focused management for San Miguel savory at the Boulder Oaks County Preserve within the BOCLCH2 monitoring plot maximum extent and an additional area northwest of the monitoring plot's maximum extent for a total of an 0.55-acre management area on April 28, 2023. 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 Sonya Vargas met Habitat West staff on-site to orient staff, identify and discuss San Miguel savory avoidance strategies, and provide management recommendations. Target invasive non-native plants included perennial veldtgrass and annual fescue (*Festuca myuros*). 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.

3.4.3 Otay Tarplant Focused Management

The control of invasive non-native plant species is a primary concern for Otay tarplant management. The TMP recommends overall invasive non-native plant cover be kept to less than 20 percent and thatch to be removed (ESA and ICF 2022). Focused management was conducted in response to 2022 TMP monitoring results and adaptive management recommendations for Furby-North County Preserve (ESA 2023b).

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 0.11-acre management area on July 6, 2023. ESA biologist Brenda McMillan met Habitat West staff on-site to orient staff, identify and discuss Otay tarplant avoidance strategies, and provide management recommendations. Management consisted of carefully hand-pulling invasive non-native grasses directly adjacent to Otay tarplant individuals. Once hand-pulling was completed, Habitat West staff removed thatch and invasive non-native grasses with line trimmers to 2 inches from the ground within the monitoring plot's maximum extent. The biomass was manually collected, bagged, and properly disposed of at an approved off-site facility.

3.4.4 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 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 2022 TMP monitoring results and adaptive management recommendations for Tijuana River Valley Regional Park (ESA 2023b).

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 plot maximum extents for a total of an 0.35-acre management area on July 14, 2023. ESA biologist Brenda McMillan met Habitat West staff on-site to orient staff, identify and discuss Orcutt's bird's-beak avoidance strategies, and provide management recommendations. Management consisted of carefully hand-pulling invasive non-native grasses directly adjacent to Orcutt's bird's-beak individuals. The biomass was manually collected, bagged, and properly disposed of at an approved off-site facility.

3.4.5 Variegated Dudleya Focused Management

The control of invasive non-native plant species is a primary concern for variegated dudleya management. The TMP recommends maintaining less than 20 percent ground cover of invasive non-native plant species in the vicinity of the variegated dudleya population (ESA and ICF 2022). Focused management was conducted in response to 2022 TMP adaptive management recommendations for Lusardi Creek County Preserve and Sycamore Canyon/Goodan Ranch County Preserve (ESA 2023b).

ESA subconsultant Habitat West conducted focused management for variegated dudleya at Lusardi Creek County Preserve within the LCDUVA01 monitoring plot maximum extent and within all three herbivory enclosures for a total of an 0.09-acre management area. ESA biologist Brenda McMillan met Habitat West staff on May 1, 2023, to orient staff, identify and discuss variegated dudleya avoidance strategies, and provide management recommendations. Variegated dudleya plants were flagged prior to maintenance as part of MSP rare plant monitoring. Invasive non-native plant species within the previously installed herbivory fencing were carefully removed by hand to reduce the amount of standing biomass from invasive non-native plants and encourage native plant recruitment. Per the TMP, invasive non-native plants within 18 inches of the variegated dudleya were carefully pulled by hand. All biomass was manually collected, bagged, and properly disposed of at an approved off-site facility. No herbicide was applied during maintenance. Previously installed herbivory fencing was also repaired with spare wire during focused management.

Habitat West conducted focused management for variegated dudleya at Sycamore Canyon/Goodan Ranch County Preserve within the SYGODUVA01 and SYGODUVA02 monitoring plot maximum extents and a 12-meter radius circle around the center point of both monitoring plots, for a total of an 0.05-acre management area on April 26 and 27, 2023. ESA biologist Mark Dodero met Habitat West staff on April 26, 2022, to orient staff, identify and

discuss variegated dudleya avoidance strategies, and provide management recommendations. Variegated dudleya plants were flagged in key locations to assist with identification and avoidance prior to management. Management consisted of carefully hand-pulling target invasive non-native plant species within the population maximum extents with a focus on areas where variegated dudleya populations were previously detected. Once hand-pulling was completed, Habitat West staff used line trimmers to cut and remove remaining non-native plant species surrounding variegated dudleya occurrences within 12-meter radius circles around both established monitoring plot center points. All cut biomass was manually collected, bagged, and properly disposed of at an approved off-site facility.

3.4.6 Willowy Monardella Focused Management

Focused management was conducted in response to 2022 TMP monitoring results and adaptive management recommendations for Sycamore Canyon/Goodan Ranch County Preserve (ESA 2023b). DPR park rangers conducted focused management for willowy monardella within the SYC201602 permanent monitoring plot by hand-pulling invasive non-native grasses (i.e., slender oat [*Avena barbata*], purple false brome, ripgut brome [*Bromus diandrus*], and annual fescue) and thinning native California buckwheat (*Eriogonum fasciculatum*) around the willowy monardella plants for an 0.0003-acre management area. The biomass was manually collected and disposed of by DPR park rangers. Management was supervised by ESA biologists Adrienne Lee and Amy Orduño-Baez.

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 2023 flight season (between May 15 through June 30) (**Table 6**). Surveys were conducted at the two locations previously surveyed in 2021 and 2022. 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, 20–35˚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	2023 Survey Date	Survey Times	Start Weather Conditions	End Weather Conditions	Names of Biologists
Adult Flight Surveys	May 26	1120–1335	Temp: 66°F 30% Cloud Cover Wind Speed: 2 mph	Temp: 83°F 10% Cloud Cover Wind Speed: 2 mph	Kris Alberts*, Dillon Travis
	June 16	1130–1430	Temp: 83°F 0% Cloud Cover Wind Speed: 2 mph	Temp: 82°F 0% Cloud Cover Wind Speed: 5 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 2022 TMP adaptive management recommendations for Hellhole Canyon County Preserve (ESA 2023b). ESA subconsultant Habitat West conducted focused management for HDS by enhancing habitat through dethatching of non-native grasses and seeding with native nectar sources along Hell Creek near Survey Location 2 within Hellhole Canyon County Preserve. Appropriate nectar source seed species were selected based on source and availability.

ESA biologist Mark Dodero met Habitat West staff on October 18, 2023, to orient the staff, delineate seeding areas, discuss native habitat avoidance strategies, and identify appropriate native mulch material. Management activities during this visit included walking the enhancement locations and clearly delineating the final enhancement areas based on proximity to San Diego sedge and presence of grassy, open habitat where seed could establish, totaling 0.36 acres. Once areas were delineated, Habitat West prepared the seeding areas by removing non-native grasses and forbs via hand tools and line-trimmers. Native plants were carefully avoided and left in place. Habitat West returned on October 19, 2023, to continue site preparation. ESA biologist Mark Dodero and Habitat West staff returned to the enhancement area on October 25, 2023, to complete the dethatching and site preparation and broadcast the seed by hand. Seed was lightly raked into the top quarter-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.

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 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

2023 Survey Date	Survey Times	Start Weather Conditions	End Weather Conditions	Names of Biologists
May 16	0828–1813	Temp: 63°F Partly cloudy	Temp: 64°F Clear/few clouds	Robert Sweet, Brennan Mulrooney
May 17	0817–1458	Temp: 59°F Cloudy	Temp: 77°F Clear	Robert Sweet, Brennan Mulrooney
May 18	1343–1525	Temp: 72°F Clear	Temp: 72°F Partly cloudy	Robert Sweet, Brennan Mulrooney
May 19	0747–1604	Temp: 55°F Cloudy	Temp: 77°F Clear	Brennan Mulrooney, Bailey Setzler

ESA biologists conducted habitat assessment and presence/absence surveys along previously established USGS survey reaches within the Santa Maria Creek on May 16–19, 2023. ESA surveyed 18 of the 23 reaches (i.e., 22–24, 26–30, 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 measures a total of 250 meters in length, and is separated into two smaller segments (i.e., A and B) each measuring 125 meters in length. 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 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 man-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*]) observed during surveys were noted and recorded, as well.

3.7 San Diego Cactus Wren Focused Management

The control of herbaceous, often invasive non-native plant species and removal of laddering of plants within the established cacti restoration sites (R1 and R2) are primary concerns for San Diego cactus wren (*Campylorhynchus brunneicapillus sandiegensis*) management. The TMP recommends restored habitat be managed by controlling invasive non-native plant species and removing thatch (ESA and ICF 2022). Focused management was conducted in response to the 2022 TMP monitoring results and adaptive management recommendations for Lakeside Linkage County Preserve (ESA 2023b).

ESA subconsultant Habitat West conducted focused management for San Diego cactus wren within a portion of the northern restoration area (R1), totaling 0.63 acres, on October 30, 2023. ESA biologist Jaclyn Catino-Davenport was present during habitat maintenance to orient the staff, identify cactus wren roost sites (if present), and discuss native habitat avoidance strategies, provide management recommendations, and ensure that maintenance crews did not encroach into areas outside of the restoration areas.

Management of suitable habitat for San Diego cactus wren consisted of line-trimming taller-growing ruderal invasive non-native vegetation (e.g., non-native grasses, tocalote [*Centaurea melitensis*], and shortpod mustard [*Hirschfeldia incana*]) and native vegetation (e.g., California buckwheat and California sagebrush [*Artemisia californica*]) to reduce the overall height of standing biomass and disarticulation of plant material. All vegetation (native and non-native) was removed by hand if it was laddering in any cacti patches. The biomass was manually collected, bagged, and properly disposed of at an approved off-site facility.

3.8 Northern Harrier

ESA biologists conducted four nesting surveys, once a month for 4 months, within the Tijuana River Valley Regional Park to document northern harrier (*Circus hudsonius*) individuals and breeding behavior. If nest sites were detected, the habitat was characterized and the presence and abundance of prey (i.e., small mammals) were noted. Incidental observations of MSCP-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 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 2022 TMP Annual Report to ensure all known northern harrier locations were recorded and documented in 2023 (ESA 2023b).

TABLE 8
NORTHERN HARRIER SURVEY SUMMARY

2023 Survey Date	Survey Number	Survey Times	Start Weather Conditions	End Weather Conditions	Names of Biologists
March 24	1	0700–1100	Temp: 51.2°F, 60% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Temp: 60.5°F, 15% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 3.4 mph; Wind Direction: SW	Jaclyn Catino-Davenport, Brennan Mulrooney
April 25	2	0716–1143	Temp: 60.6°F, 100% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 2.7 mph; Wind Direction: SW	Temp: 69.9°F, 40% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 1.8 mph; Wind Direction: SW	Jaclyn Catino-Davenport, Adrienne Lee
May 25	3	0722–1119	Temp: 63.7°F, 100% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0.6 mph; Wind Direction: W	Temp: 67.5°F, 95% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 2.4 mph; Wind Direction: W	Jaclyn Catino-Davenport, Bailey Setzler
June 27	4	0628–1100	Temp: 63.3°F, 100% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Temp: 67.6°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 3.6 mph; Wind Direction: W	Jaclyn Catino-Davenport, Brennan Mulrooney

ESA biologists conducted the threats assessment monitoring during the last survey. Since neither SDMMP nor other regional entities have developed a species-specific threats assessment for the northern harrier, the threats assessment form from Section VI of the 2020 Rare Plant Occurrence Monitoring Form and the 2020 Management Needs and Notes Form was completed (SDMMP 2020). The threats assessment survey included an evaluation of potential threats to northern harrier nest success, breeding and foraging habitat, and/or prey sources.

3.9 Least Bell's Vireo

3.9.1 Least Bell's Vireo Surveys

ESA biologists conducted presence/absence monitoring surveys in April through June to locate least Bell's vireo (*Vireo bellii pusillus*) territories and determine breeding status of males in the Santa Margarita County Preserve (**Table 9**). Comprehensive surveys were conducted specifically for least Bell's vireo following modified USFWS Least Bell's Vireo Survey Guidelines (USFWS 2001). Surveys were conducted by qualified biologists familiar with the vocalization and plumage of adult and juvenile individuals to maximize detection. (Recovery permits pursuant to Section 10(a)(1)(A) of the FESA are not required for presence/absence surveys as long as protocol is followed, and vocalization tapes are not used).

TABLE 9
LEAST BELL'S VIREO SURVEY SUMMARY

2023 Survey Date	Time (start/end)	Wind (mph) (start/end)	Temperature (F) (start-end)	Cloud Cover Percentage (start/end)	Names of Biologists
April 11	0630–1100	0/0	50°–58°	100–80	Brennan Mulrooney, Florence Chan
April 21	0629–1103	2/0	58°–70°	100–40	Florence Chan, Dillon Travis
May 2	0644–1115	0/2	55°–65°	95–45	Florence Chan, Jaclyn Catino-Davenport
May 12	0642–1107	1/1	56°–65°	100–60	Florence Chan, Mary Cozy
May 25	0630–1131	1/3	55°–75°	100–90	Brenda McMillan, Karla Alcaraz
June 6	0600–1100	1/1	58°–64°	60–100	Brennan Mulrooney, Florence Chan
June 19	0559–1100	0/0	56°–67°	100–100	Florence Chan, Amy Orduño-Baez
June 30	0555–1100	0/1	57°–79°	100–0	Brennan Mulrooney, Bailey Setzler

Riparian areas and potential vireo habitat were surveyed eight times (eight survey passes) at Santa Margarita County Preserve between April 11 and June 30, at least 10 days apart to maximize detection. Santa Margarita County Preserve was surveyed in its entirety over 1 day for each survey pass.

In accordance with the USFWS Least Bell's Vireo Survey Guidelines (USFWS 2001), observations of brown-headed cowbirds (*Molothrus ater*) were recorded and GPS locations taken for any individuals detected within vireo territory during each survey, and incidental observations of southwestern willow flycatcher (*Empidonax trallii extimus*) and yellow-billed cuckoo (*Coccyzus americanus*) were recorded.

All vireo detections were recorded and plotted to estimate the location and extent of habitats utilized and mapped on the appropriate USGS quadrangle map. Data pertaining to vireo status, GPS location, distribution, age, and sex of the bird, as well as any leg bands, were noted and recorded. Passive nest monitoring was conducted through the presence/absence surveys. Biologists did not approach nests directly. Nest success was inferred by nesting behavior during presence/absence surveys. The results of the survey passes were reviewed and territories assigned for each pair or solitary male. A central point was used to indicate the territory. Any threats detected during surveys were documented.

3.9.2 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 based on 2022 brown-headed cowbird trapping results (ESA 2023b). TW Biological Services, LLC, personnel installed and assembled two traps on March 23, 2023, in the same locations as those in 2022, along the Santa Margarita River within riparian

habitat that provides suitable nesting habitat for least Bell's vireo within the Preserve. Trap 1 was located approximately 0.2 km northwest of the intersection of De Luz Road and Sandia Creek Drive. This trap was placed adjacent to a trail at the north end of the Preserve's staging area. Trap 2 was placed approximately 0.8 km north of the De Luz Road/Sandia Creek Drive intersection a short distance west of the road. Both traps were placed behind brush to obscure view by the public, but in easily accessible locations by vehicle.

TW Biological Services, LLC, personnel activated traps on April 1, 2023. 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, 2023. 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 utilized as decoys, were removed daily and humanely euthanized off-site. All other non-target birds captured were released unharmed at the trap sites. On June 30, 2023, both traps were deactivated and on July 12, 2023, traps were dismantled and removed from the Preserve.

3.10 Stephens' Kangaroo Rat

3.10.1 Habitat Assessments

Stephens' kangaroo rat (*Dipodomys stephensi*) (SKR) habitat monitoring at Ramona Grasslands County Preserve and Hellhole Canyon County Preserve was conducted in October 2023. Specific monitoring protocols followed those outlined in the TMP for SKR monitoring at Ramona Grasslands County Preserve and Hellhole Canyon County Preserve (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.** SKR monitoring areas were originally determined based on potentially suitable SKR habitat. Within the Preserve, specific management areas are referred to as Grazing Management Units (i.e., 1A, 1B, 1C, 2A, 2B, 3A, 3B, 3C, 3D, 3E, 4A, 4B, 4C, and 5) and SKR Management Areas (i.e., 1, 2, and 3). Grazing Management Units that provide potentially suitable SKR habitat (i.e., that which consists of flat terrain and/or gentle slopes that support open, low-growing grasslands) were included within the SKR monitoring area; however, only portions of the associated Grazing Management Units are within SKR Management Areas. The current TMP-selected SKR monitoring areas include Grazing Management Units 1A, 1C, 2A (portions of SKR Management Unit 1), 2B (portions of SKR Management Areas 1 and 2), 3B (SKR Management Area 3), 3C, 3D, 3E, and 4A, as these areas provide suitable SKR habitat. Additional SKR discovery areas are

located within Grazing Management Units 3B and 4C. It is important to note that Grazing Management Unit 3A is not located within an SKR Management Area but is included in the monitoring effort based on previously determined SKR suitability.

Monitoring plots were initially established within SKR core habitat areas on the Preserve in 2016, following an adapted methodology used by USGS for SKR monitoring at Camp Pendleton (Brehme et al. 2016). A 50- x 50-meter grid pattern was overlain onto a georeferenced aerial map over each of the core SKR monitoring areas, and 28 plots were established. Of these 28 plots, 16 were determined to be permanent sampling plots that have been monitored since 2016: A1-1 to A1-6, A2-1, A2-6, A2-7, 3A-1, 3A-6, 3A-7, 3A-8, A3-1, A3-2, and A3-3. The 2023 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—for a total of 28 sampling plots (ESA and ICF 2022).

- **Hellhole Canyon County Preserve.** Baseline SKR trapping surveys were conducted in 2020 within the northeastern portion of the Sierra Verde Addition of Hellhole Canyon County Preserve and confirmed SKR presence in one of the three trapping plots (ESA 2021). Per the updated TMP (ESA and ICF 2022), the 2023 SKR monitoring effort sampled the same three sampling plots established during 2020 baseline trapping surveys due to the limited size of suitable SKR habitat within Hellhole Canyon County Preserve. In accordance with the TMP, monitoring protocols followed an adapted methodology used by USGS for SKR monitoring at Camp Pendleton (Brehme et al. 2016).

Upon arrival at each sample plot, biologists installed pin flags at the corners of each plot and took representative photographs from the southeast corner of each plot, facing northwest. The biologists then walked systematic transects through each plot, searching for kangaroo rat sign (e.g., burrows, scat, tracks, runways, and dust-bathing sites) until 100 percent coverage of the plot was achieved. All kangaroo rat sign were recorded on electronic survey forms using the Survey123 application. SKR presence or absence within a given plot was determined solely on whether or not kangaroo rat 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	2023 Survey Date	Survey Times	Start Weather Conditions	End Weather Conditions	Name of Biologists
Ramona Grasslands	October 24	0805–1530	Temp: 59°F 10% Cloud Cover Wind Speed: 0–3 mph	Temp: 73°F 5% Cloud Cover Wind Speed: 3–8 mph	Kris Alberts* Hayley Milner* Dillon Travis
	October 25	0815–1400	Temp: 59°F 100% Cloud Cover Wind Speed: 0–1 mph	Temp: 64°F 90% Cloud Cover Wind Speed: 1–4 mph	Kris Alberts* Hayley Milner* Dillon Travis
Hellhole Canyon	October 23	0915–1135	Temp: 61°F 100% Cloud Cover Wind Speed: 0–2 mph	Temp: 63°F 80% Cloud Cover Wind Speed: 1–3 mph	Kris Alberts* Hayley Milner* Dillon Travis

NOTE:
* Blackhawk Environmental, Inc. staff.

3.10.2 Stephens' Kangaroo Rat Focused Management

The control of invasive non-native plant species and maintaining the sparse cover of annual forbs and grasses suitable for SKR habitat are primary concerns for SKR management. The TMP recommends maintaining less than 20 percent ground cover of invasive non-native plant species in areas identified as suitable habitat for SKR and maintaining SKR habitat through targeted mowing and/or invasive non-native plant treatment (ESA and ICF 2022). Focused management was conducted in response to 2022 TMP monitoring results and adaptive management recommendations for Hellhole Canyon County Preserve (ESA 2023b).

ESA subconsultant Habitat West conducted focused management for SKR at Hellhole Canyon County Preserve within an 5.86-acre management area within suitable habitat for SKR on September 25 and 26, 2023. This habitat-focused management occurred in an area of high archaeological sensitivity (ESA 2019a). ESA cultural resources specialists Kyle Garcia, M.A., RPA, and Joel Aspeytia, B.A., delineated exclusionary areas on September 22, 2023, prior to the start of maintenance activities. ESA cultural resources specialist Joel Aspeytia and ESA biologist Jaclyn Catino-Davenport were present during habitat maintenance to orient the staff, identify and discuss SKR avoidance strategies, provide management recommendations, and ensure the maintenance crews did not encroach into the exclusionary areas.

Management of suitable habitat for SKR consisted of line trimming taller-growing ruderal invasive non-native vegetation (e.g., non-native grasses, tocalote, and shortpod mustard to reduce the overall height of standing biomass to a desired level and assist with disarticulation of herbaceous weeds). Invasive non-native vegetation was cut to the ground in most areas; however, vegetation was left to 2 inches from the ground in areas where burrows were present. The biomass was manually collected, bagged, and properly disposed of at an approved off-site facility.

3.11 Pallid Bat

3.11.1 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. Visual roosting and foraging habitat threat assessment surveys were conducted in June 2023 (**Table 11**).

TABLE 11
BAT SURVEY SUMMARY

Survey Type	2023 Survey Date	Start Weather Conditions	End Weather Conditions	Names of Biologists
Roosting and Foraging Habitat Threat Assessment / Transect Acoustic Survey	June 20	Temp: 74.6°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed:2.9 mph; Wind Direction: SW	Temp: 66.5°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 1.0 mph; Wind Direction: S	Jaclyn Catino-Davenport, Karla Alcaraz
Roosting and Foraging Habitat Threat Assessment / Transect Acoustic Survey	June 24	Temp: 66.0°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 1.9 mph; Wind Direction: W	Temp: 63.1°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0.8 mph; Wind Direction: W	Jaclyn Catino-Davenport, Dillon Travis
Roosting and Foraging Habitat Threat Assessment / Transect Acoustic Survey	June 26	Temp: 76.3°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 3.7 mph; Wind Direction: SW	Temp: 60.5°F, 0% cloud cover; Visibility: Good; Precipitation: None; Avg. Wind Speed: 0 mph; Wind Direction: N/A	Jaclyn Catino-Davenport, Karla Alcaraz

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 5 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.

3.12 Townsend's Big-Eared Bat

3.12.1 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. Visual roosting and foraging habitat threat assessment surveys were conducted in June 2023 (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 5 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.

3.13 Peak Forage Production and Residual Dry Matter Monitoring

3.13.1 Peak Forage Production Monitoring

Ramona Grasslands County Preserve

Measuring peak forage production assesses the amount of forage available for grazing and informs stocking rates. At Ramona Grasslands County Preserve samples were collected, and peak production was measured following the University of California Agriculture and Natural Resources' (UCANR's) *Rangeland Management Series Annual Range Forage Production* (UCANR 2016) recommendations and *Guidelines for Residual Dry Matter Management on Coastal and Foothill Rangelands in California* (Bartolome et al. 2002). Peak forage production at Ramona Grasslands County Preserve was monitored at 58 monitoring plots within management units 1A, 2A, 2B, 3A, 3B, 3C, 3D, 3E, 4A, and 4B.

Sampling was conducted on April 7 and 10, 2023, by ESA biologists Amanda French, Jaclyn Catino-Davenport, Karla Alcaraz, and Mary Cozy. A sampling hoop with a 13.25-inch interior diameter (hoop area is 0.96 square feet) was tossed randomly and sampled three times within each monitoring plot. All aboveground biomass, including vegetation and thatch, were collected within the hoop (samples) using gardening shears or by gathering manually. These samples were stored in paper bags. Samples did not include tree leaves (e.g., oaks [*Quercus* spp.]), as referenced in the residual dry matter (RDM) methodology (Bartolome et al. 2002). Woody shrubs (e.g., scrub oak [*Quercus berberidifolia, xacutidens*]), perennial plant species, and summer annuals were also excluded from collection. Dominant plant species observed within and in the vicinity of the monitoring plots were recorded, as were special-status species or invasive non-native species incidentally observed by biologists while traveling to and from monitoring plots.

ESA biologists processed the samples in the ESA office located at 626 Wilshire Boulevard #1100, Los Angeles, California 90017. All samples were air-dried and weighed in grams using a digital scale. ESA biologists excluded the weight of the paper bags. The weights of the three samples from each monitoring plot were averaged and then converted to pounds per acre (lb/acre) by a multiplication of 100 (Bartolome et al. 2002). The average lb/acre for each management unit was calculated by averaging all monitoring plots within a management unit. The averaged value is the peak forage production for the management unit for the year.

3.13.2 Residual Dry Matter Monitoring

Ramona Grasslands County Preserve

Ramona Grasslands County Preserve is managed under the *Ramona Grasslands, Santa Ysabel, and Boulder Oaks Preserves Grazing Management Plan* (Grazing Management Plan) (ESA 2019b). The Grazing Management Plan designates grazing management units and associated target RDM values within the Preserve to monitor the effects of cattle grazing on the land to support the conservation management goals and objectives. RDM acts as soil protection from the compacting and erosive effects of rains and can help conserve initial rainfall soil moisture to facilitate germination of the next season's annual plants. Annual RDM monitoring is a method

used to quantify the impact of cattle grazing on grasslands from year to year, to determine if natural community or species-specific RDM targets are achieved, and to provide land managers with information that allows them to make grazing management adjustments to maintain a sustainable rangeland. Samples were collected and RDM was measured following the UCANR's *Rangeland Management Series Annual Range Forage Production* recommendations (UCANR 2016) and *Guidelines for Residual Dry Matter Management on Coastal and Foothill Rangelands in California* (Bartolome et al. 2002). RDM was monitored at 58 monitoring plots within management units 1A, 2A, 2B, 3A, 3B, 3C, 3D, 3E, 4A, and 4B.

Sampling was conducted on September 11 and 12, 2023, by ESA biologists Adrienne Lee, Amanda French, Bailey Setzler, and Dillon Travis. A sampling hoop with a 13.25-inch interior diameter (hoop area is 0.96 square feet) was tossed randomly and sampled three times within each monitoring plot. All aboveground biomass, including vegetation and thatch, were collected within the hoop (samples) using gardening shears or by gathering manually. These samples were stored in paper bags. Samples did not include tree leaves (e.g., oaks, as referenced in the RDM methodology (Bartolome et al. 2002). Woody shrubs (e.g., scrub oak, perennial plant species, and summer annuals were also excluded from collection. Dominant plant species observed within and in the vicinity of the monitoring plots were recorded, as were special-status species or invasive non-native species incidentally observed by biologists while traveling to and from monitoring plots.

ESA biologists processed the samples in the ESA office located at 626 Wilshire Boulevard #1100, Los Angeles, California 90017. All samples were air-dried and weighed in grams using a digital scale. ESA biologists excluded the weight of the paper bags. The weights of the three samples from each monitoring plot were averaged and then converted to pounds per acre (lb/acre) by a multiplication of 100 (Bartolome et al. 2002). The average lb/acre for each management unit was calculated by averaging all monitoring plots within a management unit. The average lb/acre for a given management unit was compared to the target RDM values established for each management unit.

3.14 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 SANDAG, Dr. Daniel Marschalek from the University of Central Missouri, USGS, and the San Diego Zoo Institute for Conservation Research—performed monitoring activities for species included in the TMP on DPR parks and preserves in 2023. 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	2023 Survey Date	Methodology	Monitoring Entity
Parish's brittlescale	Ramona Grasslands	June 27	MSP Rare Plant Monitoring Protocol	AECOM
Orcutt's brodiaea	Boulder Oaks	June 19	MSP Rare Plant Monitoring Protocol	AECOM
	Simon	June 16	MSP Rare Plant Monitoring Protocol	AECOM
	Mount Olympus	June 2	MSP Rare Plant Monitoring Protocol	AECOM
Orcutt's bird's-beak	Tijuana River Valley Regional Park	June 29	MSP Rare Plant Monitoring Protocol	MBC
Mexican flannelbush	Tijuana River Valley Regional Park	June 8–9	MSP Discovery Survey	AECOM and MBC
Baja California oatgrass	Simon	May 16	MSP Discovery Survey	MBC
	Sycamore Canyon/Goodan Ranch	May 9, 13, 16, and 19	MSP Discovery Survey	MBC
Parish's brittlescale	Ramona Grasslands	June 27, July 21	MSP Discovery Survey	AECOM
Encinitas baccharis	Del Dios Highlands	September 5	MSP Discovery Survey	MBC
Harbison's dun skipper	Hellhole Canyon	June 8, 17, and July 5	Adult Flight Surveys	Dr. Daniel Marschalek (University of Central Missouri)
Arroyo toad	Ramona Grasslands	May 18–June 23	USGS Aquatic Species and Habitat Assessment Protocol	USGS
Burrowing owl	Ramona Grasslands	May 25, June 1, and June 9	CDFW Staff Report on Burrowing Owl Mitigation (CDFG 2012)	San Diego Zoo Institute for Conservation Research
Tricolored blackbird	Ramona Grasslands	May 25	SDMMP San Diego County Tricolored Blackbird Breeding Surveys and Habitat and Threat Assessments Protocol	AECOM

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CHAPTER 4
Results and Discussion

4.1 Vernal Pools and Alkali Playas

4.1.1 Hydrological Monitoring

Hydrological monitoring was conducted in Ramona Grasslands County Preserve during an above-average rainfall year. The hydrological monitoring methodology included five variables. The first measurable rain event occurred on December 11 and 12, 2022, which resulted in 0.72 inches and 0.45 inches of rain, respectively (NOAA 2023). Due to contract timing, ESA's first hydrological monitoring visit was conducted on February 27, 2023, 72 days after the first major storm event. The total number of days inundated at the deepest point is variable by rain year and is assumed to be higher than what is shown in the results due to the study period initiating after the first rain event. Hydrological monitoring results and discussion are based on analysis using the maximum number of days continuously inundated at deepest point, coefficient of variation of water depth at deepest point, mean water depth at deepest point, and number of times drained completely during the wet season. ESA collected data on vernal pool and alkali playa size (i.e., length and width in feet); the maximum lengths and widths and average lengths and widths, along with all hydrological monitoring results, are provided in **Table 13** and shown in **Figure 2**. Observed pool boundaries in 2023 that differed from original pool boundary mapping were re-mapped and are depicted in Figure 2. Additional raw data measurements, rain event data, and hydrological monitoring photographs are provided in **Appendix A**, *Vernal Pools and Alkali Playas Monitoring & Representative Photographs*.

The vernal pools and alkali playas are sensitive to varying rainfall. In 2023, they were inundated and overflowed after the March rain events, providing a unique monitoring opportunity throughout the wet season. Four vernal pools (i.e., e59, e61, c20, and ev3) were observed to have a relatively low coefficient of variation, indicating functioning and hydrologically stable vernal pools. These pools were observed to pond water long enough to support vernal pool indicator plant and wildlife species suggesting that the pool basins were hydrologically relatively undisturbed. Vernal pool e82 and alkali playa raap17 drained fully twice within the survey period and had the shallowest mean water depth at the deepest point; they also had the lowest vernal pool indicator plant species richness. Overall, longer inundation periods may have influenced how many vernal pool indicator plant species expressed themselves this year. There was a slow change over time in the length and width, but depth varied as additional storm events occurred well into April, which continued to keep pools inundated. Many pools showed a steady rate of evaporation, while some of the largest pools were reduced to smaller ponded areas that held water into late spring. Hydrological monitoring results showed a diversity in vernal pool types (e.g., shallow vs. deep) across the Preserve, and is reflected in a range of plant distributions and inundation lengths. Hydrological monitoring results for the vernal pools and playa are discussed below and grouped based on a shared local watershed.

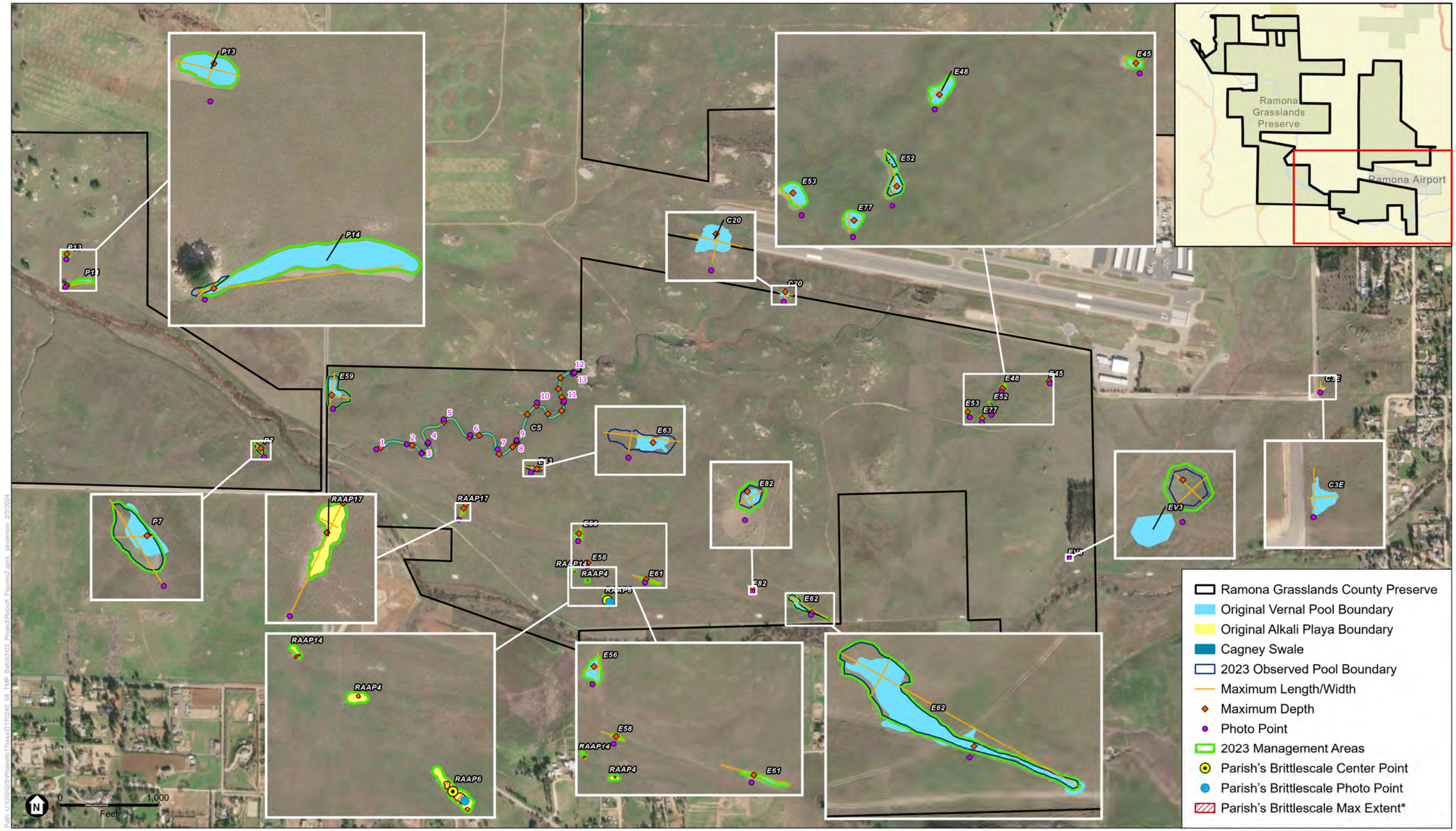
TABLE 13
VERNAL POOLS AND ALKALI PLAYA HYDROLOGICAL MONITORING RESULTS

Pool/Playa	Maximum Length (ft)	Average Length (ft)	Maximum Width (ft)	Average Width (ft)	Total # of Days Inundated at the Deepest Point*	Maximum # of Days Continuously Inundated at Deepest Point*	Coefficient of Variation of Water Depth at Deepest Point	Mean Water Depth at Deepest Point (cm)	# of Times Drained Completely During the Wet Season**
p7	182.93	128.54	68.89	55.44	57	57	51%	14.19	1
p13	97.66	84.30	41.54	33.79	50	50	55%	9.86	1
p14	333.74	117.95	32.89	14.43	43	43	73%	8.21	1
e59	354.67	312.32	224.00	208.11	64	64	34%	21.03	0
e63	195.24	163.72	72.44	45.32	43	43	83%	5.53	1
e56	130.17	112.25	72.74	60.55	43	43	71%	6.57	1
e58	112.77	85.98	26.04	18.10	50	50	54%	10.04	1
e61	306.63	143.72	24.69	15.51	64	64	33%	26.14	0
c20	154.76	105.57	105.54	93.81	57	57	44%	17.66	1
e82	25.90	23.49	16.73	14.64	6	5	162%	0.87	2
e62	491.65	201.53	74.78	16.65	43	43	66%	14.59	1
e53	72.86	64.80	33.47	28.47	50	50	59%	12.37	1
e77	46.51	34.04	41.98	31.99	30	30	109%	3.73	1
e52	109.35	59.62	34.15	27.65	50	50	59%	9.29	1
e48	69.94	61.73	38.28	33.26	43	43	67%	7.88	1
e45	51.31	42.26	26.73	22.02	37	37	72%	5.48	1
ev3	25.38	20.95	24.63	21.46	64	64	33%	21.22	1
raap17	338.55	136.59	27.97	10.60	17	12	150%	1.36	2

NOTES: ft = feet; cm = centimeters

* Total number of days inundated is assumed to be higher due to the study period initiating after the first rain events of the wet season.

** The first measurable rain event occurred on December 11 and 12, 2022; however, the start of the wet season for 2023 monitoring purposes is defined as the first day of hydrological monitoring. Vernal pool e59 was the only pool to remain ponded beyond the survey period.



SOURCE: ESRI, 2021; ESA 2023; AECOM, 2023
NOTE: Results provided by AECOM

COSD DPR 557744 TO 68 – Implementation of Targeted Monitoring Plan – 2023 Resource-Specific Monitoring and Management
Targeted Monitoring Plan Resource-Specific Monitoring and Management 2023 Annual Report

Figure 2
Vernal Pools and Alkali Playas Monitoring and Management Results
Ramona Grasslands County Preserve

ESA

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p7

Vernal pool p7 is an isolated pool located on the south side of the Santa Maria Creek floodplain. It has a moderate coefficient of variation with an average depth of 14.19 centimeters (cm). It had an average length of 128.54 cm and an average width of 55.94 cm with a maximum length measured at 182.93 cm and a maximum width of 68.89 cm. Vernal pool p7 held water throughout the monitoring period and was fully drained by the final monitoring visit on May 1, 2023. This vernal pool was mostly bare in the middle with a narrow band of non-native vegetation along the margins.

p13 and p14

Vernal pools p13 and p14 are located on the north side of the Santa Maria Creek floodplain with p13 located north of p14 in a shared local watershed. Vernal pool p13 is relatively shallow throughout with a moderate coefficient of variation indicating a hydrologically stable vernal pool with a slow and steady draining period. Vernal pool p13 had an average length of 84.30 cm, an average width of 33.79 cm, and an average depth of 9.86 cm. When fully drained, it was covered with grass poly (*Lythrum hyssopifolia*), toad rush (*Juncus bufonius*), and longbeak stork's bill (*Erodium botrys*). Vernal pool p14 is located at the base of a boulder outcropping with a coast live oak (*Quercus agrifolia*) tree overhanging the deepest part of the pool and draining into the Santa Maria Creek at peak inundation. Vernal pool p14 has been mapped as a long, narrow vernal pool; however, based on site conditions, including vernal pool indicator plant species distribution, abundance, and cover, the pool boundary was refined during the study. The refined mapping area consisted of a small, deep pool (Figure 2). The remainder of the previously mapped boundary is characterized by a gently sloping vernal swale with deep furrows from previous land uses. The ponded area had an average length of 117.95 cm and an average width of 14.43 cm. The maximum length was measured at 333.74 cm with a maximum width of 32.89 cm based on the maximum inundation boundary observed in 2023. The average depth was 8.21 cm. It held water for 43 days with a moderate to high coefficient of variation indicating higher changes in water depths following rain events. This could be attributed to the additional input from the coast live oak tree overhang and runoff from the boulders. When fully drained, p14 was bare in the center with a narrow band of vernal pool indicator plant species intermixed with non-native grasses.

e59

Vernal pool e59 is a large, isolated pool located directly east of Rangeland Road, north of Santa Maria Creek. It was one of two pools that remained inundated during the entire monitoring period and had a low coefficient of variation indicating a hydrologically stable vernal pool. Due to the prolonged inundation period, it is anticipated that much of the pool would be bare when fully drained. It had an average length of 312.32 cm with an average width of 208.11 cm and maintained an average depth of 21.03 cm. At the end of the monitoring period, a narrow band of vernal pool indicator plant species intermixed with invasive non-native plant species was found around the pool margin.

e63

Vernal pool e63 is an isolated vernal pool located on the southside of Cagney Swale in a low-lying area within the Preserve. It was inundated for 43 days, reaching a peak depth at the end of March. It had a moderate to high coefficient of variation indicating slightly higher variations in depth. It sustained an average depth of 5.53 cm with an average length of 163.72 cm and an average width of 41.20 cm. After a substantial rain event on March 15, 2023, pool e63 showed an increase in non-native grass cover within the pool (Appendix A).

e56, e58, e61, e62, and e82

Vernal pools e56, e58, e61, e62, and e82 have a shared local watershed and are discussed together for the purposes of this hydrological study. These vernal pools are found within a vernal swale which acts as a tributary to the Santa Maria Creek in years of heavy rainfall and flooding such as in 2023. In more dry years, these pools are individual basins and not connected via surface hydrology; however, in wet years they form an interconnected chain of pools and share a local watershed. After a substantial rain event on March 15, 2023, pools e56 and e62 showed an increase in non-native grass cover (Appendix A).

Vernal pool e56 is located adjacent to vernal pool e58 in a low-lying area within the Preserve. It was inundated for 43 days, reaching a peak depth in early March and a steady draining pattern with a moderate coefficient of variation, indicating it is moderately stable hydrologically. It has an average length of 112.25 cm, an average width of 60.55 cm, and an average depth of 6.57 cm. The eastern pool margin is bordered by a berm. It is uncertain whether this feature impacts the hydrological function of vernal pool e56.

Vernal pools e58 and e61 are located close together within an ephemeral swale where e61 drains west towards e58. They were fully inundated and flooded in March with pool margins blending into the swale. Another peak inundation period occurred after an April rain event and the pools remained inundated until late April. Vernal pool e61 had an average depth of 26.14 cm and was one of two pools that remained inundated throughout the entire monitoring period. It had an average length of 143.72 cm and an average width of 15.51 cm with an average depth of 26.15 cm. Vernal pool e61 had the lowest coefficient of variation, indicating a hydrologically stable vernal pool. Vernal pool e61 consistently had the highest depth of all pools; except for April 17 where two pools had slightly higher depths. It is surrounded by dense non-native grasses which have encroached into the shallow areas of the vernal pool. However, the ponded area held water too long to support vegetation other than floating vegetation such as winged water starwort (*Callitriche marginata*). Vernal pool e58 was dominated by non-native grasses. Vernal pool e58 had a moderate to low coefficient of variation indicating a hydrologically stable vernal pool that supported vernal pool indicator plant species and wildlife life cycles (Appendix A). The average depth was 8.81 cm, the average length was 85.98 cm, and the average width was 18.10 cm.

Vernal pool e82 is a small, shallow vernal pool located adjacent to the ephemeral swale that connects vernal pools e58, e61, and e62. Vernal pool e82 was difficult to locate and could not be defined by a distinct pool edge and basin configuration; therefore, length and width measurements were taken from the existing mapped polygon and the edge of ponding during the

first qualitative monitoring visit. It had an average length of 23.49 cm and an average width of 14.64 cm. The average depth was 0.87 cm, and it was one of two vernal pools that fully drained twice during the monitoring period (two wetting and drying cycles), remaining dry after March 28, 2023, despite additional measurable rain events that filled most pools. It had the highest coefficient of variation indicating low functionality as a result of the shallow topography and numerous wetting and drying periods.

Vernal pool e62 is the easternmost pool within this local watershed and swale. It drains west towards vernal pools e61 and e58. Vernal pool e62 has a large, mapped boundary that floods but does not pond water and a deeper portion that ponds water long enough to support vernal pool indicator species at the eastern edge of the pool. During the 2023 monitoring study, the maximum boundary was refined based on vernal pool plant indicator plant species distribution (i.e., toad rush, winged water-starwort) as shown in Figure 2. The refined mapped area consisted of a smaller ponding area that was observed to function like a vernal pool compared to the more swale-like conditions found in the original mapped pool boundary. Vernal pool e62 had a moderate coefficient of variation and remained inundated until mid-April, indicating a moderately functional vernal pool hydrologically, with a barren center as a result of an average depth of 14.59 cm and prolonged inundation at that depth. It had an average length of 201.53 cm (including the swale areas to the west) and an average width of 16.65 cm.

c20

Vernal pool c20 is an isolated vernal pool located south of the Ramona Airport runway and north of Cagney Swale. It is not connected to other vernal pools and has a small local watershed that gets additional input from runway runoff. It remained inundated for most of the monitoring period with an average depth of 17.66 cm and was fully drained by May 1, 2023. It supported vegetative cover throughout the entire basin. This vernal pool has a low coefficient of variation indicating a hydrologically stable vernal pool that ponds long enough to support vernal pool plant and wildlife species. It had an average length of 105.78 cm and an average width of 93.81 cm.

e53, e77, e52, e48, and e45

Vernal pools e53, e77, e52, e48, and e45 have a shared local watershed and are in close proximity to each other, sharing a similar mima mound topography, resembling small irregularly shaped hills. They appear to be hydrologically connected with water flowing between them during flood events. These vernal pools are discussed together for the purposes of this hydrological study.

Vernal pool e53 is located on the southside of the Ramona Airport on the eastern side of the Preserve. It maintained an average depth of 12.37 cm and was fully drained by early May with a moderate coefficient of variation indicating a hydrologically stable vernal pool that ponds water for a long enough duration to support vernal pool plant and wildlife species. Vernal pool e53 had an average length of 64.80 cm and an average width of 28.47 cm.

Vernal pool e77 had a high coefficient as a result of a significant drop in depth within 3 days of maximum inundation twice during the monitoring period indicating a vernal pool with limited hydrological functionality; however, vernal pool indicator plant species and wildlife species were

still detected. It had an average length of 34.04 cm, an average width of 31.99 cm, and average depth of 3.73 cm. Vernal pool e77 reached a maximum depth twice but did not respond to the mid-April rain event, staying dry for the remainder of the monitoring period.

Vernal pool e52 is a crescent-shaped pool with two ponding areas that flow together in years of adequate and above-average rainfall; however, the north end drains into the deeper area at the southern end. Ponding was continuous with an average depth of 9.29 cm and had a moderate coefficient of variation indicating a hydrologically stable vernal pool that ponds water for a long duration to support vernal pool plant and wildlife species. The average length was 59.62 cm with an average width of 27.65 cm.

Vernal pool e48 is located above e52 within the same immediate watershed where in years of adequate or above-average rainfall, e48 would drain into e52. Vernal pool e48 had a moderate coefficient of variation with continuous inundation until it fully drained, indicating a hydrologically stable vernal pool with a ponding duration long enough to support vernal pool plants and animals. Vernal pool e48 had an average length of 61.73 cm, an average width of 33.26 cm, and an average depth of 7.88 cm. It had a steady evaporation rate throughout the monitoring period, which provided native vernal pool species an opportunity to reproduce.

Vernal pool e45 is located south of the Ramona Airport runway and is 450 feet from the other pools in this group. It is located below e48 between mima mounds and drains towards the southeast side of the Preserve and away from the other vernal pools discussed in this group. It is discussed in this group because it is part of the larger vernal pool complex that exists within this section of the Preserve. It was inundated until early April when it drained 6.00 cm in 7 days after maintaining an average depth of 5.48 cm. Vernal pool e45 had an average length of 42.26 cm and an average width of 22.02 cm. It had a moderate coefficient of variation as a result of rapid draining indicating a moderately stable pool hydrologically that drains quickly and may not support water for a long enough duration to support vernal pool plant and wildlife species.

ev3

Vernal pool ev3 is a small, isolated pool located on the north side of the floodplain and found next to a small unnamed tributary to Santa Maria Creek. The tributary flooded the area and vernal pool ev3 was part of the flow for several weeks in 2023. Vernal pool ev3 was continuously inundated throughout the monitoring period with an average depth of 21.22 cm until it dropped 7 cm between April 17 and April 24. The average length was 20.95 cm and the average width was 20.46 cm. It has a low coefficient of variation indicating a hydrologically stable vernal pool; however, due to the prolonged inundation, it is anticipated that the center would be bare when fully drained.

c3e

Vernal pool c3e is an isolated pool that is fenced on all sides, located outside of the Preserve boundary on the east side of Ramona Airport Road. It receives additional water input from road runoff. Though weekly hydrological monitoring data was not collected, ESA observed continuously ponded water until April 24, 2023, at which point it was fully drained. The April 17,

2023, visit recorded a depth of 4.80 cm, an average length of 78.89 cm, and an average width of 40.61 cm. Because this pool was visually observed only, it is not summarized in Table 13.

raap17

Alkali playa raap17 is a long, narrow playa bisected by a cattle trail that creates conditions for ponding that is restricted to the width of the trail. This alkali playa drains via a trail into a vernal swale that drains into a tributary to the Santa Maria Creek. It is located on the southside of the ephemeral swale in the Santa Maria Creek floodplain. It is shallow with a barren center caused by the trail which also acts as a path for water to flow out of the basin. It fully drained and filled twice during the monitoring period. The high coefficient of variation for raap17 indicates that this feature has a variable inundation and rapid draining period, which supports the alkali playa classification. The average length of raap17 was 117.08 cm and the average width was 10.60 cm with an average depth of 1.36 cm.

Cagney Swale

The Cagney Swale is an aquatic feature which runs through the Preserve from Ramona Airport towards the Santa Maria Creek. It is functioning as an incised ephemeral channel and supported a continuous flow of water throughout the monitoring period. Length, width, and depth data were not routinely documented as part of 2023 hydrological monitoring as this feature does not function like a vernal pool, vernal swale, or alkali playa. However, length, width, and depth data were collected five times during the monitoring period with the average length at 3.57 meters and the average width at 12.39 cm. The maximum depth recorded on March 3, 2023, was 40.00 cm and still supported a depth of 15.50 cm with continuous flowing water on May 1, 2023. Because Cagney Swale was not included in the hydrological monitoring study, it is not summarized in Table 13.

4.1.2 Qualitative Monitoring

Qualitative monitoring was conducted to assess and record functions and threats to the Ramona Grasslands County Preserve vernal pools and alkali playas in spring 2023. Vernal pools are considered sensitive because of the unique character of the habitat and plants and wildlife found only in and around vernal pools. The Preserve's vernal pools supported several vernal pool indicator plant species, such as woolly marbles (*Psilocarphus brevissimus*), winged water-starwort, toothed downingia (*Downingia cuspidata*), and Howell's quillwort (*Isoetes howellii*), as well as other native and non-native grasses and forbs. Aquatic invertebrates, including fairy shrimp (*Branchinecta* spp.), seed shrimp (*Ostracoda*), copepods (*Acanthocyclops* sp.), and amphibian tadpoles and toadlets, including western spadefoot toad (*Spea hammondii*) and California toad (*Anaxyrus boreas halophilus*), were observed in the vernal pools. Seed shrimp are an important part of the food web in vernal pools because they specialize in feeding on the organic detritus, helping decompose algal crusts and plant biomass accumulation on the bottom of the pool. The presence of seed shrimp in the vernal pools indicates that the pool is ponding long enough to support plant and wildlife life cycles.

In 2023, the Preserve received an above-average amount of rainfall and vernal pool basins appeared to have filled to their maximum capacity. This provided an opportunity for several

plants and wildlife to express themselves, but also gave ample time for non-native grasses to grow and become abundant. Some pools held water for a prolonged inundation period, which may have influenced vernal pool plant survival, richness, and/or abundance. The vernal pools are subjected to grazing to reduce non-native grass cover. The overall vernal pool habitat and vernal pool complex conditions are moderate to low with most pools exhibiting a moderate to high functionality. Many pools remain self-sustaining with some adaptive management; however, some pools require more intensive management to maintain the vernal pool and alkali playa plants and wildlife that inhabit them such as p7, p13, p14, e58, e63, e61, e45, and raap17.

The Preserve also supports alkali playas. These playas are not considered true vernal pools as they consist of small barren alkaline openings surrounded by grasslands that inundate less frequently and for a shorter duration than vernal pools, causing a habitat comprising unique flora. The Preserve's alkali playas support Parish's brittlescale, Coulter's saltbush (*Atriplex coulteri*), dwarf peppergrass (*Lepidium latipes*), and southern tarplant (*Centromadia parryi* ssp. *australis*). The alkali playas also support an abundance of non-native Boccone's sand spurrey (*Spergularia bocconi*), which outcompetes Parish's brittlescale and Coulter's saltbush for resources and growing space. Qualitative monitoring was conducted only on alkali playa raap17, which occurs as part of a subtle low-gradient swale on the north side and runs parallel to the Santa Maria Creek. The overall habitat condition of raap17 is low to moderate primarily due to the invasion of Boccone's sand spurrey. Alkali playa raap17 is discussed in more detail below.

Cagney Swale is an ephemeral feature that flows and ponds water in scour pools during the wet season and is dry during the summer months in a typical rainfall year. However, in years of average and above-average rainfall, the Cagney Swale can flow for several months and acts as a tributary to the Santa Maria Creek. In 2023, the Cagney Swale was swiftly moving and did not support isolated scour pools that could support fairy shrimp. Plant species such as grass poly and toad rush were found along the bank above the waterline.

A list of observed vernal pool indicator species along with other native plants, non-native plants, and incidental wildlife observations of any sensitive wildlife species, including fairy shrimp and western spadefoot toad is presented in Appendix A. Additional representative photographs are provided in Appendix A. Qualitative monitoring results are presented in **Table 14**.

The presence of non-native vegetation in a vernal pool generally deteriorates the quality, value, and integrity of a vernal pool. Decaying upland vegetation (e.g., longbeak stork's bill) that is submerged in pools when they are inundated can cause a buildup of tannins (the color left in water from decaying vegetation) in the water, which can affect water quality and result in a reduction in plant species diversity in the vernal pools. Suspended solids and turbid conditions reduce the amount of light penetration to the pool bottom where seeds and seedlings are found and may result in a low abundance and cover of vernal pool indicator species or a high mortality in the center of pools (e.g., p7, e59, and e61). Removal of non-native vegetation can improve the functionality of a vernal pool or alkali playa.

TABLE 14
VERNAL POOLS AND ALKALI PLAYA QUALITATIVE MONITORING RESULTS

Vernal Pool/Alkali Playa	Water Quality/Edge Effects					Trespass/Topographic Disturbances							
	Turbidity	Algae	Tannins	Suspended Solids	Bird Waste	Invasive Non-Native Plant Species	Vehicular	Cattle Trails	Grazing	Erosion	Cow Patties	Trampling	Trash
p7	X	X	X	X	X	X		X	X	X	X	X	X
p13	X	X	X	X	X	X		X	X		X	X	
p14	X	X	X	X		X		X	X		X	X	
e59	X	X	X	X	X	X		X	X	X	X	X	X
e63	X	X	X		X	X		X	X		X	X	
e56		X	X		X	X		X	X		X	X	
e58	X	X	X	X	X	X		X	X		X	X	
e61	X	X	X	X	X	X		X	X		X	X	
c20	X	X	X			X	X[2]	X	X		X	X	
e82	X	X				X			X			X	
e62	X	X	X			X		X	X		X	X	
e53	X	X	X			X			X		X	X	
e77	X	X	X			X			X		X	X	
e52	X	X	X			X			X		X	X	
e48	X	X	X		X	X			X		X	X	
e45	X	X	X			X			X		X	X	
ev3	X	X	X			X		X	X		X	X	
c3e[1]	X	X	X			X	X[3]	X					
raap17	X	X	X	X	X	X		X	X	X	X	X	
Cagney Swale	X	X	X			X		X	X	X	X	X	X

NOTES:
Observations were collected throughout the entire vernal pool monitoring period.
X = present
1. Pool c3e is located outside of the Ramona Grasslands Conty Preserve boundary.
2. Sign of vehicular use was detected within two feet of the southern pool edge. Disturbance occurred when soil was dry.
3. Historical sign of vehicular use. Pool is currently fenced, and no new vehicular disturbance was detected.

Plants and animals found in individual vernal pools and alkali playas may change over time as a result of plant or wildlife dispersal, disturbances, drought, or other factors. Many of the pools within the study have been degraded by various stressors (e.g., cattle grazing, non-native plant species invasion) which have reduced their functionality and value. The results of the qualitative monitoring identified several trends and observations. Size did not appear to contribute significantly to higher function and value, as both the smallest and largest pool (e82 and e59, respectively) contained vernal pool indicator species. Turbidity was observed in all pools except vernal pool e56, and

tannins were detected in all pools except vernal pool e82. Algae is an important part of vernal pool processes and was detected in all vernal pools. Invasive non-native plant species were observed in all pools with Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*) being the dominant invasive non-native plant species encountered. Grazing effects, including evidence of trampling, were detected in all pools except vernal pool c3e. Cow patties were observed in all pools except vernal pools e82 and c3e and fresh cow patties were observed in vernal pools p7 and e59. Remnant cow patties were observed in vernal pool p13 and in the e53–e45 vernal pool complex on the eastern side and around vernal pool e63 and alkali playa raap17. Vernal pools p7, e59, and alkali playa raap17 were found to be affected by all factors listed in Table 14 except vehicular traffic. No vernal pool was found to support threatened or endangered plant species. The overall ecological function and value of each monitored feature is summarized below by feature or group/complex.

p7

This pool is relatively flat with a diffuse edge with the Santa Maria Creek to the northeast. Vernal pool p7 was impacted by grazing and trampling in the pool; cattle trails observed along the pool edge resulted in consistent turbid conditions as well as changes to the topography of the pool and pool edge, causing water to drain to the north. Solid waste (i.e., bird and cattle) accumulated in the water resulting in suspended solids and a buildup of tannins. Vernal pool indicator plant species were found along the edge during the first qualitative monitoring visit and include toad rush and winged water-starwort, but in future visits, trampling of the vegetation by cattle along the margin was detected along with an increase in grass poly and other invasive non-native grasses (i.e., Mediterranean barley and soft brome [*Bromus hordeaceus*]). Vernal pool p7 did not support vegetation throughout most of the pool basin, likely due to a long ponding duration and grazing during the wet phase. Vernal pool p7 was an important area for wading birds such as American wigeon (*Mareca americana*), which were observed resting and foraging in the vernal pool on several occasions.

p13

Vernal pool p13 is a large shallow pool supporting a high cover and abundance of vernal pool plant indicator species such as American pillwort (*Pilularia americana*), winged water-starwort, and toad rush as well as invasive non-native grass poly and longbeak stork's bill. Previous land use practices left scars on the landscape and within vernal pool p13, providing areas that pond water when other areas are in a drying phase, resulting in a pool that supports vernal pool indicator species. Upland plant species such as clustered tarweed, needle goldfields (*Lasthenia gracilis*), and common muilla (*Muilla maritima*) were found along the pool margins and invasive non-native plant species detected included Italian ryegrass (*Festuca perennis*) and longbeak stork's bill, which dominated the pool margins. It also supported aquatic wildlife species such as fairy shrimp, copepods, and seed shrimp.

p14

The vernal swale leading to vernal pool p14 is dominated by California goldfields (*Lasthenia californica*) and invasive non-native longbeak stork's bill with a few vernal pool indicator plant species (i.e., toad rush, water pygmyweed [*Crassula aquatica*]) found in the furrows where water is able to pond. The deepest point is located at the western end at the base of a boulder outcrop with a coast live oak tree growing in the center. The water was clear, with tannins present, which can be

attributed to coast live oak leaves and decaying longbeak stork's bill plant material. The ponded area of vernal pool p14 supported winged water-starwort and toad rush. Hoof prints were visible surrounding the ponded area of the pool and along the pool margins, which supports dense patches of invasive non-native Mediterranean barley, Italian ryegrass, and brome grasses (*Bromus* spp.).

e59

Vernal pool e59 is a large vernal pool adjacent to a berm along Rangeland Road and can be characterized by a meandering vegetative pool margin with a bare center due to prolonged inundation in 2023. It remained inundated during the entire monitoring period and had a fluctuating floral display that was affected by wading birds foraging and resting in the vernal pool and along the margins. The water conditions were clear with a buildup of tannins due to decaying vegetation and prolonged inundation. Suspended solids were observed in the water and are the result of wading birds foraging in the pool and some trash accumulation blown in from Rangeland Road. This vernal pool had deep cattle prints along the margins and cow patties observed in and along the edge of the vernal pool. Longbeak stork's bill was the dominant plant species in the upland areas along the pool margins. Vernal pool indicator species such as toad rush and prairie plantain (*Plantago elongata*) as well as western spadefoot toads, seed shrimp, and fairy shrimp were observed within vernal pool e59. During the spring of 2023, vernal pool e59 was an important area for resting and foraging wading birds such as American wigeon.

e63

Vernal pool e63 is an isolated pool found on the Cagney Swale floodplain in a low-lying area within the Preserve. During the wet season, winged water-starwort, flowering quillwort (*Triglochin scilioides*), and pale spike-rush (*Eleocharis macrostachya*) were observed with seed shrimp, copepods, and western spadefoot toad tadpoles. Invasive non-native plant species such as Italian ryegrass and Mediterranean barley were found mixed with toad rush, coast popcorn flower (*Plagiobothrys undulatus*), and American pillwort along the margins of the vernal pool as it began to dry down. Water conditions were clear with tannin buildup resulting from decaying upland vegetation, prolonged ponding, and some turbidity after rain events. Hoof prints were observed throughout the pool, and trails were observed leading toward Cagney Swale. This area of the Preserve was heavily flooded after winter rains and vernal pool e63 was inundated until mid-April. The inundation boundary was obscured by non-native grasses, which were found encroaching into the pool during the dry phase.

e56, e58, e61, e62, and e82

Vernal pools e56, e58, e61, and e82 are part of a vernal swale and have a shared local watershed and a similar shape and topography. They are discussed together for the purposes of this qualitative monitoring discussion. These pools are located in close proximity to and drain into each other during heavy precipitation and flooding events. Vernal pool e56 shares a local watershed with e58 and flooding was observed between pools along the vernal swale. The vernal swale has a cattle trail running from vernal pool e62 west toward and through vernal pools e61 and e58 down the center and is surrounded by non-native grassland. They were fully inundated and flooded in March with pool margins blending into the swale, making it difficult to discern individual pool boundaries.

Vernal pool e56 is a moderately sized vernal pool with a dirt berm forming the eastern edge, creating a triangular shape. It is located adjacent to e58 but outside the vernal swale. This vernal pool is dominated by encroaching invasive non-native Mediterranean barley and Italian ryegrass but still supports vernal pool indicator plant species, such as toad rush, pale spike-rush, Howell's quillwort, flowering quillwort, woolly marbles, and winged water-starwort, with small cover and abundance values, and aquatic fauna, including seed shrimp. Decaying grasses created tannins in the water and wading bird usage created suspended solids and turbid water conditions during a portion of the monitoring period. Evidence of cattle usage was detected by the presence of cow patties and a cow trail crossing through the pool basin.

Vernal pool e58 is located within the vernal swale at the southern end. It is a small, narrow vernal pool with clear water but with a buildup of tannins attributed to decaying upland vegetation. Ducks and wading birds were observed foraging in vernal pool e58, creating turbid conditions with suspended solids (i.e., floating vegetation and duck waste) in the water. The vernal pool edge was covered with algal matting and non-native grasses encroached into the pool; however, vernal pool indicator plant species such as woolly marbles, prairie plantain, toothed downingia, toad rush, and winged water-starwort were still detected. Despite an average depth of 8.81 cm, vernal pool e58 supported several upland plants, including clustered tarplant, southern tarplant, and doveweed (*Croton setiger*).

Vernal pool e61 is a long, narrow vernal pool located within a vernal swale. It supports winged water-starwort and pale spike-rush in low abundance and cover and toad rush and invasive non-native grass poly in low cover along the pool margins. Fairy shrimp and seed shrimp were observed in the pool. It was one of two pools to remain ponded and not completely dry during the monitoring period, resulting in a deep pool with steep sides. Water conditions were turbid, and tannin buildup created limited visibility in the water. Invasive non-native grasses including Mediterranean barley and Italian ryegrass and invasive non-native forbs such as African brass buttons (*Cotula coronopifolia*) and longbeak stork's bill were observed growing along the pool margin.

Vernal pool e62 water conditions were often turbid with algal mats as a result of ponding water for several months. This created a bare pool basin with a narrow band of vernal pool indicator plant species including woolly marbles, water pygmyweed, winged water-starwort, and invasive non-native grass poly with low cover and abundance along the pool margins. Within the larger mapped polygon, clustered tarweed, common peppergrass (*Lepidium densiflorum*), longbeak stork's bill, Italian ryegrass, and Boccone's sand spurrey were observed in high cover and abundance.

Vernal pool e82 is located between vernal pools e61 and e62. It is a small, shallow depression that was dominated by facultative (upland plants that can be found in mesic and wetland soils) plant species such as Mediterranean barley, longbeak stork's bill, dwarf brodiaea (*Brodiaea terrestris* ssp. *kernensis*), clustered tarweed, and grass poly, but did not pond water long enough to support vernal pool indicator plant species, which often indicate the high water mark for a vernal pool. When the water was ponded, conditions were clear. Cattle hoof prints and cow patties were observed within the mapped boundary.

c20

Vernal pool c20 is an isolated pool and has a man-made berm that forms the northern edge along the Ramona Airport runway frontage road, and a T-post and barbed wire fence that bisects the pool from east to west along with an established cow trail that runs parallel to the fence. It is a large pool with a shallow ponding area on the west side dominated by longbeak stork's bill, toad rush, and toothed downingia, and a deeper ponding area up against the berm to the east that is dominated by pale spike-rush and hairy water clover (*Marsilea vestitus*). As the pool dried down, American pillwort, toad rush, and adobe popcorn flower (*Plagiobothrys acanthocarpus*) covered the pool bottom. Water conditions were clear throughout the monitoring period. The nearly constant average depth of 17.66 cm provided habitat for a variety of aquatic invertebrates (i.e., fairy shrimp, seed shrimp, and western spadefoot tadpoles) and vernal pool indicator plant species such as winged water-starwort, waterwort (*Elatine* spp.), and water pygmy weed. Invasive non-native grass poly and longbeak stork's bill were the dominant plants along the pool margin. Wading birds such as greater yellowlegs (*Tringa melanoleuca*) and upland wildlife species such as California horned lark (*Eremophila alpestris*) were observed utilizing vernal pool c20 on several occasions. Vernal pool c20 has high functionality and value based on species diversity and stable hydrological conditions.

e53, e77, e52, e48, and e45

The vernal pool complex which includes vernal pools e53, e77, e52, e48, and e45 on the southside of the Ramona Airport tarmac and frontage road have a similar shape and are connected hydrologically by surface flows and mima mounds, which direct the flow of water between pools. The pools in this complex exhibited a steady drying phase and supported an abundance of vernal pool indicator plant species (i.e., toothed downingia, toad rush, and pale spike-rush). Fairy shrimp, seed shrimp, and western spadefoot tadpoles were observed in the pools throughout the monitoring period.

Vernal pool e53 is found between two mima mounds and was dominated by pale spike-rush and winged water-starwort during the wet phase, with an abundance of tadpoles, fairy shrimp, and seed shrimp present. During the dry phase, native toothed downingia, woolly marbles, annual hairgrass (*Deschampsia danthonioides*), and pale spike-rush were codominant with invasive non-native Mediterranean barley, Italian ryegrass, and longbeak stork's bill. Toad rush, grass poly, and adobe popcorn flower created a ring around the pool. Other unique vernal pool indicator plant species detected included waterwort, chaffweed (*Lysimachia minimus*), and American pillwort. Water conditions were clear with a buildup of tannins as a result of decaying upland vegetation species.

Vernal pool e77 is a circular pool surrounded by mima mounds within the drainage area of vernal pool e52. It supports pale spike-rush, toad rush, winged water-starwort, longbeak stork's bill and aquatic invertebrates including seed shrimp and copepods during the wet season. American pillwort, dwarf brodiaea, Mediterranean barley, Italian ryegrass, and longbeak stork's bill were dominant during the dry season. Water conditions were clear but encroaching upland plant species created a buildup of tannins which did not appear to affect vernal pool flora and fauna.

Vernal pool e52 had two ponding areas. The western basin had the deepest point and held water for almost two months with a steady rate of evaporation, creating conditions that support toothed downingia, winged water-starwort, pale spike-rush, flowering quillwort, grass poly, and aquatic invertebrates, including copepods and seed shrimp species. Invasive non-native Mediterranean barley, Italian ryegrass, and longbeak stork's bill were abundant along the pool margins and within the northern pool basin. Water conditions were clear throughout the monitoring period.

Vernal pool e48 supported a diverse suite of vernal pool indicator plant species including winged water-starwort, pale spike-rush, purslane speedwell (*Veronica peregrina* ssp. *xalapensis*), grass poly, toothed downingia, woolly marbles, and prairie plantain. Aquatic fauna such as fairy shrimp and western spadefoot toad tadpoles were observed throughout the vernal pool during the wet season. There was an abundance of invasive non-native plant species such as longbeak stork's bill, Italian ryegrass, and Mediterranean barley along the pool margins with African brass buttons and scarlet pimpernel (*Lysimachia arvensis*) intermixed with native plant species such as blue-eyed grass (*Sisyrinchium bellum*), balloon-sack clover (*Trifolium depauperatum*), adobe popcorn flower, and annual hairgrass. Water conditions were clear and vernal pool species were able to complete their full life cycle.

Vernal pool e45 is a shallow pool that supports a mix of vernal pool indicator species and more common wetland species such as iris leaved juncus (*Juncus xiphioides*) as well as clustered tarweed and longbeak stork's bill, which were found along the pool margin and inside the pool basin. Vernal pool indicator plant species detected include woolly marbles, balloon-sack clover, chaffweed, winged water-starwort, toad rush, and adobe popcorn flower. Aquatic fauna observations include seed shrimp and western spadefoot tadpoles. Water conditions were clear with a buildup of tannins as a result of decaying vegetation in the pool basin.

ev3

Vernal pool ev3 is a small, round, deep, isolated pool located in the floodplain of an ephemeral tributary to the Santa Maria Creek. Due to the above-average rainfall, vernal pool ev3 became part of the water flow through the tributary and did not become a distinct basin until late April; therefore, the length and width measurement were taken based on the revised mapping (Figure 2). Vernal pool ev3 does not support a diverse suite of plant and wildlife species, but supported an abundance of woolly marbles, western spadefoot tadpoles, and small patches of hairy water clover and pale spike-rush within the basin. Non-native grasses surrounded the pool and were found in the basin, including Mediterranean barley, oats (*Avena* spp.), and bromes. Water conditions were clear, with algae forming and eventually taking over the surface of the water, inhibiting woolly marbles from reaching the water surface and clinging to pale spike-rush stems as the water evaporated. Cattle hoof prints, observed throughout the vernal pool and along the pool edges, allow non-native grasses an opportunity to further encroach into the vernal pool. Edge effects, including trampling during the wet season, may result in soil disturbance and may crush vernal pool plant species, creating favorable conditions for invasive non-native plant species to encroach into the vernal pool and degrade the quality of habitat that supports vernal pool indicator species (Zedler 1987; City of San Diego 2017).

c3e

Vernal pool c3e is an isolated pool found on the northeast side of Ramona Airport Road. It is fenced on all sides and has old ruts along the northern edge that ponds water long enough to support vernal pool indicator plant species such as toad rush, woolly marbles, and pale spike-rush, intermixed with invasive non-native Mediterranean barley and Italian ryegrass. This pool was ponded for most of the monitoring period and supported a population of stonewort algae (*Nitella clavata*), a type of green algae species that can take over a vernal pool, depleting it of oxygen, diversity, and resources. The water quality was turbid with algal matting and an abundance of non-native grasses.

raap17

Alkali playa raap17 fully drained and filled twice during the monitoring period indicating rapid draining and maximum soil saturation as evidenced by the alkali playa remaining dry after the April rain events which filled most of the pools. Raap17 supports Coulter's saltbush, which was found growing with Scribner's grass (*Scribneria bolanderi*), southern tarplant, and salt grass (*Distichlis spicata*) along the edge of the trail in open areas between dense patches of Boccone's sand spurrey and Mediterranean barley. Italian ryegrass was found closer to the trail edge which also supported grass poly, longbeak stork's bill, toad rush, and a few small patches of winged water-starwort that quickly germinated during inundation. However, the playa did not pond long enough for the patches to elongate and create floating leaves. Invasive non-native plant species such as Boccone's sand spurrey and Mediterranean barley appeared to be outcompeting Couter's saltbush for resources and crowding it where it was growing.

Cagney Swale

Cagney Swale is a deep, ephemeral channel with high flows that create undercutting, erosion, and deep scour pools. During the spring of 2023, Cagney Swale had fast-moving currents and small waterfalls in several areas along the length from Ramona Airport to Santa Maria Creek. Flooded conditions were persistent along the floodplain, including at the end where it becomes a vernal swale before flowing into deep pools and eventually into the creek. Water conditions were turbid as a result of the fast-moving currents, turning clear toward the end of April, when flows slowed down and flooded areas dried out. The channel supported sparse patches of grass poly, toad rush, western ragweed (*Ambrosia psilostachya*), southern tarplant, and the non-native mayweed (*Anthemis cotula*). Banks were steep and bare and the channel bottom was sandy and did not support vegetation.

4.1.3 Focused Management

Based on 2022 adaptive management recommendations, focused invasive non-native plant management was conducted at 15 vernal pools (p13, p14, p7, e56, e58, e61, e82, e62, e53, e77, e52, e48, e45, ev3, and e59) and one alkali playa (raap17) as well as 3 additional alkali playas that are not currently part of regular monitoring: raap4, raap6, and raap1 within Ramona Grasslands County Preserve in 2023 (Figure 2). Management consisted of carefully hand-pulling target invasive non-native plant species within the pool boundaries and line trimming a 3-foot

buffer around the pool margins, totaling a 2.64-acre management area. Representative management photographs are provided in Appendix A.

4.1.4 Adaptive Management Recommendations

The TMP recommends overall invasive non-native plant cover within vernal pool basins to be kept to less than 20 percent (ESA and ICF 2022). Based on qualitative monitoring observations made during the 2023 surveys, vernal pool and alkali playa habitat suitability for vernal pool indicator plant and wildlife species has declined. This is likely due to variable climatic conditions such as drought and flooding, a lack of year-to-year natural recruitment of native plant species and high invasive non-native grass cover, resulting in less complex vegetation composition and structure, and a decline in species abundance and species distribution within the pools and playas.

The results of the 2023 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Adjust monitored vernal pools and playas.** Quantitative and qualitative monitoring should continue for 19 study locations (i.e., p13, p14, p7, e56, e58, e61, e62, e77, e52, e48, e45, ev3, e59, e53, c20, c3e, e63 Cagney Swale, and raap17). Based on the results of fairy shrimp surveys conducted in 2022 and hydrological and qualitative monitoring conducted in 2023, vernal pool e82 did not pond water long enough to support vernal pool indicator plant and wildlife species; therefore, this pool is thus recommended to be removed from monitoring as it is no longer functioning as a vernal pool and is unlikely to support vernal pool species based on conditions observed in an above-average rainfall year. Because alkali playa management is being conducted at the three alkali playas (i.e., raap4, raap6, and raap14), it is recommended that these study locations be added to future monitoring. Quantitative and qualitative monitoring frequency should follow the TMP-recommended frequencies (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 2023 surveys (see representative photographs in Appendix A). This change in hydrology may be contributing to the drying of adjacent vernal pool and alkali playa habitats. A hydrological study of the Cagney Swale is recommended to determine if altered hydrology is occurring and inform adaptive management strategies (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).
- **Continue focused invasive non-native plant management.** Focused invasive non-native plant management should continue at p13, p14, p7, e56, e58, e61, e62, e53, e77, e52, e48, e45, ev3, e59, and raap17, and the 3 alkali playas raap4, raap6, and raap14 that are not currently part of qualitative or quantitative monitoring. Based on the results of previous fairy shrimp surveys and 2023 hydrological monitoring and qualitative monitoring, vernal pool e82 did not function like a vernal pool and is no longer recommended to be included in focused management. 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. At the County's discretion, an aquatic-safe herbicide may be used after the first maintenance visit in accordance with the TMP (ESA and ICF 2022).

- **Implement fencing pilot study.** Many vernal pools and alkali playas continued to have numerous hoof prints and noticeable changes in size, depth, and shape, in addition to a decline in vernal pool species during the 2023 surveys. A fencing pilot study is recommended to determine the effects of cattle grazing on existing vernal pool and alkali playa habitats. The pilot study would consist of installing exclusionary fencing around one vernal pool (e59) and one alkali playa (raap17) within the Ramona Grasslands County Preserve. Vernal pool e59 is proposed because it has been documented to support high abundance, cover, and composition of vernal pool indicator plant species year over year. It is also located adjacent to existing fencing surrounding the boundary of the Ramona Grasslands County Preserve, which would reduce fencing cost and effort. Alkali playa raap17 is proposed because it has been documented to support three special-status plant species (Parish's brittlescale, Coulter's saltbush, and southern tarplant). 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 2019b). Working with the rancher to minimize cattle grazing within management units containing vernal pool and alkali playa resources (particularly management unit 2A) during the wet season could benefit native vernal pool species richness, improve the overall hydrology 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 with low non-native cover that have demonstrated sufficient ponding periods to support vernal pool plant species across the pool gradient to increase and enhance native species richness, diversity, and natural recruitment year-to-year. Seeding should be conducted with the goal of capturing a natural rainfall pattern and should be implemented in late fall and early winter prior to a rain event. Weed control efforts in the summer would prepare the vernal pool basins and alkali playas to receive native seed through thatch removal and invasive non-native plant species control while leaving the soil surface undisturbed.

4.2 Rare Plant Monitoring and Focused Management

Rare plant monitoring was conducted at 27 permanent monitoring plots at seven preserves in 2023. Rare plant monitoring consisted of one San Diego thornmint monitoring plot at Simon County Preserve, eleven San Diego thornmint monitoring plots at Sycamore Canyon/Goodan Ranch County Preserve, three Encinitas baccharis monitoring plots at Del Dios Highlands County Preserve, two San Miguel savory monitoring plots at Boulder Oaks County Preserve, two Otay

tarplant monitoring plots at Furby-North County Preserve, two Orcutt's bird's-beak monitoring plots at Tijuana River Valley Regional Park, one variegated dudleya monitoring plot at Lusardi Creek County Preserve, two variegated dudleya monitoring plots at Sycamore Canyon/Goodan Ranch County Preserve, and three willowy monardella monitoring plots at Sycamore Canyon/Goodan Ranch County Preserve. One new Otay tarplant monitoring plot was established in 2023; all other rare plant monitoring was conducted at previously established permanent monitoring plots.

A summary of the monitoring plots, monitoring results, and management recommendations are provided in **Table 15**. Photographic monitoring and representative photographs of the monitored and managed plots are provided in **Appendix B**, *MSP Rare Plant Monitoring – Permanent Photographic Monitoring & Representative Photographs*. MSP Rare Plant Occurrence Monitoring Forms, which include Rare Plant Habitat and Threats Assessments, are provided in **Appendix 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 2023. A total of 6,000 San Diego thornmint plants were estimated within the monitoring plot. The entire population of San Diego thornmint within Simon County Preserve in 2023 is estimated at 6,000 plants. Monitoring plot, center point, photo point, and maximum extent are shown in **Figure 3**. Photo monitoring and representative photographs are provided in Appendix B. Special-status plant species detected inside and outside the monitoring plot included Palmer's grappling hook (*Harpagonella palmeri*) (Figure 3). The San Diego thornmint habitat contained invasive non-native grasses and herbs, particularly slender oat, tocalote, and annual fescue.

Monitoring Plot Number ACIL_4SIPR026_1

Monitoring plot ACIL_4SIPR026_1 is in the central portion of the San Diego thornmint population. Approximately 6,000 San Diego thornmint plants were estimated within the monitoring plot; 50 to 75 percent were flowering, the remaining were vegetative or dead. Total vegetative cover within the plot was 53.6 percent, with 48.2 percent native plant cover and 5.4 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, and smooth cat's ear (*Hypochaeris glabra*). Non-native plant species included foothill filaree (*Erodium brachycarpum*), small fescue (*Festuca microstachys*), cretanweed (*Hedypnois magadioloides*), narrowleaf cottonrose (*Logfia gallica*), annual yellow sweetclover (*Melilotus indicus*), and spiny sowthistle (*Sonchus asper*). Special-status plant species detected outside the plot included Palmer's grappling hook (Figure 3).

TABLE 15
MSP 2023 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 *Acanthominth a ilicifolia*	Simon	_ ACIL_4SIPR026_1	E 516451 N 3654129	6,000	12.0	18	48.2	15	5.4	Continue MSP rare plant monitoring of population.
San Diego thornmint *Acanthominth a ilicifolia*	Sycamore Canyon/ Goodan Ranch	SYGOACIL01 ACIL_4SYCA027_1	E 501592 N 3644272	1,035	0.2	20	27.0	11	37.8	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.
		SYGOACIL02 ACIL_4SYCA027_2	E 501522 N 3644277	72	0.2	16	10.6	10	32.8[c]	
		SYGOACIL03 ACIL_4SYCA027_3	E 501546 N 3644380	800	1.0	27	38.4[d]	13	5.2	
		SYGOACIL04 ACIL_4SYCA027_4	E 502555 N 3643683	0	0	14	13.4[e]	9	28.6	
		SYGOACIL05 ACIL_4SYCA027_5	E 502915 N 3643523	193	0.2	24	50.8[f]	7	21.2[g]	
		SYGOACIL06 ACIL_4SYCA027_6	E 502252 N 3644084	6,457	2.0	18	38.8	11	2.2	
		SYGOACIL07 ACIL_4SYCA027_7	E 502375 N 3644068	549	1.0	17	22.6	7	31.2	
		SYGOACIL08 ACIL_4SYCA027_8	E 502267 N 3644249	1,262	1.0	26	13.0	10	26.8	
		SYGOACIL09 ACIL_4SYCA027_9	E 501735 N 3644404	1,336	1.0	19	24.0	9	27.4	
		SYGOACIL10 ACIL_4SYCA027_10	E 501927 N 3644370	850	3.0	20	38.2[h]	8	2.4	
		SYGOACIL11 ACIL_4SYCA027_11	E 502683 N 3643722	323	0.2	22	31.0[i]	7	20.0	
Encinitas baccharis *Baccharis vanessae*	Del Dios Highlands	DD201501 BAVA3_6DDHP004_1	E 488075 N 3658452	4	0.2	23	53.0[j]	2	0.4	Continue MSP rare plant monitoring of population. Thin native vegetation to reduce trampling during monitoring.
		DD201502 BAVA3_6DDHP004_2	E 488143 N 3658472	3	0.2	18	61.0[k]	3	0.6	
		DD201503 BAVA3_6DDHP004_3	E 488033 N 3658465	33	3.0	21	49.4[l]	3	0.6	

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 Miguel savory *Clinopodium chandleri*	Boulder Oaks	BOCLCH01 CLCH5_4BOPR002_1	E 505067 N 3646951	80	2.0	24	65.2[m]	4	0.8	Continue MSP rare plant monitoring of population. Continue management of invasive non-native grasses and forbs, particularly perennial veldtgrass at BOCLCH02.
		BOCLCH02 CLCH5_4BOPR002_2	E 505422 N 3647075	52	2.0	21	66.8[n]	5	1.0	
Otay tarplant *Deinandra conjugens*	Furby-North	_ DECO13_3OMEA026_1	E 496809 N 3602882	43	0.2	20	20.0[o]	11	25.8	Continue MSP rare plant monitoring of population. Continue management of invasive non-native grasses and forbs, particularly brome grasses, annual fescue, tocalote, and crown daisy. Continue thatch removal.
		_ DECO13_3OMEA040_1	E 496890 N 3602295	468	0.2	17	24.4	8	10.8	
Orcutt's bird's-beak *Dicranostegia orcuttiana*	Tijuana River Valley Regional Park	_ COOR7_1TIRI009_1	E 490646 N 3600256	298	2.0	36	45.4[p]	12	5.8	Continue MSP rare plant monitoring of population. Continue management of invasive non-native grasses and forbs, particularly red brome and tocalote.
		_ COOR7_1SMGU006_1	E 491709 N 3600493	0	0	33	43.2[q]	14	10.0	
Variegated dudleya *Dudleya variegata*	Lusardi Creek	LCDUVA01 DUVA_6LUCR023_1	E 484873 N 3652555	1	0.2	17	15.4[r]	8	41.2[s]	Continue MSP rare plant monitoring of population. Continue management of invasive non-native grasses and forbs, particularly purple false brome. Continue thatch removal. Continue to monitor and maintain herbivory fencing.

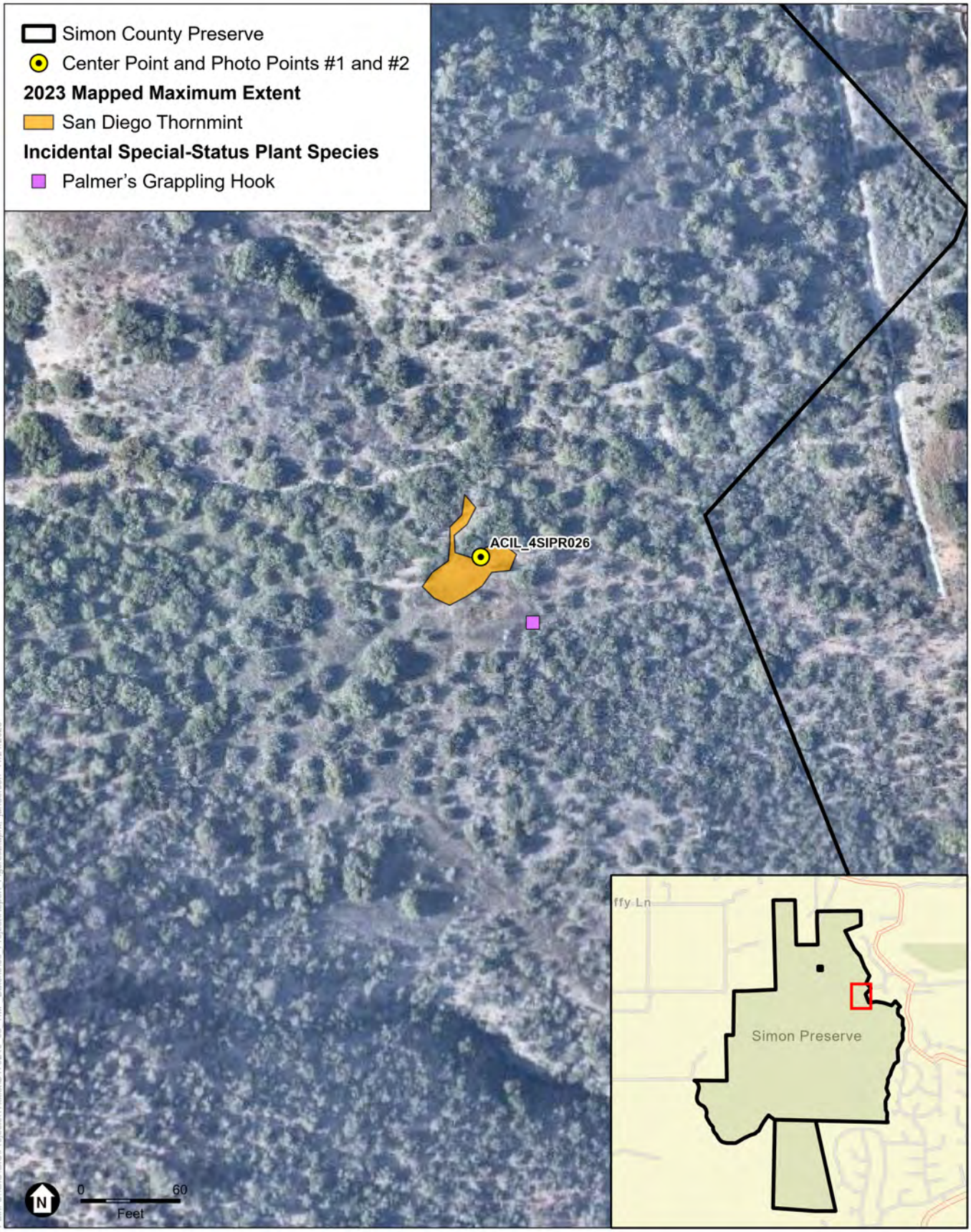
Species	County Preserve	Plot #; MSP Occurrence ID[a]	Center Point Coordinates	Monitoring Plot Population		Native Plant Cover		Non-Native Plant Cover[b]		Management Recommendations
				# individuals	% cover	# species	% cover	# species	% cover	
	Sycamore Canyon/ Goodan Ranch	SYGODUVA01 DUVA_4SYCA019_1	E 52936 N 3643516	144	0.2	25	20.0	9	39.6[t]	Continue MSP rare plant monitoring of population. Continue management of invasive non-native grasses and forbs, particularly purple false brome. Continue thatch removal.
		SYGODUVA02 DUVA_4SYCA019_2	E 502891 N 3643611	444	0.2	25	21.6[u]	7	37.0	
Willowy monardella *Monardella viminea*	Sycamore Canyon/ Goodan Ranch	SYC201501 MOLIV_4SYCA006_1	E 502412 N 3642218	58	3.0	23	27[v]	10	11.8[w]	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	4	0.2	12	14.4[x]	13	17.8[y]	
		SYC202103 MOLIV_4SPCA006_2	E 501657 N 3640638	6	1.0	18	22.4[z]	10	12.0	

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. *Phalaris* spp. was detected at 0.2 percent and was categorized as non-native during vegetation cover calculations.
d. *Delphinium* sp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.
e. *Allium* spp. and *Chlorogalum* spp. were detected at 0.2 percent each and were categorized as native during vegetation cover calculations.
f. *Allium* spp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.
g. *Lepidium* spp. was detected at 0.2 percent and was categorized as non-native during vegetation cover calculations.
h. *Acmispon* spp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.
i. *Allium* spp. and *Chlorogalum* spp. were detected at 0.2 percent each and were categorized as native during vegetation cover calculations.
j. *Nuttallanthus* sp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.
k. *Cryptantha* spp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.
l. *Nuttallanthus* sp. and *Claytonia* sp. were detected at 0.2 percent each and were categorized as native during vegetation cover calculations.
m. *Calochortus* spp. and *Gilia* spp. were detected at 0.2 percent each and were categorized as native during vegetation cover calculations.
n. *Calochortus* spp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.
o. *Allium* spp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.
p. *Lepidium* spp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.
q. *Solanum* spp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.
r. *Cryptantha* spp. and *Pseudognaphalium* spp. were detected at 0.2 percent each and were categorized as native during vegetation cover calculations.
s. *Salsola* spp. was detected at 0.2 percent and was categorized as non-native during vegetation cover calculations.

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	

t. *Lepidium* spp. and *Logfia* sp. were detected at 0.2 percent each and were categorized as non-native during vegetation cover calculations.
u. *Selaginella* spp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.
v. *Cirsium* sp. and *Galium* spp. were detected at 0.2 percent each and were categorized as native during vegetation cover calculations.
w. Unknown grass was detected at 0.2 percent and was categorized as non-native during vegetation cover calculations.
x. *St*ephanomeria spp. was detected at 0.2 percent and was categorized as native during vegetation cover calculations.
y. *Er*odium spp. was detected at 0.2 percent and was categorized as non-native during vegetation cover calculations.
z. *Calochortus* spp. and *Stephanomeria* spp. were detected at 0.2 percent each and were categorized as native during vegetation cover calculations.



SOURCE: Nearmap, 4/18/2021; ESA, 2023.

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Targeted Monitoring Plan Resource-Specific Monitoring and Management 2023 Annual Report

Figure 3

San Diego Thornmint Monitoring Results
Simon County Preserve

ESA

Adaptive Management Recommendations

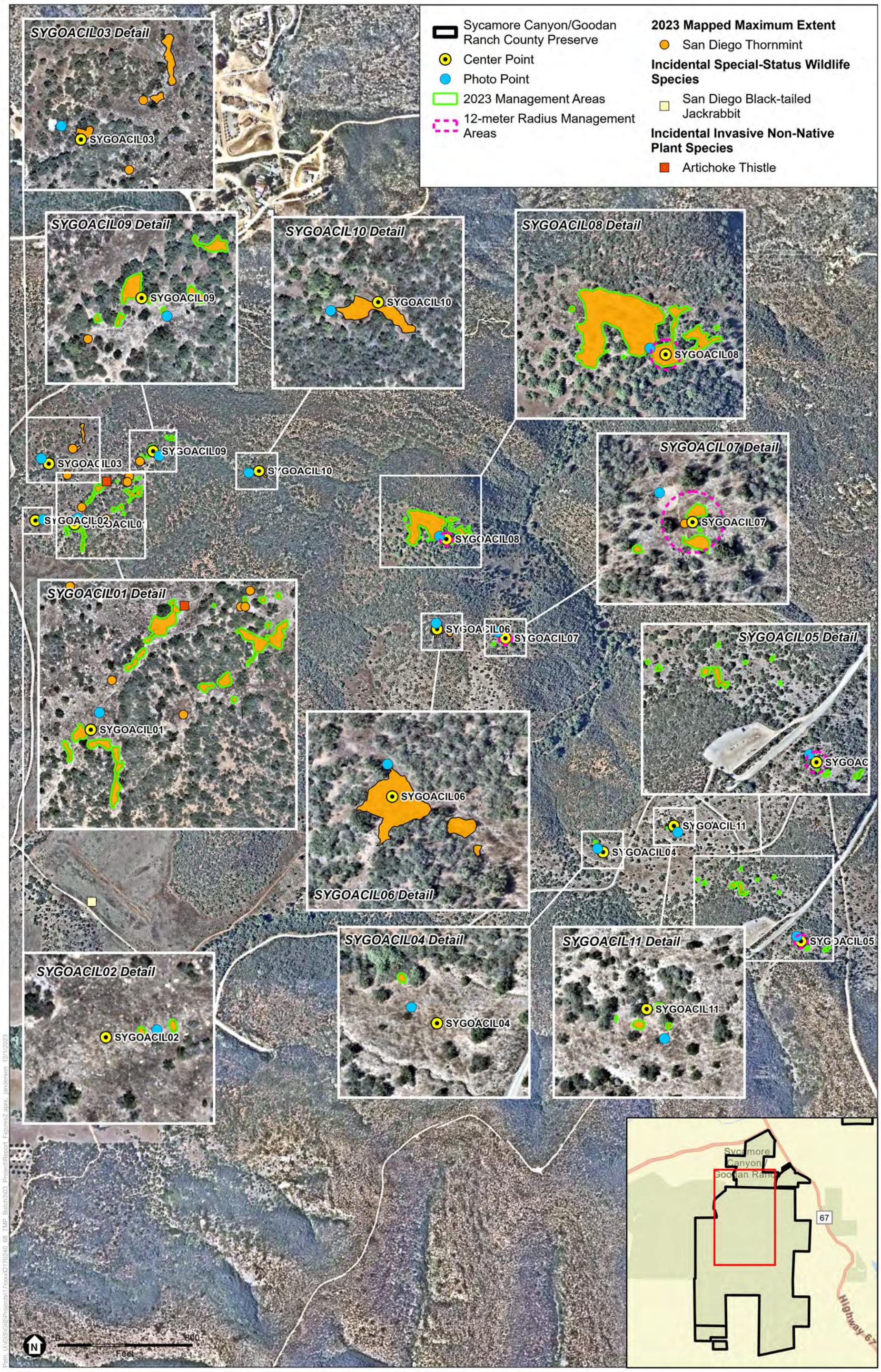
Based on the results of the 2023 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP, no management is recommended for 2023. Focused invasive non-native plant species management occurred in 2022 and while non-native plant cover increased from 4.0 percent in 2022 to 5.4 percent in 2023, this increase is likely due to the increased rainfall in 2023. Monitoring in 2024 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

The 11 monitoring plots within the San Diego thornmint population in Sycamore Canyon/Goodan Ranch County Preserve were monitored by ESA in 2023. A total of 12,877 San Diego thornmint plants were estimated within the monitoring plots. The entire population of San Diego thornmint within Sycamore Canyon County Preserve in 2023 is estimated at 46,032 plants. Monitoring plots, center points, photo points, maximum extent, and invasive non-native plant management areas are shown in **Figure 4**. Photo monitoring and representative photographs are provided in Appendix B. Special-status plant species detected included small-flowered bindweed (*Convolvulus simulans*) at 10 of the 11 monitoring plots, Palmer's grappling hook at 8 of the 11 monitoring plots, and variegated dudleya at 1 of the 11 monitoring plots. Incidental special-status wildlife species observed outside of the monitoring plots included San Diego black-tailed jackrabbit (*Lepus californicus bennettii*) (Figure 4). Across all 11 monitoring plots, San Diego thornmint habitat contained invasive non-native grasses and herbs, particularly purple false brome and tocalote.

Monitoring Plot Number SYGOACIL01

Monitoring plot SYGOACIL01 is in the northwestern portion of the San Diego thornmint population. A total of 1,035 San Diego thornmint plants were estimated within the monitoring plot; 50 to 75 percent were in flower, the remaining were vegetative. Potential sign of stunted growth was detected in 0 to 10 percent of all plants. Total vegetative cover within the plot was 64.8 percent, with 27.0 percent native plant cover and 37.8 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, smooth cat's ear, and canary grass (*Phalaris canariensis*). Non-native plant species included longbeak stork's bill, nit grass (*Gastridium phleoides*), narrowleaf cottonrose, scarlet pimpernel, and spiny sowthistle. Artichoke thistle (*Cynara cardunculus*) 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.



SOURCE: Nearmap, 2023; ESA, 2023.

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Targeted Monitoring Plan Resource-Specific Monitoring and Management 2023 Annual Report

Figure 4

San Diego Thornmint Monitoring and Management Results
Sycamore Canyon/Goodan Ranch County Preserve

ESA

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Monitoring Plot Number SYGOACIL02

Monitoring plot SYGOACIL02 is in the northwestern portion of the San Diego thornmint population. A total of 72 San Diego thornmint plants were estimated within the monitoring plot; 50 to 75 percent were in flower, the remaining were vegetative. Total vegetative cover within the plot was 43.4 percent, with 10.6 percent native plant cover and 32.8 percent non-native plant cover. The dominant native plant species within the monitoring plot was clustered tarweed. Invasive non-native plant species included slender oat, purple false brome, soft brome, compact brome, tocalote, annual fescue, and canary grass. Non-native plant species included longbeak stork's bill, smooth cat's ear, and spiny sowthistle. Special-status plant species detected within the monitoring plot included small-flowered bindweed and Palmer's grappling hook. Incidental special-status wildlife species detected outside the monitoring plot included San Diego black-tailed jackrabbit (Figure 4).

Monitoring Plot Number SYGOACIL03

Monitoring plot SYGOACIL03 is in the northwestern portion of the San Diego thornmint population. A total of 800 San Diego thornmint plants were estimated within the monitoring plot; over 75 percent were in flower, the remaining were vegetative. Total vegetative cover within the plot was 43.6 percent, with 38.4 percent native plant cover and 5.2 percent non-native plant cover. The dominant native plant species within the monitoring plot were black sage (*Salvia mellifera*), California sagebrush, laurel sumac (*Malosma laurina*), and clustered tarweed. Invasive non-native plant species included slender oat, purple false brome, ripgut brome, soft brome, compact brome, tocalote, annual fescue, and smooth cat's ear. Non-native plant species included small fescue, 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.

Monitoring Plot Number SYGOACIL04

Monitoring plot SYGOACIL04 is in the southeastern portion of the San Diego thornmint population. San Diego thornmint was not detected within the monitoring plot in 2023. Total vegetative cover within the plot was 42.0 percent, with 13.4 percent native plant cover and 28.6 percent non-native plant cover. The dominant native plant species within the monitoring plot was clustered tarweed. Invasive non-native plant species included slender oat, purple false brome, black mustard (*Brassica nigra*), tocalote, and smooth cat's ear. Non-native plant species included narrowleaf cottonrose, scarlet pimpernel, and spiny sowthistle. Small-flowered bindweed was the only special-status plant species detected within the monitoring plot.

Monitoring Plot Number SYGOACIL05

Monitoring plot SYGOACIL05 is in the southeastern portion of the San Diego thornmint population. A total of 193 San Diego thornmint plants were estimated within the monitoring plot; over 75 percent were in flower, the remaining were vegetative. Total vegetative cover within the plot was 62.4 percent, with 50.8 percent native plant cover and 11.6 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, tocalote, redstem stork's bill, annual fescue, and smooth cat's ear. Non-native plant species included pepperweed,

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 6,457 San Diego thornmint plants were estimated within the monitoring plot; over 75 percent were flowering, the remaining were vegetative. Total vegetative cover within the plot was 41.0 percent, with 38.8 percent native plant cover and 2.2 percent non-native plant cover. The dominant native plant species within the monitoring plot was clustered tarweed. Invasive non-native plant species included slender oat, purple false brome, ripgut brome, soft brome, compact brome, tocalote, redstem stork's bill, annual fescue, and canary grass. Non-native plant species included scarlet pimpernel and spiny sowthistle. Special-status plant species detected within the monitoring plot included small-flowered bindweed and Palmer's grappling hook.

Monitoring Plot Number SYGOACIL07

Monitoring plot SYGOACIL07 is in the central-northern portion of the San Diego thornmint population. A total of 549 San Diego thornmint plants were estimated within the monitoring plot; 50 to 75 percent were flowering, the remaining were vegetative. Potential sign of stunted growth was detected in 10 to 25 percent of all plants. Total vegetative cover within the plot was 53.8 percent, with 22.6 percent native plant cover and 31.2 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, tocalote, and smooth cat's ear. Non-native plant species included cretanweed, narrowleaf cottonrose, scarlet pimpernel, and common sowthistle (*Sonchus oleraceus*). Special-status plant species detected within the monitoring plot included small-flowered bindweed and 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 1,262 San Diego thornmint plants were estimated within the monitoring plot; 50 to 75 percent were in flower, the remaining were vegetative. Potential sign of stunted growth was detected in 0 to 10 percent of all plants. Total vegetative cover within the plot was 39.8 percent, with 13.0 percent native plant cover and 26.8 percent non-native plant cover. The dominant native plant species within the monitoring plot were mock parsley (*Apiastrum angustifolium*), Torrey's hybrid oak (*Quercus x acutidens*), and lemonadeberry (*Rhus integrifolia*). Invasive non-native plant species included slender oat, purple false brome, soft brome, tocalote, annual fescue, and smooth cat's ear. Non-native plant species included petty spurge (*Euphorbia peplus*), scarlet pimpernel, spiny sowthistle, and common sowthistle. Special-status plant species detected within the monitoring plot included small-flowered bindweed and Palmer's grappling hook.

Monitoring Plot Number SYGOACIL09

Monitoring plot SYGOACIL09 is in the northwestern portion of the San Diego thornmint population. A total of 1,336 San Diego thornmint plants were estimated within the monitoring plot; 50 to 75 percent were in flower, the remaining were vegetative. Total vegetative cover within the plot was 51.4 percent, with 24.0 percent native plant cover and 27.4 percent non-native plant cover. The dominant native plant species within the monitoring plot was Torrey's hybrid oak. Invasive non-native plant species included slender oat, purple false brome, compact brome, tocalote, annual fescue, and smooth cat's ear. Non-native plant species included 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.

Monitoring Plot Number SYGOACIL10

Monitoring plot SYGOACIL10 is in the northwestern portion of the San Diego thornmint population. A total of 850 San Diego thornmint plants were estimated within the monitoring plot; 50 to 75 percent were in flower, the remaining were vegetative. Total vegetative cover within the plot was 40.6 percent, with 38.2 percent native plant cover and 2.4 percent non-native plant cover. The dominant native plant species within the monitoring plot was black sage. Invasive non-native plant species included compact 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.

Monitoring Plot Number SYGOACIL11

Monitoring plot SYGOACIL11 is in the southeastern portion of the San Diego thornmint population. A total of 323 San Diego thornmint plants were estimated within the monitoring plot; 10 to 25 percent were in flower, the remaining were either vegetative or fruiting. Total vegetative cover within the plot was 51.0 percent, with 31.0 percent native plant cover and 20.0 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, black mustard, tocalote, and smooth cat's ear. Non-native plant species included narrowleaf cottonrose and spiny sowthistle. Small-flower bindweed was the only special-status plant species detected within the monitoring plot.

Focused Management

Focused management occurred in 2023 in response to the high thatch and invasive non-native plant cover observed in 2022. Focused management was conducted at monitoring plots 1, 2, 4, 5, 7, 8, 9, and 11. As previously described, management consisted of carefully hand-pulling target invasive non-native plant species within an 1.10-acre management area where San Diego thornmint populations were previously detected. Line trimmers were then used to dethatch remaining non-native plant species surrounding San Diego thornmint occurrences within 12-meter radius circles around three established monitoring plot center points (Plots 5, 7, and 8), as shown in Figure 4. Invasive non-native plant species consisted predominantly of purple false brome. 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 2023 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendation:

- **Continue focused invasive non-native plant species removal.** The TMP recommends overall invasive non-native plant cover be kept to less than 20 percent and cover of purple false brome be kept to less than 10 percent cover (ESA and ICF 2022). To ensure the persistence of San Diego thornmint at Sycamore Canyon/Goodan Ranch County Preserve, it is recommended that invasive non-native plant control be continued by a qualified restoration specialist within at least eight of the monitoring plots: plots 1, 2, 4, 5, 7, 8, 9, and 11, and the surrounding areas, as needed, to reduce encroachment and competition from invasive non-native 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 2023 are provided in **Table 16** 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 16
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	37.8	35.0	High
2	32.8	25.0	High
3	5.2	2.0	Low
4	28.6	27.0	High
5	11.6	10.0	Moderate
6	2.2	0.2	Low
7	31.2	30.0	High
8	26.8	25.0	High
9	27.4	25.0	High
10	2.4	0.0	Low
11	20.0	18.0	High

NOTES:

a. Invasive non-native purple false brome percent cover is included in the total non-native plant cover percentage.
b. Management priority was determined based on total non-native plant cover and purple false brome cover.
High = If total non-native plant cover was greater than 20 percent, and/or purple false brome cover was 10 percent or greater.
Moderate = If total non-native plant cover was 10 to 20 percent, and/or purple false brome cover was 5 to 10 percent.
Low = If total non-native plant cover was under 10 percent, and/or purple false brome cover was under 5 percent.

4.2.2 Encinitas Baccharis

Del Dios Highlands County Preserve

The three monitoring plots within the Encinitas baccharis population in Del Dios Highlands County Preserve were monitored by ESA in 2023. A total of 40 Encinitas baccharis plants were estimated within the monitoring plots. The entire population of Encinitas baccharis plants within Del Dios Highlands County Preserve in 2023 is estimated at 177 plants. Monitoring plot, center point, photo point, and maximum extent are shown in **Figure 5**. Photo monitoring and representative photographs are provided in Appendix B. Special-status plant species detected within the monitoring plot included wart-stemmed ceanothus (*Ceanothus verrucosus*). Incidental special-status wildlife species detected outside the monitoring plot included Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*) and Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) (Figure 5). The Encinitas baccharis habitat contained invasive non-native plant species, particularly brome grasses. Additional monitoring data, including sex, male-to-female ratio, and age of the plants in each monitoring plot, were collected in **Table 17**.

Monitoring Plot Number DD201501

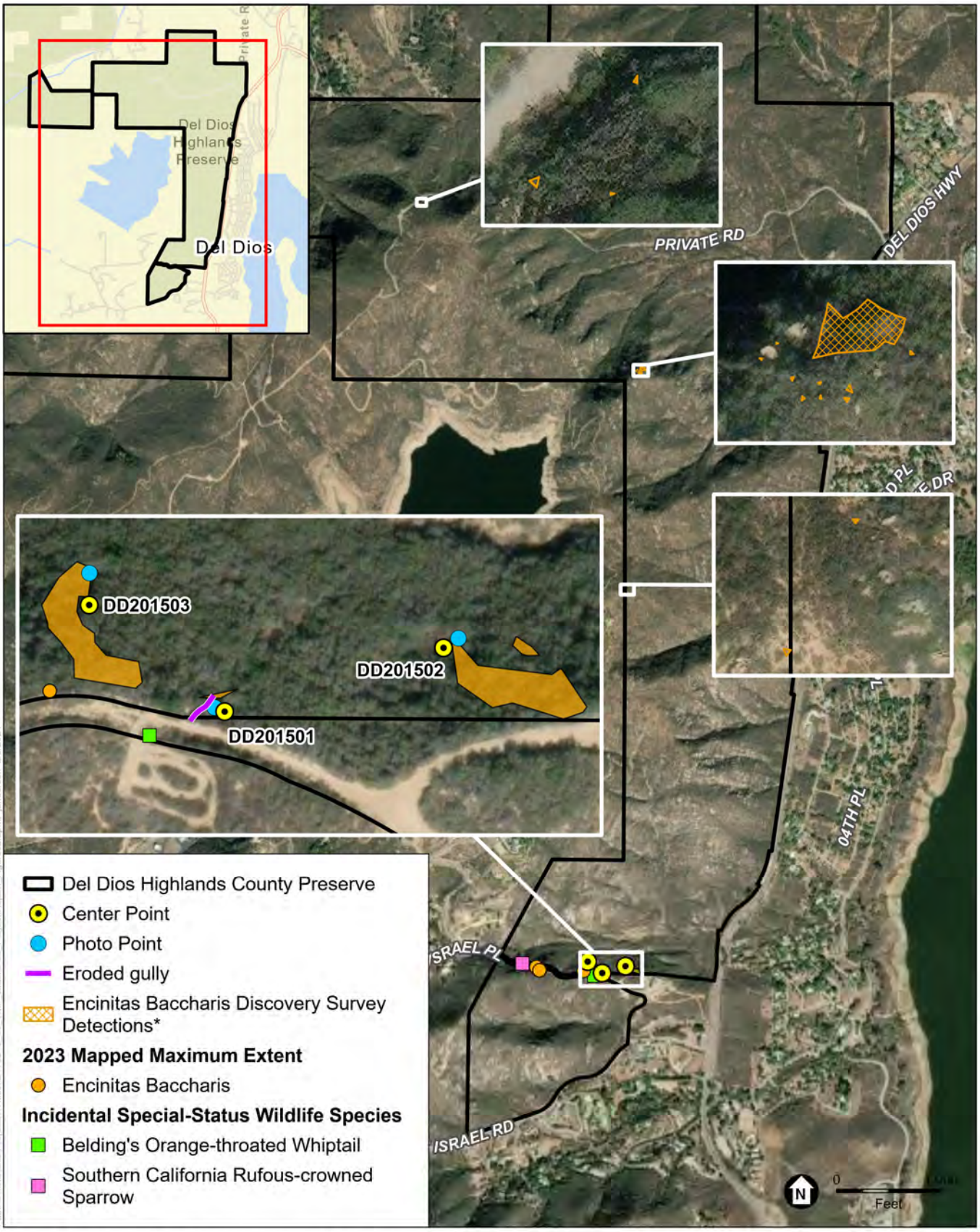
Monitoring plot DD201501 is located in the south-central portion of the Encinitas baccharis population. A total of 4 Encinitas baccharis plants were detected within the monitoring plot; 25 to 50 percent were flowering, the remaining were vegetative. Total vegetative cover within the plot was 53.4 percent, with 53.0 percent native plant cover and 0.4 percent non-native plant cover. The dominant native plant species within the monitoring plot was wart-stemmed ceanothus. Invasive non-native plant species included compact brome and red brome. Special-status plant species detected within the monitoring plot included wart-stemmed ceanothus.

Monitoring Plot Number DD201502

Monitoring plot DD201502 is located in the eastern portion of the Encinitas baccharis population. A total of 3 Encinitas baccharis plants were detected within the monitoring plot; 25 to 50 percent were flowering, the remaining were vegetative. Total vegetative cover within the plot was 61.6 percent, with 61.0 percent native plant cover and 0.6 percent non-native plant cover. The dominant native plant species within the monitoring plot was woolyleaf ceanothus (*Ceanothus tomentosus*). Invasive non-native plant species included compact brome; non-native plant species included small fescue and nit grass. Special-status plant species detected within the monitoring plot included wart-stemmed ceanothus.

Monitoring Plot Number DD201503

Monitoring plot DD201503 is located in the western portion of the Encinitas baccharis population. A total of 33 Encinitas baccharis plants were estimated within the monitoring plot; over 75 percent were vegetative. Total vegetative cover within the plot was 50.0 percent, with 49.4 percent native plant cover and 0.6 percent non-native plant cover. The dominant native plant species within the monitoring plot were Mission manzanita and wart-stemmed ceanothus. Invasive non-native plant species included purple false brome and red brome; non-native plant species included small fescue. Special-status plant species detected within the monitoring plot included wart-stemmed ceanothus.



SOURCE: ESRI, 2022; Mulligan Biological Consulting, 2023; ESA, 2023.
NOTE: Results provided by Mulligan Biological Consulting

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Figure 5
Encinitas Baccharis Monitoring Results
Del Dios Highlands County Preserve

ESA

TABLE 17
ENCINITAS BACCHARIS ADDITIONAL MONITORING DATA: DEL DIOS HIGHLANDS COUNTY PRESERVE

Monitoring Plot	# of individuals	Sex	Male-to-Female Ratio	Age
DD201501	4	3 vegetative 1 female	NA	4 adults
DD201502	3	2 vegetative 1 female	NA	3 adults
DD201503	33	17 vegetative 8 female 8 male	1:1	32 adults 1 seedling

Adaptive Management Recommendations

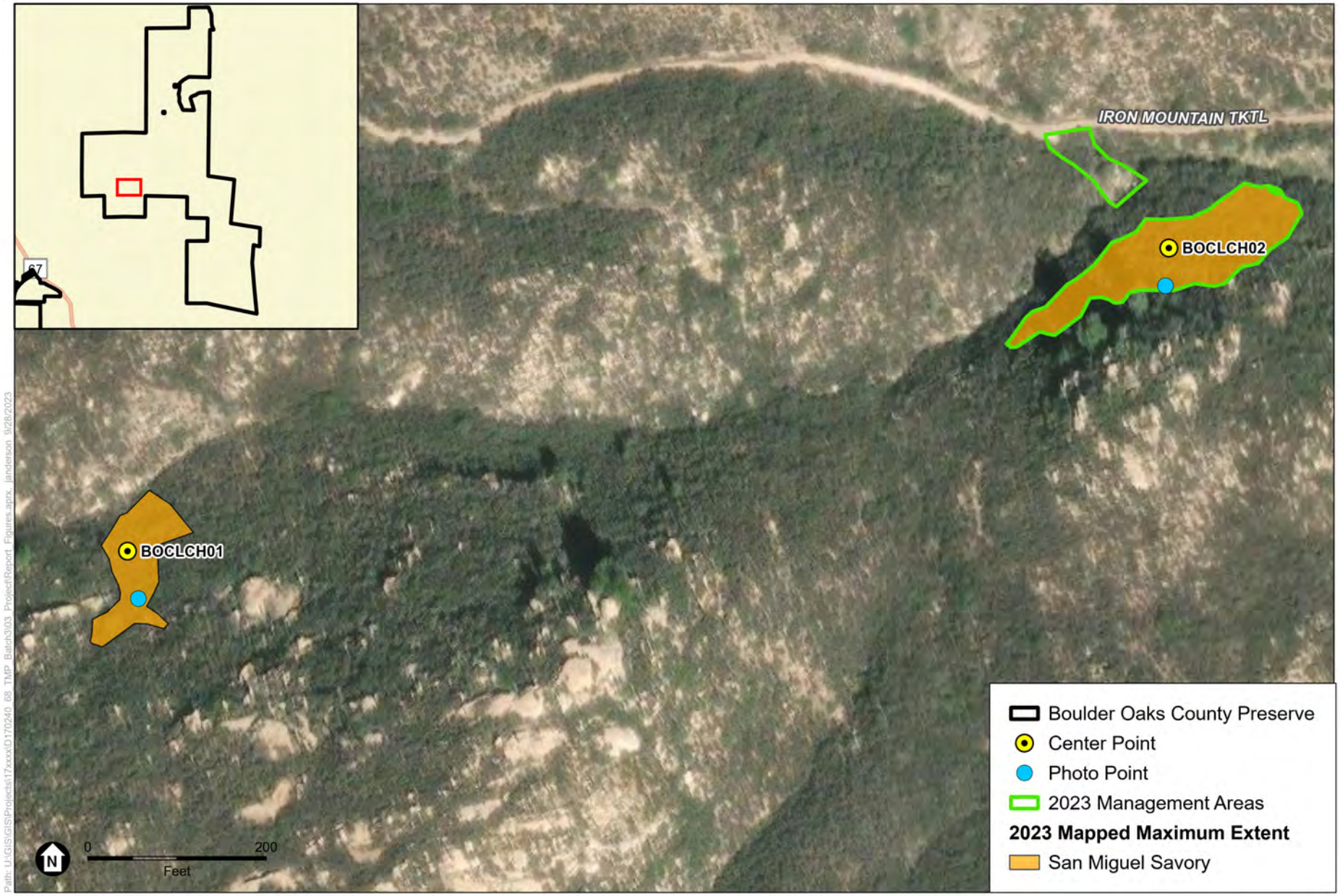
The results of the 2023 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Thin native vegetation to reduce competition and improve access to monitoring plots.** Vegetation canopy in and around the monitoring plots is very dense. Thinning of native shrub canopy, including chamise (*Adenostoma fasciculata*) and woolyleaf ceanothus, should be considered to reduce potential native competition to Encinitas baccharis plants and improve access to monitoring plots.
- **Conduct reconnaissance surveys to identify additional Encinitas baccharis populations.** New detections of Encinitas baccharis within the northern portion of Del Dios Highlands County Preserve were reported as a result of discovery surveys by Mulligan Biological Consulting (MBC) in 2023 and are shown in Figure 5. A reconnaissance survey is recommended to determine presence and establish baseline conditions of the Encinitas baccharis population. If a population is present, a monitoring plot should be established, and MSP rare plant monitoring should be conducted.

4.2.3 San Miguel Savory

Boulder Oaks County Preserve

The two monitoring plots within the San Miguel savory population in Boulder Oaks County Preserve were monitored by ESA in 2023. A total of 132 San Miguel savory plants were estimated within the monitoring plots. The entire population of San Miguel savory plants within Boulder Oaks County Preserve in 2023 is estimated at 607 plants. Monitoring plot, center point, photo point, maximum extent, and invasive non-native plant management areas are shown in **Figure 6**. Photo monitoring and representative photographs are provided in Appendix B. One special-status plant, southern mountain misery (*Chamaebatia australis*), was observed at BOCLCH02. Across both monitoring plots, San Miguel savory habitat contained invasive non-native grasses and herbs, particularly annual fescue and smooth cat's ear.



Path: U:\GIS\GIS\Projects\17xxxx\D170240_68_TMP_Batch3\03_Project\Report_Figures.aprx, janderson 9/28/2023

SOURCE: ESRI, 2022; ESA, 2023.

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Figure 6

San Miguel Savory Monitoring and Management Results
Boulder Oaks County Preserve

ESA

Monitoring Plot Number BOCLCH01

Monitoring plot BOCLCH01 is located in the western portion of the San Miguel savory population. A total of 80 San Miguel savory plants were detected to be within the monitoring plot; over 75 percent were in flower, the remaining were vegetative. Total vegetative cover within the plot was 66.0 percent, with 65.2 percent native plant cover and 0.8 percent non-native plant cover. The dominant native plant species within the monitoring plot was chamise. Invasive non-native plant species included annual fescue and smooth cat's ear; non-native plant species included narrowleaf cottonrose. No special-status plant species were detected within the plot.

Monitoring Plot Number BOCLCH02

Monitoring plot BOCLCH02 is located in the eastern portion of the San Miguel savory population. A total of 52 San Miguel savory plants were detected within the monitoring plot; 50 to 75 percent were flowering and the remaining were vegetative. Total vegetative cover within the plot was 67.8 percent, with 66.8 percent native plant cover and 1.0 percent non-native plant cover. The dominant native plant species within the monitoring plot was chamise. Invasive non-native plant species included foxtail brome (*Bromus madritensis*), perennial veldtgrass, annual fescue, and smooth cat's ear; non-native plant species included narrowleaf cottonrose. Southern mountain misery was the only special-status plant species detected within the plot.

Focused Management

Focused management occurred in 2023 in response to the presence of invasive non-native plant species detected in 2022. As previously described, management consisted of carefully removing invasive non-native plants by hand within 12 inches of the San Miguel savory plants in the 0.55-acre management areas around monitoring plot BOCLCH02 shown in Figure 6. Management targeted removal of foxtail brome and 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.

Adaptive Management Recommendations

The results of the 2023 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendation:

- **Conduct focused invasive non-native plant species 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 non-native plant cover was 0.8 percent and 1.0 percent, respectively, within the monitoring plots, 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 of the dirt access road, to prevent encroachment of perennial veldtgrass. Herbicide applications should be conducted when invasive non-native grasses have reached 2 to 3 inches in height during the peak of the growing season.

4.2.4 Otay Tarplant

Furby-North County Preserve

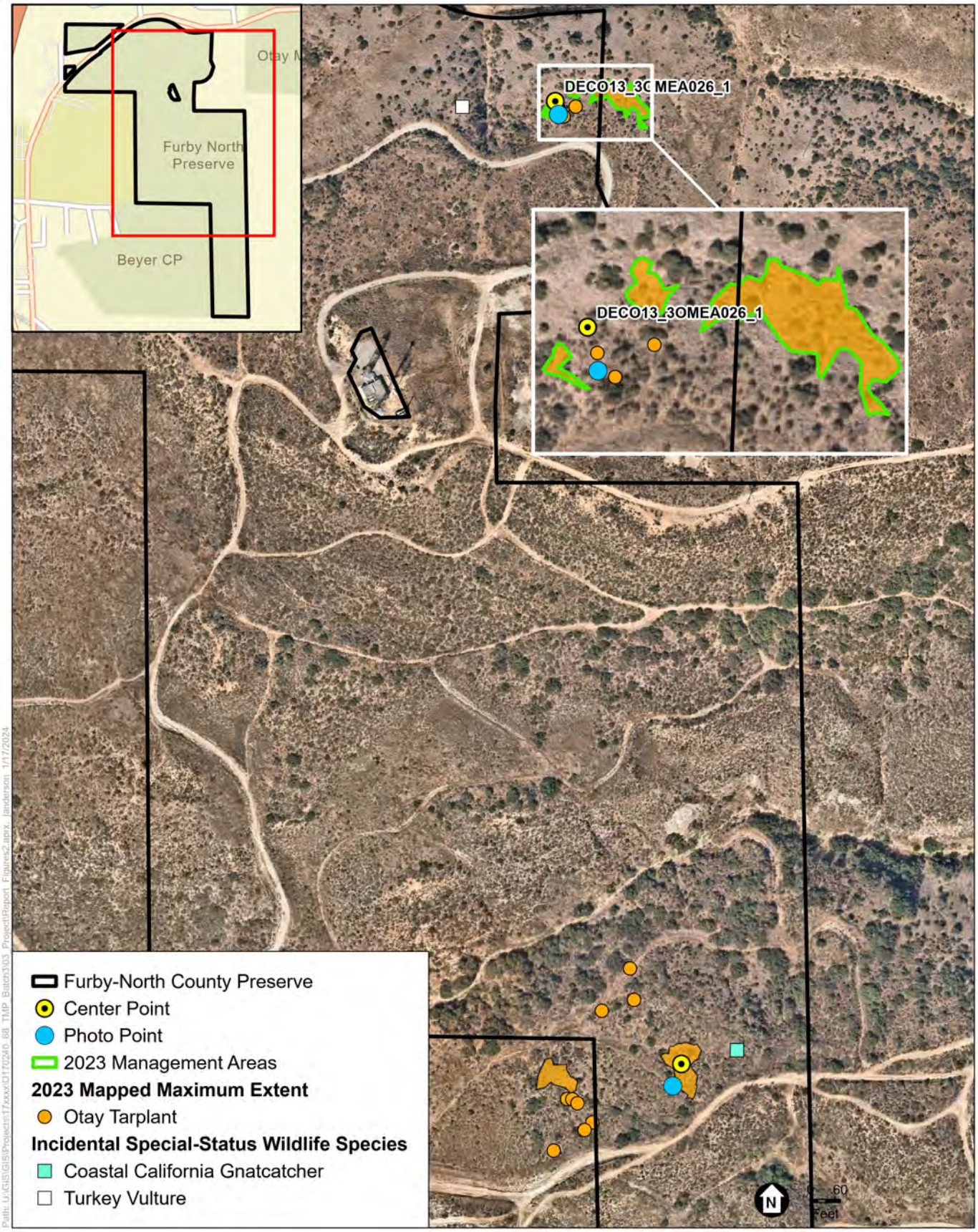
The one previously established monitoring plot and the new 2023 established monitoring plot within the Otay tarplant population in Furby-North County Preserve were monitored by ESA in 2023. A total of 511 Otay tarplant plants were estimated within the monitoring plots. The entire population of Otay tarplant within Furby-North County Preserve in 2023 is estimated at 3,667 plants. Monitoring plot, center point, photo point, maximum extent, and invasive non-native plant management area are shown in **Figure 7**. Photo monitoring and representative photographs, including pre- and post-management conditions, are provided in Appendix B. Special-status plant species detected within the monitoring plot included San Diego bursage (*Ambrosia chenopodifolia*), San Diego sunflower (*Bahiopsis laciniata*), common goldenstar (*Bloomeria crocea*), small-flowered bindweed, and Palmer's grappling hook. Incidental special-status wildlife species observed outside of the monitoring plot included coastal California gnatcatcher (*Polioptila californica californica*) and turkey vulture (*Cathartes aura*) (Figure 7). The Otay tarplant habitat contained invasive non-native grasses and herbs, particularly compact brome, tocalote, annual fescue, and crown daisy (*Glebionis coronaria*).

Monitoring Plot Number DECO13_3OMEA026_1

Monitoring plot DECO13_3OMEA026_1 is in the western portion of the Otay tarplant population. A total of 43 Otay tarplant plants were estimated within the monitoring plot; 25 to 50 percent were flowering, the remaining were either vegetative or dead. Potential signs of herbivory were detected in 0 to 10 percent of all plants. Total vegetative cover within the plot was 45.8 percent, with 20.0 percent native plant cover and 25.8 percent non-native plant cover. The dominant native plant species within the monitoring plot were California sagebrush and jojoba (*Simmondsia chinensis*). Invasive non-native plant species included purple false brome, black mustard, ripgut brome, soft brome, compact brome, tocalote, annual fescue, Italian rye grass, crown daisy, and rabbitsfoot grass (*Polypogon monspeliensis*); non-native plant species included scarlet pimpernel. Common goldenstar was the only special-status plant species detected within the monitoring plot. Incidental special-status wildlife species observed outside of the monitoring plot included turkey vulture (Figure 7).

Monitoring Plot Number DECO13_3OMEA040_1

Monitoring plot DECO13_3OMEA040_1 is in the southern portion of the Otay tarplant population. A total of 468 Otay tarplant plants were estimated within the monitoring plot; 25 to 50 percent were flowering, the remaining were vegetative. Total vegetative cover within the plot was 35.2 percent, with 24.4 percent native plant cover and 10.8 percent non-native plant cover. The dominant native plant species within the monitoring plot was California sagebrush. Invasive non-native plant species included black mustard, compact brome, tocalote, annual fescue, crown daisy, and shortpod mustard; non-native plant species included scarlet pimpernel and spiny sowthistle. Special-status plant species detected within the monitoring plot included San Diego bursage, San Diego sunflower, common goldenstar, small-flowered bindweed, and Palmer's grappling hook. Incidental special-status wildlife species observed outside of the monitoring plot included coastal California gnatcatcher (Figure 7).



SOURCE: Nearmap, 9/21/2020; ESA, 2023.

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Figure 7

Otay Tarplant Monitoring and Management Results
Furby-North County Preserve

ESA

Focused Management

Focused management occurred in 2023 in response to the high thatch and invasive non-native plant cover observed in 2022. As previously described, management within DECO13_3OMEA026_1 plot maximum extent consisted of carefully hand-pulling invasive non-native grasses 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 0.11-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

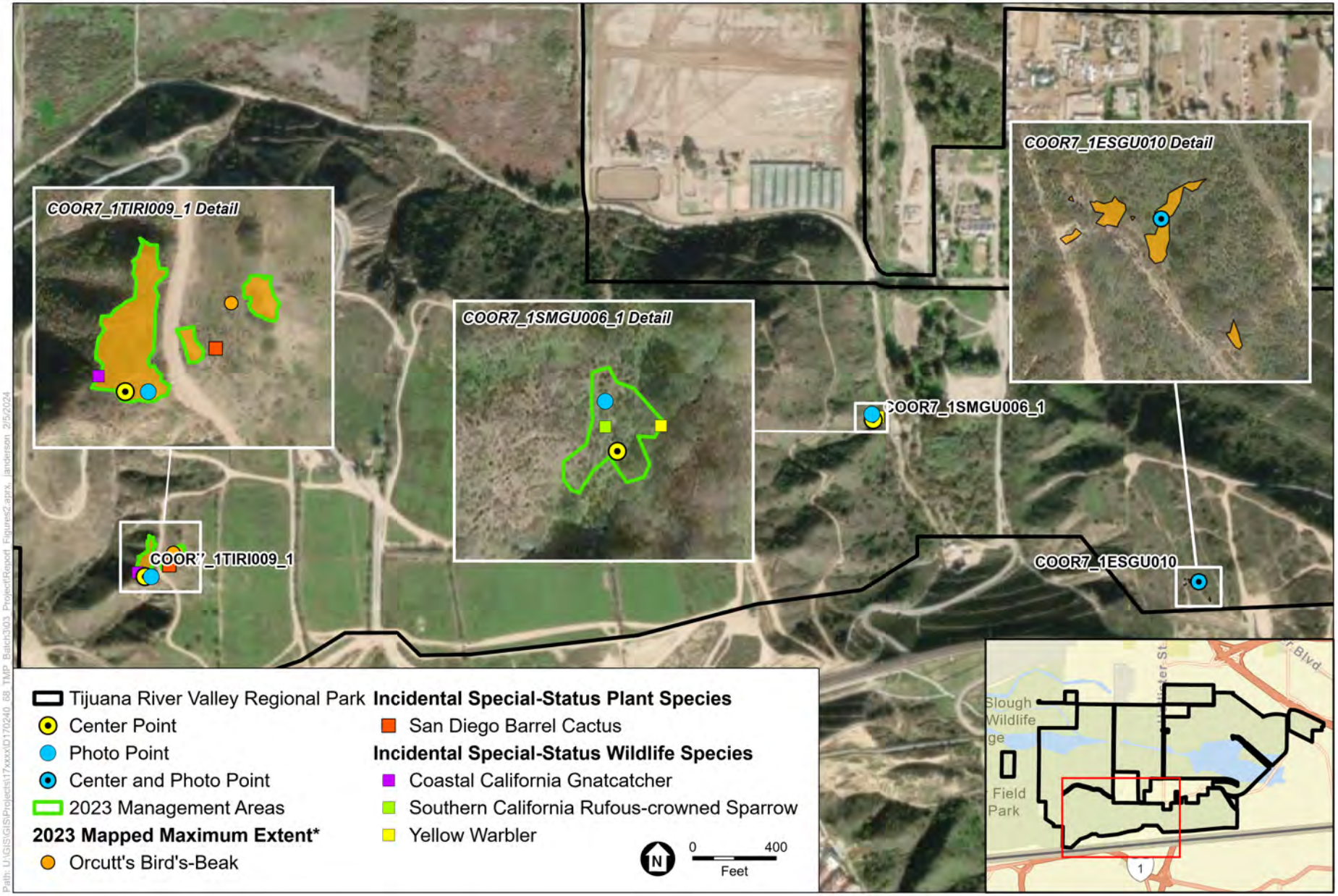
The results of the 2023 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendation:

- **Conduct focused invasive non-native plant species and thatch removal.** The TMP recommends overall invasive non-native plant cover be kept to less than 20 percent and thatch to be removed (ESA and ICF 2022). Total non-native plant cover within the monitoring plots in 2023 were 25.8 and 10.8 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 weedeaters and rakes; debris should be hauled out and disposed of off-site at a county landfill.

4.2.5 Orcutt's Bird's-Beak

Tijuana River Valley Regional Park

The two monitoring plots within the Orcutt's bird's-beak population in Tijuana River Valley Regional Park were monitored by ESA in 2023. A total of 298 Orcutt's bird's-beak plants were estimated within the monitoring plots. The entire population of Orcutt's bird's-beak plants within Tijuana River Valley Regional Park in 2023 is estimated at 9,668 plants. Monitoring plot, center point, photo point, maximum extent, and invasive non-native plant management areas are shown in **Figure 8**. Photo monitoring and representative photographs are provided in Appendix B. Special-status plant species detected within the monitoring plots included San Diego sunflower, western dichondra (*Dichondra occidentalis*), and ashy spike-moss (*Selaginella cinerascens*). Incidental special-status species observed outside of the monitoring plot included San Diego barrel cactus (*Ferocactus viridescens*), coastal California gnatcatcher, Southern California rufous-crowned sparrow, and yellow warbler (*Setophaga petechia*) (Figure 8). The Orcutt's bird's-beak habitat contained invasive non-native grasses and herbs, particularly red brome.



SOURCE: ESRI, 2022; ESA, 2023.
NOTE: Results for COOR7_1ESGU010 are provided by Mulligan Biological Consulting.

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Figure 8
Orcutt's Bird's-Beak Monitoring and Management Results
Tijuana River Valley Regional Park

ESA

Monitoring Plot Number COOR7_1TIRI009_1

Monitoring plot COOR7_1TIRI009_1 is in the southern portion of the Orcutt's bird's-beak population. A total of 298 Orcutt's bird's-beak plants were estimated within the monitoring plot; 25 to 50 percent were flowering, the remaining were vegetative or dead. Potential sign of herbivory was detected in 0 to 10 percent of all plants. Total vegetative cover within the plot was 51.2 percent, with 45.4 percent native plant cover and 5.8 percent non-native plant cover. The dominant native plant species within the monitoring plot were California sagebrush and ashy spike-moss. Invasive non-native plant species included Australian saltbush (*Atriplex semibaccata*), red brome, tocalote, annual fescue, crown daisy, shortpod mustard, smooth cat's ear, and Russian thistle (*Salsola tragus*). Non-native plant species included narrowleaf cottonrose, scarlet pimpernel, common catchfly (*Silene gallica*), and common sowthistle. Special-status plant species detected within the plot included San Diego sunflower, western dichondra, and ashy spike-moss. Incidental special-status species observed outside of the monitoring plot included San Diego barrel cactus and coastal California gnatcatcher (Figure 8).

Monitoring Plot Number COOR7_1SMGU006_1

Monitoring plot COOR7_1SMGU006_1 is in the northwest portion of the Orcutt's bird's-beak population. No Orcutt's bird's-beak plants were detected within the monitoring plot in 2023. Total vegetative cover within the plot was 53.2 percent, with 43.2 percent native plant cover and 10.0 percent non-native plant cover. The dominant native plant species within the monitoring plot were bladderpod spiderflower (*Peritoma arborea*) and California brittlebush (*Encelia californica*). Invasive non-native plant species included wild oat (*Avena fatua*), purple false brome, red brome, tocalote, sweet fennel (*Foeniculum vulgare*), crown daisy, shortpod mustard, and smooth cat's ear. Non-native plant species included flax-leaved horseweed (*Erigeron bonariensis*), prickly lettuce (*Lactuca serriola*), narrowleaf cottonrose, scarlet pimpernel, spiny sowthistle, and common sowthistle. Incidental special-status wildlife species observed outside of the monitoring plot included Southern California rufous-crowned sparrow and yellow warbler (Figure 8).

Focused Management

Focused management occurred in 2023 in response to high thatch cover detected in 2022. As previously described, management consisted of carefully hand-pulling invasive non-native grasses directly adjacent to Orcutt's bird's-beak individuals within the COOR7_1TIRI009_1 and COOR7_1SMGU006_1 plot maximum extents, for an approximately 0.35-acre management area, as shown in Figure 8. Management consisted of carefully hand-pulling invasive non-native grasses, primarily red brome and tocalote directly adjacent to Orcutt's bird's-beak individuals. 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 2023 surveys, 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 invasive non-native grasses and forbs control within suitable habitat (ESA and ICF 2022) and SDMMP recommends controlling invasive non-native plant species to less than 20 percent cover. Although non-native plant cover was 5.8 percent and 10.0 percent, respectively, within the monitoring plots, on-site observations demonstrated the non-native plant cover adjacent to both monitoring plots to be higher, with increased percentages of invasive non-native grasses. 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 both monitoring plots and extend into the maximum extent to reduce invasive non-native grass and forb species.
- **Limit unauthorized human access.** The TMP recommends controlling unauthorized human access within and adjacent to suitable habitat for Orcutt's bird's-beak, including closing and restoring unauthorized trails and roads resulting from U.S. Border Patrol activities (ESA and ICF 2022). To ensure the persistence of Orcutt's bird's-beak and suitable habitat for the species at the Tijuana River Valley Regional Park, coordination with Border Patrol to limit unauthorized access within and adjacent to suitable habitat for Orcutt's bird's-beak is recommended.

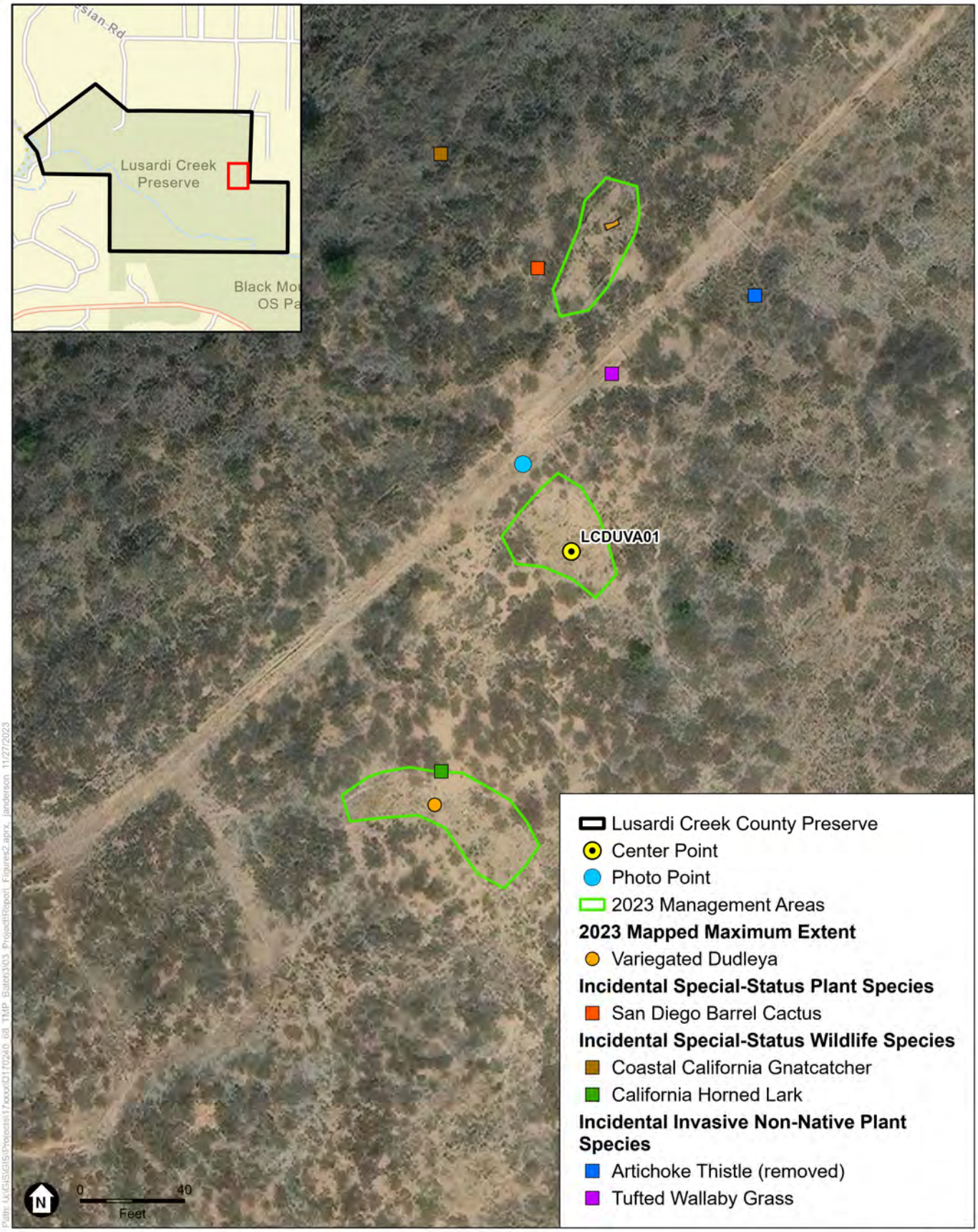
4.2.6 Variegated Dudleya

Lusardi Creek County Preserve

The one monitoring plot within the variegated dudleya population in Lusardi Creek County Preserve was monitored by ESA in 2023. One variegated dudleya plant was detected within the monitoring plot. The entire population of variegated dudleya within Lusardi Creek County Preserve in 2023 is estimated at nine plants. Monitoring plot, center point, photo point, maximum extent, and invasive non-native plant management areas are shown in **Figure 9**. Photo monitoring and representative photographs are provided in Appendix B. Special-status plant species ashy spike-moss was observed within the monitoring plot. Incidental special-status species observed outside of the monitoring plot included San Diego barrel cactus, coastal California gnatcatcher, and California horned lark (Figure 9). The variegated dudleya habitat contained invasive non-native grasses and herbs, particularly purple false brome.

Monitoring Plot Number LCDUVA01

Monitoring plot LCDUVA01 is located in the eastern portion of the variegated dudleya population. One variegated dudleya plant was detected within the monitoring plot and was vegetative. Total vegetative cover within the plot was 56.6 percent, with 15.4 percent native plant cover and 41.2 percent non-native plant cover. The dominant native plant species within the monitoring plot was purple needle grass (*Stipa pulchra*). Invasive non-native plant species included purple false brome, soft brome, foxtail brome, annual fescue, Italian rye grass, smooth cat's ear, and Russian thistle; non-native plant species included longbeak stork's bill. One special-status plant species was detected within the plot, ashy spike-moss. Incidental special-status wildlife species detected outside of the monitoring plot included San Diego barrel cactus, coastal California gnatcatcher, and California horned lark (Figure 9). Two new invasive non-native plant species, tufted wallaby grass (*Rytidosperma caespitosum*) and artichoke thistle, were detected outside of the monitoring plot.



SOURCE: ESRI, 2022; ESA, 2023.

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Figure 9

Variegated Dudleya Monitoring and Management Results
Lusardi Creek County Preserve

ESA

Focused Management

Focused management occurred in 2023 in response to the moderate thatch cover consisting of invasive non-native plant species incidentally detected in 2022 during focused management. Management consisted of carefully removing by hand invasive non-native plants within the herbivory fencing surrounding the monitoring plot. Focused management for variegated dudleya was conducted within an 0.09-acre management area, shown in Figure 9. Invasive non-native plant cover consisted primarily of purple false brome 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. Herbivory fencing around plot LCDUVA01 was repaired, and the artichoke thistle individual outside the enclosures was cut and removed. Representative photographs of focused management are provided in Appendix B.

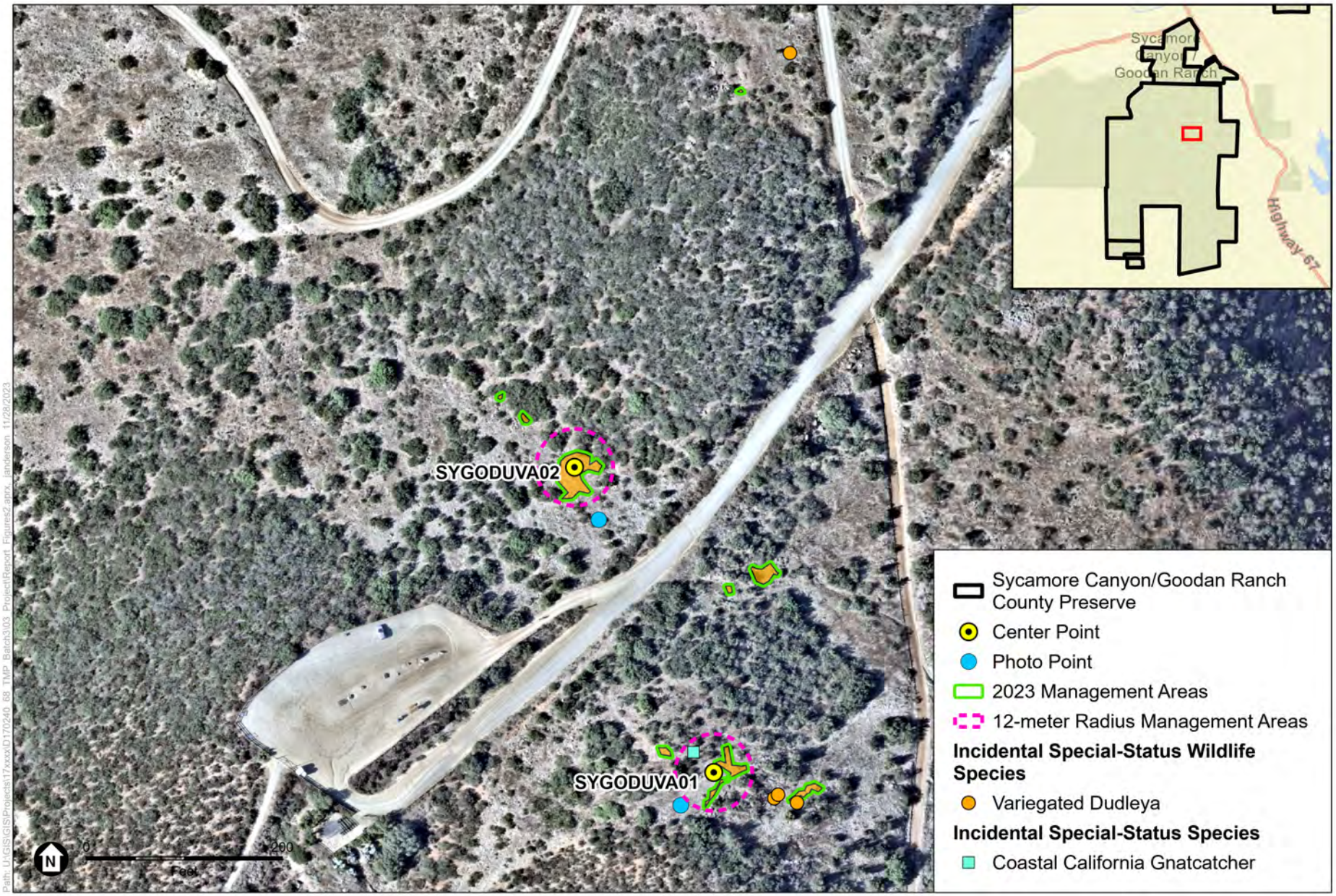
Adaptive Management Recommendations

The results of the 2023 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendation:

- **Conduct focused invasive non-native plant species 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 in 2023 was 41.2 percent and thatch cover was estimated to be 3.0 percent. 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.

Sycamore Canyon/Goodan Ranch County Preserve

The two monitoring plots within the variegated dudleya population in Sycamore Canyon/Goodan Ranch County Preserve we monitored by ESA in 2023. A total of 588 variegated dudleya plants were estimated within the monitoring plots. The entire population of variegated dudleya within Sycamore Canyon/Goodan Ranch County Preserve in 2023 is estimated at 1,348 plants. Monitoring plot, center point, photo point, maximum extent, and invasive non-native plant management areas are shown in **Figure 10**. Photo monitoring and representative photographs are provided in Appendix B. Special-status plant species, San Diego thornmint, Palmer's grappling hook, and ashy spike-moss were observed within the monitoring plots. Incidental special-status wildlife species observed outside the monitoring plot included coastal California gnatcatcher (Figure 10). The variegated dudleya habitat contained invasive non-native grasses and herbs, particularly purple false brome and tocalote.



SOURCE: Nearmap, 2023; ESA, 2023.

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Figure 10

Variegated Dudleya Monitoring and Management Results
Sycamore Canyon/Goodan Ranch County Preserve

ESA

Monitoring Plot Number SYGODUVA01

Monitoring plot SYGODUVA01 is located in the southeastern portion of the variegated dudleya population. A total of 144 variegated dudleya plants were detected within the monitoring plot; over 75 percent were vegetative. Total vegetative cover within the plot was 59.6 percent, with 20.0 percent native plant cover and 39.6 percent non-native plant cover. The dominant native plant species within the monitoring plot were laurel sumac and spiny redberry (*Rhamnus crocea*). Invasive non-native plant species included purple false brome, soft brome, tocalote, redstem stork's bill, and smooth cat's ear. Non-native plant species included pepperweed (*Lepidium* spp.), cottonrose (*Logfia* sp.), scarlet pimpernel, and spiny sowthistle. Special-status plant species detected within the plot were San Diego thornmint, Palmer's grappling hook, and ashy spike-moss. Incidental special-status wildlife species observed outside the monitoring plot included coastal California gnatcatcher (Figure 10).

Monitoring Plot Number SYGODUVA02

Monitoring plot SYGODUVA02 is located in the northwestern portion of the variegated dudleya population. A total of 444 variegated dudleya plants were detected within the monitoring plot; over 75 percent were vegetative. Total vegetative cover within the plot was 58.6 percent, with 21.6 percent native plant cover and 37.0 percent non-native plant cover. The dominant native plant species within the monitoring plot was spiny redberry. Invasive non-native plant species included purple false brome, ripgut brome, soft brome, tocalote, and redstem stork's bill; non-native plant species included spiny sowthistle and common sowthistle. Palmer's grappling hook was the only special-status plant species detected within the plot.

Focused Management

Focused management occurred in 2023 in response to the greater than 20 percent invasive non-native plant cover incidentally estimated in 2022. As previously described, management consisted of carefully removing invasive non-native plants by hand within 18 inches of variegated dudleya individuals throughout the previously mapped population maximum extents. Focused management occurred in a 0.05-acre management area (Figure 10), with a focus on areas where variegated dudleya were actively growing. Once hand-pulling was completed, line trimmers were used to cut and remove remaining invasive non-native grasses surrounding the variegated dudleya populations within 12-meter radius circles around both established center points. Invasive non-native plant cover consisted primarily of tocalote, purple false brome, and other non-native grasses. 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 2023 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendation:

- **Conduct focused invasive non-native plant species 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 plots in 2023 was 39.6 and 37.0 percent and thatch cover was estimated to be 1.0 and 2.0 percent, respectively. To ensure the

persistence of variegated dudleya 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. Invasive non-native plants within 18 inches of variegated dudleya plants should be carefully pulled by hand. Mechanical weed trimmers can be used to dethatch remaining invasive non-native plant species to 1 to 2 inches from the ground surrounding variegated dudleya occurrences within 12-meter radius circles around each of the established plot center points. All biomass should be manually collected, bagged, and properly disposed of at an approved off-site facility.

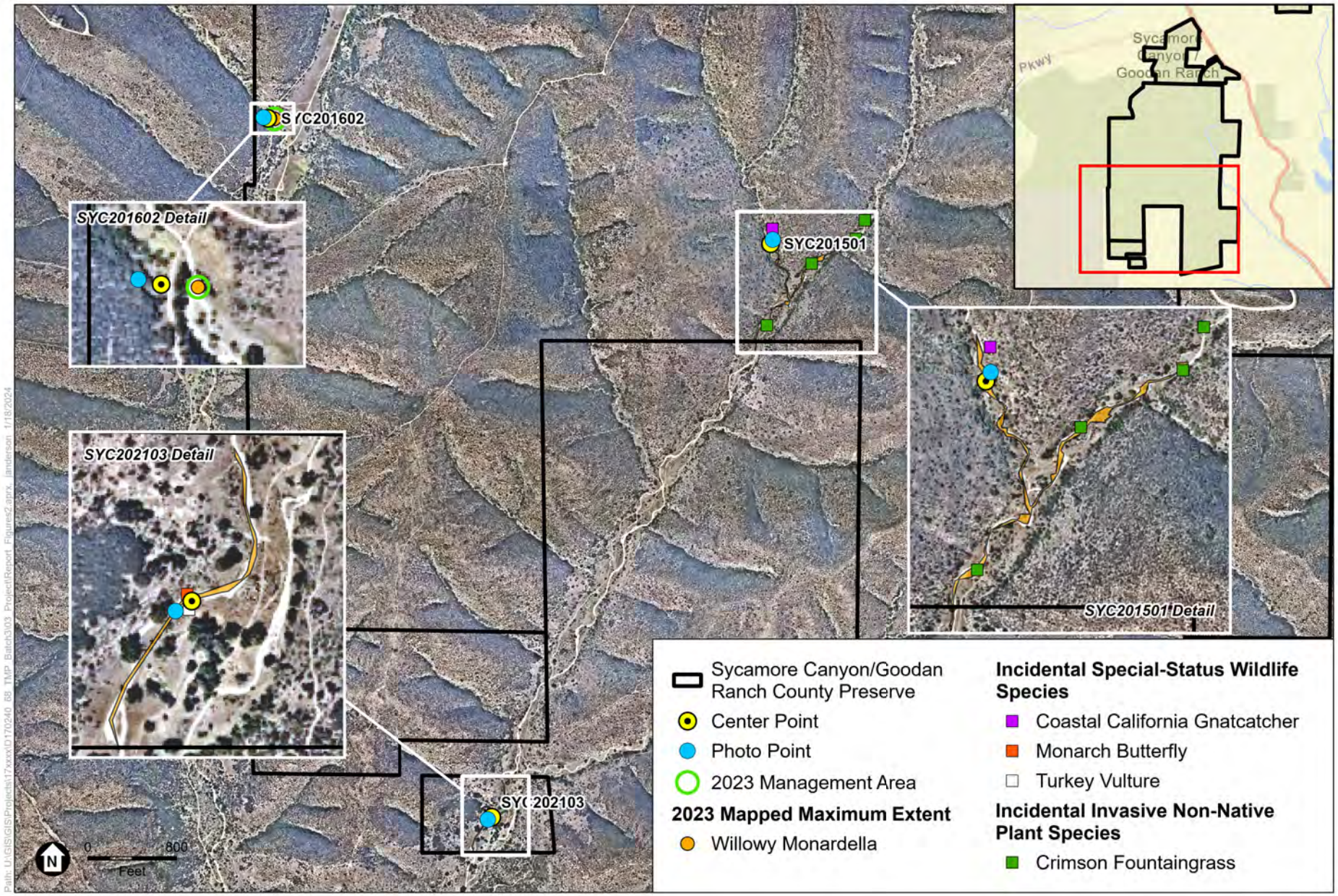
4.2.7 Willowy Monardella

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 2023. A total of 68 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 11**. Photo monitoring and representative photographs, including pre- and post-management conditions, are provided in Appendix B. No special-status plant species were observed within the three monitoring plots. Incidental special-status wildlife species observed outside of the monitoring plots included coastal California gnatcatcher, turkey vulture, and monarch butterfly (*Danaus plexippus*) (Figure 11). 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. 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 18**).

Monitoring Plot Number SYC201501

Monitoring plot SYC201501 is in the central portion of the willowy monardella population. A total of 58 willowy monardella plants were estimated within the monitoring plot; 0 to 10 percent were flowering and the remaining were vegetative. Total vegetative cover within the plot was 38.8 percent, with 27.0 percent native plant cover and 11.8 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, and annual fescue; non-native plant species included prickly lettuce, common catchfly, and an unknown grass. 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 coastal California gnatcatcher (Figure 11).



SOURCE: Nearmap, 4/18/2021; ESA, 2023.

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Figure 11

Willowy Monardella Monitoring and Management Results
Sycamore Canyon/Goodan Ranch County Preserve

ESA

TABLE 18
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	0.5	2.0	0.75	1.0	0.75	3	3 Adults
	2	1.0	1.25	0.5	1.25	0.625	2	2 Adults
	3	0.4	0.6	0.5	0.24	0.12	2	1 Mature 1 Adult
	4	1.4	1.5	0.5	2.1	1.2	5	5 Adults
	5	2.2	2.0	0.75	4.4	3.3	6	6 Adults
	6	0.75	1.0	0.75	0.75	0.5625	2	2 Adults
	7	1.3	1.2	0.5	1.56	0.78	1	1 Adult
	8	0.75	1.5	0.5	1.125	0.5625	2	2 Adults
	9	0.8	1.0	0.5	0.8	0.4	1	1 Adult
	10	1.4	1.2	0.8	1.68	1.344	1	1 Adult
	11	1.3	2.2	0.6	2.86	1.716	1	1 Adult
	12	0.8	2.0	0.5	1.6	0.8	2	2 Adults
	13	0.5	0.8	0.6	0.4	0.24	3	2 Juveniles 1 Adult
	14	1.0	2.0	0.9	2.0	1.8	3	3 Adults
	15	1.5	2.3	0.8	3.45	2.76	3	3 Adults
	16	1.5	3.2	0.9	4.8	4.32	3	3 Adults
	17	1.0	1.0	0.6	1.0	0.6	1	1 Adult
SYC201602	1	1.2	1.5	0.7	1.8	1.26	4	2 Juvenile 1 Mature 1 Adult
SYC202103	1	1.4	1.2	0.6	1.68	1.008	1	1 Adult
	2	1.0	1.5	0.6	1.5	0.9	2	2 Adults
	3	1.2	1.3	0.7	1.56	1.092	3	3 Adults
	4	1.3	1.6	0.5	2.08	1.04	1	1 Adult

Monitoring Plot Number SYC201602

Monitoring plot SYC201602 is in the western portion of the willowy monardella population. A total of four 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 32.2 percent, with 14.4 percent native plant cover and 17.8 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, Italian plumeless thistle (*Carduus pycnocephalus*), tocalote, filaree, annual fescue, Italian rye grass, shortpod mustard, and smooth cat's ear; non-native plant species

included common catchfly. 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 six willowy monardella plants were estimated within the monitoring plot; 0 to 10 percent were flowering and the remaining were vegetative. Total vegetative cover within the plot was 34.4 percent, with 22.4 percent native plant cover and 12.0 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 common catchfly. Incidental special-status wildlife species observed outside of the monitoring plot included turkey vulture and monarch butterfly (Figure 11).

Focused Management

Focused management occurred at monitoring plot number SYC201602 in 2023 in response to the potential native competition from California buckwheat observed in 2022. ESA biologists coordinated with and oversaw County Operations Division park ranger staff trim California buckwheat branches intermixed with willowy monardella plants. Ranger staff also hand-pulled invasive non-native grass species within the willowy monardella plants. Focused management occurred in an 0.0003-acre management area (Figure 11). Invasive non-native plant species consisted predominantly of slender oat, purple false brome, ripgut brome, soft brome, compact brome, annual fescue, and Italian rye grass. The 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 2023 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendation:

- **Thin native vegetation to reduce competition.** For monitoring plot number SYC201602 specifically, thinning of California buckwheat should be considered to reduce potential native competition to the willowy monardella plants.

- **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 11.8 percent within monitoring plot number SYC201501, 17.8 percent within monitoring plot number SYC201602, and 12.0 percent within monitoring plot number SYC202103. Invasive non-native crimson fountain grass was also observed at multiple locations within the willowy monardella population associated with monitoring plot number SYC201501 and is recommended to be treated and removed prior to seeding to prevent further spread into the willowy monardella population. 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. 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. All biomass should be manually collected, bagged, and properly disposed of at an approved off-site facility.

4.2.8 Regional MSP Rare Plant Monitoring & Discovery Surveys

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 Orcuttt's brodiaea (*Brodiaea orcuttii*) at one permanent monitoring plot at Boulder Oaks, Simon, and Mount Olympus County Preserves, respectively; and for Orcutt's bird's-beak at one monitoring plot at Tijuana River Valley Regional Park in 2023. Results of MSP rare plant monitoring by AECOM and MBC are provided in **Table 19**. MSP rare plant monitoring results for Parish's brittlescale at Ramona Grasslands County Preserve are depicted on Figure 2 and Orcutt's bird's-beak at Tijuana River Valley Regional Park are depicted on Figure 8.

TABLE 19
REGIONAL MSP 2023 RARE PLANT MONITORING RESULTS

Species	County Preserve	Plot #; MSP Occurrence ID	Monitoring Plot Population[a]	Maximum Extent Population Estimate[b]	Threats
Parish's brittlescale	Ramona Grasslands	ATPA2_5RAGR001	230	606	Non-native grasses and forbs.
Orcutt's brodiaea	Boulder Oaks	BROR_4BOPR029	5,088	12,833	Non-native grasses and forbs.
	Simon	BROR_4SIPR013	97	2,500	Non-native grasses and forbs.
	Mount Olympus	BRPR_8MTOL023	270	850	Non-native grasses and forbs; illegal trails.
Orcutt's bird's-beak	Tijuana River Valley Regional Park	COOR7_1ESGU010_1	122	370	Non-native grasses and forbs, trampling, erosion, soil compaction.

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.

Through ROE permits issued by DPR, AECOM and MBC (contracted by SANDAG) conducted discovery surveys for Mexican flannelbush (*Fremontodendron mexicanum*) at Tijuana River Valley Regional Park, Baja California oatgrass (*Sphenopholis interrupta* ssp. *californica*) at Simon and Sycamore Canyon/Goodan Ranch County Preserves, Parish's brittlescale at Ramona Grasslands County Preserve, and Encinitas baccharis at Del Dios Highlands County Preserve in 2023.The purpose of these discovery surveys was to locate new or additional undiscovered rare plant populations outside of known monitored rare plant populations. Results of discovery surveys by AECOM and MBC are provided in **Table 20**. Species that were not located during discovery surveys received a population estimate of zero. Discovery survey results for Encinitas baccharis at Del Dios Highlands County Preserve are depicted on Figure 5.

TABLE 20
REGIONAL MSP 2023 DISCOVERY SURVEY RESULTS

Species	County Preserve	Population Estimation[a]	Incidental Species Detected
Mexican flannelbush	Tijuana River Valley Regional Park	0	NA
Baja California oatgrass	Simon	0	NA
	Sycamore Canyon/Goodan Ranch	517	San Diego thornmint, variegated dudleya
Parish's brittlescale	Ramona Grasslands	0	Southern tarplant
Encinitas baccharis	Del Dios Highlands	42	NA

NOTE:
NA = not applicable
a. The purpose of these discovery surveys was to locate new or additional undiscovered rare plant populations outside of known monitored rare plant populations. The population estimation reflects the results of the discovery surveys only, not the Regional MSP Rare Plant Monitoring Results for known occurrences.

4.3 Harbison's Dun Skipper

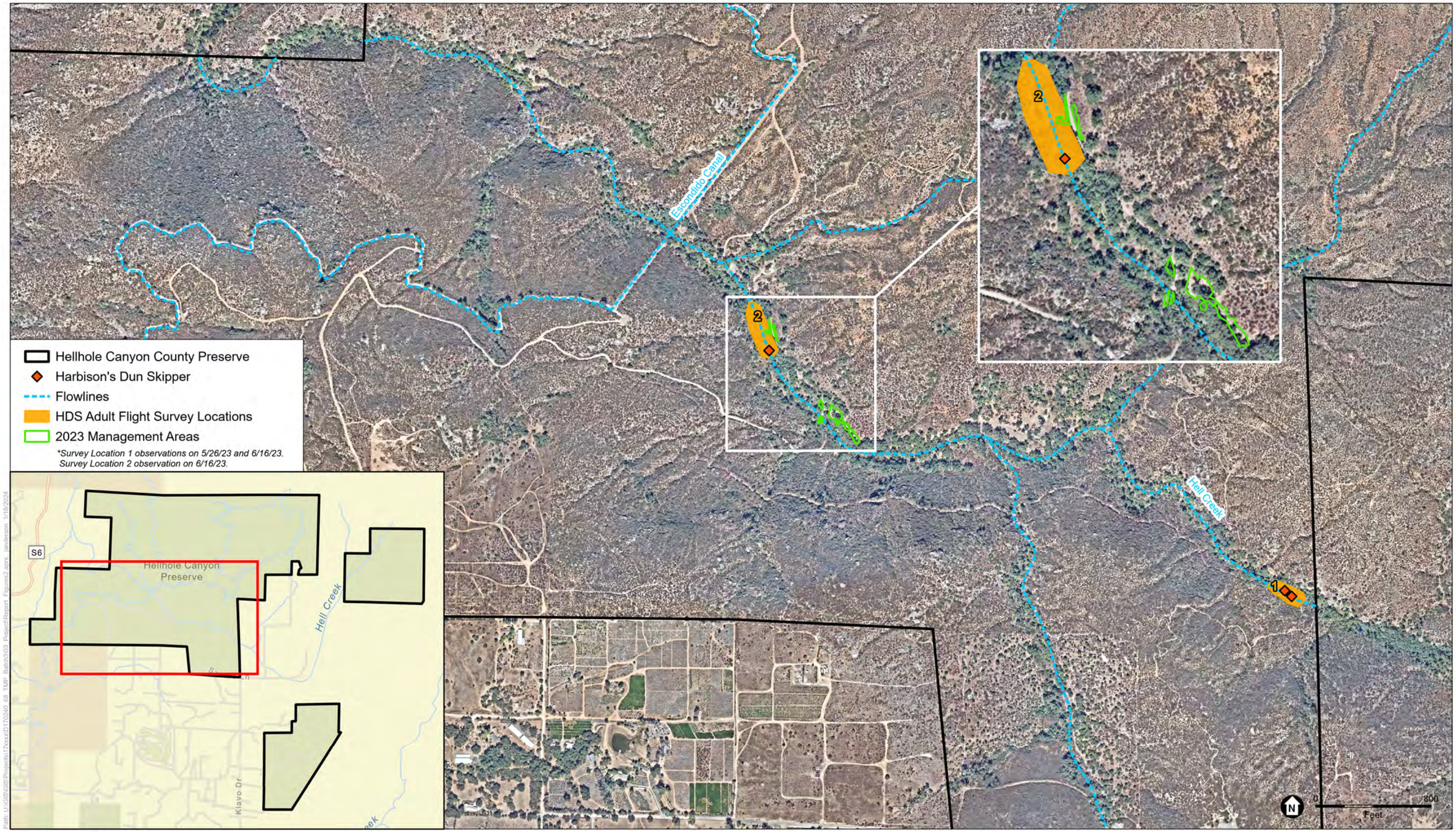
4.3.1 Adult Flight Surveys

HDS adult flight surveys were conducted at two locations around large patches of San Diego sedge within suitable habitat along Hell Creek and its southern tributary in Hellhole Canyon County Preserve. During the first adult flight survey on May 26, 2023, one HDS was observed at survey location 1, where an individual of unknown sex was seen only briefly. No HDS were observed at survey location 2 during the first survey. During the second adult flight survey on June 16, 2023, one HDS female was observed at survey location 1, where it was seen nectaring on shortpod mustard. Additionally, a male and female were observed interacting at survey location 2 and the female was seen nectaring on Indian hemp (*Apocynum cannabinum*). All butterfly species and potential nectar sources observed during the two adult flight surveys are presented in **Table 21**. Monitoring locations and HDS detections are depicted in **Figure 12**. Representative photographs from adult surveys, including HDS observations, are provided in **Appendix D**, *Harbison's Dun Skipper Representative Photographs and Field Forms*.

TABLE 21
OBSERVED BUTTERFLY AND POTENTIAL NECTAR SOURCES: HELLHOLE CANYON COUNTY PRESERVE

Common Name	Scientific Name
Butterflies Observed	
California sister	*Adelpha californica*
Orange sulphur	*Colias eurytheme*
San Bernardino blue	*Euphilotes bernardino*
Harbison's dun skipper	*Euphyes vestris harbisoni*
Silvery blue	*Glaucopsyche lygdamus*
Marine blue	*Leptotes marina*
Dainty sulphur	*Nathalis iole*
Mourning cloak	*Nymphalis antiopa*
Western tiger swallowtail	*Papilio rutulus*
Acmon blue	*Plebejus acmon*
Umber skipper	*Poanes melane*
Checkered white	*Pontia protodice*
California dogface	*Zerene eurydice*
Potential Nectar Sources Observed	
Foothill deervetch	*Acmispon brachycarpus*
Hemp dogbane[a]	*Apocynum cannabinum*[a]
Italian thistle*	*Carduus pycnocephalus*[*]
Canyon clarkia	*Clarkia epilobioides*
Wine-cup clarkia	*Clarkia purpurea*
Blue dicks	*Dipterostemon capitatus*
Seep monkeyflower	*Erythranthe guttata*
Narrow-leaf bedstraw	*Galium angustifolium*
Shortpod mustard[a*]	*Hirschfeldia incana*[a*]
Indian sweetclover[*]	*Melilotus indica*[*]
Caterpillar phacelia	*Phacelia cicutaria*
California rose	*Rosa californica*
Black sage	*Salvia mellifera*
Vetch sp.	*Vicia sp.*

NOTES:
a Harbison's dun skipper was observed nectaring on this species during 2023 adult flight surveys.
* Non-native plant species.



SOURCE: Nearmap, 2020; ESA, 2023.
NOTE: Management results will be updated during screencheck

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Figure 12
Harbison's Dun Skipper Monitoring and Management Results
Hellhole Canyon County Preserve

ESA

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Habitat assessments were conducted at both adult flight survey locations concurrently with the second adult flight survey. The woodland habitat at survey location 1 consisted of 5 percent oaks, 15 percent sycamores, 35 percent willows and 5 percent cottonwoods. The woodland habitat at survey location 2 consisted of 20 percent oaks, 10 percent sycamores, and 50 percent willows. The condition of San Diego sedge host plant populations at both survey locations ranged from all green (healthy) to mostly brown (dead), but most were seen to be green with brown tips, suggesting only minor drought or water stress. Drought was the main threat detected at the survey locations during the threats assessment as other plant species within the habitat, such as willows and oaks, showed signs of drought stress. Additional threats detected at the survey locations included tree pests such as gold-spotted oak borer and Kuroshio shot hole borer (*Euwallacea kuroshio*). These tree pests have led to oak mortality at the survey locations. While San Diego sedge is not restricted to oak woodlands, this species is commonly found inhabiting partially shaded riparian oak woodlands (Brown 1991). The full habitat assessment data matrix can be found in Appendix D.

4.3.2 Focused Management

Focused management for HDS occurred in 2023 in response to 2022 adaptive management recommendations. As previously described, preparation of seeding areas adjacent to Survey Location 2 consisted of removing non-native grasses via hand tools and line trimmers within an 0.36-acre management area, as shown in Figure 12. 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, native nectar source seeds were broadcast by hand. A list of seed species and quantities is provided in **Table 22**. The seed was lightly raked into the top quarter-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 photographs of focused management are provided in Appendix D.

TABLE 22
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	Wild morning glory	Lake Elsinore	99 / 68	0.70
Malacothamnus fasciculatus	Chaparral bushmallow	Camp Pendelton	34.54 / 72	0.88
Stachys rigida	Hedge nettle	Vista	No test	0.88
Stephanomeria virgata	Rod wirelettuce	Escondido	9.49 / 23	0.88
Total				**5.10**

4.3.3 Adaptive Management Recommendations

The results of the 2023 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 adjacent to Survey Location 2.** Areas that were seeded with potential native nectar sources in 2023, adjacent to Survey Location 2 (Figure 12), 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.
- **Seed with potential native nectar sources adjacent to Survey Location 1.** The San Diego sedge host plant population within Hell Creek and its southern tributary remained abundant in 2023, but drought conditions can impact the health of the larval host plant as it requires relatively higher soil moisture. Based on 2023 adult flight surveys, HDS adults continued to have very limited nectar sources immediately adjacent to San Diego sedge plants. Seeding of potential native nectar sources should be implemented around Survey Location 1 (Figure 12). Seeding considerations include:
  - Potential native nectar sources can include hedge nettle (*Stachys rigida*), cobweb thistle (*Cirsium occidentale*), California loosestrife (*Lythrum californicum*), and chaparral bushmallow (*Malacothamnus fasciculatus*) (Marschalek and Deutschman 2015, Marschalek and Deutschman 2016).
  - Document the seed source (collection location) and confirm it is ecologically appropriate for Hellhole Canyon County Preserve. Seed may be rejected based on its source.
  - Document seed purity and germination percentages to determine pure live seed quantity.
  - Apply seed in the fall, prior to first rains (e.g., November). Seed applied at other times of the year are more likely to be lost to predation and/or not receive sufficient rainfall to support germination and survival of seedlings.
  - Prepare seeding areas in willow riparian and oak riparian woodland areas by thinning thatch and reducing weed presence/competition, as needed. The optimal seeding condition is to provide seed direct contact with the soil and space to grow while retaining some organic debris (e.g., organic mulch) and existing native plant growth in place.
  - Apply seed by hand. Select method (e.g., selective hand application or use of "belly spreader") based on the quantity of seed and size of seeding areas. Lightly rake seed into the top quarter-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.

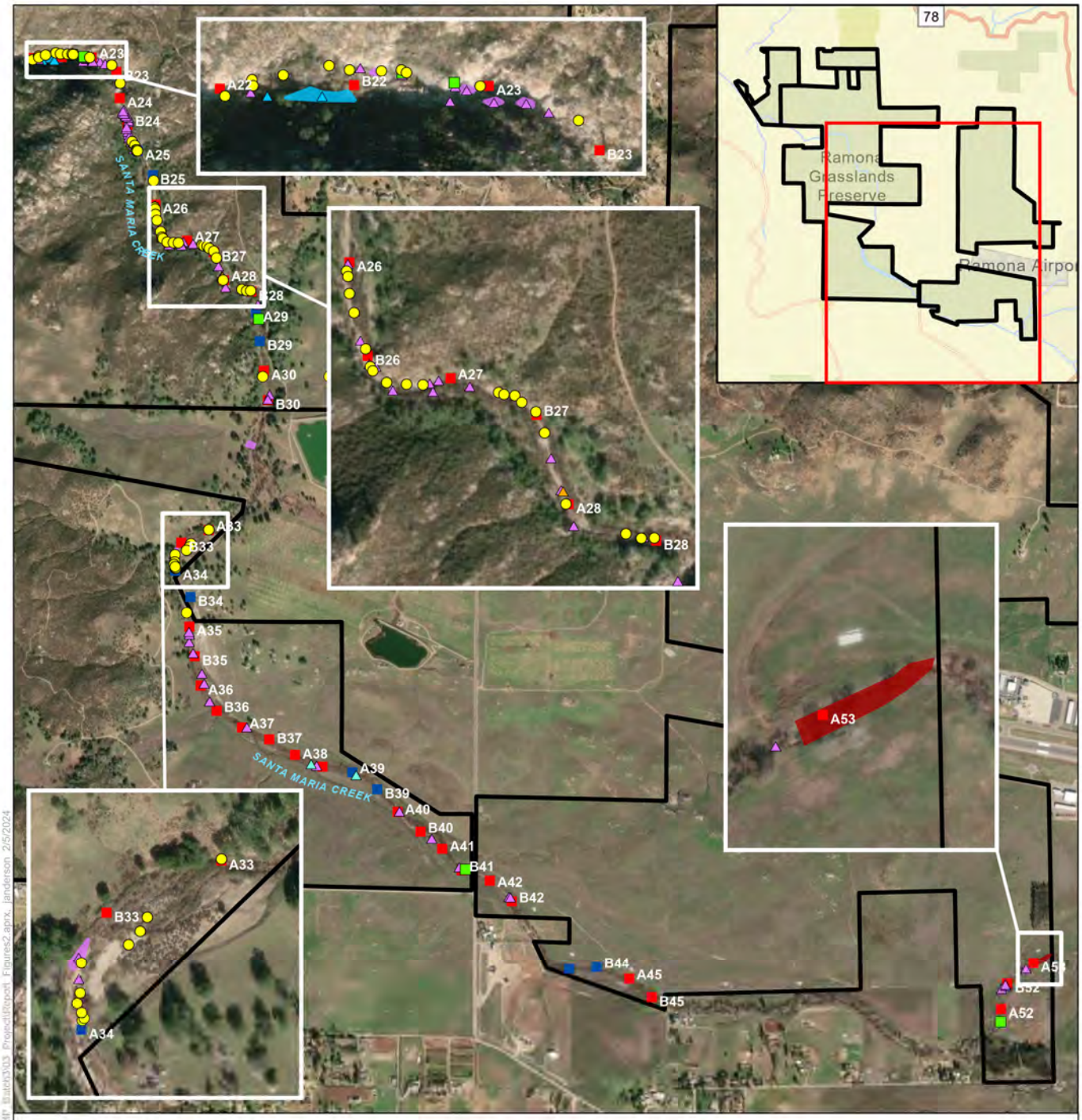
4.4 Arroyo Toad

ESA monitored the status of occupancy and breeding arroyo toads, habitat conditions, and threats to inform management needs within 18 reaches of Santa Maria Creek in the Ramona Grasslands County Preserve. Arroyo toad occurrence data is depicted in **Figure 13** and presented in **Table 23**. Representative photographs of the survey area are provided in **Appendix E**, *Arroyo Toad Representative Photographs*.

Of the 18 reaches surveyed, a total of 12 reach segments supported breeding and larval toad development. These include reach segments A22, B22, A23, B23, B24, A26, B26, A27, B27, A28, A33, and B33, 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 B22, B41, and immediately downstream of reach 52 (Figure 13).

Vegetation along the Santa Maria Creek generally consists of riparian forest/riparian woodland, characterized by a prominence of mule fat (*Baccharis salicifolia*), black willow (*Salix nigra*), and red willow (*Salix laevigata*). The overstory within the southeastern upstream extent of the survey area (i.e., reaches 36–38, 40 and 41) is particularly dense and supports up to 75 percent cover along the channel in many areas. Much of the northwestern downstream extent of the creek is less dense (i.e., reaches 22–24 and 26–27) 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. A greater concentration of shallow pooling was documented between reach segments B24 and A27; medium pooling between reach segments B27 and A35; and deep pooling between reach segments A22 and 24, B27 and B28, B33 and B36. Aquatic algae was observed throughout the survey area and was particularly dense along reach segments A35, A40, and B40. In general, substrate observed along the bed and banks of the creek generally varied between a dominance of sand or gravel, with 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 various concentrations of substrate, dominated by sand and gravel.

The southeastern upstream extent of the survey area (i.e., reaches 35–38, 40–42, 52, and 53) is generally characterized by moderate- to low-quality habitat for arroyo toad. This can be attributed to the presence of a dense overstory that provides sub-optimal conditions for male toads to call and attempt to initiate breeding. The northeastern downstream extent of the survey area (i.e., reaches 22–24, 26–28, 30, and 33) 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, and reduced overstory density, all of which are habitat characteristics necessary for supporting breeding behavior and successful larval development.



Ramona Grasslands County Preserve

Monitoring Reaches

- Monitored by ESA
- Monitored by USGS
- Arroyo Toad

Incidental Special-Status Wildlife Species

- Two-striped Garter Snake

Incidental Invasive Non-Native Wildlife Species

- American Bullfrog
- Red Swamp Crayfish

Incidental Invasive Non-Native Plant Species

- Arundo
- Tamarisk
- Perennial Pepperweed

N 0 1,000 Feet

SOURCE: ESRI; ESA, 2023; USGS, 2023

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Targeted Monitoring Plan Resource-Specific Monitoring and Management 2023 Annual Report

Figure 13

Arroyo Toad Monitoring Results
Ramona Grasslands County Preserve

ESA

TABLE 23
ARROYO TOAD HABITAT ASSESSMENT RESULTS: RAMONA GRASSLANDS COUNTY PRESERVE

Survey Reach	Segment	Start/End Time	Start/End Air Temperature (°F)	Start/End Cloud Cover	Channel Width/ Flood Prone Width (m)	Entrenchment Ratio	Plunge Pools (#)	Overhead Canopy (%)	Dominant Plant Species*	Portion Wet (%)	Pooling (%)			Aquatic Vegetation			Substrate (%)									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	14:35/ 15:51	77/--	Cl / --	12.5/13.5	1.08	10	25	*Salix laevigata, Populus spp., Platanus spp.*	100	10	25	25	10	10	25	0	10	50	10	0	0	50	10	10	180	300
22	B	15:54/ --	82/82	Cl / Cl	1.2/4.1	3.42	5	10	*Salix laevigata*	100	10	10	50	0	10	25	0	10	75	10	0	10	10	10	10	15	140
23	A	16:42/ 17:29	80/80	Cl / Cl	9.8/13.1	1.2	5	10	*Salix laevigata, Populus spp.*	100	10	10	25	10	10	50	0	10	10	10	0	0	10	10	0	--	100
23	B	17:32/ 18:13	77/73	Cl / Cl	3.9/4.3	1.1	5	10	*Salix laevigata, Platanus spp.*	100	10	25	10	10	0	10	0	10	75	10	10	10	10	10	10	25	--
24	A	08:17/ 08:44	59/--	Clo / --	5.1/9.52	1.9	10	25	*Cyperaceae, Salix laevigata, Baccharis salicifolia*	100	10	25	25	50	25	25	0	10	75	10	10	25	10	10	0	--	--
24	B	08:46/ 9:30	61/61	Clo / Clo	9.7/13.7	1.4	0	10	*Cyperaceae, Salix laevigata, Baccharis salicifolia*	100	50	10	10	10	25	25	0	10	75	25	10	10	10	10	10	--	1,400
26	A	09:40/ 10:17	59/64	Clo / Cl	10.9/12.3	1.12	0	10	*Salix laevigata, Salix nigra, Baccharis salicifolia*	100	50	10	10	10	10	25	0	10	75	25	10	10	10	10	0	500	2,825
26	B	10:18/ 10:54	64/66	Cl / Cl	6.1/7.2	1.2	5	10	*Baccharis salicifolia, Salix laevigata, Salix nigra*	100	50	25	10	0	10	25	0	10	100	25	10	10	10	10	10	--	1,450
27	A	10:56/ 11:31	68/68	Cl / Cl	9.2/10.6	1.2	0	10	*Baccharis salicifolia, Salix laevigata*	100	50	10	10	0	10	25	0	10	50	50	10	10	10	10	0	400	200
27	B	11:33/ --	68/--	Cl / --	9.9/16.4	1.7	0	10	*Cyperaceae, Salix laevigata, Salix nigra*	100	10	25	25	0	10	25	0	10	50	50	10	10	10	10	N/A	--	35
28	A	12:03/ 12:38	70/75	Cl / Cl	19.5/22	1.12	0	50	*Salix laevigata, cyperaceae*	100	10	25	25	10	75	75	0	10	50	50	10	10	10	10	10	--	160
28	B	12:42/ 13:24	75/73	Cl / Cl	2.66/4.9	1.84	5	50	*Cyperaceae, Salix laevigata, Baccharis salicifolia*	100	10	25	50	0	50	50	0	10	50	10	10	10	25	10	10	--	--
30	A	13:53/ --	75/--	Cl / --	4.3/16.6	1.16	0	0	*Cyperaceae, Baccharis salicifolia*	100	50	50	10	0	50	50	0	10	50	50	0	0	10	10	10	--	--
30	B	14:20/ 14:58	75/77	Cl / Cl	9.1/11.4	1.25	0	25	*Cyperaceae, Salix laevigata*	100	50	50	10	0	50	50	0	10	75	10	10	10	10	10	0	--	--
33	A	13:43/ 14:29	72/72	Cl / Cl	24.1/26	1.08	0	50	*Salix laevigata, Salix nigra, Baccharis salicifolia*	100	50	25	10	0	10	25	0	10	75	25	10	0	10	10	10	--	15
33	B	14:31/ 15:25	79/75	Cl / PC	13.9/16	1.15	0	10	*Baccharis salicifolia, Salix laevigata, Salix nigra*	100	10	50	25	0	10	25	0	10	50	50	10	0	10	10	0	--	320
35	A	07:47/ 08:10	55/57	Clo / Clo	19.2/35.5	1.85	0	10	*Baccharis salicifolia, Salix laevigata, Salix nigra*	100	10	25	25	0	25	100	0	10	50	50	0	0	10	10	0	--	--
35	B	08:31/ 08:55	57/61	Clo / Clo	24/44	1.83	0	5	*Baccharis salicifolia, Salix laevigata, Salix nigra*	100	10	10	25	0	75	50	0	10	50	75	N/A	N/A	N/A	N/A	N/A	--	--
36	A	08:57/ 09:26	63/64	Clo / Clo	46/50	1.09	0	50	*Baccharis salicifolia, Salix laevigata, Salix nigra*	100	0	10	25	0	50	75	0	10	10	0	0	0	0	0	10	--	--
36	B	09:55/ 10:15	64/66	Clo / Clo	21/52	2.48	0	25	*Baccharis salicifolia, Salix laevigata, Salix nigra*	100	10	10	75	0	10	75	N/A	10	10	10	N/A	N/A	N/A	N/A	N/A	--	--
37	A	10:25/ 10:50	64/66	Clo / Clo	62/65	1.04	0	50	*Baccharis salicifolia, Salix nigra, Salix laevigata*	75	10	10	10	0	25	25	0	10	25	25	N/A	N/A	N/A	N/A	N/A	--	--

Survey Reach	Segment	Start/End Time	Start/End Air Temperature (°F)	Start/End Cloud Cover	Channel Width/ Flood Prone Width (m)	Entrenchment Ratio	Plunge Pools (#)	Overhead Canopy (%)	Dominant Plant Species*	Portion Wet (%)	Pooling (%)			Aquatic Vegetation			Substrate (%)									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
37	B	10:54/ 11:21	66/70	Clo / PC	32/42	1.31	0	50	*Baccharis salicifolia, Salix nigra, Salix laevigata*	100	10	10	0	0	50	75	N/A	10	10	10	N/A	N/A	N/A	N/A	N/A	--	--
38	A	11:27/ --	66/70	PC / Cl	28.1/31.4	1.12	0	50	*Baccharis salicifolia, Salix nigra, Salix laevigata*	100	25	10	10	0	25	75	0	10	10	N/A	N/A	N/A	N/A	10	N/A	--	--
38	B	11:56/ 12:14	73/75	Cl / Cl	19.3/25.4	1.32	0	75	*Baccharis salicifolia, Salix nigra, Salix laevigata*	100	10	0	0	0	50	75	N/A	10	10	N/A	N/A	N/A	N/A	10	N/A	--	--
40	A	12:39/ 12:51	75/75	Cl / Cl	13.5/46.5	3.44	0	75	*Baccharis salicifolia, Salix nigra, Salix laevigata*	100	10	10	10	0	10	100	N/A	10	10	10	N/A	N/A	N/A	N/A	N/A	--	--
40	B	13:06/ 13:26	75/77	Cl / Cl	18.6/24.2	1.3	0	75	*Salix laevigata, Salix nigra, Baccharis salicifolia*	100	10	10	25	0	25	100	N/A	10	10	10	N/A	N/A	N/A	N/A	N/A	--	--
41	A	13:30/ 13:59	77/77	Cl / Cl	24.1/31.2	1.29	0	75	*Baccharis salicifolia, Salix nigra, Salix laevigata*	100	25	0	0	0	25	10	N/A	10	25	10	N/A	N/A	N/A	N/A	N/A	--	--
41	B	40:06/ 14:28	77/77	Cl / Cl	13.2/30.2	2.29	0	10	*Salix nigra, Baccharis salicifolia*	100	50	10	25	0	25	25	N/A	10	50	50	N/A	N/A	N/A	N/A	N/A	--	--
42	A	14:37/ 14:56	77/77	Cl / Cl	7.8/9.8	1.26	0	10	*Baccharis salicifolia., Salix nigra, Salix laevigata*	100	50	10	10	0	10	10	0	10	50	10	N/A	N/A	N/A	N/A	N/A	--	--
42	B	14:58/ 15:22	77/77	Cl / Cl	7.8/32.3	4.41	0	10	*Salix nigra, Salix laevigata, Populus fremontii*	100	10	10	10	10	10	25	N/A	10	25	25	10	N/A	N/A	N/A	N/A	--	--
45	A	15:35/ 15:49	77/77	Cl / Cl	15.7/30.4	1.94	0	50	*Baccharis salicifolia, Salix nigra, Salix laevigata*	100	25	10	10	10	25	10	N/A	10	50	50	N/A	N/A	N/A	N/A	N/A	--	--
45	B	15:50/ 16:04	77/77	Cl / Cl	14.4/31.7	2.2	0	75	*Salix laevigata, Salix nigra, Baccharis salicifolia*	100	25	10	0	10	10	10	N/A	10	50	50	N/A	N/A	N/A	N/A	N/A	--	--
52	A	08:28/ --	63/64	PC / Cl	5.4/10.7	1.98	0	10	*Baccharis, Salix gooddingii*	100	25	10	0	25	10	10	0	10	100	10	10	0	0	10	N/A	--	--
52	B	09:28/ --	64/70	Cl / Cl	3.8/11.6	3.05	0	25	*Baccharis salicifolia, Salix laevigata, Salix nigra*	100	10	10	0	25	10	10	0	10	50	25	0	0	0	10	10	--	--
53	A	10:25/ 10:57	70/73	Cl / Cl	4.4/10.3	2.34	0	25	*Baccharis salicifolia, Salix laevigata, Salix nigra*	100	10	0	0	10	0	10	0	10	100	10	0	0	0	10	10	--	--
Total																										**1,120**	**7,445**

NOTES:

F = Fahrenheit; Cl = Clear, Clo = Cloudy, PC = Partly Cloudy; 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.

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.** One invasive non-native plant species, tamarisk, occurs at low to moderate densities throughout the Santa Maria Creek, increasing in density downstream of reach 36 (i.e., reaches 22–24, 26–28, 30, 33, 35–36) (Figure 13). Tamarisk has a Cal-IPC rating of "High" due to its severe impacts on physical processes and plant and wildlife communities (Cal-IPC 2023). Arundo (*Arundo donax*) and perennial pepperweed (*Lepidium latifolium*), also Cal-IPC "High" rated species, were mapped in low densities along the Santa Maria Creek; arundo was observed within reach segment A22 and perennial pepperweed was observed along reach segment A53 (Figure 13).
- **Exotic predators.** Exotic predators have been noted in abundance during previous monitoring efforts; however, were observed in low numbers during the 2023 surveys. One red swamp crayfish and one American bullfrog were observed along reach segments B27 and A38, respectively (Figure 13).

4.4.2 Adaptive Management Recommendations

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.
  - *Perennial pepperweed*: This species was observed in upland areas, immediately adjacent to the stream channel. As such, herbicide may be used to treat the species and prevent its spread elsewhere within the survey area.
- **Control exotic predators.** Few exotic predators were observed during the 2023 surveys; however, it is expected that both American bullfrog and red swamp crayfish still occur in abundance within the Santa Maria Creek 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.

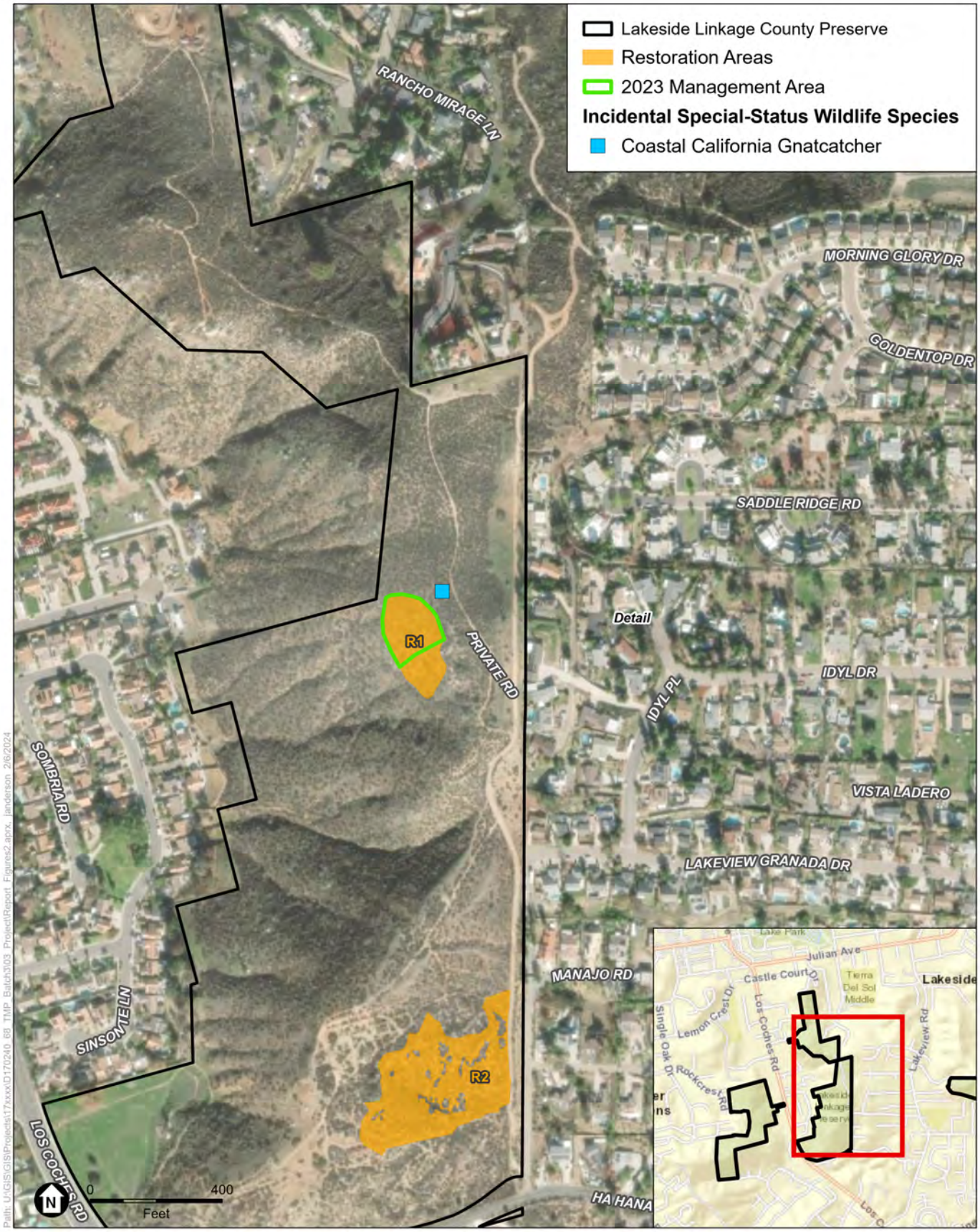
4.5 San Diego Cactus Wren Focused Management

Focused management occurred in 2023 in response to the invasive non-native plant cover and laddering of vegetation observed in 2022 within suitable and restored cactus patches at Lakeside Linkage County Preserve. Management activities were conducted within 0.63 acres of the northern restored cacti patch (R1) (**Figure 14**). Invasive non-native vegetation consisted primarily of non-native grasses, tocalote, and shortpod mustard. The majority of laddering vegetation within the cacti patches consisted of native vegetation, primarily California buckwheat and California sagebrush. 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 activities are provided in **Appendix F**, *San Diego Cactus Wren Representative Management Photographs*.

4.5.1 Adaptive Management Recommendations

The TMP management goal for San Diego cactus wren is to restore, enhance, and maintain suitable nesting habitat for San Diego cactus wren on the Lakeside Linkage County Preserve (ESA and ICF 2022). The results of the 2022 surveys, 2023 adaptive management actions, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendation:

- **Remove native vegetation within established cacti patches at restoration sites (R1 and R2) installed in 2012.** Removing ladder plants can reduce predation threats to San Diego cactus wren nest sites. Priority should be to remove ladder plants at restoration site R1 because San Diego cactus wren and their nests have been documented previously in this location during the nesting season. This would be a continuation of 2023 adaptive management actions. Vegetation removal should focus on established, larger cacti patches and not the *Opuntia* patches that are currently too small to support San Diego cactus wren nests. The native vegetation is well established and will take time to remove from in between the cacti. Care should be taken to ensure no damage occurs to established cacti and San Diego cactus wren nests during vegetation removal activities. Vegetation removal activities should occur outside of the nesting season (February 15–August 15) (County of San Diego 2010).
- **Remove vegetation surrounding established cacti patches at restoration sites (R1 and R2).** Prioritize removing non-native vegetation surrounding cacti patches, especially near their bases to ensure cacti patches are more wildfire hardy. This would be a continuation of 2023 adaptive management actions. Native vegetation should also be trimmed back to ensure further wildfire hardiness and prevent laddering from adjacent vegetation. Care should be taken to ensure no damage occurs to established cacti and San Diego cactus wren nests during vegetation removal or trimming activities. Vegetation removal activities should occur outside of the nesting season (February 15–August 15) (County of San Diego 2010).
- **Remove cochineal scale if found on healthy, established cacti patches.** Remove cochineal scale (*Dactylopius* sp.) infected cactus pads or segments to ensure the viability and health of the established cacti patches. Infected cactus pads or segments must be properly removed and disposed of off-site to reduce the spread of the infestation to other cacti patches in the immediate area.



SOURCE: ESRI; ESA, 2022

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Figure 14

San Diego Cactus Wren Management Results
Lakeside Linkage County Preserve

ESA

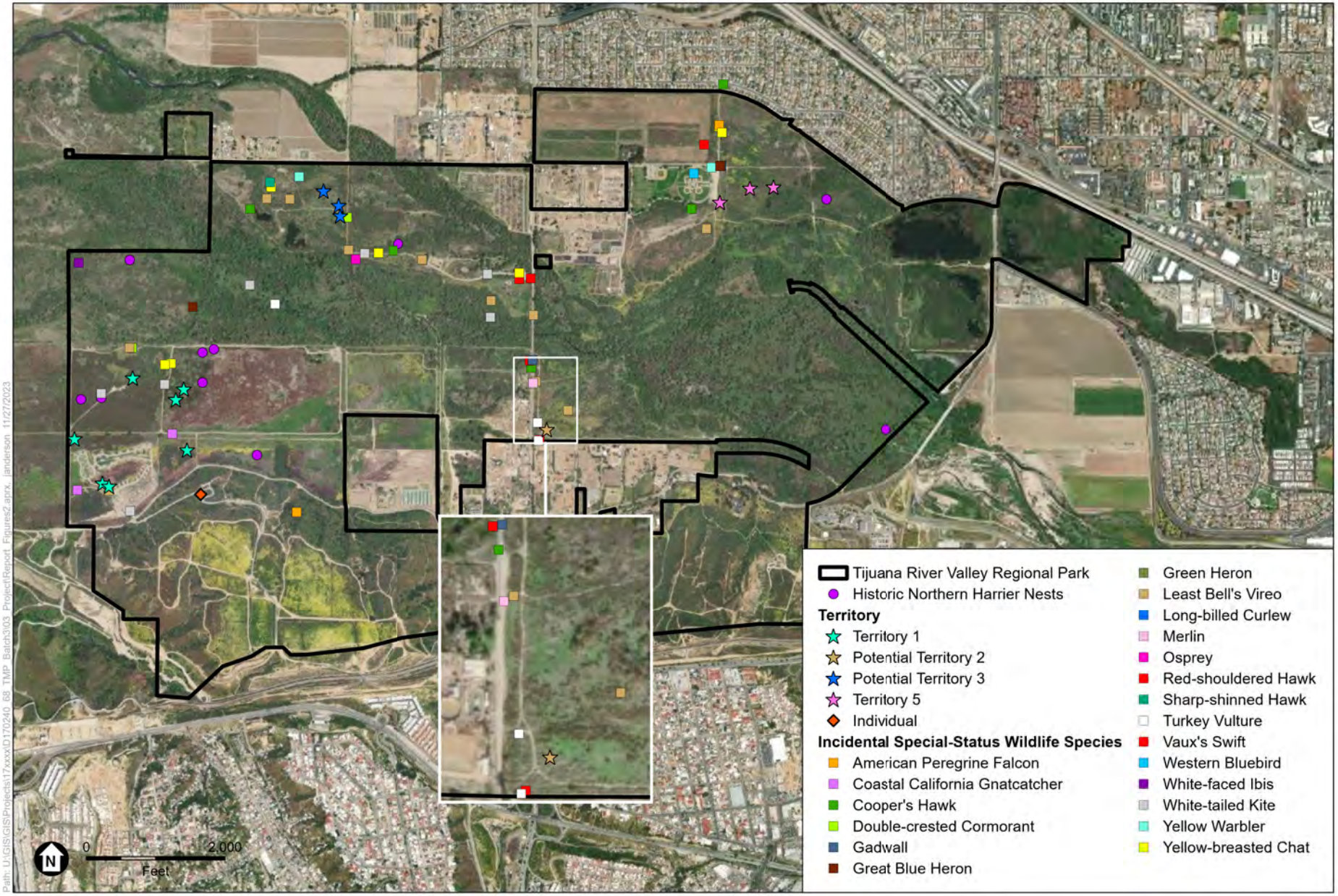
4.6 Northern Harrier

The 2023 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. These areas include the coastal sage scrub vegetation community in the western portion of the Park north of Monument Road and west of Hollister Street, the southern willow scrub vegetation community in the northwestern portion of the Park near the intersection of Saturn Boulevard and Sunset Avenue, the Diegan coastal sage scrub vegetation community northeast of the Hollister Street and Monument Road intersection, the mule fat/southern willow scrub habitat east of the Tijuana River Valley Sports Complex, the abandoned agricultural habitat north of the Tijuana River Valley Sports Complex, and the riparian vegetation community along the eastern Park boundary. The area along the eastern Park boundary was not surveyed in 2023. Representative photographs of the survey areas and completed field forms are provided in **Appendix G**, *Northern Harrier Representative Photographs and Field Forms*.

Northern harriers were observed during all surveys with the highest observations during the month of April. Fledglings were observed during the May survey. Territorial behavior documented by northern harriers during the survey included courtship display flights, a female seen visiting a probable nest site location, and fledglings seen/heard begging and following the adult pair. All nesting behavior was predominantly detected within Territory 1; courtship display flights were also observed in Territory 5. Territory 1 continues to be highly sought after because multiple adults were seen and suitable nesting habitat is still present. While up to five northern harrier territories could be present within the Park, only two appeared to be occupied and only one was successful in 2023 (**Figure 15** and **Table 24**). Incidentally observed special-status wildlife species included gadwall, double-crested cormorant (*Nannopterum auritum*), great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), white-faced ibis (*Plegadis chihi*), long-billed curlew (*Numenius americanus*), turkey vulture, osprey (*Pandion haliaetus*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk, red-shouldered hawk, white-tailed kite (*Elanus leucurus*), merlin (*Falco columbarius*), American peregrine falcon, Vaux's swift (*Chaetura vauxi*), least Bell's vireo, coastal California gnatcatcher, western bluebird, yellow-breasted chat, and yellow warbler (Figure 15).

One territory (Territory 1) was confirmed within the Park (Table 24 and Figure 15). Territory 1 fledged and the nest site was located in close proximity to a public trail and a known historic nest location. Potential Territory 5's nest site was not located and assumed to have failed given the lack of nesting behavior and fledgling observations. Up to three other territories (Territories 2, 3, and 4) have potential to occur in the Park but were not confirmed due to the lack of breeding behavior including the observation of two adult birds. These potential territories should still be noted due to territorial distance and evidence during previous year's surveys.

There was one observation of a successful prey capture attempt within Potential Territory 2, but the adult male flew off to the northeast in the direction of Territory 5. One individual not associated with a territory was observed foraging in the scrublands south of Monument Road, indicating that the Park likely supports foraging habitat for non-breeding individuals. Overall, there were a similar number of northern harrier observations in 2023 compared to 2022, but less compared to 2021. More individuals were observed foraging in the scrub habitat south of Sunset Avenue and west of Saturn Boulevard in Potential Territory 3 in 2023 compared to 2022.



SOURCE: ESRI, 2022; ESA, 2023.

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Figure 15

Northern Harrier Monitoring Results
Tijuana River Valley Regional Park

ESA

TABLE 24
NORTHERN HARRIER NESTING SURVEY RESULTS

Territory	Type	Nest Success	Location	Observation Summary
1	Pair	Fledged	North of the newly constructed TRVRP campground. Likely same location of historic nesting.	No March visit due to trail closures and road flooding. Pair was seen in April near historic nest site. One additional adult was seen in April south of Monument Rd. Adult pair and 2 fledglings seen in May. Adult female seen in June.
2*	Individual	Not Occupied	Northeast of the Hollister St/Monument Rd Intersect	A single adult male was seen in April capturing a mammalian prey item. No other observations in this potential territory were documented in 2023.
3*	Individuals	Not Occupied	West of the TRVRP Bird & Butterfly Garden	Adult female and an unknown, aged and sexed individual were observed in March. Adult male seen foraging in May. No observations in April or June.
4*	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 2023.
5	Pair	Unknown	East of Tijuana River Valley Sports Complex	Adult pair seen in courtship display in March. Additional subadult male seen in March. No observations in April or May. Subadult male seen again in June.

NOTE:
TRVRP = Tijuana River Valley Regional Park
* Potential territories due to territorial distance from other territories and evidence during previous year's surveys.

4.6.1 Habitat and Threats Assessment

Habitat and threats were assessed during surveys to determine: (1) if identified threats are having a direct negative effect on the species or habitat, and (2) if adaptive management actions need to be implemented.

Suitable 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 foraging behavior and the Park being occupied by up to five northern harrier territories in 2023. The following threats were observed:

- **Nest disturbance.** Northern harrier is a ground-nesting species. Territory 1's nest site is close to an authorized public trail. Territory 1 successfully fledged in 2023; however, increase in public use (e.g., campground users) and U.S. Border Patrol activities could affect future nesting success if trail usage encroaches on nesting harriers.
- **Predator harassment.** Predator harassment was observed in 2021; however, it was not observed in 2022 or 2023. An expected increase of trash from the recently opened campground could encourage increased park usage by northern harrier nesting predators (e.g., coyotes, raccoons, ravens) in the future.

4.6.2 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 the 2023 surveys, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Monitor trail use in vicinity of the Territory 1 nest site.** Install a trail counter on the trail in the vicinity of Territory 1's nest site 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.
- **Conduct habitat and threat assessment using regional protocol.** SDMMP developed a habitat and threat assessment protocol and Survey123 form for northern harrier in 2021. TMP habitat and threat assessment surveys for northern harrier moving forward will follow the regional protocol developed by SDMMP and use the associated Survey123 form.

4.7 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 H**, *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, the cowbird trapping program established in 2022 was continued in 2023. The brown-headed cowbird trapping annual report is also provided in Appendix H.

4.7.1 Least Bell's Vireo Surveys

The survey area encompasses a portion of the Santa Margarita River and adjacent upland areas, recreational trails and access roads, and the Preserve's staging area on the north side of De Luz Road. All vegetation communities within the Santa Margarita channel were surveyed. Potentially suitable nesting habitat for least Bell's vireo occurs only in southern riparian woodland (20.41 acres), southern riparian forest (13.41 acres), southern willow scrub (4.94 acres), southern cottonwood-willow riparian forest (2.71 acres), southern riparian scrub (0.67 acres), southern sycamore-alder riparian woodland (0.47 acres), and southern coast live oak riparian forest (0.43 acres), all together totaling 43.04 acres.

Survey results are summarized in **Table 25** below and depicted on **Figure 16**. Least Bell's vireos were detected during all 2023 focused surveys. Based on the results of the protocol-level least Bell's vireo surveys, the survey area contains suitable least Bell's vireo habitat occupied by up to 13 least Bell's vireo territories. At least six of those territories produced young. Nest searching was not part of this survey protocol; however, one nest was incidentally discovered. The nest was subsequently parasitized by brown-headed cowbirds and abandoned by the least Bell's vireo pair. Brown-headed cowbirds were observed during two surveys and no juvenile brown-headed cowbirds were observed during any survey (**Table 26**). Incidentally observed special-status

wildlife species included Belding's orange-throated whiptail, great blue heron, turkey vulture, Cooper's hawk, red-shouldered hawk (*Buteo lineatus*), yellow-breasted chat, and yellow warbler (Figure 16). A complete list of all wildlife observed during the surveys is included in Appendix H.

TABLE 25
LEAST BELL'S VIREO TERRITORY SURVEY RESULTS: SANTA MARGARITA COUNTY PRESERVE

	Territories		
Species	**Pairs**	**Single Males**	**Total**
Least Bell's Vireo	7	6	13

TABLE 26
BROWN-HEADED COWBIRD DETECTIONS: SANTA MARGARITA COUNTY PRESERVE

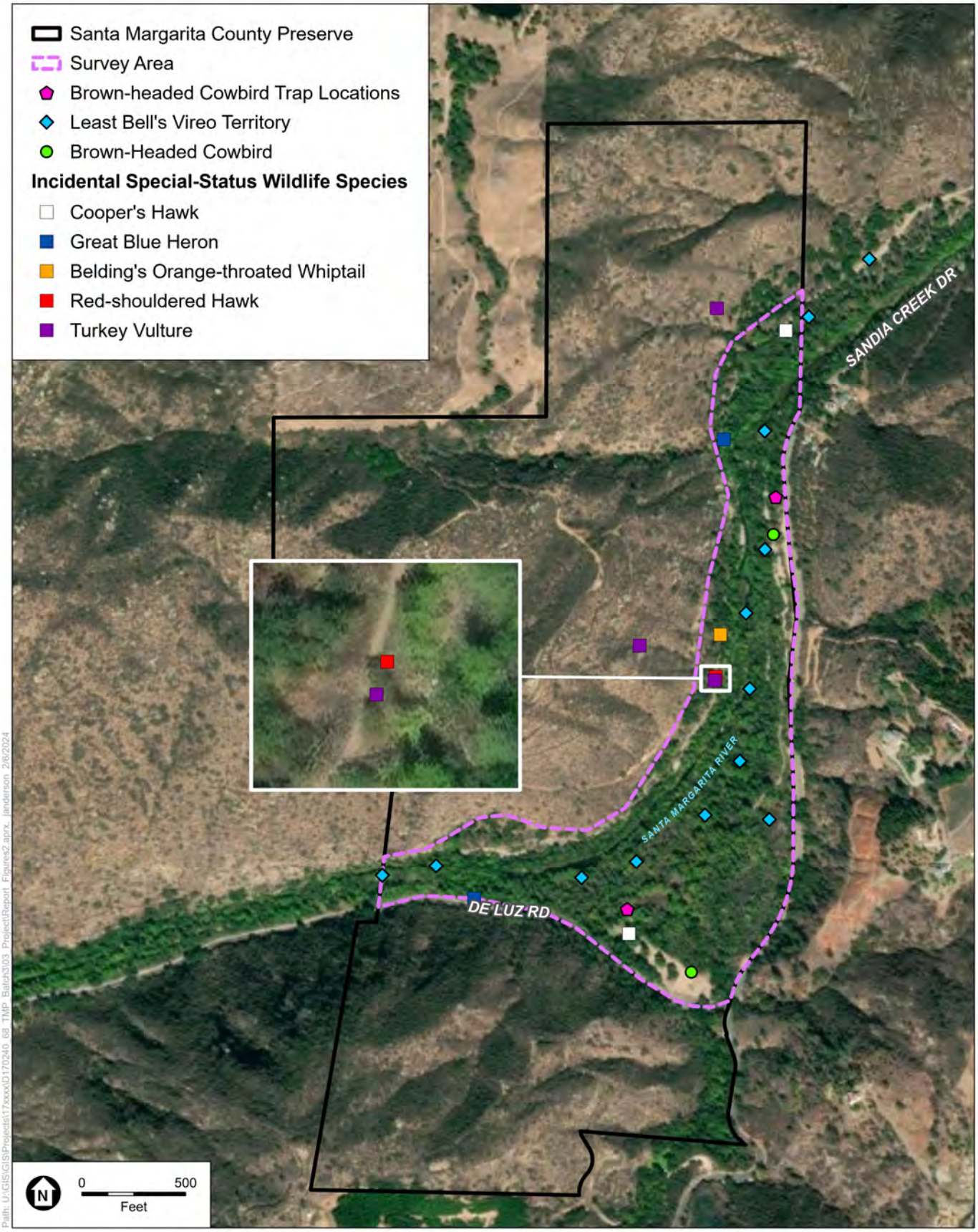
Date	Count
5/02/2023	2
6/30/2023	2

4.7.2 Habitat and Threats Assessment

Threats and habitat were assessed during species surveys to determine: (1) if identified threats are having a direct negative effect on the species or habitat, and (2) if adaptive management actions need to be implemented.

Suitable breeding habitat for least Bell's vireo 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 up to 13 least Bell's vireo territories in 2023. The following threats were observed:

- **Nest parasitism by brown-headed cowbird.** The observations of adult brown-headed cowbirds within Santa Margarita County Preserve are indicative of the continued threat of brood parasitism. Cowbirds were observed on two out of the eight protocol surveys. One least Bell's vireo nest was incidentally discovered during a protocol survey and was found to have been parasitized by brown-headed cowbirds and was subsequently abandoned. 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 occur on the Preserve in scattered locations; however, several of these species have the ability to become established in a short period of time. Tamarisk, an invasive non-native plant species is rated "High" by Cal-IPC for the severe impacts it can have on hydrological processes and plant and wildlife communities (Cal-IPC 2023). This invasive non-native plant species can outcompete and displace native plant species, resulting in degraded riparian habitats. Mature trees and seedlings of tamarisk were observed in riparian habitats throughout the Preserve. Arundo and perennial pepperweed, both rated "High" by Cal-IPC are present in small numbers on the Preserve. Italian thistle and poison hemlock are fairly widespread in the Preserve and are both rated "Moderate" by Cal-IPC. Similar to tamarisk, these invasive non-native plant species can quickly become established in disturbed soils along the river and outcompete native plant species. Displacement of native vegetation can negatively impact vireo prey availability and nesting habitat.



SOURCE: ESRI, 2023; ESA, 2023

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Figure 16

Least Bell's Vireo Monitoring and Management Results
Santa Margarita County Preserve

ESA

4.7.3 Brown-Headed Cowbird Trapping

The two trap locations are depicted in Figure 16. A total of seven brown-headed cowbirds were captured within Santa Margarita County Preserve from April 1 to June 30, 2023. This included four adult males, two adult females, and one juvenile. There were 182 actual trap days out of a potential 182. Total trap days are calculated by multiplying the number of traps by the number of days they are in operation, then subtracting the number of days individual traps are inactive for various reasons such as vandalism. There were 0.03 cowbirds captured per trap day. The ratio of male to female captures was 2:1. Trapping results for each trap location are summarized below in **Table 27**. 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 three California scrub jays (*Aphelocoma californica*), two song sparrows (*Melospiza melodia*), and one California thrasher (*Toxostoma redivivum*). No incidences of vandalism occurred during the 2023 trapping period. Detailed trapping methods and results are provided in Appendix H.

TABLE 27
BROWN-HEADED COWBIRD TRAPPING RESULTS: SANTA MARGARITA COUNTY PRESERVE

	Brown-Headed Cowbirds Captured			
Trap Number	**Adult Male**	**Adult Female**	**Juvenile**	**Total**
1	1	0	0	**1**
2	3	2	1	**6**
Total	**4**	**2**	**1**	**7**

4.7.4 Adaptive Management Recommendations

The results of 2023 surveys, 2023 adaptive management actions, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

- **Implement brown-headed cowbird trapping program.** The brown-headed cowbird trapping effort in 2023 successfully captured 7 cowbirds, including one juvenile cowbird, suggesting nest parasitism still occurred within the Preserve in 2023. Continued implementation of brown-headed cowbird trapping within the Santa Margarita County Preserve during the breeding season is recommended alongside least Bell's vireo nest monitoring to determine the effectiveness of the trapping program. The trapping program should be evaluated annually over a 2- to 5-year period to determine trends in (1) cowbird captures, (2) brood parasitism, and (3) least Bell's vireo nesting success. Thresholds for the density of cowbird females and the allowable level of parasitism for least Bell's vireo should be established to guide the cowbird trapping program (Parker et al. 2022). Partnering with adjacent land managers in the area to provide trapping in suitable habitat will improve catch rates and decrease parasitism impacts to vireo and songbird species in the area.
  - **Adjust Trap 1 location in 2024.** The current Trap 1 location is overgrown with grapevine. Relocating this trap to a more open area may help improve capture numbers and decrease nest parasitism. Vegetation should be evaluated prior to trap placement in 2024 and adjust the specific placement of Trap 1 as necessary.

- **Conduct least Bell's vireo nest monitoring.** The continued presence of brown-headed cowbirds, including juveniles, within Santa Margarita County Preserve suggests nest parasitism is still a threat to the least Bell's vireo population on-site. Brown-headed cowbird trapping has been implemented on the Preserve since 2022 to help increase the success rate of least Bell's vireo breeding, but without focused nest monitoring, it is difficult to determine how effective trapping is on supporting successful breeding. Implementing least Bell's vireo nest monitoring following Pike et al. (1999) would determine accurate territory numbers and breeding status and enhance breeding output through nest management. Nest monitoring should occur weekly, at a minimum, from the third week of March to the end of July, or until all nesting outcomes have been determined. Data should be collected on bird location, movement, behavior, nest placement, sex, and age. Nests should be visited once every 7 to 8 days during incubation to check for brown-headed cowbird eggs. If found, brown-headed cowbird eggs and nestlings should be removed from nests ("manipulated").
- **Conduct habitat restoration and habitat enhancement.** Removal of invasive non-native plant species through mechanical or chemical methods is recommended outside of the avian nesting season (March–September). Hand tools and herbicide (aquatic-safe) could be used during the nesting season if a biologist is present to clear the impact areas in front of the restoration crew. This may be needed for annual and perennial invasive non-native plant species that grow and seed out during nesting season. Poison hemlock and fennel are annual invasive non-native plant species with growing seasons that coincide with nesting season. Ideally, herbicide should be applied before seed sets on plants, which may involve multiple treatment visits throughout the season. The current distribution and density of invasive non-native plants is low on the Preserve, which would make it an ideal time to control these small populations before they increase substantially. Furthermore, removal or treatment of invasive non-native plants creates an opportunity for habitat enhancement and restoration in areas that have low plant diversity.
- **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.

4.8 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. ESA and Habitat West (ESA subconsultant) conducted focused management within suitable SKR habitat of Hellhole Canyon County Preserve. The habitat assessment memorandums for both Preserves, cultural resources memorandum for focused SKR habitat management at Hellhole Canyon County Preserve, and representative photographs of focused management at Hellhole Canyon County Preserve are included in **Appendix I**, *Stephens' Kangaroo Rat Monitoring and Maintenance Memorandums and Representative Photographs.*

4.8.1 Ramona Grasslands County Preserve

Habitat Assessment

Habitat assessments were conducted at 28 monitoring plots within Ramona Grasslands County Preserve. Of these plots, 14 were determined to be occupied by SKR and 14 were determined to

be unoccupied (**Figure 17, Table 28**). Each plot was rated for SKR potential and, in total, 8 monitoring plots were characterized as having a high potential, 10 were characterized as having a medium potential, 10 were characterized as having a low potential, and none were characterized as having no potential for SKR (**Table 29**). Sign of special-status wildlife species burrowing owl (*Athene cunicularia*) (i.e., whitewash, pellet, and potential burrows) was incidentally detected during surveys and depicted on Figure 17.

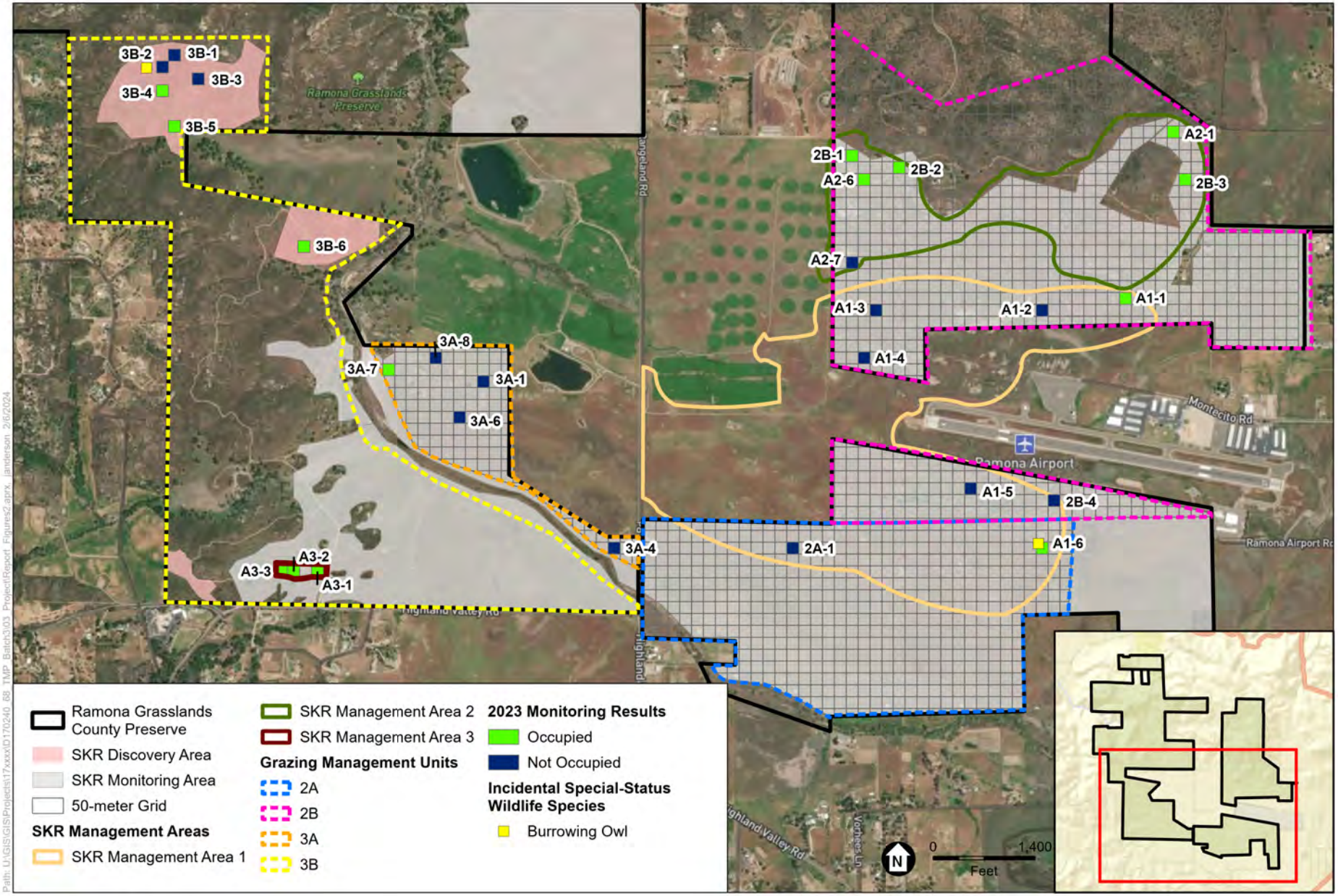
TABLE 28
SKR MONITORING RESULTS: RAMONA GRASSLANDS COUNTY PRESERVE

Occupancy/Potential		# of Monitoring Plots
SKR Occupancy	Occupied	14
	Unoccupied	14
SKR Potential	High	8
	Medium	10
	Low	10
	No	0

NOTE:
SKR = Stephens' kangaroo rat.

The 2023 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 2023, and the following variables influenced the survey results:

- **Precipitation.** Heavy rainfall was observed in the greater San Diego region between fall 2022 and fall 2023. 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 2023 monitoring efforts was marked by significantly 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. However, grazing was reduced in 2022—cattle were on-site from January through April 2022 until the original grazing lessee, Tellam and Tellam Cattle, no longer had a grazing agreement with DPR. After April 2022, cattle were removed from the Preserve for the remainder of 2022. Grazing resumed in January 2023 through a new grazing agreement with Marcus Battaglia, James Greer, and Remy Greer. Areas in which grazing was not observed within the past 3 to 6 months, or that are not grazed at all, were correlated with low or medium SKR potential. The majority of the annual vegetation present in the high- or medium-potential SKR monitoring plots consisted of longbeak stork's bill, a low-growing annual plant that facilitates SKR movement and is a potential food source. Taller growths of annual vegetation such as shortpod mustard, as well as dense perennial vegetation such as western ragweed and vinegar weed (*Trichostema lanceolatum*) and dense annual grasses were observed in several low- and medium-potential plots, which may preclude or reduce SKR movement.



SOURCE: Mapbox; ESA, 2023

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Figure 17

Stephens' Kangaroo Rat Monitoring Results
Ramona Grasslands County Preserve

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TABLE 29
SKR HABITAT ASSESSMENT SUMMARY: RAMONA GRASSLANDS COUNTY PRESERVE

Fall 2023										Fall 2022
Plot ID	**% Bare Ground**	**Living Herb Density**	**Shrub/Tree Density (%)**	**Plant Litter (Dead) (%)**	**Gopher/ Ground Squirrel Density^**	**Obstruction Factor**	**Potential K-Rat Sign***	**SKR Occupancy Determination**	**Rating†**	**Rating†**
A1-1	0–5	Low	0	50–75	Low/Medium	Low	B, TD	Occupied	Medium**	High**
A1-2	0–5	High	0	50–75	Low/Low	High	None	Not Occupied	Low	None
A1-3	0–5	Medium	0	50–75	Low/High	Low	None	Not Occupied	Medium	High**
A1-4	0–5	High	0	50–75	Low/Low	High	None	Not Occupied	Low	Low
A1-5	0–5	Low	0–5	50–75	Medium/Medium	Medium	None	Not Occupied	Low	Medium
A1-6	0–5	Low	0–5	50–75	Low/Low	Medium	S	Occupied	Medium**	High**
A2-1	5–25	Low	0–5	50–75	Low/High	Low	B, S, O	Occupied	High**	High**
A2-6	0–5	High	0–5	50–75	Low/Medium	Medium	B, S	Occupied	High**	High**
A2-7	0–5	Medium	0–5	50–75	Low/Low	High	None	Not Occupied	Low	High**
A3-1	5–25	Medium	0	50–75	Low/High	Low	B, S	Occupied	High**	High**
A3-2	5–25	Medium	0	50–75	Low/High	Low	B, S, TD	Occupied	High**	High
A3-3	5–25	Medium	0	50–75	Low/High	Low	B, S	Occupied	High**	High**
2A-1	5–25	Medium	0–5	50–75	Medium/Medium	High	None	Not Occupied	Low	Low
2B-1	0–5	Low	0–5	50–75	Low/Medium	Medium	B, S	Occupied	High**	Low
2B-2	0–5	High	0–5	50–75	Low/Medium	Medium	B, S, TD	Occupied	Low**	Low
2B-3	0–5	Medium	0–5	50–75	Low/Low	Medium	B, S	Occupied	High**	High**
2B-4	0–5	Low	0	50–75	Low/Medium	Medium	None	Not Occupied	Low	Medium**
3A-1	0–5	Medium	0	50–75	Low/Low	High	None	Not Occupied	Low	Low
3A-4	0–5	Medium	0	50–75	Low/Low	High	None	Not Occupied	Low	N/A
3A-6	0–5	Medium	0	50–75	Low/Low	Low	None	Not Occupied	Medium	High
3A-7	0–5	Medium	0	50–75	Medium/Low	Medium	B, S	Occupied	Medium**	High**
3A-8	0–5	Medium	0–5	50–75	Low/Medium	Low	None	Not Occupied	Medium	High**

Fall 2023										Fall 2022
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†**
3B-1	0–5	Low	0	50–75	High/Low	Medium	None	Not Occupied	Low	Medium
3B-2	0–5	Medium	0–5	50–75	Medium/Low	Medium	None	Not Occupied	Medium	Medium
3B-3	0–5	Medium	0	50–75	Low/High	Low	None	Not Occupied	Medium	Medium
3B-4	5–25	Medium	0	50–75	Low/High	Low	B, S	Occupied	High**	Medium
3B-5	0–5	Medium	0–5	50–75	Low/High	Medium	B, S, TV	Occupied	Medium**	Medium**
3B-6	0–5	Medium	0–5	50–75	Low/Medium	Medium	B, S	Occupied	Medium**	High**

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; 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.

Detailed monitoring methods and results, including plot photographs and habitat assessment forms, are included in Appendix I.

Adaptive Management Recommendations

The following are the adaptive management recommendations to ensure persistence of SKR at Ramona Grasslands County Preserve:

- **Coordinate with new grazing lessees on cattle grazing practices.** Coordinate with the new grazing lessees 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 2023 RDM monitoring reports should be utilized to inform 2024 grazing practices to meet RDM targets for SKR.
- **SKR live-trapping.** In the event new grazing practices are implemented within the southwest portion of the Preserve, live- trapping should be considered for SKR Management Area 3 to document changes in SKR presence in response to the new grazing practices.

4.8.2 Hellhole Canyon County Preserve

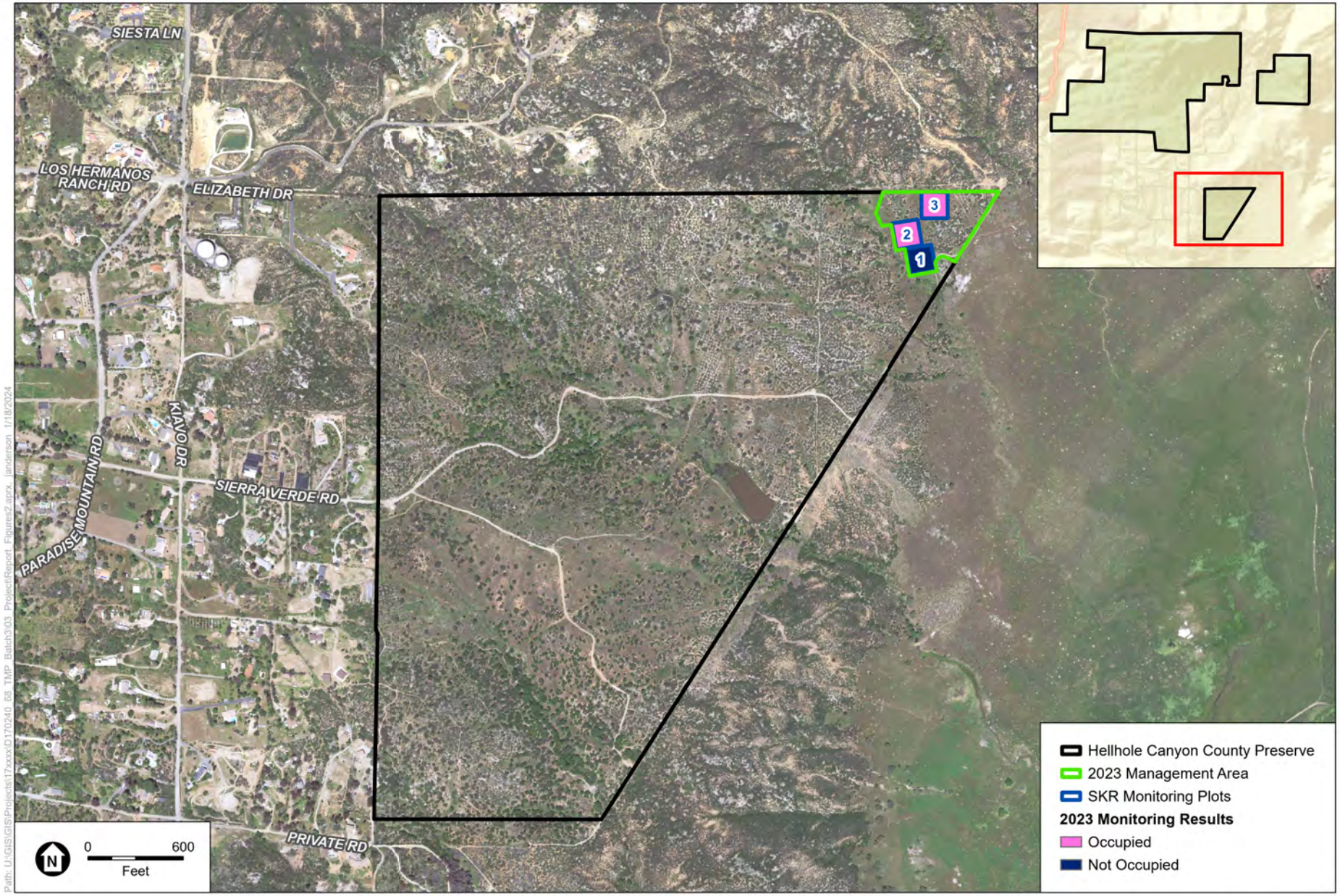
Habitat Assessment

Habitat assessments were conducted at three monitoring plots within the Sierra Verde Addition of Hellhole Canyon County Preserve. Two of the three plots were determined to be occupied or potentially occupied by SKR (**Figure 18**, **Table 30**). Each plot was rated for SKR potential; one plot was rated high, one was rated medium, and one was rated low SKR potential (**Table 31**).

TABLE 30
SKR MONITORING RESULTS: HELLHOLE CANYON COUNTY PRESERVE

Occupancy/Potential		# of Monitoring Plots
SKR Occupancy*	Occupied	2
	Unoccupied	1
SKR Potential	High	1
	Medium	1
	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.



SOURCE: NAIP, 2020; SanGIS, 2023; ESA, 2023.

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Figure 18

Stephens' Kangaroo Rat Monitoring and Management Results
Hellhole Canyon County Preserve

ESA

SKR occupancy potential decreased for two of the three monitoring plots in fall 2023 compared to fall 2022 monitoring. SKR was found present at only one of the three monitoring plots during the fall 2020 live-trapping effort, but Dulzura kangaroo rat (*Dipodomys simulans*) (DKR) was also found present during the live-trapping effort. Based on sign detected during the fall 2023 habitat assessment monitoring effort, SKR presence was only potentially detected at two of the three monitoring plots; however, habitat assessment monitoring cannot conclusively differentiate between SKR and DKR. Based on the fall 2020 live-trapping effort, SKR and DKR are both present on-site and there are no obstruction factors that could preclude the possibility of SKR from any of the three monitoring plots, especially considering the proximity of the three plots (all within 150 feet of one another). Therefore, SKR was considered to be potentially present at only two monitoring plots (Table 31). Habitat suitability for SKR decreased from High to Low and Medium for plots 1 and 3, respectively. 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 2022 and fall 2023. 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 2023 monitoring efforts was marked by significantly 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 2023 monitoring effort, all three plots were observed to have had mowing conducted in portions of the plots within the last 6 months. Despite this, an increase in living/standing herb density and overall vegetation coverage, as well as a decrease in bare ground, was observed in plots 1 and 3. Plot 2 presented similar findings as previous years, with more open areas primarily vegetated with low-growing filarees (*Erodium* spp.) that 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 and shortpod mustard) that increase obstruction factors and may preclude or reduce SKR movement. Obstruction factors were thus increased for plots 1 and 3, compared to findings in 2022 and 2021, reducing the potential for SKR.

Detailed monitoring methods and results, including plot photographs and habitat assessment forms are included in Appendix I.

Stephens' Kangaroo Rat Focused Management

Focused management occurred in 2023 in response to the invasive non-native plant cover observed in 2022 within suitable SKR habitat at Hellhole Canyon County Preserve. The management area, excluding the culturally sensitive areas, consists of 5.86 acres (Figure 18). Non-native vegetation consisted primarily of non-native grasses, tocalote, and shortpod mustard.

TABLE 31
SKR HABITAT ASSESSMENT SUMMARY: HELLHOLE CANYON COUNTY PRESERVE

Fall 2023							Fall 2022			
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	Low/Low	Medium	None	Not Occupied	Low	High**
2	5–25	Low	0–5	25–50	Low/Low	Low	B, S, T	Occupied	High**	High**
3	0–5	Medium	25–50	25–50	Low/Low	Medium	B, S	Occupied	Medium**	High**

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.

As a result of the establishment of the 20-foot exclusionary areas and the presence of a cultural resources specialist during ground-disturbing activities, no elements of the four archaeological sites were impacted during the habitat maintenance activities. All cut biomass was manually collected, bagged, and properly disposed of at an approved off-site facility. ESA cultural specialist Joel Aspeytia was on site on September 25, 2023, to remove pin flags. ESA biologist Jaclyn Catino-Davenport was on site the same day to document site conditions after management activities and confirm that cut biomass was collected and removed from the site for proper disposal off-site. No herbicide was used. Representative photographs of focused management activities are provided in Appendix I.

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 2023, TMP management goals and objectives, and the adaptive management actions outlined in the TMP were used to develop the following recommendations:

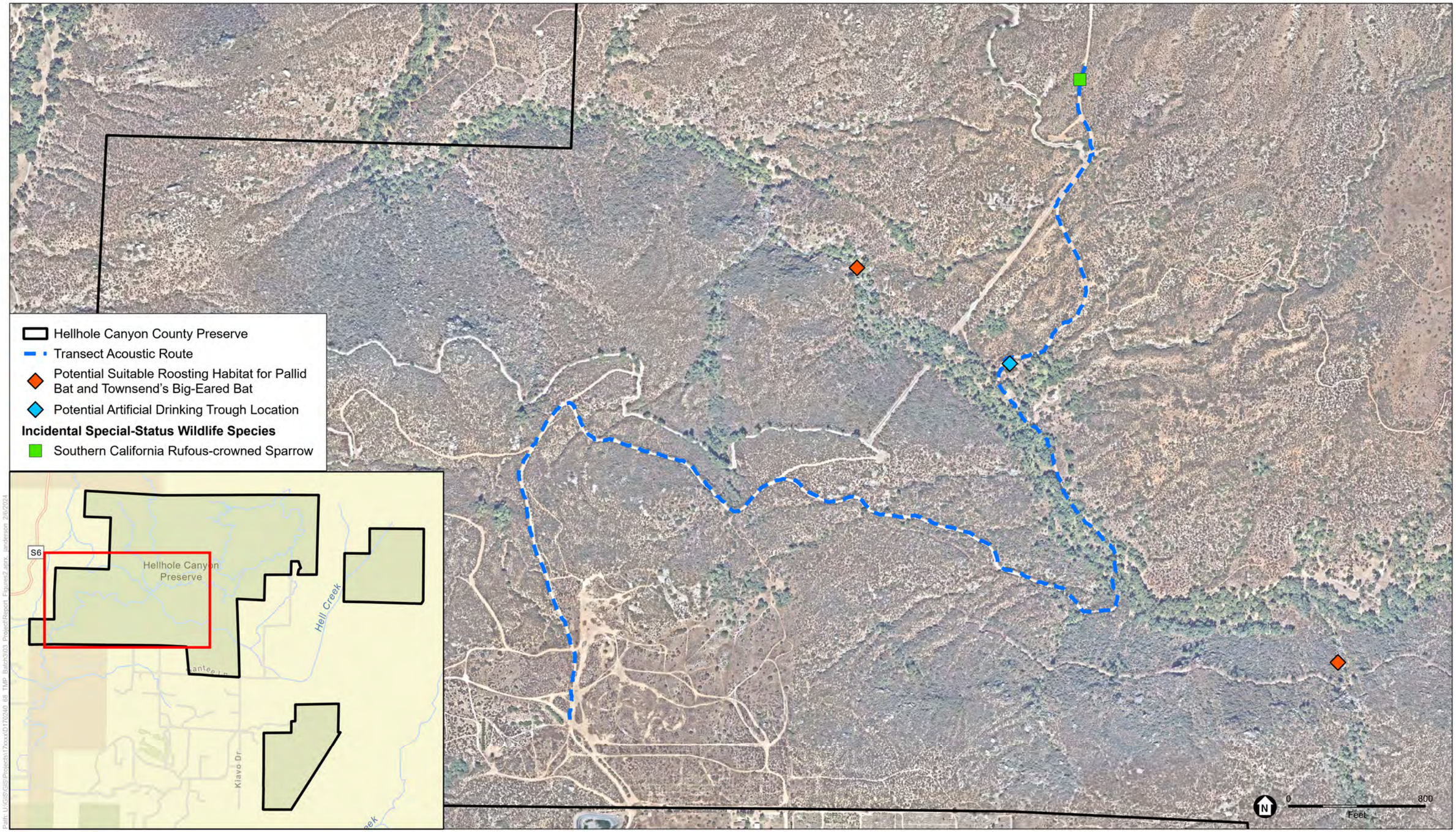
- **Habitat enhancement.** Continued focused SKR management is necessary to maintain suitable SKR habitat within the Sierra Verde Addition of Hellhole Canyon County Preserve. Focused management within the 5.8-acre management area is recommended to ensure persistence of suitable SKR habitat. Focused SKR management can include targeted dethatching, mowing, and/or scraping. Targeted dethatching and mowing can reduce the overall height of the existing vegetation to a desired level and assist with disarticulation of herbaceous weeds. Scraping can reduce vegetation density and increase open ground, maximizing the ability of SKR to move across the landscape.

4.9 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 19**), Mount Olympus County Preserve (**Figure 20**), and Wilderness Gardens County Preserve (**Figure 21**). Field forms, including the habitat and threats assessment form, are included in **Appendix J**, *Bat Survey & Habitat Assessment Field Forms*. Transect acoustic monitoring was conducted to provide supplemental information and to document if pallid bat was potentially roosting on-site. Pallid bat was not detected during transect acoustic monitoring surveys (**Table 32**). Incidentally observed special-status wildlife species included Southern California rufous-crowned sparrow at Hellhole Canyon County Preserve (Figure 19); barn owl (*Tyto alba*) at Mount Olympus County Preserve (Figure 20); and barn owl, red-shouldered hawk (*Buteo lineatus*), turkey vulture, and red diamond rattlesnake (*Crotalus ruber*) at Wilderness Gardens County Preserve (Figure 21).

4.9.1 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, 2023.

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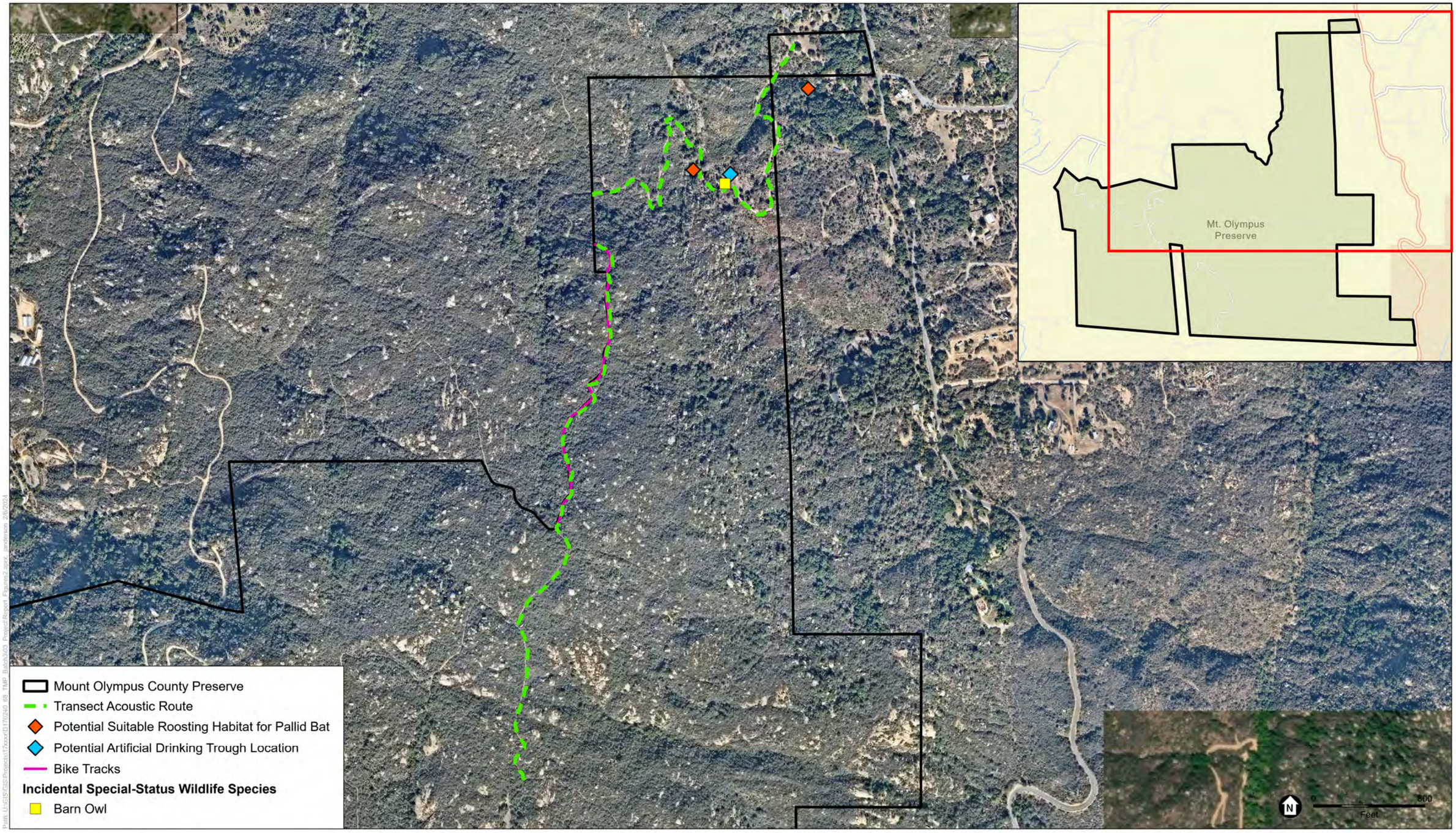
Figure 19

Bat Monitoring Results

Hellhole Canyon County Preserve

ESA



SOURCE: Nearmap, 2021; ESA, 2023.

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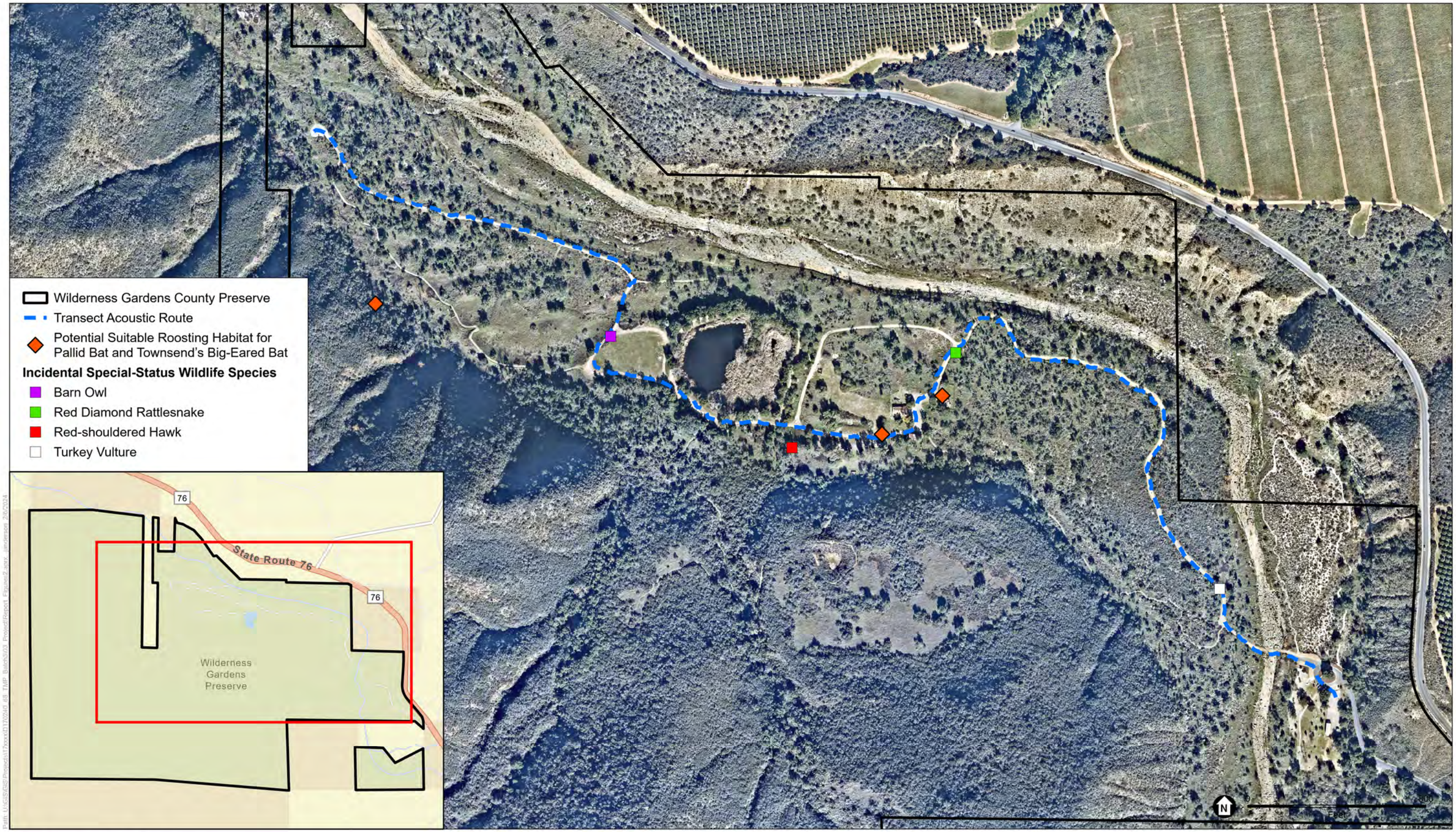
Figure 20

Bat Monitoring Results

Mount Olympus County Preserve

ESA



SOURCE: Nearmap, 2021; ESA, 2023.

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Figure 21

Bat Monitoring Results

Wilderness Gardens County Preserve

ESA

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TABLE 32
TRANSECT ACOUSTIC BAT SURVEY RESULTS

Bat Species Detected	Mount Olympus County Preserve (06/20/2023)	Wilderness Gardens County Preserve (06/23/2023)	Hellhole Canyon County Preserve (06/26/2023)	Total
Big brown bat *Eptesicus fuscus*	–	50	12	62
Hoary bat *Lasiurus cinereus*	–	2	–	2
Silver-haired bat *Lasionycteris noctivagans*	–	18	–	18
California myotis *Myotis californicus*	–	8	1	9
Western small-footed myotis[a] *Myotis ciliolabrum*	1	2	–	3
Yuma myotis[a] *Myotis yumanensis*	–	20	–	20
Canyon bat *Parastrellus hesperus*	–	10	8	18
Mexican free-tailed bat *Tadarida brasiliensis*	–	2	–	2
Total	**1**	**112**	**21**	**134**

NOTES:
a. County of San Diego Sensitive Animal Group 2 Species.

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 19). 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 20).

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 21). 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.

4.9.2 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 at all three Preserves presents a potentially significant threat to pallid bat foraging habitat. Invasive non-native plant cover and associated thatch cover vary across each Preserve but are generally dense. Invasive non-native plant cover is particularly dense on dirt trails and roads on-site which may be the only source of foraging habitat for pallid bats within the Preserve, as is the case for Mount Olympus County Preserve. 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).
- **Illegal trail use.** Illegal trail/unauthorized off-trail usage was detected at the top of Mount Olympus County Preserve starting at approximately (33.419484°, -117.094807°) and continuing south along an unauthorized dirt trail on the ridgeline. Continued illegal trail usage could potentially degrade foraging habitat for pallid bats.

4.9.3 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. Targeted dethatching and mowing can reduce the overall height of the existing vegetation to a desired level and increase open ground, maximizing the ability of pallid bats to forage. Herbicide treatment can be used to maintain open ground areas 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.
- **Install and enhance drinking sources.** Install drinking sources for pallid bats at Hellhole Canyon County Preserve and Mount Olympus County Preserve. Spring- and/or water-table-fed artificial drinking troughs should be installed in the preserves where such aquatic features are present and logistically feasible (i.e., near roads and/or trails). Potential artificial drinking trough locations for Hellhole Canyon and Mount Olympus County Preserves are included in Figure 19 and Figure 20, respectively. Both locations are near access roads and are assumed to have access to potential wells that could fill the drinking troughs. On Wilderness Gardens County Preserve, the existing pond can be enhanced by clearing cattails and other wetland vegetation to provide better opportunities for pallid bats to drink while in flight.
- **Create roost structures.** Create and install artificial roost structures in Hellhole Canyon, Mount Olympus, and Wilderness Gardens County Preserves. Artificial roosts that are large, thermally stable, and provide roosting opportunities for crevice- and cave-roosting bats are recommended. This can include cinderblock style “combat town” structures typically found on military bases. Artificial roost locations that are near foraging habitat such as riparian areas, oak woodlands, and near water sources are ideal, but they should be put in areas where they would not be subject to disturbance and vandalism.
- **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).

4.10 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 J. 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 32). Incidentally observed special-status wildlife species include Southern California rufous-crowned sparrow at Hellhole Canyon County Preserve (Figure 19); and barn owl, red-shouldered hawk, turkey vulture, and red diamond rattlesnake at Wilderness Gardens County Preserve (Figure 21).

4.10.1 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 19). 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 21). 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.

4.10.2 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. Dumping/trash that was previously detected at Hellhole Canyon County Preserve in 2022 was not present during 2023 surveys. No signs of illegal trail/unauthorized off-trail usage were detected as well; therefore, no threats were identified during the species surveys.

4.10.3 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.
- **Install and enhance drinking sources.** Install drinking sources for Townsend's big-eared bats at Hellhole Canyon County Preserve. Spring- and/or water-table-fed artificial drinking troughs should be installed in the 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 19, 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. 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).

4.11 Regional MSP Wildlife Monitoring Results

Through ROE permits issued by DPR, Dr. Daniel Marschalek with the University of Central Missouri conducted HDS genetic sampling at Hellhole Canyon County Preserve; USGS conducted arroyo toad monitoring at Ramona Grasslands County Preserve; AECOM conducted tricolored blackbird monitoring at Ramona Grasslands County Preserve; and the San Diego Zoo Institute for Conservation Research conducted burrowing owl surveys at Ramona Grasslands County Preserve. Results are provided below.

4.11.1 Harbison's Dun Skipper

Regional monitoring efforts for HDS included monitoring surveys performed by Dr. Daniel Marschalek with the University of Central Missouri. Dr. Marschalek and his team conducted adult flight surveys for HDS within Hellhole Canyon County Preserve on June 8, 17, and July 5, 2023. No HDS were detected during surveys.

4.11.2 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 Santa Maria Creek within Ramona Grasslands County Preserve. Of the 10 reach segments surveyed, a total of 6 reach segments supported breeding and larval toad development. These include reach segments A25, B25, A29, B29, A34, and B34 (Figure 13). Special-status wildlife species, two-striped garter snake, was incidentally observed during the surveys along reach segment A29, and invasive non-native wildlife species, American bullfrog, was incidentally observed during the surveys along reach segment A39 (Figure 13).

4.11.3 Tricolored Blackbird

AECOM, on behalf of SANDAG, performed tricolored blackbird (*Agelaius tricolor*) surveys at Ramona Grasslands County Preserve. AECOM observed 12 tricolored blackbirds flying overhead and perched on powerlines on Ramona Municipal Water District lands adjacent to the Ramona Grasslands County Preserve. Primarily males were detected foraging along the road and into the grassland. The main colony resides on the adjacent Ramona Municipal Water District lands. No birds were observed carrying food back to the nest and very few birds were observed in the foraging area, suggesting the colony was in incubation phase during the time of the survey.

4.11.4 Burrowing Owl

The San Diego Zoo Institute for Conservation Research conducted burrowing owl surveys within Ramona Grasslands County Preserve roughly following the CDFW 2012 Staff Report on Burrowing Owl Mitigation guidelines (CDFG 2012) on May 25, June 1, and July 9, 2023. No sign of burrowing owl was detected during the surveys.

4.12 Peak Forage Production and Residual Dry Matter Monitoring

4.12.1 Peak Forage Production Monitoring

The average lb/acre of peak forage for a given management unit at Ramona Grasslands County Preserve is presented in **Table 33** and **Figure 22**. The results of the average peak forage production values from each monitoring plot in 2023 can be found in **Appendix K**, *Peak Forage Production and Residual Dry Matter Monitoring Reports*. This is the second time that peak production monitoring was conducted at the Preserve. Over time, DPR will use monitoring results to detect year-to-year fluctuations in forage production. Peak production targets are not established for the Preserve or per management unit; rather, peak production monitoring results inform stocking rates for the year.

TABLE 33
PEAK FORAGE PRODUCTION MONITORING SUMMARY: RAMONA GRASSLANDS COUNTY PRESERVE

Management Unit	Managed Resources	Average Peak Forage Production (lb/acre)	
		2022	2023
1A	Riparian pastures and arroyo toad habitat	5,522	1,667
2A	SKR habitat	3,119	2,526
2B	SKR habitat	2,171	2,505
3A	SKR habitat	3,453	2,100
3B	Species diversity, fire hazard reduction, and soil conservation	3,767	1,640
3C	Vernal pool habitat	3,389	2,889
3D	Vernal pool habitat	2,722	3,444
3E	Restoration	4,458	1,825
4A	Species diversity, fire hazard reduction, and soil conservation	1,389	2,478
4B	Species diversity, fire hazard reduction, and soil conservation	1,144	1,317
4C	Not grazed	N/A	N/A
5	Not grazed	N/A	N/A

NOTES:

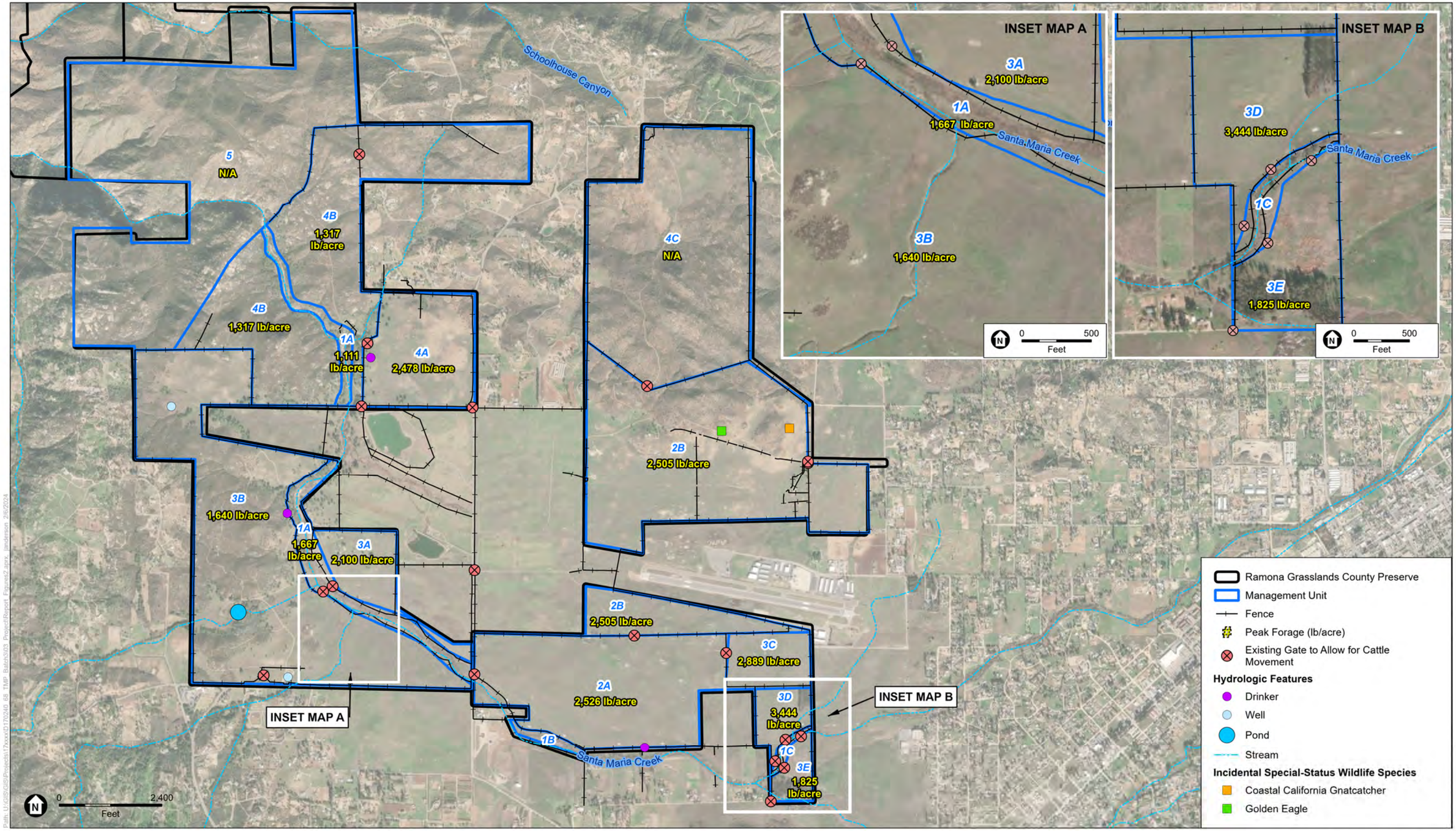
lb/acre = pounds per acre; N/A = not applicable, no monitoring plots established for these management units; SKR = Stephens' kangaroo rat.

These results are an average of the peak production values of all monitoring plots per management unit from 2023.

4.12.2 Residual Dry Matter Monitoring

The results of vegetation sampling within each management unit at Ramona Grasslands County Preserve are discussed below, and 2023 RDM values are summarized in **Table 34** and **Figure 23**. The results of the average RDM values from each of the individual RDM plots from 2011 through 2023 can be found in Appendix K. All RDM values, with the exception of management units 1A and 4B, were above the target RDM values. Management units 4A and 4B had RDM values within their target RDM value range.

The majority of management units were above their target RDM values in 2023. Results were likely influenced by the increased annual rainfall in 2023, including the late-season rainstorm event in August 2023 that initiated vegetative growth. Extreme fluctuations in rainfall in recent years (e.g., drought conditions in 2018, above-average rainfall in 2019, below-average to average rainfall in 2020, and drought conditions in 2021 and 2022) drive substantial variability in vegetative cover from year to year. Ramona Airport reported 21.1 inches of accumulated rainfall from January to September 2023 compared to 6.5 inches of accumulated rainfall from January to September 2021 and 4 inches of accumulated rainfall from January to September 2022 (NOAA 2023).



SOURCE: ESRI, AECOM 2017; ESA 2023

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Figure 22

Peak Forage Production Monitoring Results
Ramona Grasslands County Preserve

ESA

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TABLE 34
SUMMARY OF 2023 RAMONA GRASSLANDS COUNTY PRESERVE RDM RESULTS

Management Unit	Target RDM Value	Average RDM (lb/acre)													2023 Results
		2011*	2012*	2013*	2014*	2015*	2016*	2017*	2018*	2019*	2020	2021	2022	2023	
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	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	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	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	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	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	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	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	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	Does not meet 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	Meets grazing requirements.
4C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	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	Not proposed for managed grazing.

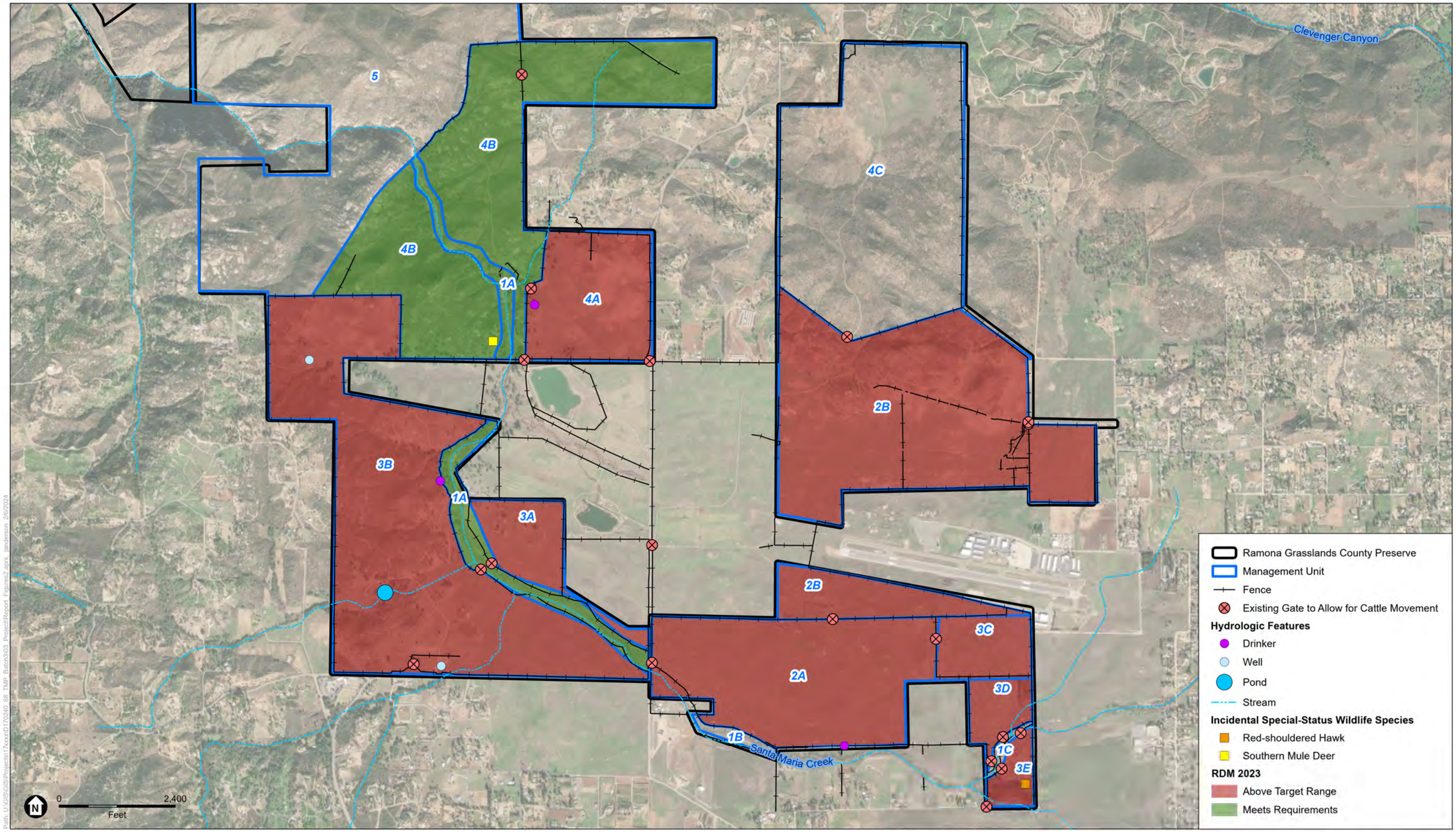
NOTES:

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 2023.

4.12.3 Adaptive Management Recommendations

The following are adaptive management recommendations based on the annual RDM monitoring results for all management units:

- **Coordinate with new grazing lessees 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 (typically November through March for Southern California), as well as when clay soils are still moist and malleable.
- **Continue spring peak forage monitoring in all units (except 4C and 5).** This monitoring assesses the amount of forage available for grazing in a given year, allowing the grazing lessee to adjust their grazing regime (e.g., stocking density and grazing duration) with the RDM target values in mind to meet management targets.
- **Continue long-term RDM monitoring in all units (except 4C and 5).** This is important to ensure that RDM values do not exceed or drop below the range needed to meet the management targets and increase biodiversity.
- **Conduct invasive non-native plant mapping.** Invasive non-native plant mapping should be conducted throughout the Preserve every 10 years to assess new invasions or re-invasions, per the monitoring recommendations in the TMP (ESA and ICF 2022).
- **Continue active restoration of management unit 3E.** Remove 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 2018–2023 surveys. Native grass seed should be planted around water troughs and in bare ground near water troughs to improve soil quality. Seed should be from a local, credible source or collected within the Preserve by hired seed collectors or DPR rangers who have been taught by a consultant how to collect native plant seeds. Plant species that could be distributed in areas with bare ground, such as those around the troughs, include purple needlegrass (*Stipa pulchra*), nodding needlegrass (*Stipa cernua*), wild rye (*Elymus triticoides*), and Lemmon's canary grass (*Phalaris lemmonii*). These species have been verified as native grasses found within the Preserve, according to the San Diego Natural History Museum Plant Atlas Database. Seeds should not come from outside of San Diego County.
- **Conduct rare plant surveys throughout the Preserve.** Rare plant surveys should be conducted every 10 years in the spring and late summer, per the monitoring recommendations in the TMP (ESA and ICF 2022). Rare plants have been incidentally observed during RDM monitoring; however, these incidental observations are not representative of comprehensive rare plant surveys. Rare plant surveys should focus on areas with rare soils and sensitive habitats, and areas where rare plants have been recorded in the past. The rare plant surveys should be used to update the sensitive plant maps from the Vegetation Management Plan (ICF 2012), identify populations of sensitive species for more intensive monitoring, and determine if any new sensitive species are present. Following the completion of rare plant surveys, monitoring plots located within sensitive plant populations should be adjusted to avoid impacts to the species.



SOURCE: ESRI, AECOM 2017; ESA 2023

COSD DPR 557744 TO 68 – Implementation of Targeted Monitoring Plan – 2023 Resource-Specific Monitoring and Management

Targeted Monitoring Plan Resource-Specific Monitoring and Management 2023 Annual Report

Figure 23

Residual Dry Matter Monitoring Results
Ramona Grasslands County Preserve

ESA

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CHAPTER 5
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Appendix A

Vernal Pools and Alkali Playas Monitoring & Representative Photographs

A-1 Hydrological Monitoring Raw Data

Hydrological Monitoring Raw Data

DEPTH AT DEEPEST POINT (CM)

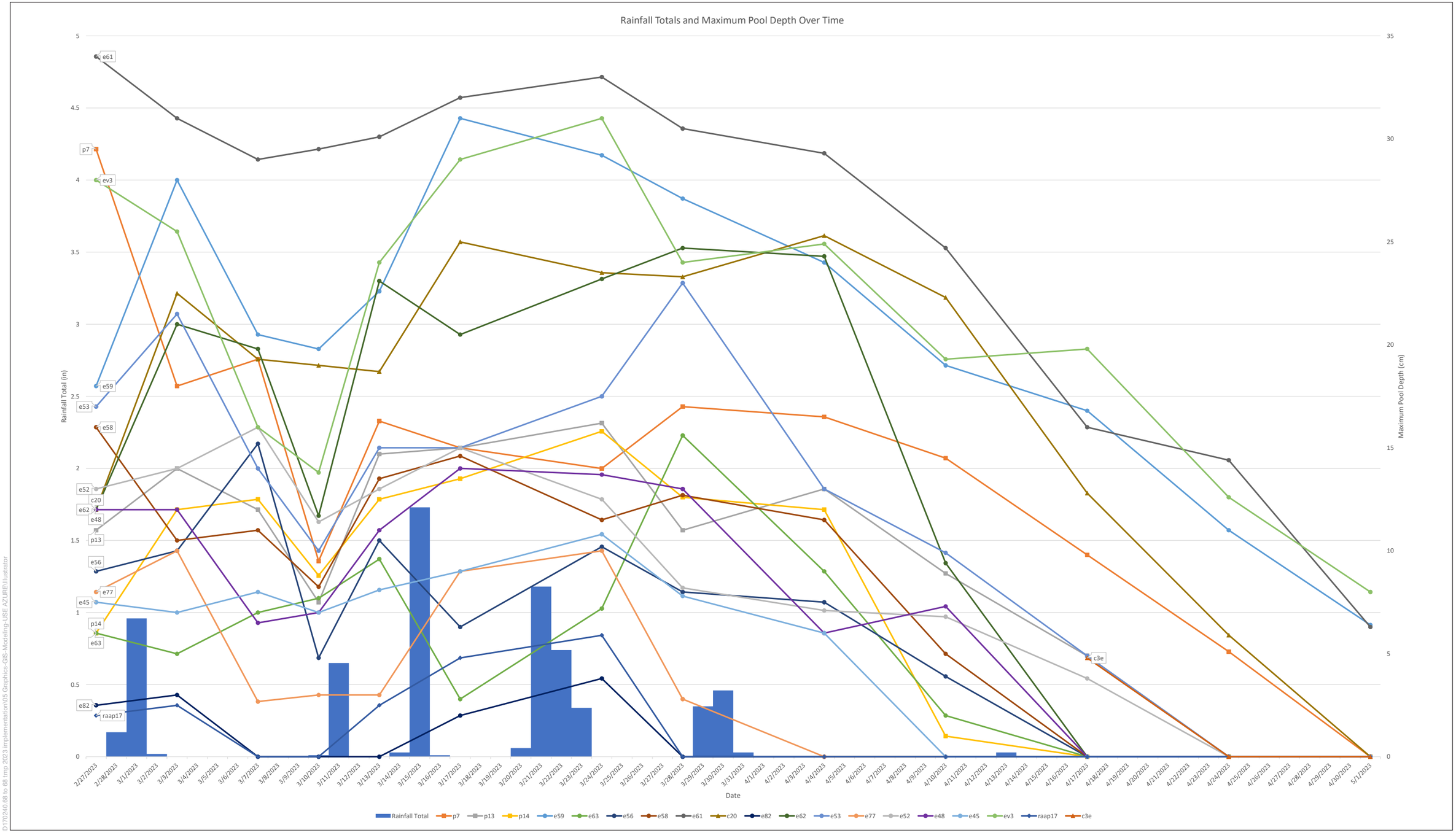
Survey Number	1	2	3	4	5	6	7	8	9	10	11	12	13
Survey Date	**27-Feb**	**3-Mar**	**7-Mar**	**10-Mar**	**13-Mar**	**17-Mar**	**24-Mar**	**28-Mar**	**4-Apr**	**10-Apr**	**17-Apr**	**24-Apr**	**1-May**
Pool #	**Depth at Deepest Point (cm)**												
p7	29.50	18.00	19.3	9.50	16.30	15.00	14.00	17.00	16.50	14.50	9.80	5.10	0.00
p13	11.00	14.00	12.0	7.50	14.70	15.00	16.20	11.00	13.00	8.90	4.90	0.00	0.00
p14	6.00	12.00	12.5	8.80	12.50	13.50	15.80	12.60	12.00	1.00	0.00	0.00	0.00
e59	18.00	28.00	20.5	19.80	22.60	31.00	29.20	27.10	24.00	19.00	16.80	11.00	6.40
e63	6.00	5.00	7.0	7.70	9.60	2.80	7.20	15.60	9.00	2.00	0.00	0.00	0.00
e56	9.00	10.00	15.2	4.80	10.50	6.30	10.20	8.00	7.50	3.90	0.00	0.00	0.00
e58	16.00	10.50	11.0	8.25	13.50	14.60	11.50	12.70	11.50	5.00	0.00	0.00	0.00
e61	34.00	31.00	29.0	29.50	30.10	32.00	33.00	30.50	29.30	24.70	16.00	14.40	6.30
c20	12.00	22.50	19.3	19.00	18.70	25.00	23.50	23.30	25.30	22.30	12.80	5.90	0.00
e82	2.50	3.00	0.0	0.00	0.00	2.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00
e62	12.00	21.00	19.8	11.70	23.10	20.50	23.20	24.70	24.30	9.40	0.00	0.00	0.00
e53	17.00	21.50	14.0	10.00	15.00	15.00	17.50	23.00	13.00	9.90	4.90	0.00	0.00
e77	8.00	10.00	2.68	3.00	3.00	9.00	10.00	2.80	0.00	0.00	0.00	0.00	0.00
e52	13.00	14.00	16.00	11.40	13.00	15.00	12.50	8.20	7.10	6.80	3.80	0.00	0.00
e48	12.00	12.00	6.50	7.00	11.00	14.00	13.70	13.00	6.00	7.30	0.00	0.00	0.00
e45	7.50	7.00	8.00	7.00	8.10	9.00	10.80	7.80	6.00	0.00	0.00	0.00	0.00
ev3	28.00	25.50	16.00	13.80	24.00	29.00	31.00	24.00	24.90	19.30	19.80	12.60	8.00
c3e	X	X	X	X	X	X	X	X	X	X	4.80	0.00	0.00
raap17	2.00	2.50	0.00	0.00	2.50	4.80	5.90	0.00	0.00	0.00	0.00	0.00	0.00
Cagney Swale	X	40.00	36.00	35.50	38.00	X	X	X	X	X	X	15.50	X

VERNAL POOL AND PLAYA LENGTH AND WIDTH (FT) BY DATE

Feature	27-Feb	3-Mar	7-Mar	10-Mar	13-Mar	17-Mar	24-Mar	28-Mar	4-Apr	10-Apr	17-Apr	24-Apr	1-May	Max	Average
p7															
Length	137.90	135.86	133.03	144.70	136.43	182.93	150.57	-	140.99	103.44	84.10	63.96	-	182.93	128.54
Width	63.64	62.51	64.26	62.33	60.97	53.17	68.89	-	53.46	46.11	44.12	35.84	-	68.89	55.94
p13															
Length	90.32	97.66	89.58	77.39	89.87	92.58	96.82	86.11	80.23	68.24	58.49	-	-	97.66	84.30
Width	36.04	41.28	33.92	30.01	40.29	41.42	41.54	34.05	29.18	23.93	20.00	-	-	41.54	33.79
p14															
Length	297.95	333.74	34.55	22.51	38.08	246.06	55.79	27.38	-	5.48	-	-	-	333.74	117.95
Width	21.24	31.59	8.92	7.54	7.83	9.25	11.88	9.50	32.89	3.72	-	-	-	32.89	14.43
e59															
Length	332.04	321.05	317.99	322.43	323.71	354.67	333.50	336.80	337.98	324.02	301.07	252.05	202.86	354.67	312.32
Width	196.44	201.23	196.11	215.71	222.91	215.45	224.00	206.48	216.85	215.68	-	-	178.32	224.00	208.11
e63															
Length	149.60	170.99	181.30	137.26	193.78	195.24	175.77	172.03	161.87	99.32	-	-	-	195.24	163.72
Width	40.93	47.47	43.49	72.44	46.99	50.18	46.28	37.38	38.99	29.04	-	-	-	72.44	45.32
e56															
Length	111.36	111.78	122.72	98.51	114.93	122.46	130.17	113.17	121.43	75.94	-	-	-	130.17	112.25
Width	61.55	62.23	51.15	51.68	64.57	65.73	64.41	53.02	72.74	58.45	-	-	-	72.74	60.55
e58															
Length	70.59	100.94	112.77	61.98	100.92	79.54	103.39	101.71	100.15	27.82	-	-	-	112.77	85.98
Width	24.54	19.97	24.17	10.75	19.87	25.32	26.04	9.07	14.43	6.88	-	-	-	26.04	18.10
e61															
Length	243.49	238.09	141.08	72.61	220.08	306.63	259.97	124.50	138.90	42.95	32.92	25.62	21.53	306.63	143.72
Width	24.69	23.61	15.06	13.16	14.09	17.43	20.33	13.87	13.41	11.82	13.14	11.51	9.48	24.69	15.51
c20															
Length	84.02	110.03	96.65	88.16	93.75	154.76	125.63	104.89	145.85	97.01	104.10	64.55	-	154.76	105.78
Width	79.77	92.79	94.55	92.38	92.25	105.54	104.57	91.44	100.75	90.34	87.49	-	-	105.54	93.81
e82															
Length	25.90	25.04	-	-	-	19.04	23.96	-	-	-	-	-	-	25.90	23.49
Width	16.73	12.60	-	-	-	15.17	14.06	-	-	-	-	-	-	16.73	14.64
e62															
Length	491.65	486.31	285.53	18.69	93.58	426.53	53.18	43.06	102.72	14.06	-	-	-	491.65	201.53
Width	74.78	12.97	10.93	6.05	11.77	15.41	11.27	7.16	11.14	5.01	-	-	-	74.78	16.65
e53															
Length	71.18	71.19	72.46	62.07	71.21	71.56	72.86	60.69	66.13	49.75	43.69	-	-	72.86	64.80
Width	28.89	31.17	33.47	29.51	31.52	32.51	31.39	23.51	26.99	25.87	18.30	-	-	33.47	28.47

Feature	27-Feb	3-Mar	7-Mar	10-Mar	13-Mar	17-Mar	24-Mar	28-Mar	4-Apr	10-Apr	17-Apr	24-Apr	1-May	Max	Average
e77															
Length	40.87	45.33	22.67	-	22.98	43.32	46.51	16.57	-	-	-	-	-	46.51	34.04
Width	33.82	34.13	29.99	-	25.52	41.98	40.00	18.47	-	-	-	-	-	41.98	31.99
e52															
Length	104.21	109.27	109.35	43.30	53.98	49.64	48.40	41.50	44.92	30.51	20.78	-	-	109.35	59.62
Width	30.22	29.30	30.04	28.13	30.96	34.15	30.42	25.82	28.86	20.98	15.29	-	-	34.15	27.65
e48															
Length	67.23	65.50	66.39	63.44	67.05	69.94	66.38	51.42	66.39	33.56	-	-	-	69.94	61.73
Width	35.37	34.71	36.14	30.65	35.78	38.28	35.83	27.35	31.62	26.88	-	-	-	38.28	33.26
e45															
Length	39.07	50.25	-	39.04	51.31	48.52	38.90	33.88	37.08	-	-	-	-	51.31	42.26
Width	23.86	23.90	-	19.13	26.73	25.64	24.35	13.77	18.76	-	-	-	-	26.73	22.02
ev3															
Length	23.89	18.86	25.38	16.48	19.84	23.50	20.43	22.66	-	19.61	20.22	24.02	16.49	25.38	20.95
Width	23.19	21.83	17.78	17.56	22.88	23.59	24.63	16.44	23.19	21.29	21.33	18.80	13.43	24.63	20.46
raap17															
Length	99.58	127.84	-	-	13.86	338.55	123.99	115.74	-	-	-	-	-	338.55	136.59
Width	5.41	9.16	-	-	-	5.65	4.81	27.97	-	-	-	-	-	27.97	10.60
c3e															
Length	-	-	-	-	-	-	-	-	-	-	157.78	-	-	-	-
Width	-	-	-	-	-	-	-	-	-	-	81.21	-	-	-	-
Cagney Swale															
Length	3,574.34	-	-	-	-	-	-	-	-	-	-	-	-	3574.34	3574.34
Width	30.55	136.58	67.28	22.28	139.79	z	-	-	-	-	-	-	-	139.79	79.30

A-2 2023 Rainfall Totals and Maximum Pool Depth Over Time



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SOURCE: ESA, 2023

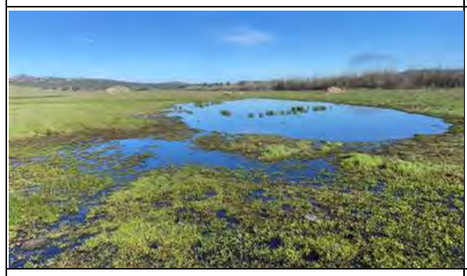
Appendix A-2

2023 Rainfall Totals and Maximum Pool Depth Over Time

ESA

A-3 Hydrological and Representative Photographs

Pool p7

Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23; representative
				IMAGE NOT AVAILABLE
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
				LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/17/23; Qualitative Monitoring	

Pool p13

Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
	NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN		LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/17/23; Qualitative Monitoring	

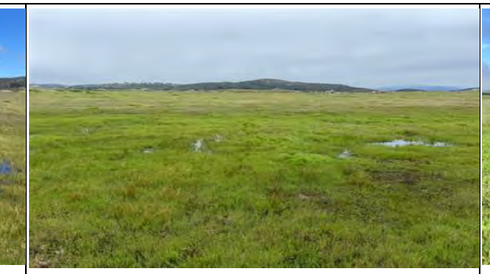
Pool p14

				IMAGE NOT AVAILABLE
Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23, facing southwest	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN		LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/17/23; Qualitative Monitoring	

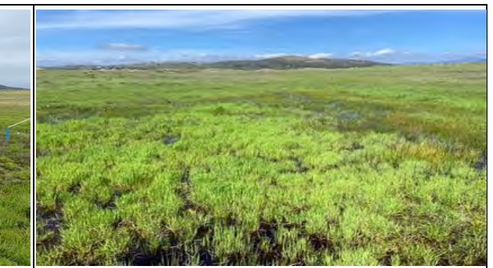
Pool e59

Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
			IMAGE NOT AVAILABLE	LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/17/23; Qualitative Monitoring	

Pool e63

				
Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN		LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/17/23; Qualitative Monitoring	

Pool e56

				
Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23
			IMAGE NOT AVAILABLE	
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN		LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/17/23; Qualitative Monitoring	

Pool e58

Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23
	IMAGE NOT AVAILABLE			
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN	IMAGE NOT AVAILABLE	LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/17/23; Qualitative Monitoring	

Pool e61

Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
				LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/17/23; Qualitative Monitoring	

Pool c20

Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
		NOT INUNDATED NO IMAGE TAKEN		LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/17/23; Qualitative Monitoring	

Pool e82

			NOT INUNDATED NO IMAGE TAKEN	
Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23
			NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN		LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/17/23; Qualitative Monitoring	

Pool e62

Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN		LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 15:** 5/17/23; Qualitative Monitoring	

Pool e53

Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23, representative
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
	NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN		
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/5/23	**Photo 15:** 5/17/23; Qualitative Monitoring

Pool e77

Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23
				NOT INUNDATED NO IMAGE TAKEN
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
NOT INUNDATED NO IMAGE TAKEN		NOT INUNDATED NO IMAGE TAKEN		LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/17/23; Qualitative Monitoring	

Pool e52

Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
		NOT INUNDATED NO IMAGE TAKEN		LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/17/23; Qualitative Monitoring	

Pool e48

Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23

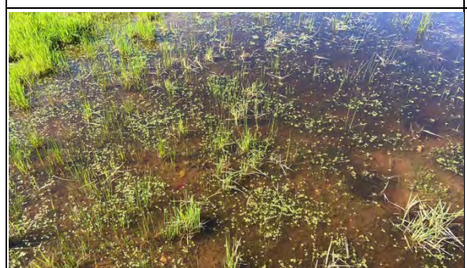



Photo 6: 3/17/23, representative	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
NOT INUNDATED NO IMAGE TAKEN		NOT INUNDATED NO IMAGE TAKEN		LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/17/23; Qualitative Monitoring	

Pool e45

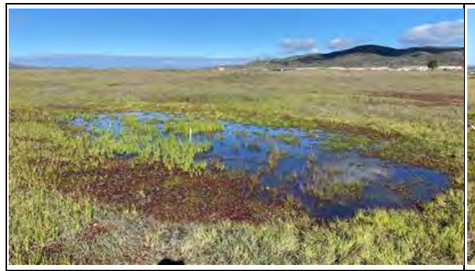


Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23
			IMAGE NOT AVAILABLE	
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN		LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 15:** 5/17/23; Qualitative Monitoring	

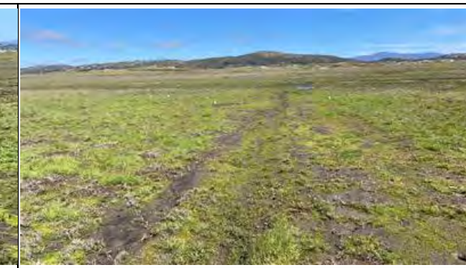
Pool ev3

Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23, representative	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23
Photo 6: 3/17/23	**Photo 7:** 3/24/23, representative	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
				LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/17/23; Qualitative Monitoring	

Pool c3e

Photo 1:4/17/23	**Photo 2:** 4/17/23	**Photo 3:** 4/17/23	**Photo 4:** 5/17/23	**Photo 5:** 5/17/23

Alkali Playa raap17

				
Photo 1: 2/27/23; Qualitative Monitoring	**Photo 2:** 3/3/23	**Photo 3:** 3/7/23	**Photo 4:** 3/10/23	**Photo 5:** 3/13/23
			NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN
Photo 6: 3/17/23	**Photo 7:** 3/24/23	**Photo 8:** 3/28/23	**Photo 9:** 4/4/23	**Photo 10:** 4/10/23
NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN	NOT INUNDATED NO IMAGE TAKEN		LEFT INTENTIONALLY BLANK
Photo 11: 4/17/23	**Photo 12:** 4/24/23	**Photo 13:** 5/1/23	**Photo 14:** 5/17/23; Qualitative Monitoring	

Cagney Swale

Photo 1: 3/3/23

Photo 2: 3/3/23

Photo 3: 3/3/23

Photo 4: 3/3/23

Photo 5: 3/3/23

Photo 6: 3/3/23

Photo 7: 3/3/23

Photo 8: 3/3/23

Photo 9: 3/3/23

Photo 10: 3/3/23

Photo 11: 3/3/23

Photo 12: 3/3/23

Photo 13: 3/3/23

Photo 14: 4/4/23

Photo 15: 2/27/23

Representative Photos

Photo 1: 5/17/23 Pool c3e; *Psilocarphus brevissimus*	**Photo 2:** 5/5/23 Pool e53; *Downingia cuspidata*	**Photo 3:** 5/1/23 Pool ev3; Spadefoot toad with *Psilocarphus brevissimus*	**Photo 4:** 4/24/23 Pool p13; *Elatine brachysperma*	**Photo 5:** 4/10/23 Pool e63; *Triglochin scilloides*
Photo 6: 4/17/23 Pool e58; *Cotula coronopifolia* with *Eleocharis macrostachya*	**Photo 7:** 2/27/23 Pool c20; Oligochaete worm	**Photo 8:** 5/17/23 Alkali playa raap17, *Atriplex coulteri*	**Photo 9:** 3/17/23 Pool c20; California clam shrimp carapace with egg clusters	**Photo 10:** 3/17/23 Pool e61; Seed shrimp
Photo 11: 3/28/23 Pool e59; Black-necked stilt	**Photo 12:** 3/10/23 Pool c20; Cow patty in middle of pool	**Photo 13:** 3/24/23 Pool e59; Representative photograph of suspended solids from wading birds.	**Photo 14:** 3/3/23 Pool e62; Representative photograph of turbidity and algal growth.	**Photo 15: 3/28/23** Pool p7; Representative photograph of water conditions and edge effects.

A-4 Qualitative Monitoring Species Occurrence Data

Qualitative Monitoring Species Occurrence Data

VERNAL POOL AND ALKALI PLAYA FLORA AND FAUNA DETECTED

Pool #	p7	p13	p14	e59	e63	e56	e58	e61	c20	e82	e62	e53	e77	e52	e48	e45	ev3	c3e	raap17	Cagney Swale
Vernal Pool Floral Indicators Observed																				
Atriplex coulteri Coulter's saltbush								X											X	
Brodiaea terrestris ssp. *kernensis* Dwarf brodiaea										X	X	X	X	X	X	X				X
Callitriche marginata Winged water-starwort	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Crassula aquatica Water pygmy weed	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
Deschampsia danthonioides Annual hairgrass												X			X					
Downingia cuspidata Toothed downingia							X		X			X		X	X					
Elatine brachysperma Shortseed waterwort		X		X					X			X								
Elatine californica California waterwort		X		X					X			X								
Eleocharis acicularis Needle spike weed				X											X					
Eleocharis macrostachya Pale spikerush	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Isoetes howellii Howell's quillwort					X	X		X												
Juncus bufonius Toad rush	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X	X	X
Lepidium latipes Dwarf pepper grass			X	X			X			X									X	
Limosella acaulis Southern mudwort		X		X				X	X											
Lysimachia [Centuncullus] minimus Chaffweed				X							X	X				X				
Malvella leprosa Alkali mallow						X														
Marsilea vestita Hairy waterclover				X					X								X			
Pilularia americana American pillwort		X	X		X			X	X			X	X	X	X	X				
Plagiobothrys acanthocarpus Adobe popcornflower			X	X	X	X	X	X	X		X	X			X	X				
Plagiobothrys undulatus Coast popcornflower					X	X														
Plantago elongata Prairie plantain		X	X	X			X	X	X	X	X	X			X					X

Pool #	p7	p13	p14	e59	e63	e56	e58	e61	c20	e82	e62	e53	e77	e52	e48	e45	ev3	c3e	raap17	Cagney Swale
Psilocarphus brevissimus var. *brevissimus* Dwarf woolly marbles		X	X	X	X	X	X	X	X		X	X		X	X	X	X	X		
Trifolium depauperatum Balloon-sack clover		X		X	X	X		X				X		X	X	X				
Triglochin [Lilea] scilloides Flowering-quillwort			X	X	X	X	X	X	X			X		X	X					
Veronica peregrina ssp. *xalapensis* Purslane speedwell				X		X	X		X	X	X	X		X	X	X		X		
Count:	**4**	**11**	**10**	**17**	**11**	**12**	**11**	**13**	**15**	**8**	**9**	**17**	**6**	**11**	**15**	**11**	**4**	**6**	**5**	**5**
Other Native Plant Species Detected																				
Acmispon americanus Spanish clover				X					X									X	X	X
Ambrosia psilostachya Western ragweed				X					X					X						X
Calandrinia breweri Brewer's calandrinia	X		X	X	X		X		X	X	X									
Camissoniopsis hirtella Field sun-cup										X										
Cardionema ramosissimum Sandmat		X																		
Castilleja exserta Purple owl's-clover		X										X		X	X	X				
Centromadia parryi ssp. *australis* Southern tarplant	X	X	X	X		X	X	X	X		X								X	X
Chlorogalum pomeridianum Wavy-leaf soap plant		X							X	X			X							
Corethrogyne filaginifolia var. *filaginifolia* California sand aster									X											
Cressa truxillensis Alkali weed		X								X										
Croton setiger Doveweed							X											X		
Deinandra fasciculata Fascicled tarweed	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
Distichlis spicata Salt grass			X	X	X	X	X			X	X	X	X	X	X				X	X
Erigeron [Conyza] canadensis Horseweed																		X		X
Euphorbia spathulata Reticulate-seed spurge									X											
Festuca microstachys Small fescue											X									
Gilia angelensis Grassland gilia									X											
Gnaphalium palustre Lowland cudweed																				X

Pool #	p7	p13	p14	e59	e63	e56	e58	e61	c20	e82	e62	e53	e77	e52	e48	e45	ev3	c3e	raap17	Cagney Swale
Greeneocharis circumscissa [Cryptantha circumscissa] Cushion greeneocharis									X											
Grindelia camporum Gumplant								X		X		X	X					X		X
Chlorogalum parviflorum [Hooveria parviflora] Smallflower soap plant										X										
Isocoma menziesii Goldenbush		X							X	X										
Juncus xiphioides Iris leaved rush								X						X		X		X		
Lasthenia gracilis [californica] Common goldfields		X	X												X					
Lepidium densiflorum Common peppergrass			X				X	X		X	X		X		X	X				
Logfia spp. Cottonrose		X	X							X								X	X	
Lupinus bicolor Miniature lupine		X																		X
Muilla maritima Common muilla		X	X		X					X			X		X	X				
Nitella clavata Stonewort algae																		X		X
Plagiobothrys collinus var. *fulvescens* Rough popcorn flower	X				X			X		X		X			X	X				
Plantago erecta Dot-seed plantain				X			X		X						X					
Quercus agrifolia Coast live oak			X																	
Scribneria bolanderi Scribner's grass																			X	
Sisyrinchium bellum Blue-eyed grass	X														X	X				
Trichostema lanceolatum Vinegarweed			X							X	X	X	X	X	X					
Vernal Pool Faunal Indicators Observed (Note: observations were visual only; no dip netting was conducted to confirm species)																				
Acanthocyclops sp. Copepods	X	X		X	X				X			X	X	X			X			X
Anax junius Green darner	X																			
Branchinecta sp. Fairy shrimp		X		X				X	X			X			X		X			X
Trichocorixa sp. Water boatmen																				X
Daphnia sp. Water fleas																				X
Dytiscidae sp. Predaceous diving beetles				X	X			X			X	X			X		X			X

Pool #	p7	p13	p14	e59	e63	e56	e58	e61	c20	e82	e62	e53	e77	e52	e48	e45	ev3	c3e	raap17	Cagney Swale
Ostracoda Seed shrimp	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X			X
Spea hammondii Western spadefoot toad			X	X	X				X			X			X	X	X	X		X
Other Faunal Species Observed																				
Ammodramus savannarum Grasshopper sparrow									X			X				X				
Anas platyrhynchos Mallard	X			X																
Anaxyrus boreas halophilus California toad			X	X					X			X					X			X
Baeolophus inornatus Oak titmouse			X																	
Bos taurus Domestic cattle	X								X											
Branta bernicla Brent goose																				X
Buteo jamaicensis Red-tailed hawk												X	X							X
Buteo regalis Ferruginous hawk												X								
Buteo regalis Greater white-fronted goose				X																
Canis latrans Coyote															X			X		X
Cassin's kingbird *Tyrannus vociferans*		X															X			
Cathartes aura Turkey vulture		X																		
Charadrius vociferus Killdeer				X																
Scolopendra polymorpha Common Desert Centipede													X							
Corvus corax Common raven		X	X	X					X								X	X	X	X
Crotalus oreganus helleri Southern pacific rattelsnake														X						
Culicidae sp. Mosquitos		X	X	X					X				X		X					
Egretta thula Snowy egret			X	X																
Eremophila alpestris Horned lark									X								X			
Grylloidea sp. Crickets															X					
Haemorhous mexicanus House finch																	X	X		
Himantopus mexicanus Black-necked stilt				X																

Pool #	p7	p13	p14	e59	e63	e56	e58	e61	c20	e82	e62	e53	e77	e52	e48	e45	ev3	c3e	raap17	Cagney Swale
Hirundo rustica Barn swallow										X										
Hydrachnidia Water mites																X				
Lithobates catesbeianus American bullfrog		X	X						X											
Mareca americana American wigeon	X			X															X	
Nathalis iole Dainty sulphur								X												
Oligochaeta Aquatic Earthworms				X					X								X		X	
Passerculus sandwichensis Savannah sparrow										X			X		X				X	X
Phoebis spp. Sulphurs																	X			
Pipilo maculatus Spotted towhee								X												
Platyhelminthes Flatworms									X			X								
Plegadis chihi White-faced ibis																			X	
Psaltriparus minimus Bushtit			X																	
Pseudacris regilla Pacific tree frog				X					X											X
Pyrocephalus obscurus Vermilion flycatcher																	X			
Quiscalus mexicanus Great-tailed grackle				X																
Regulus satrapa Golden-crowned kinglet																	X			
Sayornis nigricans Black phoebe																	X			
Sayornis saya Say's phoebe	X			X																
Setophaga coronata Yellow-rumped warbler	X	X															X			
Sialia mexicana Western bluebird													X				X			
Spatula clypeata Northern shoveler				X																
Spatula cyanoptera Cinnamon teal	X			X																
Spinus psaltria Lesser goldfinch																	X	X		
Sturnella neglecta Western meadowlark	X	X						X	X	X		X	X	X	X		X	X	X	X
Sturnus vulgaris European starling		X		X																

Pool #	p7	p13	p14	e59	e63	e56	e58	e61	c20	e82	e62	e53	e77	e52	e48	e45	ev3	c3e	raap17	Cagney Swale
Tachycineta thalassina Violet-green swallow	X								X										X	
Tipuloidea sp. Crane flies												X								
Tringa melanoleuca Greater yellowlegs				X					X											
Turdus migratorius American Robin		X																X		
Invasive Non-Native Plant Species Observed (Perennial species denoted by *)																				
Amaranthus albus Tumbleweed	X	X		X														X		
Anthemis cotula Stinkweed, Mayweed				X	X	X	X												X	X
Atriplex semibaccata[*2] Australian saltbush																			X	X
Avena spp.[2] Oats	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Brassica nigra[2] Black mustard																				X
Bromus diandrus[2] Ripgut brome			X	X	X	X										X	X	X		X
Bromus hordeaceus[3] Soft chess brome	X	X	X	X	X	X	X	X	X				X	X	X		X	X	X	X
Bromus madritensis[2] Foxtail brome			X		X				X			X				X	X		X	X
Centaurea melitensis[2] Tocolote																				X
Cotula australis Australian brass buttons		X	X	X		X		X	X	X	X				X	X				X
Cotula coronopifolia[3] African brass buttons	X			X		X	X	X				X			X					
Crypsis schoenoides Prickle grass	X	X		X			X				X						X		X	X
Cynodon dactylon[*2] Bermuda grass	X						X	X			X	X	X				X	X		X
Erodium botrys Longbeak filaree	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Erodium cicutarium[3] Redstem stork's bill	X		X																	
Festuca [Lolium] perennis[*2] Italian rye grass	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Festuca myuros[2] Rattail fescue		X	X	X			X	X	X	X	X	X	X	X				X		X
Hordeum marinum ssp. *gussoneanum*[2] Mediterranean barley	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hypochaeris glabra Smooth cat's-ear				X					X									X		
Lamarckia aurea Golden-top grass									X											

Pool #	p7	p13	p14	e59	e63	e56	e58	e61	c20	e82	e62	e53	e77	e52	e48	e45	ev3	c3e	raap17	Cagney Swale
Lysimachia [Anagallis] arvensis Scarlet pimpernel		X	X		X	X						X			X	X				X
Lythrum hyssopifolia[2] Grass poly	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Melilotus indicus Sweet clover					X	X	X	X			X								X	X
Polygonum aviculare ssp. *depressum* [Polygonum arenastrum]* Common knotweed	X	X	X		X	X														
Polypogon monspeliensis[3] Rabbits foot grass				X	X	X														
Portulaca oleracea Common purslane				X																
Rumex crispus[3] Curly dock	X	X	X	X	X	X			X								X	X		X
*Rumex pulcher** Fiddle dock				X		X						X								X
Silene gallica Common catchfly			X				X		X		X									
Sonchus asper Spiny sowthistle				X					X											
Sonchus oleraceus Common sowthistle						X							X	X						
Spergularia bocconii Boccone's sand spurry	X	X	X	X	X		X	X	X		X	X							X	X
Vicia villosa Hairy vetch																X				
Total Count:	**12**	**11**	**15**	**18**	**14**	**16**	**13**	**12**	**14**	**7**	**12**	**12**	**9**	**8**	**9**	**9**	**10**	**10**	**12**	**20**
Perennial Count:	**3**	**2**	**2**	**2**	**2**	**3**	**2**	**2**	**1**	**1**	**2**	**3**	**2**	**1**	**1**	**1**	**2**	**2**	**2**	**4**

Cal-IPC rating

[1] High – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

[2] Moderate – These species have substantial and apparent-but generally not severe-ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

[3] Limited – These species are invasive, but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

A-5 Management Representative Photographs

PHOTOGRAPH 1: View of p7 before maintenance, taken June 1–6, 2023.

PHOTOGRAPH 2: View of p7 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 3: View of p13 before maintenance, taken June 1–6, 2023.

PHOTOGRAPH 4: View of p13 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 5: View of p14 before maintenance, taken June 1–6, 2023.

PHOTOGRAPH 6: View of p14 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 7: View of e59 before maintenance, taken June 1–6, 2023.

PHOTOGRAPH 8: View of e59 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 9: View of e56 before maintenance, taken June 1–6, 2023.

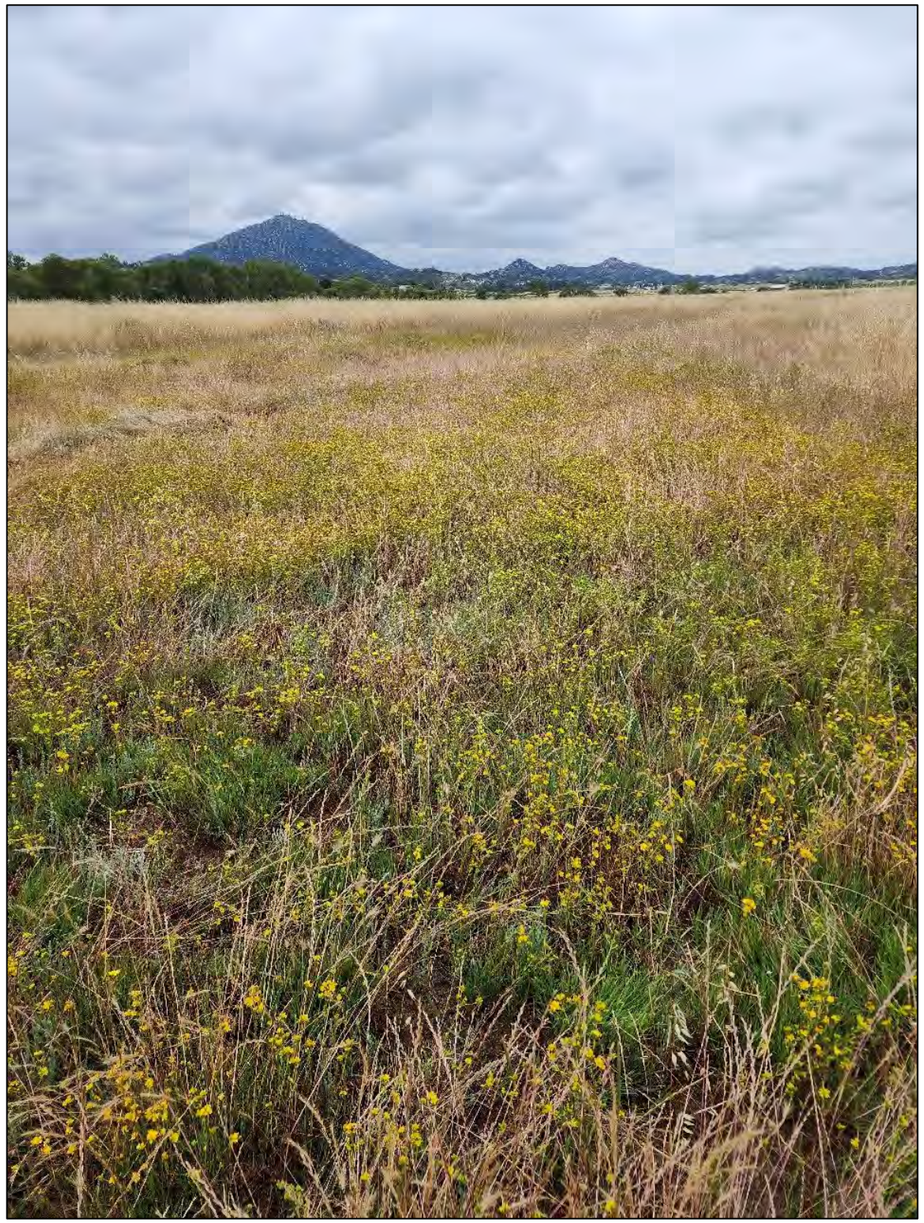
PHOTOGRAPH 10: View of e56 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 11: View of e58 before maintenance, taken June 1–6, 2023.

PHOTOGRAPH 12: View of e58 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 13: View of e61 before maintenance, taken June 1–6, 2023.

PHOTOGRAPH 14: View of e61 after maintenance, taken June 1–6, 2023.



PHOTOGRAPH 15: View of e82 before maintenance, taken June 1–6, 2023.

PHOTOGRAPH 16: View of e82 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 17: View of e62 before maintenance, taken June 1–6, 2023.

PHOTOGRAPH 18: View of e62 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 19: View of e53 during maintenance, taken June 1–6, 2023.

PHOTOGRAPH 20: View of e53 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 21: View of e77 during maintenance, taken June 1–6, 2023.

PHOTOGRAPH 22: View of e77 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 23: View of e52 during maintenance, taken June 1–6, 2023.

PHOTOGRAPH 24: View of e52 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 25: View of e48 before maintenance, taken June 1–6, 2023.

PHOTOGRAPH 26: View of e48 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 27: View of e45 before maintenance, taken June 1–6, 2023.

PHOTOGRAPH 28: View of e45 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 29: View of eV3 before maintenance, taken June 1–6, 2023.

PHOTOGRAPH 30: View of eV3 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 31: View of raap17 before maintenance, taken June 1–6, 2023.

PHOTOGRAPH 32: View of raap17 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 33: View of raap14 before maintenance, taken June 1–6, 2023.

PHOTOGRAPH 34: View of raap14 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 35: View of raap6 before maintenance, taken June 1–6, 2023.

PHOTOGRAPH 36: View of raap6 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 37: View of raap4 before maintenance, taken June 1–6, 2023.

PHOTOGRAPH 38: View of raap4 after maintenance, taken June 1–6, 2023.

PHOTOGRAPH 39: View of p7 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 40: View of p7 after maintenance, taken September 5–6, 2023.

PHOTOGRAPH 41: View of p13 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 42: View of p13 after maintenance, taken September 5–6, 2023.

PHOTOGRAPH 43: View of p14 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 44: View of p14 after maintenance, taken September 5–6, 2023.

PHOTOGRAPH 45: View of e59 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 46: View of e59 after maintenance, taken September 5–6, 2023.

PHOTOGRAPH 47: View of e56 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 48: View of e56 after maintenance, taken September 5–6, 2023.

PHOTOGRAPH 49: View of e61 during maintenance, taken September 5–6, 2023.

PHOTOGRAPH 50: View of e61 after maintenance, taken September 5–6, 2023.

PHOTOGRAPH 51: View of e82 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 52: View of e82 after maintenance, taken September 5–6, 2023.

PHOTOGRAPH 53: View of e62 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 54: View of e62 after maintenance, taken September 5-–6, 2023.

PHOTOGRAPH 55: View of e53 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 56: View of e53 after maintenance, taken September 5–6, 2023.

PHOTOGRAPH 57: View of e77 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 58: View of e77 after maintenance, taken September 5–6, 2023.

PHOTOGRAPH 59: View of e52 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 60: View of e52 after maintenance, taken September 5–6, 2023.

PHOTOGRAPH 61: View of e48 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 62: View of e48 after maintenance, taken September 5–6, 2023.

PHOTOGRAPH 63: View of e45 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 64: View of e45 after maintenance, taken September 5–6, 2023.

PHOTOGRAPH 65: View of raap17 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 66: View of raap17 after maintenance, taken September 5–6, 2023.

PHOTOGRAPH 67: View of raap14 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 68: View of raap14 after maintenance, taken September 5–6, 2023.

PHOTOGRAPH 69: View of raap6 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 70: View of raap6 after maintenance, taken September 5–6, 2023.

PHOTOGRAPH 71: View of raap4 before maintenance, taken September 5–6, 2023.

PHOTOGRAPH 72: View of raap4 after maintenance, taken September 5–6, 2023.

Appendix B

MSP Rare Plant Monitoring – Permanent Photographic Monitoring & Representative Photographs

B-1 San Diego Thornmint

Simon County Preserve Permanent Photo Points

San Diego thornmint photo monitoring at **SIPRACIL01** (Photo Point 1).
ACIL_4SIPR026_1_Photo1_05082023

San Diego thornmint photo monitoring at **SIPRACIL01** (Photo Point 2).
ACIL_4SIPR026_1_Photo2_05082023

Simon County Preserve Representative Photographs

San Diego thornmint both vegetative and flowering at Simon County Preserve.

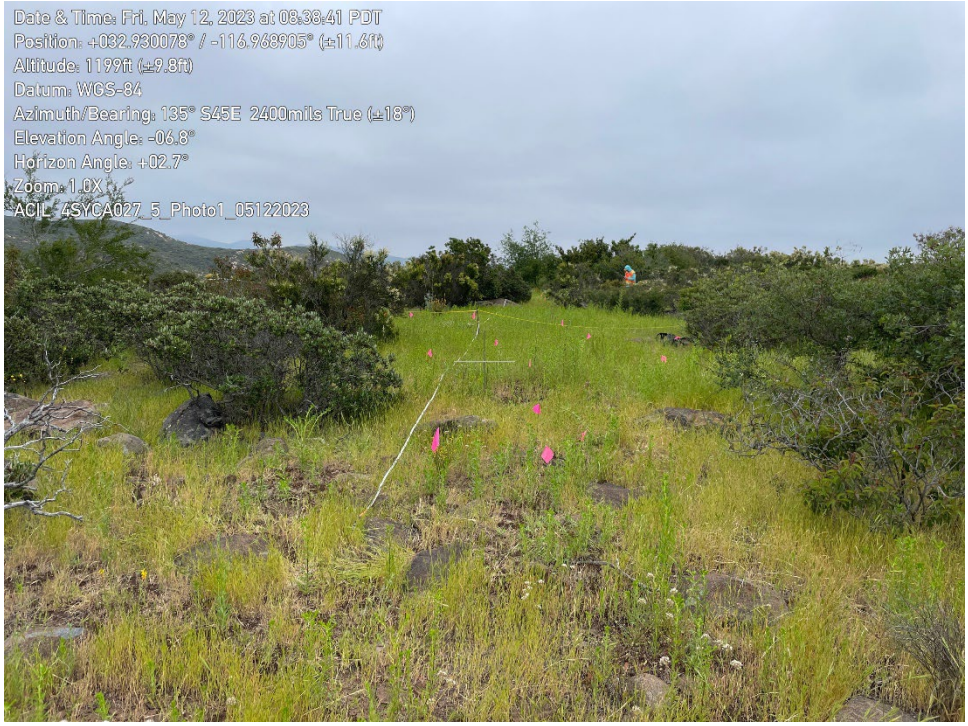
Sycamore Canyon/Goodan Ranch County Preserve Permanent Photo Points

San Diego thornmint photo monitoring at **SYGOACIL01**.
ACIL_4SYCA027_1_Photo1_05112023

San Diego thornmint photo monitoring at **SYGOACIL02**.
ACIL_4SYCA027_2_Photo1_05112023

San Diego thornmint photo monitoring at **SYGOACIL03**.
ACIL_4SYCA027_3_Photo1_05152023

San Diego thornmint photo monitoring at **SYGOACIL04**.
ACIL_4SYCA027_4_Photo1_05122023



San Diego thornmint photo monitoring at **SYGOACIL05**.
ACIL_4SYCA027_5_Photo1_05122023

San Diego thornmint photo monitoring at **SYGOACIL06**.
ACIL_4SYCA027_6_Photo1_05152023

San Diego thornmint photo monitoring at **SYGOACIL07**.
ACIL_4SYCA027_7_Photo1_05152023

San Diego thornmint photo monitoring at **SYGOACIL08**.
ACIL_4SYCA027_8_Photo1_05152023

San Diego thornmint photo monitoring at **SYGOACIL09**.
ACIL_4SYCA027_9_Photo1_05112023

San Diego thornmint photo monitoring at **SYGOACIL10**.
ACIL_4SYCA027_10_Photo1_05112023

San Diego thornmint photo monitoring at **SYGOACIL11**.
ACIL_4SYCA027_11_Photo1_05122023

Sycamore Canyon/Goodan Ranch County Preserve Representative Photographs

San Diego thornmint flowering amongst native clustered tarweed at Sycamore Canyon/Goodan Ranch County Preserve.

San Diego thornmint population flowering amongst invasive non-native purple false brome at Sycamore Canyon/Goodan Ranch County Preserve.

Sensitive native small-flowered bindweed detected within San Diego thornmint monitoring plots at Sycamore Canyon/Goodan Ranch County Preserve.

Sycamore Canyon/Goodan Ranch County Preserve Representative Management Photographs

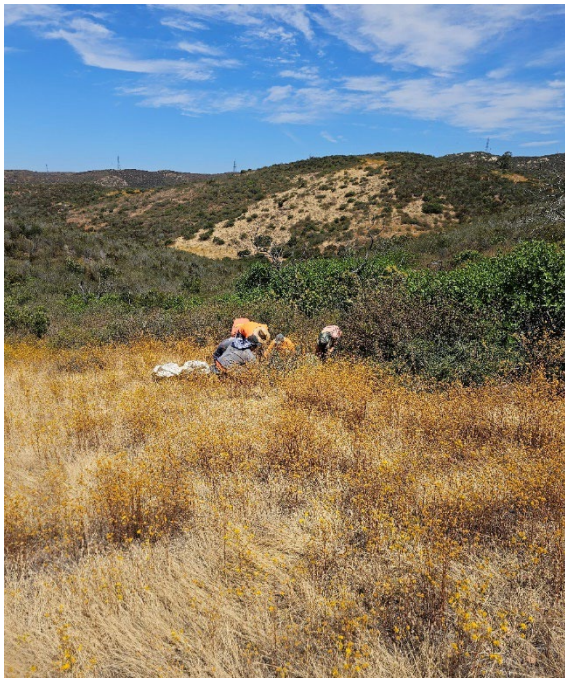
San Diego thornmint **SYGOACIL01** before management at Sycamore Canyon/Goodan Ranch County Preserve.

San Diego thornmint **SYGOACIL01** after management at Sycamore Canyon/Goodan Ranch County Preserve.

San Diego thornmint **SYGOACIL02** before management at Sycamore Canyon/Goodan Ranch County Preserve.

San Diego thornmint **SYGOACIL02** during management at Sycamore Canyon/Goodan Ranch County Preserve.

San Diego thornmint **SYGOACIL04** before management at Sycamore Canyon/Goodan Ranch County Preserve.



San Diego thornmint **SYGOACIL04** during management at Sycamore Canyon/Goodan Ranch County Preserve.

San Diego thornmint **SYGOACIL05** before management at Sycamore Canyon/Goodan Ranch County Preserve.

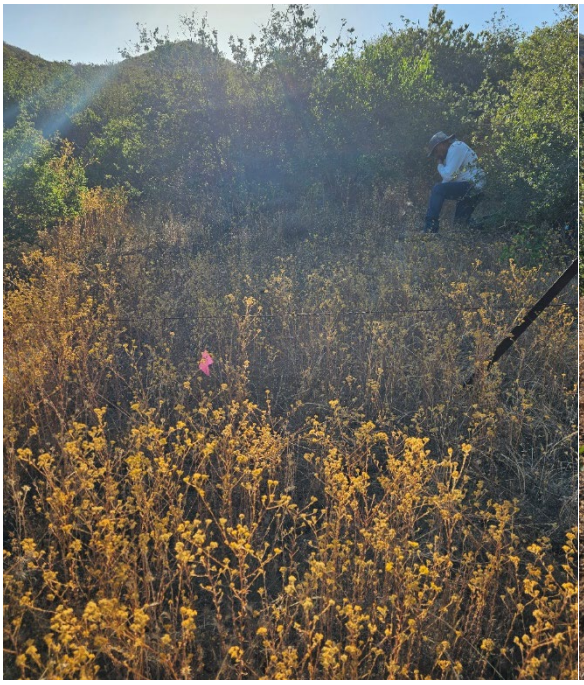
San Diego thornmint **SYGOACIL05** after management at Sycamore Canyon/Goodan Ranch County Preserve.

San Diego thornmint **SYGOACIL07** before management at Sycamore Canyon/Goodan Ranch County Preserve.

San Diego thornmint **SYGOACIL07** after management at Sycamore Canyon/Goodan Ranch County Preserve.

San Diego thornmint **SYGOACIL08** before management at Sycamore Canyon/Goodan Ranch County Preserve.

San Diego thornmint **SYGOACIL08** after management at Sycamore Canyon/Goodan Ranch County Preserve.



San Diego thornmint **SYGOACIL09** before management at Sycamore Canyon/Goodan Ranch County Preserve.

San Diego thornmint **SYGOACIL09** after management at Sycamore Canyon/Goodan Ranch County Preserve.

San Diego thornmint **SYGOACIL11** before management at Sycamore Canyon/Goodan Ranch County Preserve.

San Diego thornmint **SYGOACIL11** after management at Sycamore Canyon/Goodan Ranch County Preserve.

B-2 Encinitas Baccharis

Del Dios Highlands County Preserve Permanent Photo Points

Encinitas baccharis photo monitoring at **DD201501**.
BAVA3_6DDHP004_1_Photo1_08082023

Encinitas baccharis photo monitoring at **DD201502**.
BAVA3_6DDHP004_2_Photo1_08082023

Encinitas baccharis photo monitoring at **DD201503**.
BAVA3_6DDHP004_3_Photo1_08082023

Del Dios Highlands County Preserve Representative Photographs

Encinitas baccharis growing in the shade at Del Dios Highlands County Preserve.

Encinitas baccharis blooming with female flowers at Del Dios Highlands County Preserve.

Site conditions around pipe near monitoring plot DD201503.

B-3 San Miguel Savory

Boulder Oaks County Preserve Permanent Photo Points

San Miguel savory photo monitoring at **BOCLCH01**.
CLCH5_4BOPR002_1_Photo1_04262023

San Miguel savory photo monitoring at **BOCLCH02**.
CLCH5_4BOPR002_2_Photo1_04262023

Boulder Oaks County Preserve Representative Photographs

San Miguel savory starting to flower at Boulder Oaks County Preserve.

Boulder Oaks County Preserve Representative Management Photographs

Representative photo of San Miguel savory surrounded by scattered invasive non-native grasses at Boulder Oaks County Preserve.

Management (hand-pulling invasive non-native grasses) occurring around San Miguel savory at Boulder Oaks County Preserve.

B-4 Otay Tarplant

Furby-North County Preserve Permanent Photo Points

Otay tarplant photo monitoring at **DECO13_3OMEA026_1**.
DECO13_3OMEA026_1_Photo1_06022023

Otay tarplant photo monitoring at **DECO13 New Furby North South**.
DECO13_XXXXXXXX_1_Photo1_06022023

Furby-North County Preserve Representative Photographs

Otay tarplant flowering amongst invasive non-native grasses and forbs at Furby-North County Preserve.

Representative invasive non-native plant species present within Furby-North County Preserve in and around Otay tarplant populations.

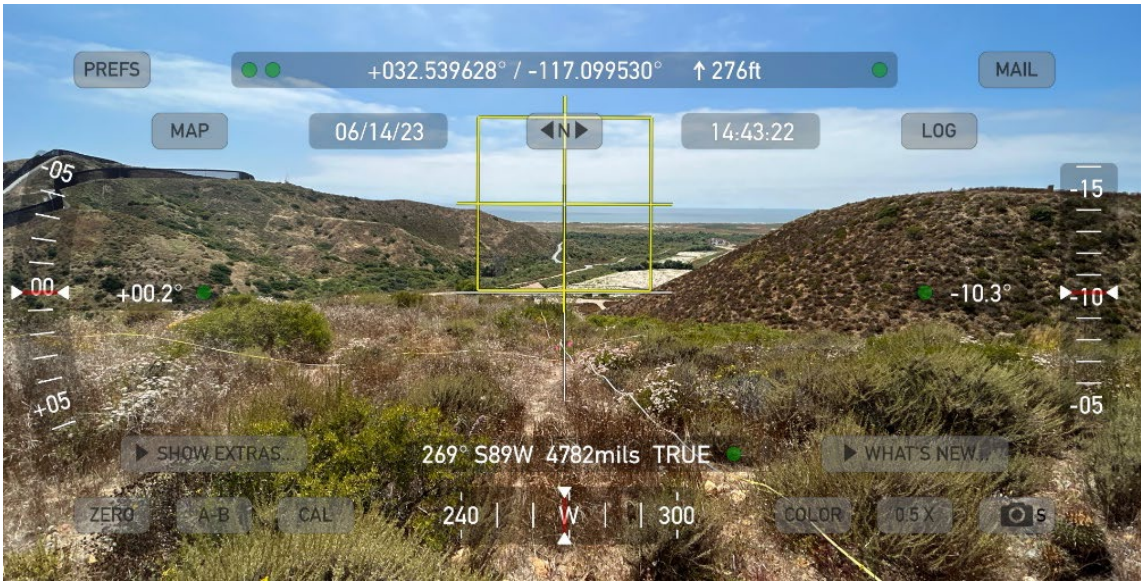
Furby-North County Preserve Representative Management Photographs

Management (hand-pulling invasive non-native grasses) occuring within the DECO13_3OMEA026_1 monitoring plot at Furby-North County Preserve.

Site conditions of the DECO13_3OMEA026_1 monitoring plot after management at Furby-North County Preserve.

B-5 Orcutt's Bird's-Beak

Tijuana River Valley Regional Park Permanent Photo Points



Orcutt's bird's-beak photo monitoring at **COOR7_1TIRI009_1**.
COOR7_1TIRI009_1_Photo1_06142023

Orcutt's bird's-beak photo monitoring at **COOR7_1SMGU006_1**.
COOR7_1SMGU006_1_Photo1_06142023

Tijuana River Valley Regional Park Representative Photographs

Orcutt's bird's-beak observed at Tijuana River Valley Regional Park

Orcutt's bird's-beak observed at Tijuana River Valley Regional Park

Orcutt's bird's-beak observed at Tijuana River Valley Regional Park

Orcutt's bird's-beak observed at Tijuana River Valley Regional Park

Tijuana River Valley Regional Park Representative Management Photographs

Management (hand-pulling invasive non-native grasses) occuring within the Orcutt's bird's-beak monitoring plot at Tijuana River Valley Regional Park.

Site conditions of the Orcutt's bird's-beak monitoring plot after management at Tijuana River Valley Regional Park.

B-6 Variegated Dudleya

Lusardi Creek County Preserve Permanent Photo Point

Variegated dudleya photo monitoring at **LCDUVA01**.
DUVA_6LUCR023_1_Photo1_04282023

Lusardi Creek County Preserve Representative Photographs

Variegated dudleya growing amongst invasive non-native grasses at Lusardi Creek County Preserve.

Variegated dudleya preparing to flower at Lusardi Creek County Preserve.

Lusardi Creek County Preserve Representative Management Photographs

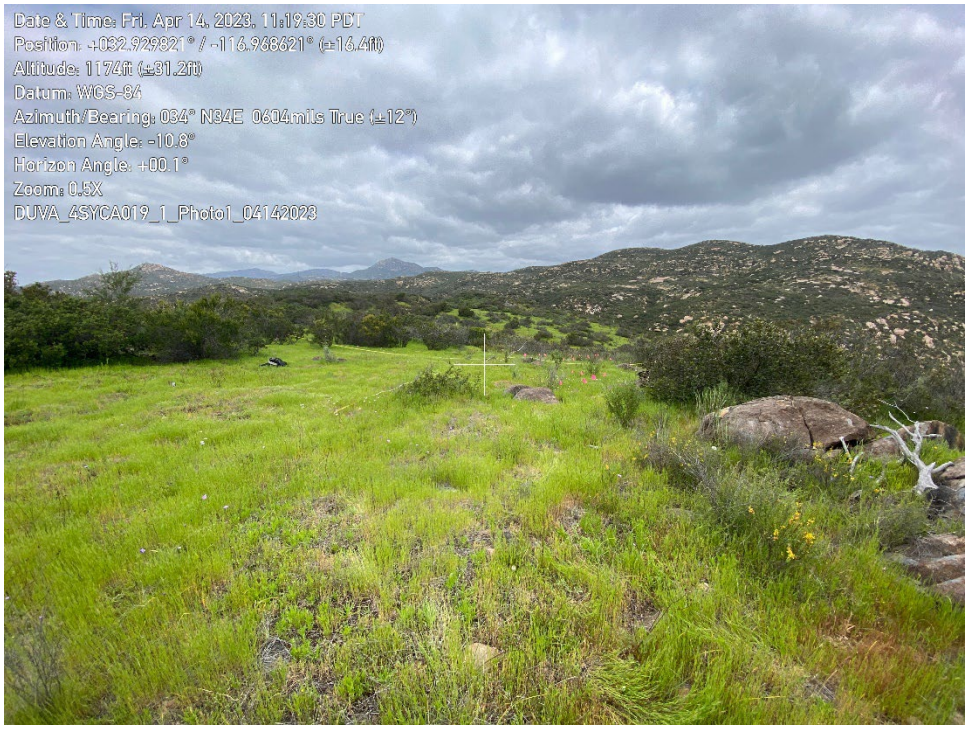
Representative photo of invasive non-native grass cover within the variegated dudleya herbivore exclusion fencing prior to management at Lusardi Creek County Preserve.

Representative photo within the variegated dudleya herbivore exclusion fencing after management at Lusardi Creek County Preserve.

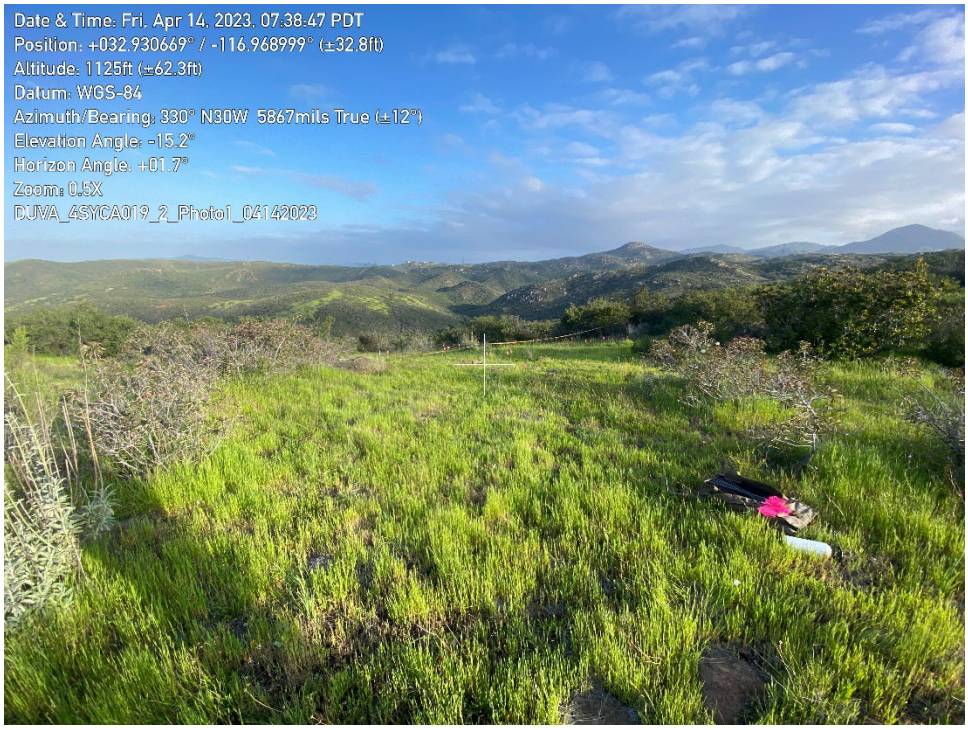
Repairing variegated dudleya herbivore exclusion fencing at Lusardi Creek County Preserve.

Site conditions after management adjacent to the variegated dudleya monitoring plot at Lusardi Creek County Preserve.

Sycamore Canyon/Goodan Ranch County Preserve Permanent Photo Points



Variegated dudleya photo monitoring at **SYGODUVA01**.
DUVA_4SYCA019_1_Photo1_04142023

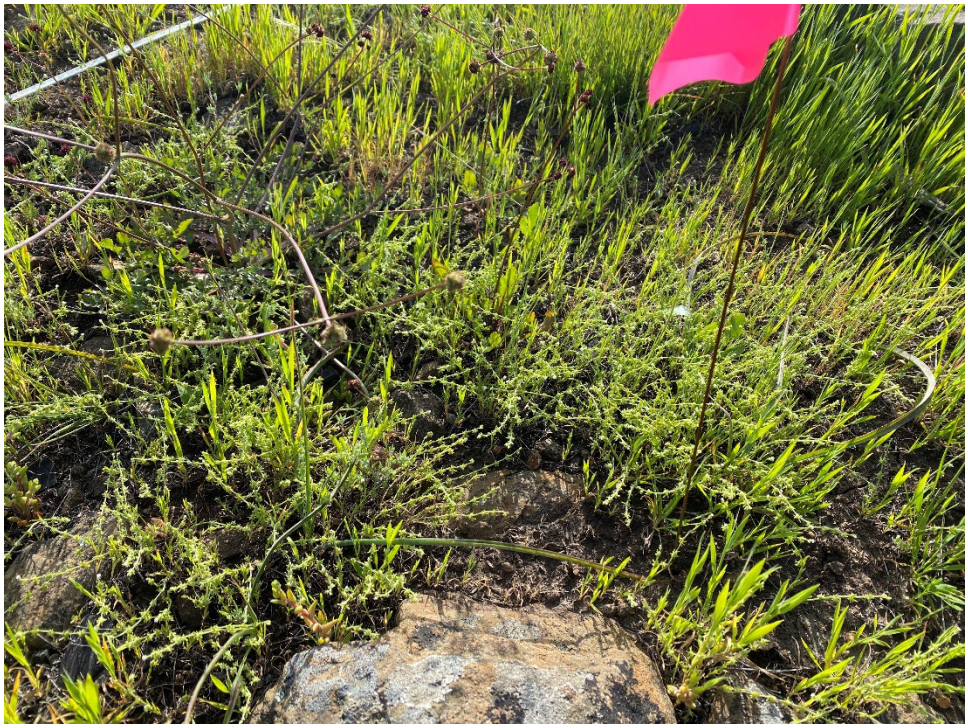


Variegated dudleya photo monitoring at **SYGODUVA02**.
DUVA_4SYCA019_2_Photo1_04142023

Sycamore Canyon/Goodan Ranch County Preserve Representative Photographs

Variegated dudleya growing along rock edges at Sycamore Canyon/Goodan Ranch County Preserve.

Variegated dudleya growing amongst high density of invasive non-native purple false brome at Sycamore Canyon/Goodan Ranch County Preserve.



Sensitive native Palmer's grapplinghook detected within variegated dudleya monitoring plots at Sycamore Canyon/Goodan Ranch County Preserve.

Native dot-seed plantain detected within variegated dudleya monitoring plots at Sycamore Canyon/Goodan Ranch County Preserve.

Sycamore Canyon/Goodan Ranch County Preserve
Representative Management Photographs

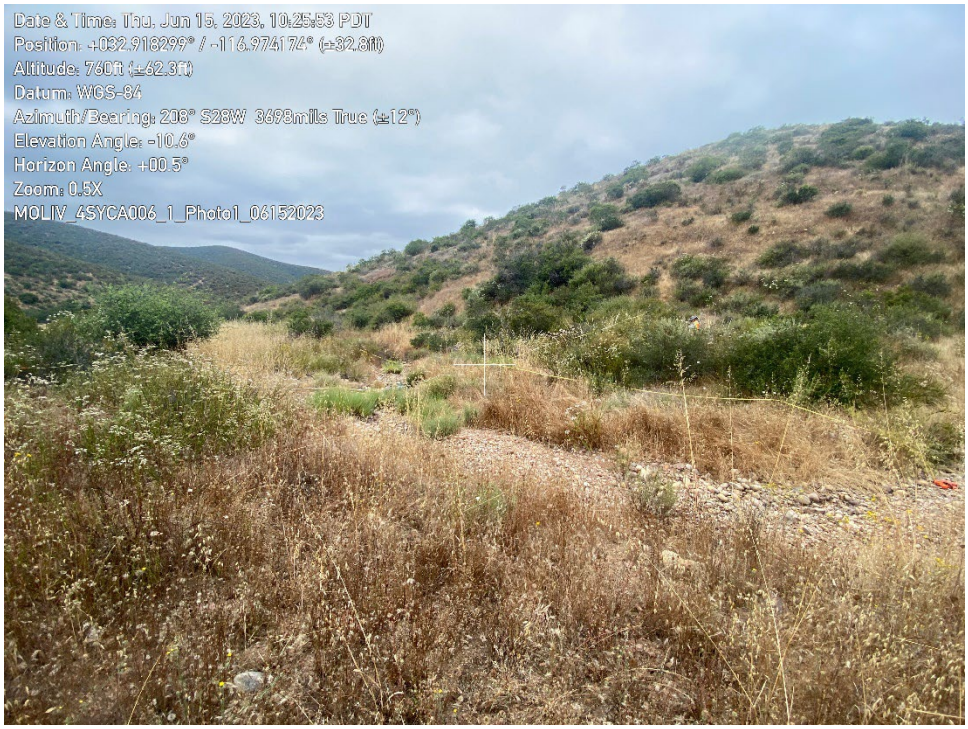
Management (hand-pulling invasive non-native grasses) occurring within the variegated dudleya monitoring plot **SYGODUVA01** at Sycamore Canyon/Goodan Ranch County Preserve.

Variegated dudleya **SYGODUVA02** before management at Sycamore Canyon/Goodan Ranch County Preserve.

Variegated dudleya **SYGODUVA02** during management at Sycamore Canyon/Goodan Ranch County Preserve.

B-7 Willowy Monardella

Sycamore Canyon/Goodan Ranch County Preserve Permanent Photo Points



Willowy monardella photo monitoring at **SYC201501**.
MOLIV_4SYCA006_1_Photo1_06152023

Willowy monardella photo monitoring at **SYC201602**.
MOLIV_4SYCA002_1_Photo1_06272023

Willowy monardella photo monitoring at **SYC202103**.
MOLIV_4SPCA006_2_Photo1_06152023

Sycamore Canyon/Goodan Ranch County Preserve Representative Photographs

Willowy monardella blooming amongst invasive non-native grasses at Sycamore Canyon/Goodan Ranch County Preserve.

Willowy monardella preparing to bloom at Sycamore Canyon/Goodan Ranch County Preserve.

Invasive non-native crimson fountaingrass detected upstream of monitoring plot **SYC201501** within Sycamore Canyon/Goodan Ranch County Preserve.

Sycamore Canyon/Goodan Ranch County Preserve
Representative Management Photographs

Representative photo of invasive non-native grass and competitive native California buckwheat cover within willowy monardella monitoring plot SYC201602 before management at Sycamore Canyon/Goodan Ranch County Preserve.

DPR park ranger hand-pulling invasive non-native grasses and competitive native California buckwheat around willowy monardella Sycamore Canyon/Goodan Ranch County Preserve.

Representative photo of willowy monardella plants within monitoring plot SYC201602 after management at 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 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	5/8/2023
Time Start	10:06
Surveyors	Brenda McMillan, Dillon Travis
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	6,000
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	4
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	2
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	11.5
GPSAccurracyUnits	inch
PlotX	516451
PlotY	3654129
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	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	Phone11

MSP Occurr. ID & Sample point:	ACIL_4SIPR026_1
Photo1Dir	228
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SIPR026_1_Photo1_05082023
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_05082023
SANDAG2012_VegAllianceAssoc	Adenostoma fasciculatum-Xylococcus bicolor Association
CryptogamicCrustCover	2
ThatchCover	3
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	9
DeadStandingBiomass_Presence	no
DeadStanding_CoverSpecies	NA
DeadStanding_CoverClass	NA
DeadStandingHeightAverage_cm	NA
FeralPigActivity	1
GroundSquirrelActivity	2
GopherActivity	2
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	12
Acmispon micranthus - San Diego bird's-foot trefoil	0.2
Adenostoma fasciculatum - chamise	5
Anagallis arvensis - scarlet pimpernel	0.2
Apiastrum angustifolium - mock parsley	0.2
Artemisia californica - coastal sagebrush	0.2
Avena barbata - slender oat	1
Bloomeria crocea - common goldenstar	0.2
Bromus hordeaceus - soft brome	0.2
Bromus rubens - Red brome	0.2
Calochortus splendens - splendid mariposa lily	0.2

MSP Occurr. ID & Sample point:	ACIL_4SIPR026_1
Centaurea melitensis - Maltese star-thistle	1
Deinandra fasciculata - clustered tarweed	4
Erodium cicutarium - redstem stork's bill	0.2
Festuca microstachys - small fescue	0.2
Festuca myuros - annual fescue	1
Fritillaria biflora - chocolate lily	1
Harpagonella palmeri - Palmer's grappling-hook	1
Hedypnois cretica - Cretanweed	0.2
Hirschfeldia incana - shortpod mustard	0.2
Hypochaeris glabra - smooth cat's ear	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Marah macrocarpa - Chilicothe	0.2
Microseris douglasii - Douglas' silverpuffs	1
Sonchus asper - spiny sowthistle	0.2
Uropappus lindleyi - Silver puffs	0.2
Xylococcus bicolor - mission manzanita	22
Other Associated Species?	yes
othername1	Stebbinsoseris heterocarpa
otherper1	0.2
othername2	Clarkia epilobioides
otherper2	0.2
othername3	Stylocline gnaphaloides
otherper3	0.2
othername4	Euphorbia spathulata
otherper4	0.2
othername5	Melilotus indicus
otherper5	0.2
other	Erodium brachycarpum, 0.2
BareGround	40.2
CrypSoils	0.2
Rock	4
Litter	2
Water	0
Vegetation	53.6
DeadShrubs	0
TotalPercCover	100
Is the maximum extent information already entered?	no
Number of Plants per Current Mapped Extent	6,000
Exact or Estimate for Max Extent Number	estimate

MSP Occurr. ID & Sample point:	ACIL_4SIPR026_1
uncertainty_MaxExt	medium
Plants_clusters_vs_individ_MaxExt	individ_plants
Count is flowering or vegetated plants? (only answer for geophytes)	NA
AreaCurrentMappedExtent	Polygon submitted
Area_exact_or_estim	low
CurrentExtentPerimMethod	exact
SpeciesLocated_in_maximumExtent	yes
ExpandedEfforty_n	no
SurroundingLandUse	Conserved open space preserve. Surrounded by residential development.
NonnativeForbs	5
NonnativeForbs_desc	Non-native forbs (Lysimachia arvensis, Centaurea melitensis, Erodium spp., Hedypnois cretica, Hirschfeldia incana, Hypochaeris glabra, Logfia gallica, Sonchus asper, Melilotus indicus)
NonnativeGrasses	3
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

MSP Occurr. ID & Sample point:	ACIL_4SIPR026_1
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
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	Hand weeding of invasive non-native plant species (Bromus spp. and Centaurea melitensis)
CNDDB_SppDetected	Acanthomintha ilicifolia, Harpagonella palmeri
Notes	NA
Time Finish	11:18

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	5/11/2023
Time Start	14:46
Surveyors	Sonya Vargas, Brenda McMillan
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	1035
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	3
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	2
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	2
GPSAccurracyUnits	ft
PlotX	501592
PlotY	3644272
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	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 mini
Photo1Dir	203 Degrees

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_1
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SYCA027_1_Photo1_05112023
SANDAG2012_VegAllianceAssoc	Brachypodium distachyon Semi-Natural Stand Type
CryptogamicCrustCover	2
ThatchCover	3
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	3
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Centaurea melitensis, Artemisia californica
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	25
FeralPigActivity	1
GroundSquirrelActivity	4
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	0.2
Acmispon glaber - deerweed	0.2
Anagallis arvensis - scarlet pimpernel	0.2
Apiastrum angustifolium - mock parsley	0.2
Artemisia californica - coastal sagebrush	0.2
Baccharis sarothroides - desertbroom	1
Brachypodium distachyon - purple false brome	35
Bromus madritensis - compact brome	0.2
Calochortus splendens - splendid mariposa lily	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Chlorogalum parviflorum - smallflower soap plant	0.2
Chorizanthe fimbriata - fringed spineflower	0.2
Convolvulus simulans - field bindweed	0.2
Crassula connata - sand pygmyweed	0.2
Deinandra fasciculata - clustered tarweed	20
Eriophyllum confertiflorum - golden-yarrow	0.2
Erodium botrys - longbeak stork's bill	0.2
Festuca myuros - annual fescue	1
Gastridium phleoides - nit grass	0.2
Harpagonella palmeri - Palmer's grappling-hook	0.2
Heteromeles arbutifolia - toyon	1

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_1
Hypochaeris glabra - smooth cat's ear	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Malosma laurina - laurel sumac	1
Nassella pulchra - purple tussockgrass	0.2
Plantago erecta - California plantain	0.2
Rhamnus crocea - spiny redberry	1
Salvia mellifera - black sage	0.2
Sisyrinchium bellum - western blue-eyed grass	0.2
Sonchus asper - spiny sowthistle	0.2
Other Associated Species?	yes
othername1	Phalaris canariensis
otherper1	0.2
BareGround	27.2
CrypSoils	0
Rock	5
Litter	2
Water	0
Vegetation	64.8
DeadShrubs	1
TotalPercCover	100
Alreadyentered	no
Ifyes_whichsurvey	
Number of Plants per Current Mapped Extent	46,032
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	Polygons submitted
Area_exact_or_estim	medium
CurrentExtentPerimMethod	exact
SpeciesLocated_in_maximumExtent	yes
ExpandedEfforty_n	no
SurroundingLandUse	Conserved open space preserve, open to hiking, mountain biking, equestrian use.
NonnativeForbs	7
NonnativeForbs_desc	Erodium spp., Centaurea melitensis, Sonchus spp., Logfia gallica, Hypochaeris glabra, Cynara cardunculus, Brassica spp.
NonnativeGrasses	7
NonnativeGrasses_desc	Brachypodium distachyon, Bromus spp., Festuca myuros, Phalaris canariensis

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_1
NonnativeWoodyPlts	1
NonnativeWoodyPlts_desc	NA
CompetitiveNativePlts	6
CompetitiveNativePlts_desc	Deinandra fasciculata increased in cover from last year.
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	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

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_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 and invasive non-native grass and forb treatment.
ManageActions_PastYr	Dethatching non-native grasses and line trimming outside max extent in buffer.
CNDDB_SppDetected	Acanthomintha ilicifolia, Convolvulus simulans, Harpagonella palmeri
Notes	NA
Time Finish	15:52

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_2**
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	5/15/2023
Time Start	13:30
Surveyors	Brenda McMillan; Sonya Vargas; Bailey Setzler; Dillon Travis
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	72
Exact or Estimate for Number in Sampling Area	estimate
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	4
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	3
GPSAccurracyUnits	ft
PlotX	501526
PlotY	3644274
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	IPhone11
Photo1Dir	259 Degrees

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_2**
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
PhotoNumPhoto1	ACIL_4SYCA027_2_Photo1_05152023
SANDAG2012_VegAllianceAssoc	Brachypodium distachyon Semi-Natural Stand Type
CryptogamicCrustCover	1
ThatchCover	4
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	2
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Rhamnus crocea, Deinandra fasciculata, Centaurea melitensis
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	24
FeralPigActivity	1
GroundSquirrelActivity	4
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	0.2
Acmispon glaber - deerweed	0.2
Allium haematochiton - redskin onion	0.2
Apiastrum angustifolium - mock parsley	0.2
Avena barbata - slender oat	0.2
Brachypodium distachyon - purple false brome	25
Bromus hordeaceus - soft brome	1
Bromus madritensis - compact brome	0.2
Calochortus splendens - splendid mariposa lily	0.2
Calystegia macrostegia - island false bindweed	0.2
Castilleja exserta - exserted Indian paintbrush	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	5
Erodium botrys - longbeak stork's bill	1
Festuca myuros - annual fescue	2
Harpagonella palmeri - Palmer's grappling-hook	0.2
Hypochaeris glabra - smooth cat's ear	2
Isocoma menziesii - Menzies' goldenbush	2

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_2**
Nassella pulchra - purple tussockgrass	0.2
Phalaris spp. - canarygrass	0.2
Rhamnus crocea - spiny redberry	1
Sisyrinchium bellum - western blue-eyed grass	0.2
Sonchus asper - spiny sowthistle	1
Other Associated Species?	no
BareGround	36.6
CrypSoils	0
Rock	17
Litter	2
Water	0
Vegetation	43.4
DeadShrubs	1
TotalPercCover	100
Alreadyentered	yes
Ifyes_whichsurvey	ACIL_4SYCA027_1
ManageRecomm	Continued monitoring and invasive non-native grass and forb treatment.
ManageActions_PastYr	Hand weeding non-native grasses and forbs and line trimming outside max extent in buffer.
CNDDB_SppDetected	Acanthomintha ilicifolia, Harpagonella palmeri, Convolvulus simulans
Notes	NA
Time Finish	14:30

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_3**
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	5/15/2023
Time Start	12:43
Surveyors	Brenda McMillan, Dillon Travis
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	800
Exact or Estimate for Number in Sampling Area	estimate
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	3
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	4.5
GPSAccurracyUnits	ft
PlotX	501549
PlotY	3644379
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

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_3**
CameraType	iPhone
Photo1Dir	134 Degrees
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SYCA027_3_Photo1_05152023
SANDAG2012_VegAllianceAssoc	Artemisia californica-Salvia mellifera Alliance
CryptogamicCrustCover	1
ThatchCover	3
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	2
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Artemisia californica, Salvia apiana, Corethrogyne filaginifolia
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	1
Anagallis arvensis - scarlet pimpernel	0.2
Apiastrum angustifolium - mock parsley	0.2
Artemisia californica - coastal sagebrush	8
Avena barbata - slender oat	0.2
Baccharis sarothroides - desertbroom	1
Bloomeria crocea - common goldenstar	0.2
Brachypodium distachyon - purple false brome	2
Bromus diandrus - ripgut brome	0.2
Bromus hordeaceus - soft brome	0.2
Bromus madritensis - compact brome	0.2
Calochortus splendens - splendid mariposa lily	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Chlorogalum parviflorum - smallflower soap plant	0.2
Chorizanthe fimbriata - fringed spineflower	0.2
Convolvulus simulans - field bindweed	0.2
Cryptantha intermedia - Clearwater cryptantha	0.2

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_3
Deinandra fasciculata - clustered tarweed	5
Dichelostemma capitatum - bluedicks	0.2
Eriogonum fasciculatum - California buckwheat	1
Eriophyllum confertiflorum - golden-yarrow	0.2
Festuca microstachys - small fescue	0.2
Festuca myuros - annual fescue	1
Harpagonella palmeri - Palmer's grappling-hook	0.2
Hazardia squarrosa - sawtooth goldenbush	0.2
Heteromeles arbutifolia - toyon	2
Hypochaeris glabra - smooth cat's ear	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Lonicera subspicata - southern honeysuckle	1
Malosma laurina - laurel sumac	6
Marah macrocarpa - Chilicothe	0.2
Plantago erecta - California plantain	0.2
Quercus X acutidens - Oak hybrid	0.2
Salvia apiana - white sage	1
Salvia mellifera - black sage	9
Sonchus asper - spiny sowthistle	0.2
Stipa pulchra - Purple needle grass	0.2
Other Associated Species?	yes
othername1	Delphinium sp.
otherper1	0.2
othername2	Phalaris canariensis
otherper2	0.2
othername3	Cryptantha clevelandii
otherper3	0.2
BareGround	49.4
CrypSoils	0
Rock	5
Litter	1
Water	0
Vegetation	43.6
DeadShrubs	1
TotalPercCover	100
Alreadyentered	yes
Ifyes_whichsurvey	ACIL_4SYCA027_1
ManageRecomm	Continued monitoring. Potential Deinandra fasciculata thinning.

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_3**
ManageActions_PastYr	None
CNDDB_SppDetected	Acanthomintha ilicifolia, Harpagonella palmeri, Convolvulus simulans
Notes	NA
TimeFinish	13:24

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_4**
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	5/12/2023
Time Start	11:15
Surveyors	Sonya Vargas, Dillon Travis
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	0
Exact or Estimate for Number in Sampling Area	exact
Uncertainty for Sampling Area	very_low
Sampling Area Radius (meters)	10
Count is clusters or individuals?	individ_plants
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	1
Category for Percent Flowering in Sampling Area	1
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	no
GPSAccurracy	2
GPSAccurracyUnits	ft
PlotX	502544
PlotY	3643691
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 mini
Photo1Dir	125 Degrees

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_4**
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SYCA027_4_Photo1_05122023
SANDAG2012_VegAllianceAssoc	Brachypodium distachyon Semi-Natural Stand Type
CryptogamicCrustCover	2
ThatchCover	2
ThatchDepthAverage_cat	2
ThatchDepthMax_cm	3
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Acmispon glaber
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	32
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	no
If no, Note Differences:	Sample plot has no thornmint
Acmispon glaber - deerweed	0.2
Allium sp. - onion	0.2
Anagallis arvensis - scarlet pimpernel	0.2
Avena barbata - slender oat	0.2
Bloomeria crocea - common goldenstar	0.2
Brachypodium distachyon - purple false brome	27
Brassica nigra - black mustard	0.2
Calochortus splendens - splendid mariposa lily	0.2
Calystegia macrostegia - island false bindweed	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Chlorogalum spp. - Soap plant	0.2
Convolvulus simulans - field bindweed	0.2
Deinandra fasciculata - clustered tarweed	10
Dichelostemma capitatum - bluedicks	0.2
Hypochaeris glabra - smooth cat's ear	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Lonicera subspicata - southern honeysuckle	0.2
Malosma laurina - laurel sumac	1
Salvia apiana - white sage	0.2
Sisyrinchium bellum - western blue-eyed grass	0.2
Sonchus asper - spiny sowthistle	0.2

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_4**
Stipa pulchra - Purple needle grass	0.2
Other Associated Species?	yes
othername1	Hypochaeris radicata
otherper1	0.2
BareGround	49.8
CrypSoils	0.2
Rock	5
Litter	1
Water	0
Vegetation	42
DeadShrubs	2
TotalPercCover	100
Alreadyentered	yes
Ifyes_whichsurvey	ACIL_4SYCA027_1
ManageRecomm	Continued monitoring and invasive non-native grass and forb treatment (Brachypodium distachyon and Brassica nigra).
ManageActions_PastYr	Hand weeding non-native grasses and forbs and line trimming outside max extent in buffer.
CNDDB_SppDetected	Convolvulus simulans
Notes	Adjacent to plot had 68 ACIL individuals.
Time Finish	12:49

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	5/12/2023
Time Start	08:34
Surveyors	Sonya Vargas, Dillon Travis
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	193
Exact or Estimate for Number in Sampling Area	estimate
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	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	2
GPSAccurracyUnits	ft
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 12 mini
Photo1Dir	150 Degrees

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_5
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SYCA027_5_Photo1_05122023
SANDAG2012_VegAllianceAssoc	Adenostoma fasciculatum-Xylococcus bicolor Association
CryptogamicCrustCover	2
ThatchCover	2
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	4
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Acmispon glaber
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	30
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	1
Adenostoma fasciculatum - chamise	5
Allium sp. - onion	0.2
Apiastrum angustifolium - mock parsley	0.2
Brachypodium distachyon - purple false brome	10
Bromus hordeaceus - soft brome	0.2
Calochortus splendens - splendid mariposa lily	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Cercocarpus betuloides - birch-leaf mountain-mahogany	1
Deinandra fasciculata - clustered tarweed	12
Dichelostemma capitatum - 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	0.2
Quercus X acutidens - Oak hybrid	1
Rhamnus crocea - spiny redberry	3
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	18
Other Associated Species?	no
BareGround	26.2
CrypSoils	0.2
Rock	10
Litter	1
Water	0
Vegetation	62.4
DeadShrubs	0.2
TotalPercCover	100
Alreadyentered	yes
Ifyes_whichsurvey	ACIL_4SYCA027_1
ManageRecomm	Continued monitoring. Invasive grass control (Brachypodium distachyon), thin native Deinandra fasciculata specifically around ACIL patches
ManageActions_PastYr	Hand weeding non-native grasses and forbs and line trimming outside max extent in buffer.
CNDDB_SppDetected	Acanthomintha ilicifolia, Harpagonella palmeri, Dudleya variegata
Notes	NA
Time Finish	08:38

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	5/15/2023
Time Start	10:53
Surveyors	Sonya Vargas, Dillon Travis
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	6457
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	3
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	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 12 mini
Photo1Dir	333 Degrees

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_6**
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SYCA027_6_Photo1_05152023
SANDAG2012_VegAllianceAssoc	Deinandra fasciculata Association
CryptogamicCrustCover	1
ThatchCover	2
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	1
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Bromus madritensis (~1ft), Hesperoyucca whipplei (~6ft)
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	35
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	2
Anagallis arvensis - scarlet pimpernel	0.2
Apiastrum angustifolium - mock parsley	2
Artemisia californica - coastal sagebrush	0.2
Avena barbata - slender oat	0.2
Bloomeria crocea - common goldenstar	0.2
Brachypodium distachyon - purple false brome	0.2
Bromus diandrus - ripgut brome	0.2
Bromus hordeaceus - soft brome	0.2
Bromus madritensis - compact brome	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Cneoridium dumosum - bush rue	0.2
Convolvulus simulans - field bindweed	0.2
Deinandra fasciculata - clustered tarweed	12
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
Hirschfeldia incana - shortpod mustard	0.2
Malosma laurina - laurel sumac	6

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_6**
Quercus X acutidens - Oak hybrid	1
Rhus integrifolia - lemonade sumac	4
Salvia apiana - white sage	0.2
Salvia mellifera - black sage	3
Sonchus asper - spiny sowthistle	0.2
Xylococcus bicolor - mission manzanita	4
Other Associated Species?	yes
othername1	Cryptantha clevelandii
otherper1	0.2
othername2	Phalaris canariensis
otherper2	0.2
BareGround	55
CrypSoils	0
Rock	1
Litter	2
Water	0
Vegetation	41
DeadShrubs	1
TotalPercCover	100
Alreadyentered	yes
Ifyes_whichsurvey	ACIL_4SYCA027_1
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, Convolvulus simulans
Notes	Deinandra fasciculata population appears to have increased directly over the San Diego thornmint population (potentially weedy native).
Time Finish	12:10

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_7**
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	5/15/2023
Time Start	10:28
Surveyors	Brenda McMillan, Bailey Setzler
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	549
Exact or Estimate for Number in Sampling Area	estimate
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	3
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	3
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	4
GPSAccurracyUnits	ft
PlotX	502376
PlotY	3644068
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	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
Photo1Dir	116 Degrees

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_7**
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SYCA027_7_Photo1_05152023
SANDAG2012_VegAllianceAssoc	Brachypodium distachyon Semi-Natural Stand Type
CryptogamicCrustCover	1
ThatchCover	2
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	3
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Centaurea melitensis
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	30
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	1
Acmispon glaber - deerweed	0.2
Anagallis arvensis - scarlet pimpernel	0.2
Apiastrum angustifolium - mock parsley	0.2
Bloomeria crocea - common goldenstar	0.2
Brachypodium distachyon - purple false brome	30
Centaurea melitensis - Maltese star-thistle	0.2
Chlorogalum parviflorum - smallflower soap plant	0.2
Convolvulus simulans - field bindweed	0.2
Deinandra fasciculata - clustered tarweed	15
Harpagonella palmeri - Palmer's grappling-hook	0.2
Hedypnois cretica - Cretanweed	0.2
Heteromeles arbutifolia - toyon	0.2
Hypochaeris glabra - smooth cat's ear	0.2
Logfia arizonica - Arizona cottonrose	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Lonicera subspicata - southern honeysuckle	0.2
Malosma laurina - laurel sumac	2
Microseris douglasii - Douglas' silverpuffs	0.2
Rhamnus crocea - spiny redberry	2

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_7**
Salvia apiana - white sage	0.2
Salvia mellifera - black sage	0.2
Sonchus oleraceus - common sowthistle	0.2
Stipa pulchra - Purple needle grass	0.2
Other Associated Species?	no
BareGround	43.8
CrypSoils	0.2
Rock	1
Litter	1
Water	0
Vegetation	53.8
DeadShrubs	0.2
TotalPercCover	100
Alreadyentered	yes
Ifyes_whichsurvey	ACIL_4SYCA027_1
ManageRecomm	Continued monitoring and invasive non-native grass and forb treatment.
ManageActions_PastYr	Hand weeding non-native grasses and forbs and line trimming outside max extent in buffer.
CNDDB_SppDetected	Acanthomintha ilicifolia, Harpagonella palmeri, Convolvulus simulans
Notes	NA
Time Finish	11:30

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	5/15/2023
Time Start	08:00
Surveyors	Brenda McMillan, Sonya Vargas, Dillon Travis, Bailey Setzler
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	1,262
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	4
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	2
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	4
GPSAccurracyUnits	ft
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 12 mini

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_8
Photo1Dir	121 Degrees
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SYCA027_8_Photo1_05152023
SANDAG2012_VegAllianceAssoc	Brachypodium distachyon Semi-Natural Stand Type
CryptogamicCrustCover	1
ThatchCover	2
ThatchDepthAverage_cat	2
ThatchDepthMax_cm	1
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Deinandra fasciculata
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	10
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	1
Allium haematochiton - redskin onion	0.2
Anagallis arvensis - scarlet pimpernel	0.2
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	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Chlorogalum parviflorum - smallflower soap plant	0.2
Clarkia purpurea - winecup clarkia	0.2
Convolvulus arvensis - field bindweed	0.2
Deinandra fasciculata - clustered tarweed	0.2
Eriophyllum confertiflorum - golden-yarrow	0.2
Euphorbia peplus - petty spurge	0.2
Festuca microstachys - small fescue	0.2
Festuca myuros - annual fescue	0.2

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_8
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
Lupinus succulentus - Hollowleaf annual lupine	0.2
Malosma laurina - laurel sumac	1
Marah macrocarpa - Chilicothe	0.2
Quercus X acutidens - Oak hybrid	2
Rhamnus crocea - spiny redberry	1
Rhus integrifolia - lemonade sumac	2
Salvia apiana - white sage	0.2
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?	yes
othername1	Ribes indecorum
otherper1	0.2
othername2	Clarkia epilobioides
otherper2	0.2
BareGround	54
CrypSoils	0
Rock	1
Litter	5
Water	0
Vegetation	39.8
DeadShrubs	0.2
TotalPercCover	100
Alreadyentered	yes
Ifyes_whichsurvey	ACIL_4SYCA027_1
ManageRecomm	Continued monitoring and invasive non-native grass and forb treatment.
ManageActions_PastYr	Hand weeding non-native grasses and forbs and line trimming outside max extent in buffer.
CNDDB_SppDetected	Acanthomintha ilicifolia, Convolvulus simulans, Harpagonella palmeri
Notes	NA
Time Finish	10:00

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_9**
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	198
UpdateSampInfo	no
Public	yes
Scientific Name	Acanthomintha ilicifolia
Date	5/11/2023
Time Start	15:45
Surveyors	Brenda McMillan, Sonya Vargas, Dillon Travis, Bailey Setzler
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	1336
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	4
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	3
GPSAccurracyUnits	ft
PlotX	501736
PlotY	3644403
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	IPhone11

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_9**
Photo1Dir	299 Degrees
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SYCA027_9_Photo1_05112023
SANDAG2012_VegAllianceAssoc	Brachypodium distachyon Semi-Natural Stand Type
CryptogamicCrustCover	1
ThatchCover	2
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	3
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Rhamnus crocea, Salvia apiana, Centaurea melitensis
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	24
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	1
Anagallis arvensis - scarlet pimpernel	0.2
Apiastrum angustifolium - mock parsley	0.2
Avena barbata - slender oat	0.2
Bloomeria crocea - common goldenstar	0.2
Brachypodium distachyon - purple false brome	25
Bromus madritensis - compact brome	0.2
Calochortus splendens - splendid mariposa lily	0.2
Centaurea melitensis - Maltese star-thistle	1
Convolvulus simulans - field bindweed	0.2
Deinandra fasciculata - clustered tarweed	2
Dichelostemma capitatum - bluedicks	0.2
Eriophyllum confertiflorum var. confertiflorum - yellow yarrow	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
Logfia gallica - narrowleaf cottonrose	0.2
Malosma laurina - laurel sumac	0.2

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_9**
Microseris douglasii ssp. Platycarpha - Douglas' silverpuffs	0.2
Quercus X acutidens - Oak hybrid	8
Rhamnus crocea - spiny redberry	1
Rhus integrifolia - lemonade sumac	3
Rhus ovata - sugar sumac	2
Salvia apiana - white sage	1
Salvia mellifera - black sage	0.2
Sonchus asper - spiny sowthistle	0.2
Xylococcus bicolor - mission manzanita	1
Other Associated Species?	no
BareGround	39.6
CrypSoils	0
Rock	2
Litter	6
Water	0
Vegetation	51.4
DeadShrubs	1
TotalPercCover	100
Alreadyentered	yes
Ifyes_whichsurvey	ACIL_4SYCA027_1
ManageRecomm	Continued monitoring and invasive non-native grass and forb treatment.
ManageActions_PastYr	Hand weeding non-native grasses and forbs and line trimming outside max extent in buffer.
CNDDB_SppDetected	Acanthomintha ilicifolia, Harpagonella palmeri, Convolvulus simulans
Notes	NA
Time Finish	16:44

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	5/11/2023
Time Start	14:45
Surveyors	Brenda McMillan, Sonya Vargas, Bailey Setzler, Dillon Travis
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	850
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	4
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	3
GPSAccurracyUnits	ft
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

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_10**
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	IPhone11
Photo1Dir	093 Degrees
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SYCA027_10_Photo1_05112023
SANDAG2012_VegAllianceAssoc	Salvia mellifera-Malosma laurina Association
CryptogamicCrustCover	1
ThatchCover	2
ThatchDepthAverage_cat	2
ThatchDepthMax_cm	1
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Deinandra fasciculata
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	12
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acanthomintha ilicifolia - San Diego thornmint	3
Acmispon spp. - Acmispon	0.2
Adenostoma fasciculatum - chamise	0.2
Antirrhinum nuttallianum - Island snapdragon	0.2
Apiastrum angustifolium - mock parsley	5
Bromus madritensis - compact brome	0.2
Ceanothus tomentosus - woolyleaf ceanothus	3
Centaurea melitensis - Maltese star-thistle	1
Cneoridium dumosum - bush rue	1
Convolvulus simulans - field bindweed	0.2
Cryptantha intermedia var. intermedia - common cryptantha	0.2
Deinandra fasciculata - clustered tarweed	6
Dichelostemma capitatum - bluedicks	0.2
Eriophyllum confertiflorum - golden-yarrow	0.2
Erodium cicutarium - redstem stork's bill	0.2
Euphorbia peplus - petty spurge	0.2

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_10
Harpagonella palmeri - Palmer's grappling-hook	0.2
Hesperoyucca whipplei - chaparral yucca	0.2
Heteromeles arbutifolia - toyon	2
Hypochaeris glabra - smooth cat's ear	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	0.2
Quercus X acutidens - Oak hybrid	6
Salvia mellifera - black sage	8
Sonchus asper - spiny sowthistle	0.2
Xylococcus bicolor - mission manzanita	2
Other Associated Species	no
BareGround	52.2
CrypSoils	0
Rock	1
Litter	6
Water	0
Vegetation	40.6
DeadShrubs	0.2
TotalPercCover	100
Alreadyentered	yes
Ifyes_whichsurvey	ACIL_4SYCA027_1
ManageRecomm	Continued monitoring
ManageActions_PastYr	None
CNDDB_SppDetected	Acanthomintha ilicifolia, Convolvulus simulans, Harpagonella palmeri
Notes	NA
TimeFinish	15:30

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_11**
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	20173
UpdateSampInfo	no
Public	yes
Scientific_Name_Comm	
Date	5/12/2023
Time Start	12:10
Surveyors	Sonya Vargas, Dillon Travis
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	323
Exact or Estimate for Number in Sampling Area	estimate
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	4
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	1
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	2
GPSAccurracyUnits	ft
PlotX	502684
PlotY	3643722
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 mini

MSP Occurr. ID & Sample point:	ACIL_4SYCA027_11
Photo1Dir	268
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	ACIL_4SYCA027_11_Photo1_05122023
SANDAG2012_VegAllianceAssoc	Brachypodium distachyon Semi-Natural Stand Type
CryptogamicCrustCover	1
ThatchCover	2
ThatchDepthAverage_cat	2
ThatchDepthMax_cm	3
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Acmispon glaber
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	50
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
Allium sp. - onion	0.2
Apiastrum angustifolium - mock parsley	0.2
Bloomeria crocea - common goldenstar	0.2
Brachypodium distachyon - purple false brome	18
Brassica nigra - black mustard	0.2
Calochortus splendens - splendid mariposa lily	0.2
Centaurea melitensis - Maltese star-thistle	1
Chlorogalum spp. - Soap plant	0.2
Convolvulus simulans - field bindweed	0.2
Deinandra fasciculata - clustered tarweed	12
Dichelostemma capitatum - bluedicks	0.2
Eriophyllum confertiflorum - golden-yarrow	0.2
Heteromeles arbutifolia - toyon	2
Hypochaeris glabra - smooth cat's ear	0.2
Isocoma menziesii - Menzies' goldenbush	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Lonicera subspicata - southern honeysuckle	0.2
Rhamnus crocea - spiny redberry	2

MSP Occurr. ID & Sample point:	**ACIL_4SYCA027_11**
Rhus integrifolia - lemonade sumac	2
Rhus ovata - sugar sumac	8
Salvia apiana - white sage	1
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
Xylococcus bicolor - mission manzanita	1
Other Associated Species?	yes
othername1	Reseda luteola
otherper1	0.2
BareGround	41.8
CrypSoils	0
Rock	5
Litter	2
Water	0
Vegetation	51
DeadShrubs	0.2
TotalPercCover	100
Alreadyentered	yes
Ifyes_whichsurvey	ACIL_4SYCA027_1
ManageRecomm	Continued monitoring. Invasive grass control (Brachypodium distachyon), thin native Deinandra fasciculata specifically around ACIL patches
ManageActions_PastYr	Hand weeding non-native grasses and forbs and line trimming outside max extent in buffer.
CNDDB_SppDetected	Acanthomintha ilicifolia, Convolvulus simulans
Notes	NA
Time Finish	13:20

C-2 Encinitas Baccharis

MSP Occurr. ID & Sample point:	**BAVA3_6DDHP004_1**
Preserve	Del Dios Highlands Open Space Preserve
MgtUnit	6
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
SampID	146
UpdateSampInfo	no
Public	yes
Scientific Name	Baccharis vanessae
Date	8/8/2023
Time Start	13:00
Surveyors	Dillon Travis, Brenda McMillan
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	4
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?	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	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	1.2
GPSAccurracyUnits	ft
PlotX	488075
PlotY	3658452
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 11
Photo1Dir	East, 60 degrees

MSP Occurr. ID & Sample point:	BAVA3_6DDHP004_1
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	BAVA3_6DDHP004_1_Photo1_08082023
SANDAG2012_VegAllianceAssoc	Ceanothus verrucosus Association
CryptogamicCrustCover	2
ThatchCover	2
ThatchDepthAverage_cat	2
ThatchDepthMax_cm	2
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Marah spp., Ceanothus verrucosus, Salvia mellifera
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	80
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Adenostoma fasciculatum - chamise	0.2
Artemisia californica - coastal sagebrush	0.2
Baccharis vanessae - Encinitas baccharis	0.2
Bromus madritensis - compact brome	0.2
Bromus rubens - Red brome	0.2
Ceanothus tomentosus - woolyleaf ceanothus	0.2
Ceanothus verrucosus - Wart-stemmed ceanothus	25
Cneoridium dumosum - bush rue	5
Diplacus aurantiacus ssp. Aurantiacus - orange bush monkeyflower	0.2
Eriogonum fasciculatum - California buckwheat	1
Eriophyllum confertiflorum - golden-yarrow	0.2
Galium angustifolium - narrowleaf bedstraw	0.2
Hazardia squarrosa - sawtooth goldenbush	0.2
Malosma laurina - laurel sumac	4
Marah macrocarpa - Chilicothe	0.2
Melica imperfecta - smallflower melicgrass	0.2
Pentagramma triangularis - goldbeck fern	0.2
Pseudognaphalium bioletti - two-color rabbit-tobacco	0.2
Rhus integrifolia - lemonade sumac	1
Rhus ovata - sugar sumac	1
Salvia mellifera - black sage	3

MSP Occurr. ID & Sample point:	**BAVA3_6DDHP004_1**
Scrophularia californica - California figwort	0.2
Selaginella bigelovii - bushy spikemoss	0.2
Xylococcus bicolor - mission manzanita	10
Other Associated Species?	yes
othername1	Nuttallanthus sp.
otherper1	0.2
BareGround	22.4
CrypSoils	0.2
Rock	7
Litter	12
Water	0
Vegetation	53.4
DeadShrubs	5
TotalPercCover	100
Alreadyentered	yes
Ifyes_whichsurvey	BAVA3_6DDHP004_2
ManageRecomm	Continued monitoring. Consider thinning native shrub and creating an access trail to plots to avoid trampling Baccharis vanessae
ManageActions_PastYr	None
CNDDB_SppDetected	Baccharis vanessae, Ceanothus verrucosus
Notes	NA
Time Finish	13:31

MSP Occurr. ID & Sample point:	**BAVA3_6DDHP004_2**
Preserve	Del Dios Highlands Open Space Preserve
MgtUnit	6
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
SampID	145
UpdateSampInfo	no
Public	yes
Scientific Name	Baccharis vanessae
Date	8/8/2023
Time Start	8:33
Surveyors	Brenda McMillan, Dillon Travis
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	3
Exact or Estimate for Number in Sampling Area	exact
Uncertainty for Sampling Area	very_low
Sampling Area Radius (meters)	10
Count is clusters or individuals?	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	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	7.5
GPSAccurracyUnits	inch
PlotX	488143
PlotY	3658472
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	Southwest, 216 degrees

MSP Occurr. ID & Sample point:	**BAVA3_6DDHP004_2**
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	BAVA3_6DDHP004_2_Photo1_08082023
SANDAG2012_VegAllianceAssoc	Ceanothus verrucosus Association
CryptogamicCrustCover	2
ThatchCover	2
ThatchDepthAverage_cat	2
ThatchDepthMax_cm	2
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Bloomeria sp., Baccharis spp., Marah macrocarpa, Ceanothus spp.
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	30
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Baccharis vanessae - Encinitas baccharis	0.2
Bloomeria crocea - common goldenstar	0.2
Bromus madritensis - compact brome	0.2
Ceanothus tomentosus - woolyleaf ceanothus	30
Ceanothus verrucosus - Wart-stemmed ceanothus	4
Cneoridium dumosum - bush rue	0.2
Cryptantha spp. - cryptantha	0.2
Diplacus aurantiacus ssp. Aurantiacus - orange bush monkeyflower	0.2
Eriophyllum confertiflorum - golden-yarrow	0.2
Festuca microstachys - small fescue	0.2
Galium angustifolium ssp. angustifolium - narrowleaf bedstraw	0.2
Gastridium phleoides - nit grass	0.2
Hazardia squarrosa - sawtooth goldenbush	1
Malosma laurina - laurel sumac	7
Marah macrocarpa - Chilicothe	0.2
Prunus ilicifolia - hollyleaf cherry	2
Pterostegia drymarioides - woodland pterostegia	0.2
Rhus integrifolia - lemonade sumac	10
Salvia mellifera - black sage	2
Selaginella bigelovii - bushy spikemoss	0.2
Xylococcus bicolor - mission manzanita	3

MSP Occurr. ID & Sample point:	**BAVA3_6DDHP004_2**
Other Associated Species?	no
BareGround	6.4
CrypSoils	1
Rock	3
Litter	17
Water	0
Vegetation	61.6
DeadShrubs	11
TotalPercCover	100
Alreadyentered	no
NumPlantsperCurrentMappedExtent	177
ExactorEstimate_MaxExt	estimate
uncertainty_MaxExt	medium
Plants_clusters_vs_individ_MaxExt	individ_plants
Flower_Veget_MaxExt	NA
AreaCurrentMappedExtent	Polygon submitted
Area_exact_or_estim	low
CurrentExtentPerimMethod	estimate
SpeciesLocated_in_maximumExtent	yes
Reason_IfNotFound	NA
ExpandedEfforty_n	no
SurroundingLandUse	Conserved open space preserve, not open to public. Private homeowner onsite.
NonnativeForbs	1
NonnativeForbs_desc	NA
NonnativeGrasses	3
NonnativeGrasses_desc	Bromus spp., Brachypodium distachyon, Festuca microstachys, Gastridium phleoides
NonnativeWoodyPlts	1
NonnativeWoodyPlts_desc	NA
CompetitiveNativePlts	3
CompetitiveNativePlts_desc	Baccharis sarothroides grows in conjunction with Baccharis vanessae on trail
Dumping_trash	1
Dumping_trash_desc	NA
Encampments	1
Encampments_desc	NA
FeralPig	1
FeralPig_desc	NA
Trampling	3

MSP Occurr. ID & Sample point:	BAVA3_6DDHP004_2
Trampling_desc	Monitoring requires some vegetation trampling due to density of vegetation
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	3
Erosion_desc	Drainage pipe causing erosion onto trail
UrbanRunoff	1
UrbanRunoff_desc	NA
SlopeMovement	1
SlopeMovement_desc	NA
SoilCompaction	1
SoilCompaction_desc	NA
FuelModZone_FireBreak	2
FuelModZone_FireBreak_desc	Road to private residence
RoadConst_Mainten	2
RoadConst_Mainten_descrip	Road to private residence
VegClearing	2
VegClearing_descript	Road to private residence
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

MSP Occurr. ID & Sample point:	**BAVA3_6DDHP004_2**
TrailUse_illegal_descript	NA
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Continued monitoring. Consider thinning native shrub and creating an access trail to plots to avoid trampling Baccharis vanessae
ManageActions_PastYr	None
CNDDB_SppDetected	Baccharis vanessae, Ceanothus verrucosus
Notes	NA
Time Finish	9:43

MSP Occurr. ID & Sample point:	**BAVA3_6DDHP004_3**
Preserve	Del Dios Highlands Open Space Preserve
MgtUnit	6
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
SampID	144
UpdateSampInfo	no
Public	yes
Scientific Name	Baccharis vanessae
Date	8/8/2023
Time Start	11:16
Surveyors	Dillon Travis, Brenda McMillan
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	33
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?	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	1
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	7.2
GPSAccurracyUnits	inch
PlotX	488033
PlotY	3658485
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 11
Photo1Dir	Southwest, 220 degrees

MSP Occurr. ID & Sample point:	BAVA3_6DDHP004_3
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	BAVA3_6DDHP004_3_Photo1_08082023
SANDAG2012_VegAllianceAssoc	Ceanothus verrucosus Association
CryptogamicCrustCover	2
ThatchCover	1
ThatchDepthAverage_cat	1
ThatchDepthMax_cm	1
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Ceanothus tomentosus, Bloomeria crocea
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	45
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Adenostoma fasciculatum - chamise	1
Baccharis vanessae - Encinitas baccharis	3
Brachypodium distachyon - purple false brome	0.2
Bromus rubens - Red brome	0.2
Ceanothus tomentosus - woolyleaf ceanothus	1
Ceanothus verrucosus - Wart-stemmed ceanothus	10
Cercocarpus minutiflorus - smooth mountain-mahogany	2
Cneoridium dumosum - bush rue	0.2
Diplacus aurantiacus ssp. Aurantiacus - orange bush monkeyflower	0.2
Festuca microstachys - small fescue	0.2
Galium angustifolium - narrowleaf bedstraw	0.2
Hazardia squarrosa - sawtooth goldenbush	0.2
Helianthus gracilentus - slender sunflower	0.2
Muhlenbergia microsperma - littleseed muhly	2
Rhus integrifolia - lemonade sumac	12
Salvia mellifera - black sage	1
Selaginella bigelovii - bushy spikemoss	0.2
Xylococcus bicolor - mission manzanita	15
Other Associated Species?	yes
othername1	Dryopteris arguta
otherper1	0.2

MSP Occurr. ID & Sample point:	**BAVA3_6DDHP004_3**
othername2	Pentagramma viscosa
otherper2	0.2
othername3	Keckiella cordifolia
otherper3	0.2
othername4	Nuttallanthus sp.
otherper4	0.2
othername5	Eulobus californicus
otherper5	0.2
other	Claytonia sp.; 0.2
BareGround	14
CrypSoils	1
Rock	10
Litter	20
Water	0
Vegetation	50
DeadShrubs	5
TotalPercCover	100
Alreadyentered	yes
Ifyes_whichsurvey	BAVA3_6DDHP004_2
ManageRecomm	Continued monitoring. Consider thinning native shrub and creating an access trail to plots to avoid trampling Baccharis vanessae
ManageActions_PastYr	None
CNDDB_SppDetected	Baccharis vanessae, Ceanothus verrucosus
Notes	Traversing habitat causes trampling of species, including BAVA.
Time Finish	11:59

C-3 San Miguel Savory

MSP Occurr. ID & Sample point:	**CLCH5_4BOPR002_1**
Preserve	Boulder Oaks 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
SampID	275
UpdateSampInfo	no
Public	yes
Scientific Name	Clinopodium chandleri
Date	4/26/2023
Time Start	11:08
Surveyors	Sonya Vargas, Karla Alcaraz
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	80
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	3
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	8
GPSAccurracyUnits	ft
PlotX	505067
PlotY	3646951
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 mini

MSP Occurr. ID & Sample point:	CLCH5_4BOPR002_1
Photo1Dir	349 Degrees
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	CLCH5_4BOPR002_1_Photo1_04262023
SANDAG2012_VegAllianceAssoc	Ceanothus tomentosus Alliance/Association
CryptogamicCrustCover	2
ThatchCover	2
ThatchDepthAverage_cat	2
ThatchDepthMax_cm	1
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Adenostema fasciculata
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	75
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Adenostoma fasciculatum - chamise	26
Arctostaphylos glandulosa - Adams' manzanita	11
Calochortus spp. - mariposa lily	0.2
Ceanothus tomentosus - woolyleaf ceanothus	9
Chlorogalum parviflorum - smallflower soap plant	0.2
Clinopodium chandleri - San Miguel savory	2
Dendromecon rigida - Tree poppy	3
Diplacus aurantiacus ssp. Aurantiacus - orange bush monkeyflower	1
Eriophyllum confertiflorum var. confertiflorum - yellow yarrow	1
Festuca myuros - annual fescue	0.2
Galium angustifolium ssp. angustifolium - narrowleaf bedstraw	1
Hazardia squarrosa - sawtooth goldenbush	0.2
Hypochaeris glabra - smooth cat's ear	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Lonicera subspicata - southern honeysuckle	0.2
Melica imperfecta - smallflower melicgrass	0.2
Muhlenbergia rigens - deergrass	2
Pentagramma triangularis - goldbeck fern	0.2
Rhus ovata - sugar sumac	1

MSP Occurr. ID & Sample point:	CLCH5_4BOPR002_1
Toxicoscordion venenosum var. venenosum - meadow deathcamas	0.2
Xylococcus bicolor - mission manzanita	4
Other Associated Species?	yes
othername1	Rhamnus ilicifolia
otherper1	1
othername2	Gilia sp.
otherper2	0.2
othername3	Ribes indecorum
otherper3	0.2
othername4	Pedicularis densiflora
otherper4	0.2
othername5	Quercus agrifolia
otherper5	1
other	Pellea mucronata, 0.2; Schismus barbatus, 0.2
BareGround	2
CrypSoils	1
Rock	20
Litter	10
Water	0
Vegetation	66
DeadShrubs	1
TotalPercCover	100
Alreadyentered	no
NumPlantsperCurrentMappedExtent	607
ExactorEstimate_MaxExt	estimate
uncertainty_MaxExt	medium
Plants_clusters_vs_individ_MaxExt	individ_plants
Flower_Veget_MaxExt	NA
AreaCurrentMappedExtent	Polygon submitted
Area_exact_or_estim	medium
CurrentExtentPerimMethod	estimate
SpeciesLocated_in_maximumExtent	yes
Reason_IfNotFound	NA
ExpandedEfforty_n	no
SurroundingLandUse	Conserved open space preserve. Land not open to public. Recreational use by Wildwood Camp approximately 1 mile NW. Access road approximately 545 ft North.
NonnativeForbs	1
NonnativeForbs_desc	NA
NonnativeGrasses	3

MSP Occurr. ID & Sample point:	CLCH5_4BOPR002_1
NonnativeGrasses_desc	Trace non-native grasses including Schismus barbatus, Festuca myuros.
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
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

MSP Occurr. ID & Sample point:	**CLCH5_4BOPR002_1**
ORV_MtnBikeActivity_disturb	1
ORV_MtnBikeActivity_type	NA
EvidenceRecentFire	no
YearBurned	N/A
Trails_disturbance	3
Trails_authorized	both
TrailUse_Hiking	yes
TrailUse_Biking	no
TrailUse_Equestrian	no
TrailUse_Dog	no
TrailUse_ServiceVehicles	no
TrailUse_Other	yes
TrailUse_illegal_descript	Potential wildlife trail, also being used for monitoring and maintenance access (CLCHBO02).
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Recommend reducing frequency of monitoring. Populations are both stable and shrubs are more likely to be damaged for access. At CLCHBO2 recommend continued invasive grass (veldt grass, annual fescue) treatment.
ManageActions_PastYr	Non-native grass treatment within max extent on 2022. In 2023 only within CLCHBO02 and adjacent area for veldt grass. .
CNDDB_SppDetected	Clinopodium chandleri
Notes	NA
Time Finish	12:48

MSP Occurr. ID & Sample point:	**CLCH5_4BOPR002_2**
Preserve	Boulder Oaks 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
SampID	276
UpdateSampInfo	no
Public	yes
Scientific Name	Clinopodium chandleri
Date	4/26/2023
Time Start	17:31
Surveyors	Sonya Vargas, Karla Alcaraz
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	52
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	4
Category for Percent Flowering in Sampling Area	5
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	8
GPSAccurracyUnits	ft
PlotX	505422
PlotY	3647075
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	I-phone 12 mini

MSP Occurr. ID & Sample point:	CLCH5_4BOPR002_2
Photo1Dir	012 Degrees
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	CLCH5_4BOPR002_2_Photo1_04262023
SANDAG2012_VegAllianceAssoc	Ceanothus tomentosus Alliance/Association
CryptogamicCrustCover	3
ThatchCover	2
ThatchDepthAverage_cat	2
ThatchDepthMax_cm	1
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Adenostoma fasciculata
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	121
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acmispon glaber - deerweed	0.2
Adenostoma fasciculatum - chamise	28
Bromus madritensis ssp. Rubens - foxtail brome	0.2
Calochortus spp. - mariposa lily	0.2
Calystegia macrostegia - island false bindweed	0.2
Ceanothus tomentosus - woolyleaf ceanothus	12
Chamaebatia australis - Southern mountain misery	12
Chlorogalum parviflorum - smallflower soap plant	0.2
Clinopodium chandleri - San Miguel savory	2
Dendromecon rigida - Tree poppy	2
Dichelostemma capitatum - bluedicks	0.2
Diplacus aurantiacus ssp. Aurantiacus - orange bush monkeyflower	0.2
Ehrharta calycina - perennial veldtgrass	0.2
Eriophyllum confertiflorum - golden-yarrow	0.2
Festuca myuros - annual fescue	0.2
Galium angustifolium - narrowleaf bedstraw	1
Hypochaeris glabra - smooth cat's ear	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Pentagramma triangularis ssp. triangularis - goldback fern	0.2
Pseudognaphalium bioletti - two-color rabbit-tobacco	0.2

MSP Occurr. ID & Sample point:	**CLCH5_4BOPR002_2**
Sidalcea malviflora - Checker bloom	0.2
Toxicoscordion venenosum var. venenosum - meadow deathcamas	0.2
Xylococcus bicolor - mission manzanita	7
Other Associated Species?	yes
othername1	Melica frutesens
otherper1	0.2
othername2	Erigeron foliosus
otherper2	0.2
othername3	Rhamnus ilicifolia
otherper3	0.2
BareGround	19.2
CrypSoils	1
Rock	7
Litter	3
Water	0
Vegetation	67.8
DeadShrubs	2
TotalPercCover	100
Alreadyentered	yes
Ifyes_whichsurvey	CLCH5_4BOPR002_1
ManageRecomm	Continue monitoring and treatment for invasive grasses (perennial veldt grass, annual fescue, and bromes)
ManageActions_PastYr	Non-native weed control in 2022 within Max extent - manual removal. 2023 maintenance to be conducted within Max extent and adding the access area.
CNDDB_SppDetected	Clinopodium chandleri, Chamaebatia australis
Notes	NA
Time Finish	18:04

C-4 Otay Tarplant

MSP Occurr. ID & Sample point:	**DECO13_3OMEA026_1**
Preserve	Furby-North Property (Otay Mesa East)
MgtUnit	3
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
SampID	291
UpdateSampInfo	no
Public	yes
Scientific Name	Deinandra conjugens
Date	6/2/2023
Time Start	11:00
Surveyors	Adrienne Lee, Brenda McMillan, Bailey Setzler
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	43
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?	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	4
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	2
Category for Percent Herbivory in Sampling Area	2
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	3
GPSAccurracyUnits	ft
PlotX	496809
PlotY	3602882
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	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 11

MSP Occurr. ID & Sample point:	DECO13_3OMEA026_1
Photo1Dir	334
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	DECO13_3OMEA026_1_Photo1_06022023
SANDAG2012_VegAllianceAssoc	Simmondsia chinensis Alliance
CryptogamicCrustCover	2
ThatchCover	1
ThatchDepthAverage_cat	1
ThatchDepthMax_cm	0
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Artemisia californica, Glebionis coronaria, Isocoma menziesii
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	70
FeralPigActivity	1
GroundSquirrelActivity	4
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Allium sp. - onion	0.2
Anagallis arvensis - scarlet pimpernel	1
Antirrhinum nuttallianum - Island snapdragon	0.2
Artemisia californica - coastal sagebrush	7
Bloomeria crocea - common goldenstar	0.2
Brachypodium distachyon - purple false brome	0.2
Brassica nigra - black mustard	2
Bromus diandrus - ripgut brome	0.2
Bromus hordeaceus - soft brome	1
Bromus madritensis - compact brome	3
Centaurea melitensis - Maltese star-thistle	3
Cryptantha intermedia - Clearwater cryptantha	0.2
Deinandra conjugens - Otay tarplant	0.2
Deinandra fasciculata - clustered tarweed	0.2
Dichelostemma capitatum - bluedicks	0.2
Eriophyllum confertiflorum - golden-yarrow	1
Festuca myuros - annual fescue	5
Festuca perennis - Italian rye grass	0.2
Glebionis coronaria - Crown daisy	10

MSP Occurr. ID & Sample point:	DECO13_3OMEA026_1
Isocoma menziesii - Menzies' goldenbush	1
Muhlenbergia microsperma - littleseed muhly	0.2
Peritoma arborea var. arborea - bladderpod spiderflower	0.2
Polypogon monspeliensis - annual rabbitsfoot grass	0.2
Simmondsia chinensis - jojoba	7
Sisyrinchium bellum - western blue-eyed grass	0.2
Stipa lepida - Foothill needle grass	0.2
Thalictrum fendleri - Fendler's meadow-rue	0.2
Zeltnera venusta - charming centaury	0.2
Other Associated Species?	yes
othername1	Linanthus dianthiflorus
otherper1	0.2
othername2	Psilocarphus tenellus
otherper2	0.2
othername3	Stachys rigida var. rigida
otherper3	1
BareGround	51
CrypSoils	0.2
Rock	1
Litter	1
Water	0
Vegetation	45.8
DeadShrubs	1
TotalPercCover	100
Alreadyentered	no
NumPlantsperCurrentMappedExtent	555
ExactorEstimate_MaxExt	exact
uncertainty_MaxExt	low
Plants_clusters_vs_individ_MaxExt	individ_plants
Flower_Veget_MaxExt	NA
AreaCurrentMappedExtent	Polygon submitted
Area_exact_or_estim	low
CurrentExtentPerimMethod	exact
SpeciesLocated_in_maximumExtent	yes
Reason_IfNotFound	NA
SurroundingLandUse	Conserved open space preserve, utility easement, residential roads and properties
NonnativeForbs	5
NonnativeForbs_desc	Glebionis coronaria, Centaurea melitensis, Brassica nigra

MSP Occurr. ID & Sample point:	DECO13_3OMEA026_1
NonnativeGrasses	6
NonnativeGrasses_desc	Bromus spp., Brachypodium distachyon, Festuca spp.
NonnativeWoodyPlts	1
NonnativeWoodyPlts_desc	NA
CompetitiveNativePlts	1
CompetitiveNativePlts_desc	NA
Dumping_trash	3
Dumping_trash_desc	Car, paper
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	NA
Erosion	2
Erosion_desc	Erosion on main access road
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

MSP Occurr. ID & Sample point:	**DECO13_3OMEA026_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, thatch removal, invasive plant management
ManageActions_PastYr	Thatch removal and invasive plant management
CNDDB_SppDetected	Deinandra conjugens, Bloomeria crocea, Turkey vulture
Notes	NA
Time Finish	16:46

MSP Occurr. ID & Sample point:	DECO13 New Furby North South
NewSampPt	yes
UpdateSampInfo	yes
Public	yes
Scientific Name	Deinandra conjugens
Translocated_occur	no
PreserveUpdate	Furby-North Property (Otay Mesa East)
MgmUnitUpdate	
LandOwnerUpdate	County of San Diego Department of Parks and Recreation
LandMangrUpdate	County of San Diego Department of Parks and Recreation
OccurrenceNameUpdate	
Date	6/2/2023
Time Start	15:48
Surveyors	Adrienne Lee, Brenda McMillan, Bailey Setzler
Affiliation	Environmental Science Associates
NumPlantsperSamplArea	468
ExactorEstimate_Samp	estimate
uncertainty_sample	low
Sample_Radius_m	10
Plants_clusters_vs_individ_sample	individ_plants
Flower_Veget_Sample	NA
Vegetative_percent_cat	5
Flowering_percent_cat	4
Fruiting_percent_cat	1
Dead_percent_cat	1
Herbivory_percent_cat	1
Disease_percent_cat	1
StuntedGrowth_percent_cat	1
SamplingArea_within_CurrentMappedExtent	yes
GPSAccurracy	4
GPSAccurracyUnits	ft
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.	new_location
Datum	NAD83
CoordSystem	UTM
PlotXUpdate	496890
PlotYUpdate	3602295
Check your location of the PHOTO POINT 1 against the location above or provided by SDMMP. If your coordinates	new_location

MSP Occurr. ID & Sample point:	DECO13 New Furby North South
match, select "no change". If the coordinates differ, select the reason.	
DatumPhoto1	NAD83
CoordSystemPhoto1	UTM
Photo1XUpdate	496884
Photo1YUpdate	3602282
CameraType	iPhone 11
UpdatePhotoInfo	yes
Dir_Photo1Update	NE, 014 Degrees
CamHei_Photo1Update	5 ft
PhotoNumPhoto1	DECO13_XXXXXXXX_1_Photo1_06022023
SANDAG2012_VegAllianceAssoc	Artemisia californica Association
CryptogamicCrustCover	2
ThatchCover	2
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	3
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Artemisia californica, Lycium californicum, Erigonum fasciculatum
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	70
FeralPigActivity	1
GroundSquirrelActivity	4
GopherActivity	3
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Ambrosia chenopodiifolia - San Diego bur ragweed	4
Anagallis arvensis - scarlet pimpernel	0.2
Apiastrum angustifolium - mock parsley	0.2
Artemisia californica - coastal sagebrush	13
Bahiopsis laciniata - torhleaf goldeneye	0.2
Bloomeria crocea - common goldenstar	0.2
Brassica nigra - black mustard	0.2
Bromus madritensis - compact brome	4
Calochortus splendens - splendid mariposa lily	0.2
Centaurea melitensis - Maltese star-thistle	2
Convolvulus simulans - field bindweed	0.2
Deinandra conjugens - Otay tarplant	0.2
Deinandra fasciculata - clustered tarweed	0.2
Eriogonum fasciculatum - California buckwheat	1

MSP Occurr. ID & Sample point:	DECO13 New Furby North South
Festuca myuros - annual fescue	3
Glebionis coronaria - Crown daisy	1
Harpagonella palmeri - Palmer's grappling-hook	0.2
Hirschfeldia incana - shortpod mustard	0.2
Lycium californicum - California desert-thorn	0.2
Navarretia hamata - hooked pincushionplant	0.2
Rhus integrifolia - lemonade sumac	3
Selaginella cinerascens - mesa spikemoss	0.2
Simmondsia chinensis - jojoba	1
Sonchus asper - spiny sowthistle	0.2
Stipa pulchra - Purple needle grass	0.2
Other Associated Species?	no
BareGround	58.6
CrypSoils	0.2
Rock	2
Litter	3
Water	0
Vegetation	35.2
DeadShrubs	1
TotalPercCover	100
Alreadyentered	no
NumPlantsperCurrentMappedExtent	3,112
ExactorEstimate_MaxExt	exact
uncertainty_MaxExt	low
Plants_clusters_vs_individ_MaxExt	individ_plants
Flower_Veget_MaxExt	NA
AreaCurrentMappedExtent	Polygon submitted
Area_exact_or_estim	low
CurrentExtentPerimMethod	exact
SpeciesLocated_in_maximumExtent	yes
Reason_IfNotFound	NA
SurroundingLandUse	Conserved open space preserve, utility easement, residential roads and properties
NonnativeForbs	7
NonnativeForbs_desc	Glebionis coronaria, Centaurea melitensis, Brassica nigra, Hirschfeldia incana, Sonchus asper, Carduus pycnocephalus
NonnativeGrasses	6
NonnativeGrasses_desc	Bromus spp., Festuca spp., Avena spp.
NonnativeWoodyPlts	2
NonnativeWoodyPlts_desc	Tamarisk, castor bean, tree tobacco, ivy

MSP Occurr. ID & Sample point:	DECO13 New Furby North South
CompetitiveNativePlts	3
CompetitiveNativePlts_desc	Deinandra fasciculata
Dumping_trash	3
Dumping_trash_desc	Clothes, paper, metal (car/appliance), old herp array
Encampments	1
Encampments_desc	NA
FeralPig	1
FeralPig_desc	NA
Trampling	3
Trampling_desc	Foot trails
Vandalism	1
Vandalism_desc	NA
CurrentGrazing	1
CurrentGrazing_desc	NA
HistoricGrazing	unknown
HistoricGrazing_desc	NA
HistoricAgriculture	unknown
HistoricAgriculture_desc	NA
AlteredHydrology	2
AlteredHydrology_desc	Erosion on old trail and road cuts
Erosion	4
Erosion_desc	Deep erosion along old roads
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

MSP Occurr. ID & Sample point:	DECO13 New Furby North South
YearBurned	NA
Trails_disturbance	2
Trails_authorized	No
TrailUse_Hiking	yes
TrailUse_Biking	NA
TrailUse_Equestrian	NA
TrailUse_Dog	NA
TrailUse_ServiceVehicles	NA
TrailUse_Other	yes
TrailUse_illegal_descript	Historic foot trails, highly eroded in some areas
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Continued monitoring, invasive plant management, thatch removal
ManageActions_PastYr	None
CNDDB_SppDetected	Bloomeria crocea, Deinandra conjugens, Ambrosia chenopodifolia, Bahiopsis laciniata, Harpagonella palmeri, Convulvulus simulans, coastal California gnatcatcher
Notes	NA
TimeFinish	16:43

C-5 Orcutt's Bird's-Beak

MSP Occurr. ID & Sample point:	**COOR7_1SMGU006_1**
Preserve	Tijuana River Valley Regional Park
MgtUnit	1
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
SampID	2017190
UpdateSampInfo	no
Public	yes
Scientific Name	Dicranostegia orcuttiana
Date	6/14/2023
Time Start	09:14
Surveyors	Brenda McMillan; Bailey Setzler
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	0
Exact or Estimate for Number in Sampling Area	exact
Uncertainty for Sampling Area	very_low
Sampling Area Radius (meters)	10
Count is clusters or individuals?	individ_plants
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	1
Category for Percent Flowering in Sampling Area	1
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	1
GPSAccurracyUnits	m
PlotX	491709
PlotY	3600493
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	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	iPhone14

MSP Occurr. ID & Sample point:	COOR7_1SMGU006_1
Photo1Dir	101
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	COOR7_1SMGU006_1_Photo1_06142023
SANDAG2012_VegAllianceAssoc	Artemisia californica Association
CryptogamicCrustCover	1
ThatchCover	4
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	4
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Hirschfeldia incana, Centaurea melitensis
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	50
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	4
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Anagallis arvensis - scarlet pimpernel	0.2
Antirrhinum nuttallianum - Island snapdragon	0.2
Artemisia californica - coastal sagebrush	5
Avena fatua - wild oat	1
Bahiopsis laciniata - torhleaf goldeneye	1
Brachypodium distachyon - purple false brome	1
Bromus rubens - Red brome	5
Centaurea melitensis - Maltese star-thistle	0.2
Cneoridium dumosum - bush rue	1
Cuscuta californica var. californica - California dodder	0.2
Dudleya pulverulenta - chalk dudleya	0.2
Encelia californica - California brittlebush	6
Eriogonum fasciculatum - California buckwheat	5
Foeniculum vulgare - sweet fennel	0.2
Galium aparine - stickywilly	0.2
Glebionis coronaria - Crown daisy	0.2
Hirschfeldia incana - shortpod mustard	1
Hypochaeris glabra - smooth cat's ear	0.2
Lactuca serriola - prickly lettuce	0.2
Lasthenia gracilis - needle goldfields	0.2

MSP Occurr. ID & Sample point:	COOR7_1SMGU006_1
Logfia gallica - narrowleaf cottonrose	0.2
Lonicera subspicata var. denudata -	0.2
Malosma laurina - laurel sumac	2
Marah macrocarpa - Chilicothe	0.2
Mirabilis laevis var. crassifolia - California four o'clock	0.2
Pentagramma glanduloviscida - San Diego silverback fern	0.2
Peritoma arborea var. arborea - bladderpod spiderflower	8
Phacelia cicutaria - Caterpillar phacelia	0.2
Pseudognaphalium beneolens - Cudweed	0.2
Pseudognaphalium stramineum - cottonbatting plant	0.2
Pterostegia drymarioides - woodland pterostegia	0.2
Rhamnus crocea - spiny redberry	3
Rhus integrifolia - lemonade sumac	4
Scrophularia californica - California figwort	0.2
Solanum spp. - nightshade	0.2
Sonchus asper - spiny sowthistle	0.2
Sonchus oleraceus - common sowthistle	0.2
Yucca schidigera - Mojave yucca	1
Other Associated Species?	yes
othername1	Elymus condensatus
otherper1	1
othername2	Phacelia distans
otherper2	0.2
othername3	Erigeron bonariensis
otherper3	0.2
othername4	Eucrypta chrysanthemifolia
otherper4	0.2
othername5	Pholistoma racemosum
otherper5	0.2
other	Pellaea andromedifolia, 0.2; Camissoniopsis intermedia, 0.2; Amsinckia menziesii, 0.2; Sambucus nigra, 2
BareGround	39.8
CrypSoils	0
Rock	3
Litter	3
Water	0
Vegetation	53.2
DeadShrubs	1
TotalPercCover	100
Alreadyentered	no

MSP Occurr. ID & Sample point:	COOR7_1SMGU006_1
NumPlantsperCurrentMappedExtent	0
ExactorEstimate_MaxExt	exact
uncertainty_MaxExt	very low
Plants_clusters_vs_individ_MaxExt	individ_plants
Flower_Veget_MaxExt	NA
AreaCurrentMappedExtent	not detected
Area_exact_or_estim	very_low
CurrentExtentPerimMethod	exact
SpeciesLocated_in_maximumExtent	no
Reason_IfNotFound	no plant expression in 2023
SurroundingLandUse	Open space preserve; area not open to public but unauthorized foot traffic present and Border Patrol
NonnativeForbs	2
NonnativeForbs_desc	Lysimachia arvensis, Centaurea melitensis, Foeniculum vulgare, Glebionis coronaria, Hirschfeldia incana, Hypochaeris glabra, Lactuca serriola, Logfia gallica, Sonchus spp.
NonnativeGrasses	3
NonnativeGrasses_desc	Avena fatua, Brachypodium distachyon, Bromus rubens
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	2
Trampling_desc	Unauthorized foot trails
Vandalism	1
Vandalism_desc	NA
CurrentGrazing	1
CurrentGrazing_desc	NA
HistoricGrazing	unknown
HistoricGrazing_desc	NA
HistoricAgriculture	unknown
HistoricAgriculture_desc	NA
AlteredHydrology	1
AlteredHydrology_desc	NA

MSP Occurr. ID & Sample point:	**COOR7_1SMGU006_1**
Erosion	1
Erosion_desc	NA
UrbanRunoff	1
UrbanRunoff_desc	NA
SlopeMovement	2
SlopeMovement_desc	Loose soils sloughing off in frequently used unauthorized foot trails
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	2
Trails_authorized	no
TrailUse_Hiking	yes
TrailUse_Biking	no
TrailUse_Equestrian	no
TrailUse_Dog	no
TrailUse_ServiceVehicles	no
TrailUse_Other	yes
TrailUse_illegal_descript	Border Patrol
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Continued monitoring. Dethatch plot area plus 3 ft buffer; invasive non-native grass control
ManageActions_PastYr	None
CNDDB_SppDetected	Yellow warbler, Southern California rufous-crowned sparrow
Notes	Site is very weedy, shrubs over grown around 2022 pop; lots of gophers, very loose soils
Time Finish	11:31

MSP Occurr. ID & Sample point:	**COOR7_1TIRI009_1**
Preserve	Tijuana River Valley Regional Park
MgtUnit	1
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
SampID	285
UpdateSampInfo	no
Public	yes
Scientific Name	Dicranostegia orcuttiana
Date	6/14/2023
Time Start	13:27
Surveyors	Brenda McMillan; Bailey Setzler
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	298
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	5
Category for Percent Flowering in Sampling Area	4
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	2
Category for Percent Herbivory in Sampling Area	2
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	1
GPSAccurracyUnits	m
PlotX	490646
PlotY	3600256
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	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	iPhone14

MSP Occurr. ID & Sample point:	COOR7_1TIRI009_1
Photo1Dir	261
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	COOR7_1TIRI009_1_Photo1_06142023
SANDAG2012_VegAllianceAssoc	Artemisia californica-Eriogonum fasciculatum-Opuntia littoralis/Dudleya (edulis) Association
CryptogamicCrustCover	2
ThatchCover	2
ThatchDepthAverage_cat	2
ThatchDepthMax_cm	0.5
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Centaurea melitensis, Hirschfeldia incana, Uropappus lindleyi
DeadStanding_CoverClass	3
DeadStandingHeightAverage_cm	50
FeralPigActivity	1
GroundSquirrelActivity	2
GopherActivity	3
SamplingAreaRepresent_of_mapped_occurr	yes
SamplingArea_diffs_from_mapped_occurr	
Acmispon glaber - deerweed	0.2
Antirrhinum nuttallianum - Island snapdragon	0.2
Artemisia californica - coastal sagebrush	15
Atriplex semibaccata - Australian saltbush	0.2
Bahiopsis laciniata - torhleaf goldeneye	2
Bromus rubens - Red brome	1
Calochortus splendens - splendid mariposa lily	0.2
Calystegia macrostegia - island false bindweed	0.2
Cardionema ramosissimum - sandcarpet	0.2
Centaurea melitensis - Maltese star-thistle	2
Cneoridium dumosum - bush rue	5
Crassula connata - sand pygmyweed	0.2
Cryptantha intermedia - Clearwater cryptantha	0.2
Daucus pusillus - American wild carrot	0.2
Deinandra fasciculata - clustered tarweed	1
Dichelostemma capitatum - bluedicks	0.2
Dichondra occidentalis - western ponysfoot	0.2
Dicranostegia orcuttiana - Orcutt's birds-beak	2
Dudleya edulis - fingertips	0.2

MSP Occurr. ID & Sample point:	COOR7_1TIRI009_1
Dudleya pulverulenta - chalk dudleya	0.2
Eriogonum fasciculatum - California buckwheat	3
Ferocactus viridescens - San Diego barrel cactus	0.2
Festuca myuros - annual fescue	1
Galium aparine - stickywilly	0.2
Glebionis coronaria - Crown daisy	0.2
Hirschfeldia incana - shortpod mustard	0.2
Hypochaeris glabra - smooth cat's ear	0.2
Lasthenia gracilis - needle goldfields	0.2
Lepidium spp. - pepperweed	0.2
Logfia gallica - narrowleaf cottonrose	0.2
Lysimachia arvensis - Scarlet pimpernel	0.2
Malacothamnus fasciculatus var. fasciculatus - Chaparral bush mallow	0.2
Malosma laurina - laurel sumac	1
Marah macrocarpa - Chilicothe	0.2
Nassella pulchra - purple tussockgrass	0.2
Navarretia hamata - hooked pincushionplant	0.2
Osmadenia tenella - false rosinweed	1
Peritoma arborea - bladderpod spiderflower	0.2
Plantago erecta - California plantain	0.2
Salsola tragus - prickly Russian thistle	0.2
Selaginella bigelovii - bushy spikemoss	0.2
Selaginella cinerascens - mesa spikemoss	10
Silene gallica - common catchfly	0.2
Sonchus oleraceus - common sowthistle	0.2
Stephanomeria diegensis - San Diego wirelettuce	0.2
Stylocline gnaphaloides - mountain neststraw	0.2
Uropappus lindleyi - Silver puffs	0.2
Other Associated Species?	yes
othername1	Camissoniopsis intermedia
otherper1	0.2
BareGround	38.6
CrypSoils	1
Rock	7
Litter	2
Water	0
Vegetation	51.2
DeadShrubs	0.2
TotalPercCover	100

MSP Occurr. ID & Sample point:	COOR7_1TIRI009_1
Alreadyentered	no
NumPlantsperCurrentMappedExtent	1,445
ExactorEstimate_MaxExt	exact
uncertainty_MaxExt	low
Plants_clusters_vs_individ_MaxExt	individ_plants
Flower_Veget_MaxExt	NA
AreaCurrentMappedExtent	Polygon submitted
Area_exact_or_estim	very_low
CurrentExtentPerimMethod	exact
SpeciesLocated_in_maximumExtent	yes
ExpandedEfforty_n	no
SurroundingLandUse	Open space preserve, area not open to public
NonnativeForbs	4
NonnativeForbs_desc	Hirschfeldia incana, Centaurea melitensis
NonnativeGrasses	5
NonnativeGrasses_desc	Bromus rubens, Avena fatua
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	3
Trampling_desc	Evidence of recent trail use
Vandalism	1
Vandalism_desc	NA
CurrentGrazing	1
CurrentGrazing_desc	NA
HistoricGrazing	unknown
HistoricGrazing_desc	NA
HistoricAgriculture	unknown
HistoricAgriculture_desc	NA
AlteredHydrology	1
AlteredHydrology_desc	NA
Erosion	2

MSP Occurr. ID & Sample point:	**COOR7_1TIRI009_1**
Erosion_desc	NA
UrbanRunoff	1
UrbanRunoff_desc	NA
SlopeMovement	2
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	2
ORV_MtnBikeActivity_type	Border Patrol
EvidenceRecentFire	no
YearBurned	NA
Trails_disturbance	4
Trails_authorized	unknown
TrailUse_Hiking	unknown
TrailUse_Biking	unknown
TrailUse_Equestrian	no
TrailUse_Dog	unknown
TrailUse_ServiceVehicles	yes
TrailUse_Other	yes
TrailUse_illegal_descript	Border Patrol
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Continued monitoring. Invasive non-native treatment (non-native grasses, crown daisy, shortpod mustard)
ManageActions_PastYr	None
CNDDB_SppDetected	Dicranostegia orcuttiana, Dichondra occidentalis, Selaginella cinerascens, Bahiopsis laciniata, Ferocactus viridescens, coastal California gnatcatcher
Notes	NA
Time Finish	16:00

C-6 Variegated Dudleya

MSP Occurr. ID & Sample point:	**DUVA_6LUCR023_1**
Preserve	Lusardi Creek Preserve
MgtUnit	6
Land Owner	County of San Diego Department of Parks and Recreation
Land Manager	County of San Diego Department of Parks and Recreation
SampID	319
UpdateSampInfo	no
Public	yes
Scientific Name	Dudleya variegata
Date	4/28/2023
Time Start	07:30
Surveyors	Dillon Travis, Brenda McMillan
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	1
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?	individ_plants
Count is flowering or vegetated plants? (only answer for geophytes)	vegetative
Category for Percent Vegetative in Sampling Area	5
Category for Percent Flowering in Sampling Area	1
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	11.5
GPSAccurracyUnits	inch
PlotX	484873
PlotY	3652555
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 11

MSP Occurr. ID & Sample point:	DUVA_6LUCR023_1
Photo1Dir	158 Degrees
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	DUVA_6LUCR023_1_Photo1_04282023
SANDAG2012_VegAllianceAssoc	Stipa pulchra Association
CryptogamicCrustCover	3
ThatchCover	3
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	6
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Acmispon glaber, Salvia mellifera
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	24
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	2
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acmispon glaber - deerweed	1
Artemisia californica - coastal sagebrush	3
Brachypodium distachyon - purple false brome	38
Bromus hordeaceus - soft brome	0.2
Bromus madritensis ssp. Rubens - foxtail brome	0.2
Calochortus splendens - splendid mariposa lily	0.2
Chlorogalum parviflorum - smallflower soap plant	1
Crassula connata - sand pygmyweed	0.2
Cryptantha spp. - cryptantha	0.2
Deinandra fasciculata - clustered tarweed	3
Dudleya variegata - Variegated dudleya	0.2
Eriogonum fasciculatum - California buckwheat	0.2
Erodium botrys - longbeak stork's bill	2
Ferocactus viridescens - San Diego barrel cactus	0.2
Festuca myuros - annual fescue	0.2
Festuca perennis - Italian rye grass	0.2
Hypochaeris glabra - smooth cat's ear	0.2
Logfia filaginoides - California cottonrose	0.2
Plantago erecta - California plantain	0.2
Pseudognaphalium spp. - cudweed	0.2

MSP Occurr. ID & Sample point:	DUVA_6LUCR023_1
Salsola spp. - Russian thistle	0.2
Selaginella cinerascens - mesa spikemoss	0.2
Sisyrinchium bellum - western blue-eyed grass	0.2
Stipa lepida - Foothill needle grass	0.2
Stipa pulchra - Purple needle grass	5
Other Associated Species?	no
BareGround	30.4
CrypSoils	5
Rock	5
Litter	3
Water	0
Vegetation	56.6
DeadShrubs	0
TotalPercCover	100
Alreadyentered	no
NumPlantsperCurrentMappedExtent	9
ExactorEstimate_MaxExt	exact
uncertainty_MaxExt	low
Plants_clusters_vs_individ_MaxExt	individ_plants
Flower_Veget_MaxExt	vegetative
AreaCurrentMappedExtent	Polygon submitted
Area_exact_or_estim	very_low
CurrentExtentPerimMethod	exact
SpeciesLocated_in_maximumExtent	yes
Reason_IfNotFound	NA
SurroundingLandUse	Open space preserve, adjacent to residential development
NonnativeForbs	2
NonnativeForbs_desc	Hypochaeris glabra, Erodium botrys, Salsola spp.
NonnativeGrasses	7
NonnativeGrasses_desc	Brachypodium distachyon, Bromus spp., Festuca spp.
NonnativeWoodyPlts	1
NonnativeWoodyPlts_desc	NA
CompetitiveNativePlts	1
CompetitiveNativePlts_desc	NA
Dumping_trash	1
Dumping_trash_desc	NA
Encampments	1
Encampments_desc	NA

MSP Occurr. ID & Sample point:	DUVA_6LUCR023_1
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	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	2
Trails_authorized	No
TrailUse_Hiking	No
TrailUse_Biking	No
TrailUse_Equestrian	no

MSP Occurr. ID & Sample point:	**DUVA_6LUCR023_1**
TrailUse_Dog	no
TrailUse_ServiceVehicles	no
TrailUse_Other	yes
TrailUse_illegal_descript	Old trail that has been blocked off to allow for passive revegetation
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Continued monitoring. Fix herbivory fences (deer poop present), hand weed invasive non-native plants in plot (grasses & forbs), line trim outside fencing
ManageActions_PastYr	Hand weeding, line trimming
CNDDB_SppDetected	Dudleya variegata, Ferocactus viridescens, Selaginella cinerascens, coastal California gnatcatcher, horned lark
Notes	NA
Time Finish	09:20

MSP Occurr. ID & Sample point:	**DUVA_4SYCA019_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	2017236
UpdateSampInfo	no
Public	yes
Scientific Name	Dudleya variegata
Date	4/14/2023
Time Start	11:20
Surveyors	Adrienne Lee, Dillon Travis
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	144
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)	vegetative
Category for Percent Vegetative in Sampling Area	6
Category for Percent Flowering in Sampling Area	1
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	1
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	7
GPSAccurracyUnits	ft
PlotX	502938
PlotY	3643517
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	iphone11

MSP Occurr. ID & Sample point:	DUVA_4SYCA019_1
Photo1Dir	Northeast, 42 Degrees
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	DUVA _4SYCA019_1_Photo1_04142023
SANDAG2012_VegAllianceAssoc	Brachypodium distachyon Semi-Natural Stand Type
CryptogamicCrustCover	2
ThatchCover	2
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	2
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Acmispon glaber
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	50
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	1
Adenostoma fasciculatum - chamise	2
Allium haematochiton - redskin onion	0.2
Apiastrum angustifolium - mock parsley	0.2
Artemisia californica - coastal sagebrush	1
Brachypodium distachyon - purple false brome	38
Bromus hordeaceus - soft brome	0.2
Calystegia macrostegia - island false bindweed	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Chlorogalum parviflorum - smallflower soap plant	0.2
Deinandra fasciculata - clustered tarweed	0.2
Dichelostemma capitatum - bluedicks	0.2
Dudleya variegata - Variegated dudleya	0.2
Eriogonum fasciculatum - California buckwheat	0.2
Eriophyllum confertiflorum - golden-yarrow	0.2
Erodium cicutarium - redstem stork's bill	0.2
Harpagonella palmeri - Palmer's grappling-hook	1
Hypochaeris glabra - smooth cat's ear	0.2
Lepidium spp. - pepperweed	0.2

MSP Occurr. ID & Sample point:	DUVA_4SYCA019_1
Logfia sp. - cottonrose	0.2
Lonicera subspicata - southern honeysuckle	0.2
Lysimachia arvensis - Scarlet pimpernel	0.2
Malosma laurina - laurel sumac	4
Plantago erecta - California plantain	0.2
Rhamnus crocea - spiny redberry	3
Rhus integrifolia - lemonade sumac	1
Salvia apiana - white sage	1
Salvia mellifera - black sage	1
Selaginella cinerascens - mesa spikemoss	0.2
Sisyrinchium bellum - western blue-eyed grass	0.2
Sonchus asper - spiny sowthistle	0.2
Xylococcus bicolor - mission manzanita	2
Other Associated Species?	yes
othername1	Sanicula bipinnatifida
otherper1	0.2
BareGround	29.4
CrypSoils	1
Rock	8
Litter	1
Water	0
Vegetation	59.6
DeadShrubs	1
TotalPercCover	100
Alreadyentered	yes
Ifyes_whichsurvey	DUVA_4SYCA019_2
ManageRecomm	Continued monitoring, invasive non-native plant management
ManageActions_PastYr	Hand-weeding BRADIS, CENMEL. Line trimming.
CNDDB_SppDetected	Dudleya variegata, Harpagonella palmeri, Polioptila californica california, Selaginella cinerascens, Acanthomintha ilicifolia
Notes	NA
Time Finish	11:52

MSP Occurr. ID & Sample point:	**DUVA_4SYCA019_2**
Preserve	Sycamore Canyon and Goodan Ranch Preserves
MgtUnit	4
LandOwn	County of San Diego Department of Parks and Recreation
LandMan	County of San Diego Department of Parks and Recreation
SampID	202160
UpdateSampInfo	no
Public	yes
Scientific Name	Dudleya variegata
Date	4/14/2023
TimeStart	07:40
Surveyors	Adrienne Lee, Dillon Travis
Affliation	Environmental Science Associates
Number of Plants in the Sampling Area	444
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)	vegetative
Category for Percent Vegetative in Sampling Area	6
Category for Percent Flowering in Sampling Area	1
Category for Percent Fruiting in Sampling Area	1
Category for Percent Dead in Sampling Area	1
Category for Percent Herbivory in Sampling Area	2
Category for Percent Diseased in Sampling Area	1
Category for Percent Stunted Growth in Sampling Area	1
Sampling Area within Current Mapped Extent?	yes
GPSAccurracy	6.5
GPSAccurracyUnits	ft
PlotX	502891
PlotY	3643611
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 11

MSP Occurr. ID & Sample point:	DUVA_4SYCA019_2
Photo1Dir	335
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	DUVA_4SYCA019_2_Photo1_04142023
SANDAG2012_VegAllianceAssoc	Brachypodium distachyon Semi-Natural Stand Type
CryptogamicCrustCover	2
ThatchCover	2
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	4
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Acmispon glaber, Artemesia californica
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	30
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	1
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acmispon glaber - deerweed	0.2
Allium haematochiton - redskin onion	1
Artemisia californica - coastal sagebrush	1
Brachypodium distachyon - purple false brome	35
Bromus diandrus - ripgut brome	0.2
Bromus hordeaceus - soft brome	0.2
Calystegia macrostegia - island false bindweed	0.2
Ceanothus tomentosus - woolyleaf ceanothus	2
Centaurea melitensis - Maltese star-thistle	1
Chlorogalum parviflorum - smallflower soap plant	0.2
Deinandra fasciculata - clustered tarweed	0.2
Dichelostemma capitatum - bluedicks	0.2
Dudleya variegata - Variegated dudleya	0.2
Eriophyllum confertiflorum - golden-yarrow	0.2
Erodium cicutarium - redstem stork's bill	0.2
Harpagonella palmeri - Palmer's grappling-hook	0.2
Heteromeles arbutifolia - toyon	1
Lonicera subspicata - southern honeysuckle	1
Malosma laurina - laurel sumac	3
Microseris douglasii - Douglas' silverpuffs	0.2

MSP Occurr. ID & Sample point:	DUVA_4SYCA019_2
Plantago erecta - California plantain	1
Quercus berberidifolia - scrub oak	1
Rhamnus crocea - spiny redberry	5
Rhus integrifolia - lemonade sumac	0.2
Salvia apiana - white sage	1
Salvia mellifera - black sage	0.2
Selaginella spp. - spikemoss	0.2
Sisyrinchium bellum - western blue-eyed grass	1
Sonchus asper - spiny sowthistle	0.2
Sonchus oleraceus - common sowthistle	0.2
Stipa lepida - Foothill needle grass	0.2
Other Associated Species?	yes
othername1	Sanicula bipinnatifida
otherper1	1
BareGround	28.2
CrypSoils	0.2
Rock	10
Litter	2
Water	0
Vegetation	58.6
DeadShrubs	1
TotalPercCover	100
Alreadyentered	no
NumPlantsperCurrentMappedExtent	1348
ExactorEstimate_MaxExt	exact
uncertainty_MaxExt	low
Plants_clusters_vs_individ_MaxExt	individ_plants
Flower_Veget_MaxExt	vegetative
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 reserve, open to recreation ie hiking, biking, equestrian
NonnativeForbs	6
NonnativeForbs_desc	Centaurea melitensis, Erodium spp., Sonchus spp.
NonnativeGrasses	7

MSP Occurr. ID & Sample point:	DUVA_4SYCA019_2
NonnativeGrasses_desc	Brachopodium distachyon, Bromus spp.
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
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:	**DUVA_4SYCA019_2**
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, invasive plant management
ManageActions_PastYr	Hand weeded BRADIS and CENMEL, line trimmed
CNDDB_SppDetected	Dudleya variegata, Harpagonella palmeri
Notes	NA
TimeFinish	09:06

C-7 Willowy Monardella

MSP_Occurr_ID_sampPt	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	6/15/2023 19:00
Time Start	10:28
Surveyors	Adrienne Lee, Sonya Vargas
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	58
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	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	4
GPSAccurracyUnits	ft
PlotX	502412
PlotY	3642218
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	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 11

MSP_Occurr_ID_sampPt	MOLIV_4SYCA006_1
Photo1Dir	South, 176 Degrees
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	MOLIV_4SYCA006_1_Photo1_06 152023
SANDAG2012_VegAllianceAssoc	Eriogonum fasciculatum Association
CryptogamicCrustCover	2
ThatchCover	3
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	5
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Artemisia californica, Eriogonum fasciculatum, Rhamnus crocea
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	38
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	3
SamplingAreaRepresent_of_mapped_occurr	yes
If no, Note Differences:	NA
Acmispon glaber - deerweed	0.2
Apiastrum angustifolium - mock parsley	0.2
Artemisia californica - coastal sagebrush	1
Avena barbata - slender oat	1
Brachypodium distachyon - purple false brome	5
Bromus diandrus - ripgut brome	1
Bromus hordeaceus - soft brome	1
Bromus madritensis - compact brome	1
Calystegia macrostegia - island false bindweed	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Deinandra fasciculata - clustered tarweed	0.2
Dichelostemma capitatum - bluedicks	0.2
Eriogonum fasciculatum - California buckwheat	10
Eriophyllum confertiflorum - golden-yarrow	0.2
Festuca myuros - annual fescue	2
Galium spp. - bedstraw	1
Helianthus gracilentus - slender sunflower	0.2
Lactuca serriola - prickly lettuce	0.2
Malosma laurina - laurel sumac	1

MSP_Occurr_ID_sampPt	MOLIV_4SYCA006_1
Mirabilis laevis - desert wishbone-bush	0.2
Monardella viminea - Willowy monardella	3
Osmadenia tenella - false rosinweed	0.2
Prunus ilicifolia - hollyleaf cherry	1
Rhamnus crocea - spiny redberry	5
Salvia apiana - white sage	0.2
Salvia mellifera - black sage	2
Selaginella bigelovii - bushy spikemoss	0.2
Silene gallica - common catchfly	0.2
Sisyrinchium bellum - western blue-eyed grass	0.2
Unk Grass -	0.2
Uropappus lindleyi - Silver puffs	0.2
Other Associated Species?	yes
othername1	Cirsium sp.
otherper1	0.2
othername2	Eschscholzia californica
otherper2	0.2
BareGround	25
CrypSoils	0.2
Rock	25
Litter	10
Water	0
Vegetation	38.8
DeadShrubs	1
TotalPercCover	100
Alreadyentered	no
NumPlantsperCurrentMappedExtent	444
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

MSP_Occurr_ID_sampPt	MOLIV_4SYCA006_1
NonnativeForbs	5
NonnativeForbs_desc	Centaurea melitensis
NonnativeGrasses	7
NonnativeGrasses_desc	Avena barbata, Bromus spp., Brachypodium distachyon, Festuca myuros
NonnativeWoodyPlts	1
NonnativeWoodyPlts_desc	NA
CompetitiveNativePlts	3
CompetitiveNativePlts_desc	Eriogonum fasciculatum
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	3
AlteredHydrology_desc	Creekbed 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

MSP_Occurr_ID_sampPt	MOLIV_4SYCA006_1
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, invasive forb/grass treatment
ManageActions_PastYr	None
CNDDB_SppDetected	Monardella viminea, coastal California gnatcatcher
Notes	NA
Time Finish	11:21

MSP_Occurr_ID_sampPt	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	6/27/2023 19:00
Time Start	09:07
Surveyors	Adrienne Lee, Amy Orduno-Baez
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	4
Exact or Estimate for Number in Sampling Area	exact
Uncertainty for Sampling Area	very_low
Sampling Area Radius (meters)	10
Count is clusters or individuals?	clusters
Count is flowering or vegetated plants? (only answer for geophytes)	NA
Category for Percent Vegetative in Sampling Area	4
Category for Percent Flowering in Sampling Area	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	5
GPSAccurracyUnits	ft
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 11

MSP_Occurr_ID_sampPt	MOLIV_4SYCA002_1
Photo1Dir	200
Photo1Hei	CamHei_Photo1
Photo1Ang	CamAng_Photo1
UpdatePhotoInfo	no
PhotoNumPhoto1	MOLIV_4SYCA002_1_Photo1_06272023
SANDAG2012_VegAllianceAssoc	Eriogonum fasciculatum Association
CryptogamicCrustCover	1
ThatchCover	2
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	4
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Salvia apiana, Prunus ilicifolia
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	30
FeralPigActivity	1
GroundSquirrelActivity	2
GopherActivity	2
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	0.2
Bromus madritensis - compact brome	2
Carduus pycnocephalus - Italian plumeless thistle	0.2
Centaurea melitensis - Maltese star-thistle	3
Cercocarpus minutiflorus - smooth mountain-mahogany	3
Deinandra fasciculata - clustered tarweed	0.2
Eriogonum fasciculatum - California buckwheat	5
Erodium spp. - stork's bill	3
Festuca myuros - annual fescue	3
Festuca perennis - Italian rye grass	0.2
Galium angustifolium - narrowleaf bedstraw	0.2
Heteromeles arbutifolia - toyon	1
Hirschfeldia incana - shortpod mustard	1
Hypochaeris glabra - smooth cat's ear	1
Lonicera subspicata - southern honeysuckle	0.2

MSP_Occurr_ID_sampPt	MOLIV_4SYCA002_1
Monardella viminea - Willowy monardella	0.2
Prunus ilicifolia - hollyleaf cherry	3
Salvia apiana - white sage	1
Silene gallica - common catchfly	1
Stephanomeria spp. - wirelettuce	0.2
Other Associated Species?	no
BareGround	19.6
CrypSoils	0
Rock	45
Litter	3
Water	0
Vegetation	32.2
DeadShrubs	0.2
TotalPercCover	100
Alreadyentered	no
NumPlantsperCurrentMappedExtent	4
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	5
NonnativeForbs_desc	Centaurea melitensis, Erodium spp., Hirschfeldia incana, Hypochaeris glabra, Silene gallica
NonnativeGrasses	6
NonnativeGrasses_desc	Avena barbata, Brachypodium distachyon, Bromus spp., Festuca myuros, Festuca perennis
NonnativeWoodyPlts	1
NonnativeWoodyPlts_desc	NA
CompetitiveNativePlts	3
CompetitiveNativePlts_desc	Eriogonum fasciculatum
Dumping_trash	1

MSP_Occurr_ID_sampPt	MOLIV_4SYCA002_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	NA
Erosion	3
Erosion_desc	Channel bank shows some 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	2
Trails_authorized	both

MSP_Occurr_ID_sampPt	MOLIV_4SYCA002_1
TrailUse_Hiking	yes
TrailUse_Biking	yes
TrailUse_Equestrian	yes
TrailUse_Dog	unknown
TrailUse_ServiceVehicles	unknown
TrailUse_Other	no
TrailUse_illegal_descript	NA
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Continued monitoring, invasive forb and grass treatment
ManageActions_PastYr	None
CNDDB_SppDetected	Monardella viminea
Notes	NA
Time Finish	10:15

MSP_Occurr_ID_sampPt	MOLIV_4SPCA006_2
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	
UpdateSampInfo	no
Public	yes
Scientific Name	Monardella viminea
Date	6/15/2023
Time Start	13:23
Surveyors	Adrienne Lee, Sonya Vargas
Affiliation	Environmental Science Associates
Number of Plants in the Sampling Area	6
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	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	3
GPSAccurracyUnits	ft
PlotX	501657
PlotY	3640638
Check your location of the SAMPLE PLOT against the location above or provided by SDMMP. If your coordinates match, select "no change". If the coordinates differ, select the reason.	no_change
Photo1X	
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 11

MSP_Occurr_ID_sampPt	MOLIV_4SPCA006_2
Photo1Dir	
Photo1Hei	
Photo1Ang	
UpdatePhotoInfo	no
PhotoNumPhoto1	MOLIV_4SPCA006_2_Photo1_06152023
SANDAG2012_VegAllianceAssoc	Eriogonum fasciculatum-Salvia apiana Association
CryptogamicCrustCover	1
ThatchCover	2
ThatchDepthAverage_cat	3
ThatchDepthMax_cm	4
DeadStandingBiomass_Presence	yes
DeadStanding_CoverSpecies	Rhamnus crocea, Artemisia californica
DeadStanding_CoverClass	2
DeadStandingHeightAverage_cm	25
FeralPigActivity	1
GroundSquirrelActivity	1
GopherActivity	2
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	1
Avena barbata - slender oat	3
Brachypodium distachyon - purple false brome	0.2
Bromus diandrus - ripgut brome	1
Bromus hordeaceus - soft brome	0.2
Bromus madritensis - compact brome	1
Calochortus spp. - mariposa lily	0.2
Calystegia macrostegia - island false bindweed	0.2
Centaurea melitensis - Maltese star-thistle	0.2
Cuscuta californica - California dodder	1
Deinandra fasciculata - clustered tarweed	0.2
Eriogonum fasciculatum - California buckwheat	15
Eriophyllum confertiflorum - golden-yarrow	0.2
Festuca myuros - annual fescue	5
Hirschfeldia incana - shortpod mustard	0.2
Hypochaeris glabra - smooth cat's ear	1
Mirabilis laevis - desert wishbone-bush	0.2

MSP_Occurr_ID_sampPt	MOLIV_4SPCA006_2
Monardella viminea - Willowy monardella	1
Pentagramma triangularis - goldbeck fern	0.2
Phacelia cicutaria - Caterpillar phacelia	0.2
Rhamnus crocea - spiny redberry	1
Salvia apiana - white sage	1
Silene gallica - common catchfly	0.2
Stephanomeria spp. - wirelettuce	0.2
Other Associated Species?	yes
othername1	Epilobium canum
otherper1	0.2
othername2	Eschscholzia californica
otherper2	0.2
BareGround	29.6
CrypSoils	0
Rock	30
Litter	5
Water	0
Vegetation	34.4
DeadShrubs	1
TotalPercCover	100
Alreadyentered	no
NumPlantsperCurrentMappedExtent	47
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	Centaurea melitensis, Hirschfeldia incana, Hypochaeris glabra
NonnativeGrasses	7

MSP_Occurr_ID_sampPt	MOLIV_4SPCA006_2
NonnativeGrasses_desc	Avena barbata, Bromus spp., Festuca myuros, Brachypodium distachyon
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
Vandalism	1
Vandalism_desc	NA
CurrentGrazing	1
CurrentGrazing_desc	NA
HistoricGrazing	unknown
HistoricGrazing_desc	NA
HistoricAgriculture	unknown
HistoricAgriculture_desc	NA
AlteredHydrology	1
AlteredHydrology_desc	NA
Erosion	3
Erosion_desc	Creekbed 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

MSP_Occurr_ID_sampPt	**MOLIV_4SPCA006_2**
Restoration_desc	NA
ORV_MtnBikeActivity_disturb	1
ORV_MtnBikeActivity_type	NA
EvidenceRecentFire	no
YearBurned	NA
Trails_disturbance	2
Trails_authorized	no
TrailUse_Hiking	yes
TrailUse_Biking	yes
TrailUse_Equestrian	unknown
TrailUse_Dog	unknown
TrailUse_ServiceVehicles	yes
TrailUse_Other	no
TrailUse_illegal_descript	NA
OtherDisturbance	1
OtherDisturbance_descript	NA
ManageRecomm	Continued monitoring, invasive grass/forb treatment
ManageActions_PastYr	None
CNDDB_SppDetected	Monardella viminea, turkey vulture, monarch butterfly
Notes	NA
Time Finish	14:08

Appendix D

Harbison's Dun Skipper Representative Photographs and Field Forms

D-1 Representative Monitoring Photographs

Hellhole Canyon County Preserve Harbison's Dun Skipper Representative Monitoring Photographs

Harbison's dun skipper larval host plant San Diego sedge (*Carex spissa*) observed during adult flight surveys at Hellhole Canyon County Preserve.

Harbison's dun skipper observed nectaring on shortpod mustard (*Hirschfeldia incana*) at Hellhole Canyon County Preserve.

Harbison's dun skipper observed nectaring on Indian hemp (*Apocynum cannabinum*) at Hellhole Canyon County Preserve.

D-2 Representative Management Photographs

Hellhole Canyon County Preserve Harbison's Dun Skipper Representative Management Photographs

Representative view of native nectar source seeding area at Hellhole Canyon County Preserve before focused management.

Representative view of native nectar source seeding area at Hellhole Canyon County Preserve before focused management.

Representative view of native nectar source seeding area at Hellhole Canyon County Preserve after focused management, consisting of dethatching.

Representative view of native nectar source seeding area at Hellhole Canyon County Preserve during focused management, consisting of line trimming.

Representative view of native nectar source seeding area at Hellhole Canyon County Preserve during focused management, consisting of bagging and removing cut biomass.

Representative view of native nectar source seeding area at Hellhole Canyon County Preserve after focused management, consisting of hand seeding.

D-3 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	6/16/23	33.21667641	-116.9340129	5	100	0	0	0	15	100	0	0	0	35	50	75	50	0
Hellhole Canyon County Preserve	6/16/23	33.22600389	-116.9445327	20	50	50	10	0	10	75	10	0	0	50	75	20	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	6/16/23	33.21667641	-116.9340129	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Hellhole Canyon County Preserve	6/16/23	33.22600389	-116.9445327	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Site	Date	Latitude	Longitude	Royal Empress Tree					Ash					*Carex spissa*			Water	
				% composition	% healthy	% thin canopy	% dead	% fire damage	% composition	% healthy	% thin canopy	% dead	% fire damage	% all green	% brown tips	% mostly brown	Flowing water	Standing Water
Hellhole Canyon County Preserve	6/16/23	33.21667641	-116.9340129	0	0	0	0	0	0	0	0	0	0	25	70	5	Y	N
Hellhole Canyon County Preserve	6/16/23	33.22600389	-116.9445327	0	0	0	0	0	0	0	0	0	0	10	90	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	Y	U	N	N	N	U	N	N	N	N	N	Y	N	Y	N	N	N	N	N	N	N	Y
Hellhole Canyon County Preserve	N	N	N	N	N	U	Y	Y	U	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y

NOTES:

Tree Species
% composition: across all tree species, adds up to 100%
% healthy, % thin canopy, % dead: within a tree species, adds up to 100%
% fire damage: within a tree species; same tree could be included in other categories

San Diego Sedge
Carex spissa: % of plants that have leaves that are all green; green with brown tips; or all brown; adds up to 100%

Threats
GSOB: gold-spotted oak borer
KSHB/PSHB: Kuroshio shot hole borer/polyphagous shot hole borer (*Euwallacea* sp.)
Tamarisk: *Tamarix* sp.
Pampas grass: *Cortaderia* sp.
Smilo grass: *Stipa miliacea*
Thistle: several genera possible
Tree Tobacco: *Nicotiana glauca*
Mustard: *Brassica nigra* or *Hirschfeldia incana*
Fennel: *Foeniculum vulgare*
Palm Trees: several genera possible
Castor Bean: *Ricinus communis*
Fountaingrass: *Pennisetum setaceum*
Ice Plant: several genera possible
Horehound: *Marrubium vulgare*
Tocalote: *Centaurea melitensis*
Umbrella Sedge: *Cyperus involucratus*

N = No; Y = Yes; U - Unknown

Appendix E

Arroyo Toad Representative Photographs

E-1 Arroyo Toad Representative Photographs

Reach A22

Photo 1. Photo taken along Reach A22, facing downstream. Channel is characterized by large boulders. Date taken: 05/16/23

Photo 2. Photo taken along Reach A22, depicting larvae. Date taken: 05/16/23

Reach B22

Photo 3. Photo taken along Reach B22, facing upstream. Date taken: 05/16/23

Photo 4. Photo taken along Reach B22, facing upstream. Date taken: 05/16/23

Reach A23

Photo 5. Photo taken along Reach A23, facing upstream. Date taken: 05/16/2023

Photo 6. Photo taken along Reach A23, facing upstream. Date taken: 05/16/2023

Reach B23

Photo 7. Photo taken along Reach B23, facing upstream. Date taken: 05/16/2023

Photo 8. Photo taken along Reach B23. Date taken: 05/16/23

Reach A24

Photo 9. Photo taken along Reach A24, facing upstream. Date taken: 05/17/23

Photo 10. Photo taken along Reach A24, facing downstream. Date taken: 05/16/23

Reach B24

Photo 11. Photo taken along Reach B24. Date taken: 05/17/2023

Photo 12. Photo taken along Reach B24, depicting larvae. Date taken: 05/17/2023

Reach A26

Photo 13. Photo taken along Reach A26. Date taken: 05/17/2023

Photo 14. Photo taken along Reach A26, facing upstream. Date taken: 05/17/2023

Reach B26

Photo 15. Photo taken along Reach B26, facing upstream. Date taken: 05/17/2023

Photo 16. Photo taken along Reach B26, facing upstream. Date taken: 05/17/2023

Reach A27

Photo 17. Photo taken along Reach A27, facing upstream. Date taken: 05/17/2023

Photo 18. Photo taken along Reach A27, facing upstream. Date taken: 05/17/2023

Reach B27

Photo 19. Photo taken along Reach B27, facing upstream. Date taken: 05/17/2023

Photo 20. Photo taken along Reach B27, facing upstream. Date taken: 05/17/2023

Reach A28

Photo 21. Photo taken along Reach A28, facing upstream. Date taken: 05/17/2023

Photo 22. Photo taken along Reach A28. Date taken: 05/17/2023

Reach B28

Photo 23. Photo taken along Reach B28, facing downstream. Date taken: 05/17/2023

Photo 24. Photo taken along Reach B28. Date taken: 05/17/2023

Reach A30

Photo 25. Photo taken along Reach A30, facing downstream. Date taken: 05/17/2023

Photo 26. Photo taken along Reach A30. Date taken: 05/17/2023

Reach B30

Photo 27. Photo taken along Reach B30, facing upstream. Date taken: 05/17/2023

Photo 28. Photo taken along Reach B30, facing downstream. Date taken: 05/17/2023

Reach A33

Photo 29. Photo taken along Reach A33, facing upstream. Date taken: 05/18/2023

Photo 30. Photo taken along Reach A33, depicting larvae. Date taken: 05/18/2023

Reach B33

Photo 31. Photo taken along Reach B33, facing upstream. Date taken: 05/18/2023

Photo 32. Photo taken along Reach B33, depicting larvae. Date taken: 05/18/2023

Reach A35

Photo 33. Photo taken along Reach A35. Date taken: 05/19/2023

Photo 34. Photo taken along Reach A35, depicting larvae. Date taken: 05/19/2023

Reach B35

Photo 35. Photo taken along Reach B35. Date taken: 05/19/2023

Photo 36. Photo taken along Reach B35. Date taken: 05/19/2023

Reach A36

Photo 37. Photo taken along Reach A36, facing upstream. Date taken: 05/19/2023

Photo 38. Photo taken along Reach A36. Date taken: 05/19/2023

Reach B36

Photo 39. Photo taken along Reach B36, facing upstream. Date taken: 05/19/2023

Photo 40. Photo taken along Reach B36. Date taken: 05/19/2023

Reach A37

Photo 41. Photo taken along Reach A37, facing upstream. Date taken: 05/19/2023

Photo 42. Photo taken along Reach A37. Date taken: 05/19/2023

Reach B37

Photo 43. Photo taken along Reach B37. Date taken: 05/19/2023

Photo 44. Photo taken along Reach B37. Date taken: 05/19/2023

Reach A38

Photo 45. Photo taken along Reach A38. Date taken: 05/19/2023

Photo 46. Photo taken along Reach A38. Date taken: 05/19/2023

Reach B38

Photo 47. Photo taken along Reach B38. Date taken: 05/19/2023

Photo 48. Photo taken along Reach B38. Date taken: 05/19/2023

Reach A40

Photo 49. Photo taken along Reach A40. Date taken: 05/19/2023

Photo 50. Photo taken along Reach A40. Date taken: 05/19/2023

Reach B40

Photo 51. Photo taken along Reach B40. Date taken: 05/19/2023

Photo 52. Photo taken along Reach B40. Date taken: 05/19/2023

Reach A41

Photo 53. Photo taken along Reach A41. Date taken: 05/19/2023

Photo 54. Photo taken along Reach A41. Date taken: 05/19/2023

Reach B41

Photo 55. Photo taken along Reach B41. Date taken: 05/19/2023

Photo 56. Photo taken along Reach B41. Date taken: 05/19/2023

Reach A42

Photo 57. Photo taken along Reach A42. Date taken: 05/19/2023

Photo 58. Photo taken along Reach A42, facing upstream. Date taken: 05/19/2023

Reach B42

Photo 59. Photo taken along Reach B42, facing upstream. Date taken: 05/19/2023

Photo 60. Photo taken along Reach B42, facing downstream. Date taken: 05/19/2023

Reach A45

Photo 61. Photo taken along Reach A45. Date taken: 05/19/2023

Photo 62. Photo taken along Reach A45. Date taken: 05/19/2023

Reach B45

Photo 63. Photo taken along Reach B45. Date taken: 05/19/2023

Photo 64. Photo taken along Reach B45. Date taken: 05/19/2023

Reach A52

Photo 65. Photo taken along Reach A52. Date taken: 05/16/2023

Photo 66. Photo taken along Reach A52. Date taken: 05/16/2023

Reach B52

Photo 67. Photo taken along Reach B52. Date taken: 05/16/2023

Photo 68. Photo taken along Reach B52. Date taken: 05/16/2023

Reach A53

Photo 69. Photo taken along Reach A53. Date taken: 05/16/2023

Appendix F

San Diego Cactus Wren Representative Management Photographs

F-1 San Diego Cactus Wren Representative Management Photographs

Representative photograph of the San Diego cactus wren management area at Lakeside Linkage County Preserve prior to management activities.

Representative photograph of the San Diego cactus wren management area during management activities. Management consisted of line trimming around cactus patches and hand pulling vegetation by hand from within cactus patches.

Representative photograph of management activities at the San Diego cactus wren management area after management activities.

Appendix G

Northern Harrier Representative Photographs and Field Forms

G-1 Representative Photographs

Tijuana River Valley Regional Park

Photo 1. Habitat (coastal sage scrub) of previous documented northern harrier nest sites (Territory 1 and Territory 4). Habitat still suitable and in good condition. Area of successful nest site in 2023.

Photo 2. Habitat (Diegan coastal sage scrub). One adult male observed capturing unknown prey item during the April 2023 survey (Potential Territory 2). No nesting behavior was observed.

Photo 3. Habitat (mule fat and coastal sage scrub). Individual harriers actively foraging here during the March and May 2023 surveys (Potential Territory 3). No breeding behavior observed.

Photo 4. Habitat (mule fat scrub), inundated with water during the March and April surveys. A pair of harriers were observed in March performing courtship display, therefore breeding behavior was observed during the 2023 surveys (Territory 5). No other breeding behavior was observed.

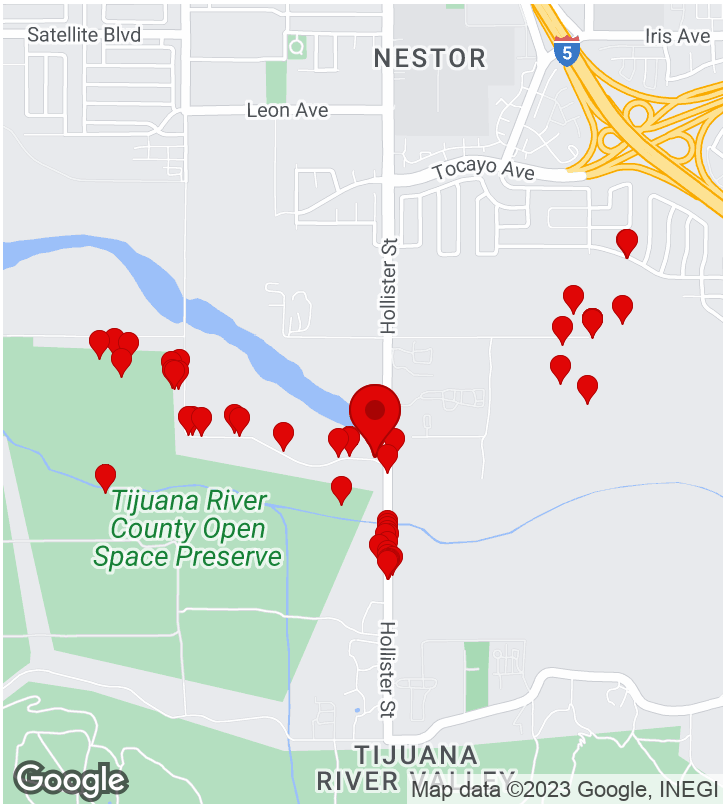
G-2 Field Forms

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Northern Harrier

3/24/2023, 5:57:53 PM UTC



CREATED

3/24/2023, 2:12:58 PM UTC
by SC Fulcrum03

UPDATED

3/24/2023, 5:57:53 PM UTC
by SC Fulcrum03

LOCATION

32.553818, -117.084648

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:	March 24, 2023

START Weather Details:

Start - Time:	07:00
Start - Temperature:	51.2
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 (%):	60
Start - Precipitation (select one):	None
Start - Visibility (select one):	
Start - Notes (if applicable):	

END Weather Details:

Time Out:	11:00
End - Temperature:	60.5
End - Wind Direction From (select one):	SW
End - Low Wind Speed:	1
End - High Wind Speed:	6.1
End - Average Wind Speed:	3.4
End - Cloud Cover (%):	15
End - Precipitation (select one):	None
End - Visibility (select one):	
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	

Notes	1. Ponyland 2. Sunset ponds 3. Sunset ball fields
Observation Type:	Bird, Mammal
Photos	

Bird

Bird Observation: (59 Items)

Bird Observation: - 1. 1 record, no

Bird (Common or Scientific Name):	American Robin; Turdus migratorius; AMRO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 2. 1 record, no

Bird (Common or Scientific Name):	American Crow; Corvus brachyrhynchos; AMCR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record, no

Bird (Common or Scientific Name):	House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; Empidonax difficilis; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record, no

Bird (Common or Scientific Name):	Mallard; Anas platyrhynchos; MALL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record, no

Bird (Common or Scientific Name):	House Finch; Haemorhous mexicanus; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record, yes

Bird (Common or Scientific Name):	White-tailed Kite; Elanus leucurus; WTKI
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1

Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 8. 1 record, no

Bird (Common or Scientific Name):	Common Gallinule; Gallinula galeata; COGA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record, no

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record, no

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record, no

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record, no

Bird (Common or Scientific Name):	Red-winged Blackbird; Agelaius phoeniceus; RWBL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 13. 1 record, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; Oreothlypis celata; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record, yes

Bird (Common or Scientific Name):	Cooper's Hawk; Accipiter cooperii; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1

Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 15. 1 record, yes

Bird (Common or Scientific Name):	Red-shouldered Hawk; Buteo lineatus; RSHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 16. 1 record, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:

Bird Observation: - 17. 1 record, no

Bird (Common or Scientific Name):	Tree Swallow; Tachycineta bicolor; TRES
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 18. 1 record, no

Bird (Common or Scientific Name):	Yellow-rumped Warbler; Setophaga coronata; YRWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record, no

Bird (Common or Scientific Name):	California Thrasher; Toxostoma redivivum; CATH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 20. 1 record, yes

Bird (Common or Scientific Name):	Gadwall; Mareca strepera; GADW
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1

Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Female, Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 21. 1 record, no

Bird (Common or Scientific Name):	Western Kingbird; Tyrannus verticalis; WEKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:

Bird Observation: - 22. 1 record, no

Bird (Common or Scientific Name):	Allen's Hummingbird; Selasphorus sasin; ALHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:

Bird Observation: - 23. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1

Behavior (check all that apply):	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: - 24. 1 record, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 25. 1 record, no

Bird (Common or Scientific Name):	Wilson's Warbler; Cardellina pusilla; WIWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 26. 1 record, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 27. 1 record, no

Bird (Common or Scientific Name):	Eurasian Collared-Dove; Streptopelia decaocto; ECDO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 28. 1 record, yes

Bird (Common or Scientific Name):	Merlin; Falco columbarius; MERL
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: - 29. 1 record, no

Bird (Common or Scientific Name):	Green-winged Teal; Anas crecca; GWTE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 30. 1 record, no

Bird (Common or Scientific Name):	Brown-headed Cowbird; Molothrus ater; BHCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 31. 1 record, no

Bird (Common or Scientific Name):	Hooded Oriole; Icterus cucullatus; HOOR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 32. 1 record, no

Bird (Common or Scientific Name):	Downy Woodpecker; Dryobates pubescens; DOWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 33. 1 record, no

Bird (Common or Scientific Name):	Fox Sparrow; Passerella iliaca; FOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 34. 1 record, no

Bird (Common or Scientific Name):	American Goldfinch; Spinus tristis; AMGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 35. 1 record, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 36. 1 record, no

Bird (Common or Scientific Name):	Ruby-crowned Kinglet; Regulus calendula; RCKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 37. 1 record, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; Polioptila caerulea; BGGN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 38. 1 record, no

Bird (Common or Scientific Name):	Great-tailed Grackle; Quiscalus mexicanus; GTGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 39. 1 record, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	Female type
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 40. 1 record, no

Bird (Common or Scientific Name):	Northern Flicker; Colaptes auratus; NOFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 41. 1 record, no

Bird (Common or Scientific Name):	Sora; Porzana carolina; SORA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 42. 1 record, yes

Bird (Common or Scientific Name):	Sharp-shinned Hawk; Accipiter striatus; SSHA
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):	Subadult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 43. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1

Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 44. 1 record, no

Bird (Common or Scientific Name):	Common Ground-Dove; Columbina passerina; COGD
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:

Bird Observation: - 45. 1 record, yes

Bird (Common or Scientific Name):	Turkey Vulture; Cathartes aura; TUVU
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 46. 1 record, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Female
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 47. 1 record, yes

Bird (Common or Scientific Name):	Cooper's Hawk; Accipiter cooperii; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing), Singing/calling
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: - 48. 1 record, yes

Bird (Common or Scientific Name):	Western Bluebird; Sialia mexicana; WEBL
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	4
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 49. 1 record, yes

Bird (Common or Scientific Name):	Cooper's Hawk; Accipiter cooperii; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Territorial display, Perched (not singing)
Bird Sex (check all that apply):	Male, Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 50. 1 record, yes

Bird (Common or Scientific Name):	Red-shouldered Hawk; Buteo lineatus; RSHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Subadult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 51. 1 record, no

Bird (Common or Scientific Name):	American Coot; Fulica americana; AMCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 52. 1 record, no

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 53. 1 record, no

Bird (Common or Scientific Name):	Great Egret; Ardea alba; GREG
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 54. 1 record, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Subadult
Additional Notes:	Flew into riparian area SE of the end of Sunset
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 55. 1 record, no

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 56. 1 record, no

Bird (Common or Scientific Name):	Phainopepla; Phainopepla nitens; PHAI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 57. 1 record, no

Bird (Common or Scientific Name):	Cassin's Kingbird; Tyrannus vociferans; CAKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 58. 1 record, no

Bird (Common or Scientific Name):	Snowy Egret; Egretta thula; SNEG
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 59. 1 record, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1

Behavior (check all that apply):	Territorial display, 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:	

Mammal

Mammal Observation: (1 Item)

Mammal Observation: - 1. 1 record

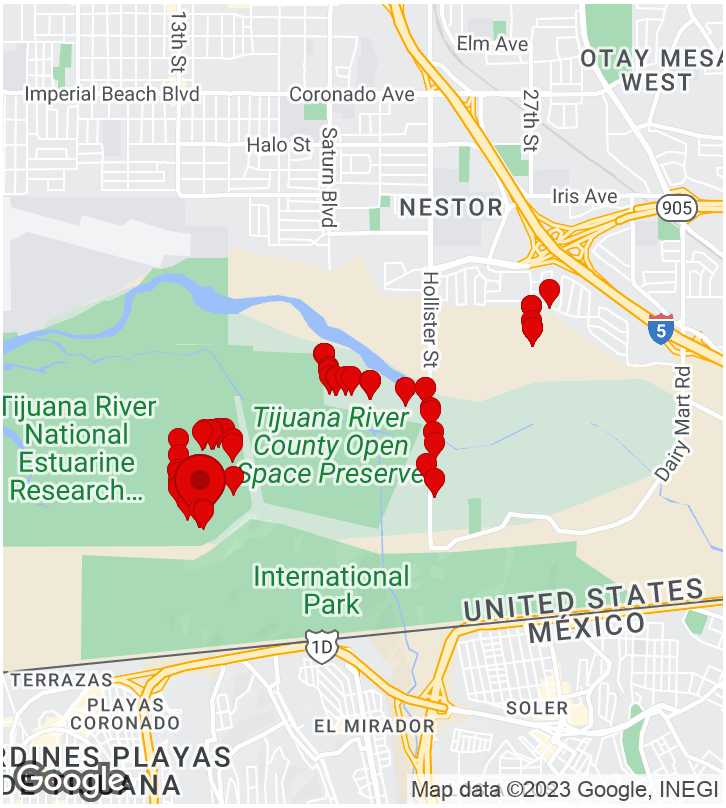
Mammal (Common or Scientific Name):	Audubons Cottontail; Sylvilagus audubonii
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Mammal:	
Notes:	

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Northern Harrier

8/16/2023, 7:34:31 PM UTC



CREATED

4/25/2023, 2:16:37 PM UTC
by SC Fulcrum05

UPDATED

8/16/2023, 7:34:31 PM UTC
by SC Fulcrum05

LOCATION

32.545079, -117.103885

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:	Adrienne Lee
Date:	April 25, 2023

START Weather Details:

Start - Time:	07:16
Start - Temperature:	60.6
Start - Wind Direction From (select one):	SW
Start - Low Wind Speed:	0.7
Start - High Wind Speed:	4.7
Start - Average Wind Speed:	2.7
Start - Cloud Cover (%):	100
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Start - Notes (if applicable):	

END Weather Details:

Time Out:	11:43
End - Temperature:	69.9
End - Wind Direction From (select one):	SW
End - Low Wind Speed:	0
End - High Wind Speed:	4.5
End - Average Wind Speed:	1.8
End - Cloud Cover (%):	40
End - Precipitation (select one):	None
End - Visibility (select one):	Good
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	

Notes	1. TJ Campground 2. Ball field (no NOHA) 3. Ponyland 4. TJ Butterfly Garden
Observation Type:	Bird, Mammal, Invertebrate, Reptile

Photos

Bird

Bird Observation: (74 Items)

Bird Observation: - 1. 1 record, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 2. 1 record, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Female
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 3. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown, Male
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 4. 1 record, no

Bird (Common or Scientific Name):	Black Phoebe; Sayornis nigricans; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5.

Bird (Common or Scientific Name):	
Other Bird Species	Larus sp.
Is the Bird Sensitive ?	No
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record, no

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record, no

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record, no

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record, no

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; Oreothlypis celata; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record, no

Bird (Common or Scientific Name):	Mallard; Anas platyrhynchos; MALL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 13. 1 record, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record, no

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 16. 1 record, no

Bird (Common or Scientific Name):	Wilson's Warbler; Cardellina pusilla; WIWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 17. 1 record, yes

Bird (Common or Scientific Name):	Double-crested Cormorant; Phalacrocorax auritus; DCCO
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 18. 1 record, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	2
Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record, no

Bird (Common or Scientific Name):	Townsend's Warbler; Setophaga townsendi; TOWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 20. 1 record, no

Bird (Common or Scientific Name):	Black-throated Gray Warbler; Setophaga nigrescens; BTYW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 21. 1 record, no

Bird (Common or Scientific Name):	House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 22. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 23. 1 record, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 24. 1 record, no

Bird (Common or Scientific Name):	Common Raven; Corvus corax; CORA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 25. 1 record, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	2
Behavior (check all that apply):	In flight, Territorial display
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	Pair detected but not together. Female seen going to nest site area. Male foraging and perched on tree tobacco.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 26. 1 record, no

Bird (Common or Scientific Name):	Blue Grosbeak; Passerina caerulea; BLGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 27. 1 record, no

Bird (Common or Scientific Name):	American Crow; Corvus brachyrhynchos; AMCR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 28. 1 record, no

Bird (Common or Scientific Name):	American Coot; Fulica americana; AMCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 29. 1 record, no

Bird (Common or Scientific Name):	Red-winged Blackbird; Agelaius phoeniceus; RWBL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 30. 1 record, no

Bird (Common or Scientific Name):	Rock Pigeon; Columba livia; ROPI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 31. 1 record, no

Bird (Common or Scientific Name):	Pied-billed Grebe; Podilymbus podiceps; PBGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 32. 1 record, no

Bird (Common or Scientific Name):	Great-tailed Grackle; Quiscalus mexicanus; GTGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 33. 1 record, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 34. 1 record, no

Bird (Common or Scientific Name):	White-throated Swift; Aeronautes saxatalis; WTSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 35. 1 record, no

Bird (Common or Scientific Name):	Northern Rough-winged Swallow; Stelgidopteryx serripennis; NRWS
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	2
Photo(s) of Bird:	
Notes:	

Bird Observation: - 36. 1 record, no

Bird (Common or Scientific Name):	Tree Swallow; Tachycineta bicolor; TRES
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 37. 1 record, no

Bird (Common or Scientific Name):	Cinnamon Teal; Spatula cyanoptera; CITE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	2
Photo(s) of Bird:	
Notes:	

Bird Observation: - 38. 1 record, yes

Bird (Common or Scientific Name):	Red-shouldered Hawk; Buteo lineatus; RSHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 39. 1 record, no

Bird (Common or Scientific Name):	Great Egret; Ardea alba; GREG
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 40. 1 record, yes

Bird (Common or Scientific Name):	Gadwall; Mareca strepera; GADW
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1

Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 41. 1 record, no

Bird (Common or Scientific Name):	Common Gallinule; Gallinula galeata; COGA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 42. 1 record, no

Bird (Common or Scientific Name):	Black-headed Grosbeak; Pheucticus melanocephalus; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 43. 1 record, no

Bird (Common or Scientific Name):	House Finch; Haemorhous mexicanus; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 44. 1 record, yes

Bird (Common or Scientific Name):	Vaux's Swift; Chaetura vauxi; VASW
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	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: - 45. 1 record, no

Bird (Common or Scientific Name):	Eurasian Collared-Dove; Streptopelia decaocto; ECDO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 46. 1 record, no

Bird (Common or Scientific Name):	Black-crowned Night-Heron; Nycticorax nycticorax; BCNH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 47. 1 record, no

Bird (Common or Scientific Name):	Cedar Waxwing; Bombycilla cedrorum; CEDW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	10
Photo(s) of Bird:	
Notes:	

Bird Observation: - 48. 1 record, yes

Bird (Common or Scientific Name):	Long-billed Curlew; Numenius americanus; LBCU
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	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: - 49. 1 record, no

Bird (Common or Scientific Name):	Brewer's Blackbird; Euphagus cyanocephalus; BRBL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 50. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 51. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 52. 1 record, yes

Bird (Common or Scientific Name):	American Peregrine Falcon; Falco peregrinus anatum; PEFA
Is the Bird Sensitive ?	yes
Sub-Species Info:	Found throughout North America (south of tundra) and northern Mexico

Sensitive Bird Observation

Observation Type:	Auditory, 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: - 53. 1 record, no

Bird (Common or Scientific Name):	American Robin; Turdus migratorius; AMRO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 54. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1

Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 55. 1 record, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Foraging, In flight
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Caught mammalian prey item.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 56. 1 record, no

Bird (Common or Scientific Name):	Black-crowned Night-Heron; Nycticorax nycticorax; BCNH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	

Notes:

Bird Observation: - 57. 1 record, no

Bird (Common or Scientific Name):	Killdeer; Charadrius vociferus; KILL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 58. 1 record, yes

Bird (Common or Scientific Name):	Red-shouldered Hawk; Buteo lineatus; RSHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight, 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: - 59. 1 record, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; Empidonax difficilis; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 60. 1 record, yes

Bird (Common or Scientific Name):	White-tailed Kite; Elanus leucurus; WTKI
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 61. 1 record, no

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 62. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1

Behavior (check all that apply):	Perched (not singing)
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: - 63. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 64. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling

Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Counter singing
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 65. 1 record, no

Bird (Common or Scientific Name):	Yellow-rumped Warbler; Setophaga coronata; YRWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 66. 1 record, no

Bird (Common or Scientific Name):	Downy Woodpecker; Dryobates pubescens; DOWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 67. 1 record, no

Bird (Common or Scientific Name):	Allen's Hummingbird; Selasphorus sasin; ALHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 68. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 69. 1 record, no

Bird (Common or Scientific Name):	California Quail; Callipepla californica; CAQU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 70. 1 record, no

Bird (Common or Scientific Name):	White-crowned Sparrow; Zonotrichia leucophrys; WCSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 71. 1 record, no

Bird (Common or Scientific Name):	Northern Mockingbird; Mimus polyglottos; NOMO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 72. 1 record, no

Bird (Common or Scientific Name):	Brown-headed Cowbird; Molothrus ater; BHCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 73. 1 record, no

Bird (Common or Scientific Name):	Ruby-crowned Kinglet; Regulus calendula; RCKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 74. 1 record, no

Bird (Common or Scientific Name):	Bullock's Oriole; Icterus bullockii; BUOR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Invertebrate

Invertebrate Observation: (4 Items)

Invertebrate Observation: - 1.

Invertebrate (Common or Scientific Name):	
Other Invertebrate Species	Velvet ant
Is the Invertebrate Sensitive ?	No

Invertebrate Observation: - 2.

Invertebrate (Common or Scientific Name):	
Other Invertebrate Species	Sphinx moth
Is the Invertebrate Sensitive ?	

Invertebrate Observation: - 3.

Invertebrate (Common or Scientific Name):	
Other Invertebrate Species	Sara’s orange tip
Is the Invertebrate Sensitive ?	No

Invertebrate Observation: - 4. 1 record

Invertebrate (Common or Scientific Name):	Cabbage white
Is the Invertebrate Sensitive ?	no
Sub-Species Info:	

Photo(s) of Invertebrate:

Notes:	

Mammal

Mammal Observation: (1 Item)

Mammal Observation: - 1. 1 record

Mammal (Common or Scientific Name):	Audubons Cottontail; Sylvilagus audubonii
Is the Mammal Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Mammal:	
Notes:	

Reptile

Reptile Observation: (3 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):	Common Sagebrush Lizard; Sceloporus graciosus
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Reptile:	
Notes:	

Reptile Observation: - 3. 1 record

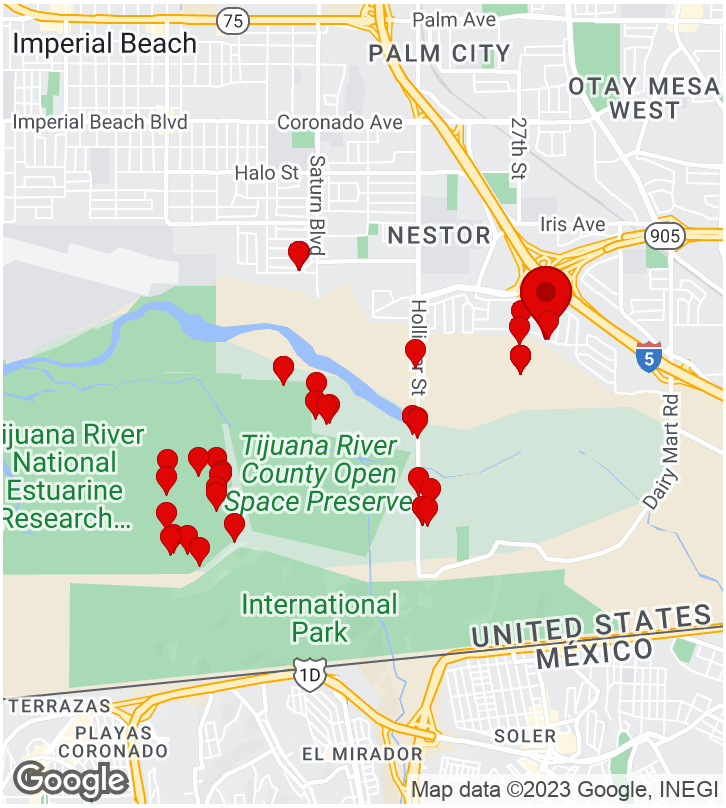
Reptile (Common or Scientific Name):	Common Side-blotched Lizard; Uta stansburiana
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Reptile:	
Notes:	

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Northern Harrier

5/25/2023, 6:21:32 PM UTC



CREATED

5/25/2023, 2:22:46 PM UTC
by SC Fulcrum05

UPDATED

5/25/2023, 6:21:32 PM UTC
by SC Fulcrum05

LOCATION

32.560732, -117.073125

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:	Bailey Setzler
Date:	May 25, 2023

START Weather Details:

Start - Time:	07:22
Start - Temperature:	63.7
Start - Wind Direction From (select one):	W
Start - Low Wind Speed:	0
Start - High Wind Speed:	4.2
Start - Average Wind Speed:	0.6
Start - Cloud Cover (%):	100
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Start - Notes (if applicable):	

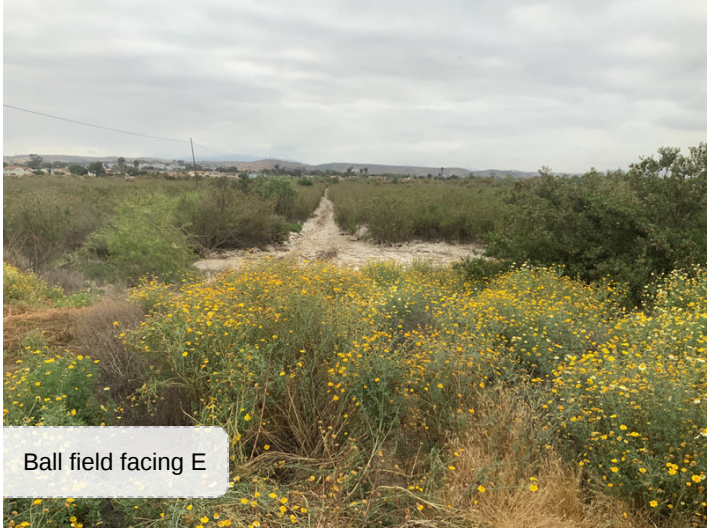
END Weather Details:

Time Out:	11:19
End - Temperature:	67.5
End - Wind Direction From (select one):	W
End - Low Wind Speed:	0
End - High Wind Speed:	5.8
End - Average Wind Speed:	2.4
End - Cloud Cover (%):	95
End - Precipitation (select one):	None
End - Visibility (select one):	Good
End - Notes (if applicable):	
Total Hours:	

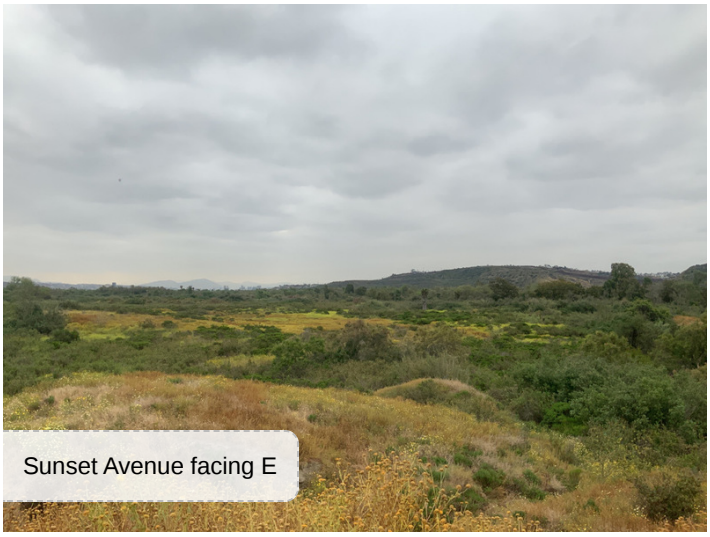
Project Location (description):	

Notes	1. Ball field 2. Campground 3. Butterfly Garden 4. Ponyland Dead animal at 32.5477337, -117.0835475
Observation Type:	Bird, Mammal, Butterfly/Moth, Reptile

Photos


Ball field facing E

Territory 1, facing NW


Sunset Avenue facing E

Ponyland facing NE

Bird

Bird Observation: (50 Items)

Bird Observation: - 1. 1 record, no

Bird (Common or Scientific Name):	Caspian Tern; Hydroprogne caspia; CATE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 2. 1 record, no

Bird (Common or Scientific Name):	Common Raven; Corvus corax; CORA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record, no

Bird (Common or Scientific Name):	American Crow; Corvus brachyrhynchos; AMCR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record, no

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record, no

Bird (Common or Scientific Name):	Cliff Swallow; Petrochelidon pyrrhonota; CLSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record, no

Bird (Common or Scientific Name):	White-throated Swift; Aeronautes saxatalis; WTSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record, no

Bird (Common or Scientific Name):	Black-crowned Night-Heron; Nycticorax nycticorax; BCNH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record, no

Bird (Common or Scientific Name):	Western Gull; Larus occidentalis; WEGU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record, no

Bird (Common or Scientific Name):	House Finch; Haemorhous mexicanus; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record, no

Bird (Common or Scientific Name):	Northern Mockingbird; Mimus polyglottos; NOMO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record, no

Bird (Common or Scientific Name):	Black Phoebe; Sayornis nigricans; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 13. 1 record, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; Myiarchus cinerascens; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record, yes

Bird (Common or Scientific Name):	Double-crested Cormorant; Phalacrocorax auritus; DCCO
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	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: - 15. 1 record, yes

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):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 16. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 17. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 18. 1 record, no

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record, yes

Bird (Common or Scientific Name):	Great Blue Heron; Ardea herodias; GBHE
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 20. 1 record, yes

Bird (Common or Scientific Name):	Cooper's Hawk; Accipiter cooperii; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult, Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 21. 1 record, no

Bird (Common or Scientific Name):	Allen's Hummingbird; Selasphorus sasin; ALHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 22. 1 record, no

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 23. 1 record, yes

Bird (Common or Scientific Name):	Red-shouldered Hawk; Buteo lineatus; RSHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 24. 1 record, no

Bird (Common or Scientific Name):	Eurasian Collared-Dove; Streptopelia decaocto; ECDO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 25. 1 record, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 26. 1 record, yes

Bird (Common or Scientific Name):	White-tailed Kite; Elanus leucurus; WTKI
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	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: - 27. 1 record, no

Bird (Common or Scientific Name):	Say's Phoebe; Sayornis saya; SAPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 28. 1 record, yes

Bird (Common or Scientific Name):	Coastal California Gnatcatcher; Polioptila californica californica; CAGN
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 29. 1 record, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	4
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown, Male, Female
Bird Age (check all that apply):	Juvenile, Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 30. 1 record, no

Bird (Common or Scientific Name):	Mallard; Anas platyrhynchos; MALL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 31. 1 record, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 32. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo
Is the Bird Sensitive ?	yes
Sub-Species Info:	

Sensitive Bird Observation

Observation Type:	Auditory, Visual
Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 33. 1 record, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; Empidonax difficilis; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 34. 1 record, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 35. 1 record, no

Bird (Common or Scientific Name):	House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 36. 1 record, no

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 37. 1 record, no

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 38. 1 record, no

Bird (Common or Scientific Name):	Brown-headed Cowbird; Molothrus ater; BHCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 39. 1 record, yes

Bird (Common or Scientific Name):	White-tailed Kite; Elanus leucurus; WTKI
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Nest building
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: - 40. 1 record, no

Bird (Common or Scientific Name):	American Kestrel; Falco sparverius; AMKE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 41. 1 record, no

Bird (Common or Scientific Name):	Snowy Egret; Egretta thula; SNEG
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 42. 1 record, no

Bird (Common or Scientific Name):	Tree Swallow; Tachycineta bicolor; TRES
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 43. 1 record, no

Bird (Common or Scientific Name):	American Goldfinch; Spinus tristis; AMGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 44. 1 record, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 45. 1 record, no

Bird (Common or Scientific Name):	Red-winged Blackbird; Agelaius phoeniceus; RWBL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 46. 1 record, yes

Bird (Common or Scientific Name):	Turkey Vulture; Cathartes aura; TUVU
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 47. 1 record, no

Bird (Common or Scientific Name):	Downy Woodpecker; Dryobates pubescens; DOWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 48. 1 record, no

Bird (Common or Scientific Name):	European Starling; Sturnus vulgaris; EUST
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 49. 1 record, no

Bird (Common or Scientific Name):	House Sparrow; Passer domesticus; HOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 50. 1 record, no

Bird (Common or Scientific Name):	Blue Grosbeak; Passerina caerulea; BLGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Butterfly/Moth

Butterfly/Moth Observation: (4 Items)

Butterfly/Moth Observation: - 1. 1 record

Butterfly/Moth (Common or Scientific Name):	Painted Lady; Vanessa Cardui
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):	Cabbage White; Pieris rapae
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):	Pacific Orangetip; Anthocharis sara
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A
Number of individuals observed:	

Butterfly/Moth Observation: - 4. 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:	
Photo(s) of Butterfly/Moth:	
Notes:	

Mammal

Mammal Observation: (1 Item)

Mammal Observation: - 1. 1 record

Mammal (Common or Scientific Name):	Audubons 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 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

6/27/2023, 5:59:27 PM UTC

CREATED

6/27/2023, 1:28:43 PM UTC
by SC Fulcrum05

UPDATED

6/27/2023, 5:59:27 PM UTC
by SC Fulcrum05

LOCATION

32.553905, -117.084578

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:	June 27, 2023

START Weather Details:

Start - Time:	06:28
Start - Temperature:	63.3
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 (%):	100
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Start - Notes (if applicable):	Overcast but visibility good.

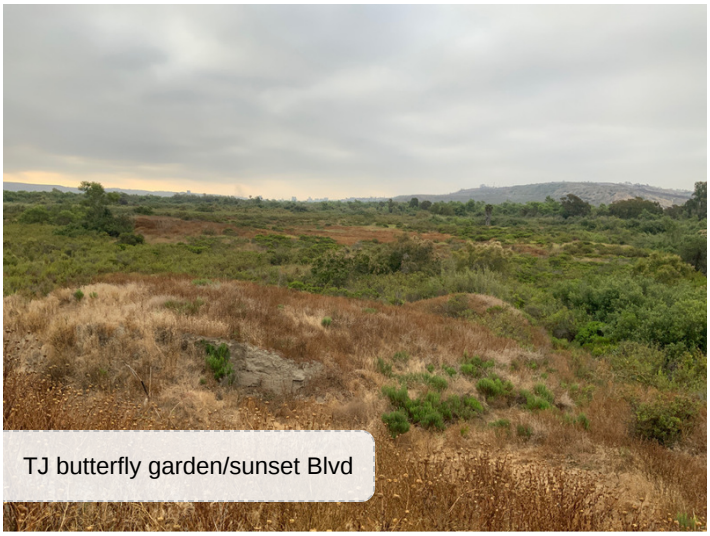
END Weather Details:

Time Out:	11:00
End - Temperature:	67.6
End - Wind Direction From (select one):	W
End - Low Wind Speed:	0.3
End - High Wind Speed:	6.9
End - Average Wind Speed:	3.6
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	Good
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	

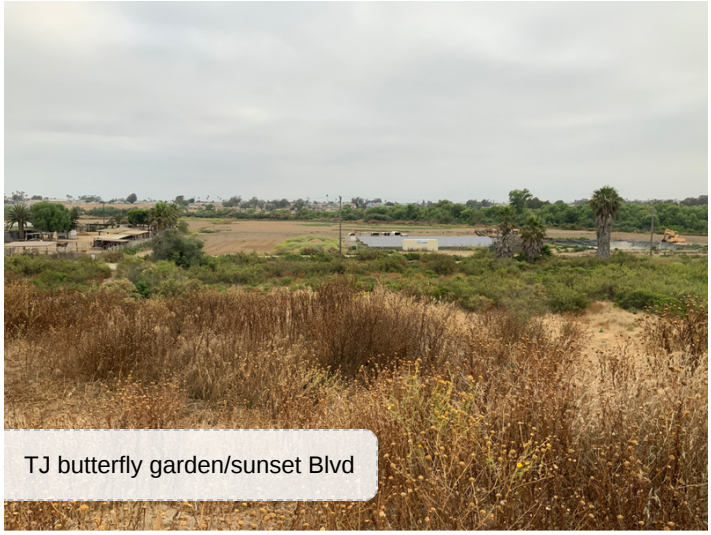
Notes	Started at TJ butterfly garden, then pony land, TJ campground, and ball field last.
Observation Type:	Bird, Mammal, Reptile, Butterfly/Moth

Photos


TJ butterfly garden/sunset Blvd

TJ butterfly garden/sunset Blvd

TJ butterfly garden/sunset Blvd


TJ butterfly garden/sunset Blvd

Ponyland

Ponyland

TJ campground

Baseball field

Baseball field

Bird

Bird Observation: (64 Items)

Bird Observation: - 1. 1 record, yes

Bird (Common or Scientific Name):	Red-shouldered Hawk; Buteo lineatus; RSHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing), 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: - 2. 1 record, no

Bird (Common or Scientific Name):	Black Phoebe; Sayornis nigricans; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record, no

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record, no

Bird (Common or Scientific Name):	Northern Rough-winged Swallow; Stelgidopteryx serripennis; NRWS
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male

Bird Age (check all that apply):	Adult
Additional Notes:	Two adults countering singing
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 9. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 10. 1 record, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:

Bird Observation: - 11. 1 record, no

Bird (Common or Scientific Name):	Downy Woodpecker; Dryobates pubescens; DOWO

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record, no

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 13. 1 record, no

Bird (Common or Scientific Name):	Common Raven; Corvus corax; CORA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Additional Notes:	Two adult males counter singing
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 15. 1 record, yes

Bird (Common or Scientific Name):	White-tailed Kite; Elanus leucurus; WTKI
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 16. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Males counter singing

Photo(s) of Bird:

Photo(s) of Bird:

Notes:

Bird Observation: - 17. 1 record, no

Bird (Common or Scientific Name):	Cliff Swallow; Petrochelidon pyrrhonota; CLSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 18. 1 record, no

Bird (Common or Scientific Name):	Tree Swallow; Tachycineta bicolor; TRES
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record, no

Bird (Common or Scientific Name):	Black-crowned Night-Heron; Nycticorax nycticorax; BCNH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 20. 1 record, no

Bird (Common or Scientific Name):	Eurasian Collared-Dove; Streptopelia decaocto; ECDO
Is the Bird Sensitive ?	no

Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 21. 1 record, no

Bird (Common or Scientific Name):	Western Gull; Larus occidentalis; WEGU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 22. 1 record, yes

Bird (Common or Scientific Name):	Cooper's Hawk; Accipiter cooperii; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Perched (not singing)
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Juvenile
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 23. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes

Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 24. 1 record, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 25. 1 record, no

Bird (Common or Scientific Name):	Mallard; Anas platyrhynchos; MALL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 26. 1 record, no

Bird (Common or Scientific Name):	Red-winged Blackbird; Agelaius phoeniceus; RWBL
Is the Bird Sensitive ?	no

Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 27. 1 record, no

Bird (Common or Scientific Name):	Brown-headed Cowbird; Molothrus ater; BHCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 28. 1 record, no

Bird (Common or Scientific Name):	Killdeer; Charadrius vociferus; KILL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 29. 1 record, no

Bird (Common or Scientific Name):	American Crow; Corvus brachyrhynchos; AMCR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 30. 1 record, no

Bird (Common or Scientific Name):	Snowy Egret; Egretta thula; SNEG
Is the Bird Sensitive ?	no

Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 31. 1 record, yes

Bird (Common or Scientific Name):	Great Blue Heron; Ardea herodias; GBHE
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 32. 1 record, no

Bird (Common or Scientific Name):	Hooded Oriole; Icterus cucullatus; HOOR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 33. 1 record, no

Bird (Common or Scientific Name):	Common Gallinule; Gallinula galeata; COGA
Is the Bird Sensitive ?	no

Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 34. 1 record, yes

Bird (Common or Scientific Name):	Osprey; Pandion haliaetus; OSPR
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	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: - 35. 1 record, yes

Bird (Common or Scientific Name):	Double-crested Cormorant; Phalacrocorax auritus; DCCO
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 36. 1 record, no

Bird (Common or Scientific Name):	Allen's Hummingbird; Selasphorus sasin; ALHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 37. 1 record, no

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 38. 1 record, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; Oreothlypis celata; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 39. 1 record, no

Bird (Common or Scientific Name):	Black-chinned Hummingbird; Archilochus alexandri; BCHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	

Photo(s) of Bird:

Notes:

Bird Observation: - 40. 1 record, no

Bird (Common or Scientific Name):	Black-headed Grosbeak; Pheucticus melanocephalus; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 41. 1 record, no

Bird (Common or Scientific Name):	American Goldfinch; Spinus tristis; AMGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 42. 1 record, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; Empidonax difficilis; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 43. 1 record, no

Bird (Common or Scientific Name):	House Finch; Haemorhous mexicanus; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 44. 1 record, no

Bird (Common or Scientific Name):	Brewer's Blackbird; Euphagus cyanocephalus; BRBL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 45. 1 record, yes

Bird (Common or Scientific Name):	Turkey Vulture; Cathartes aura; TUVU
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	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: - 46. 1 record, no

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 47. 1 record, no

Bird (Common or Scientific Name):	Rock Pigeon; Columba livia; ROPI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 48. 1 record, no

Bird (Common or Scientific Name):	Cassin's Kingbird; Tyrannus vociferans; CAKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 49. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Visual
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: - 50. 1 record, no

Bird (Common or Scientific Name):	Black-throated Magpie-Jay; Calocitta colliei
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 51. 1 record, yes

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:	15
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: - 52. 1 record, yes

Bird (Common or Scientific Name):	White-tailed Kite; Elanus leucurus; WTKI
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual

Number of individuals observed:	1
Behavior (check all that apply):	In flight, 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: - 53. 1 record, no

Bird (Common or Scientific Name):	House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 54. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 55. 1 record, no

Bird (Common or Scientific Name):	Hutton's Vireo; Vireo huttoni; HUVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 56. 1 record, yes

Bird (Common or Scientific Name):	American Peregrine Falcon; Falco peregrinus anatum; PEFA
Is the Bird Sensitive ?	yes
Sub-Species Info:	Found throughout North America (south of tundra) and northern Mexico

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	Stole prey item from WTKI

Bird Observation: - 57. 1 record, yes

Bird (Common or Scientific Name):	White-tailed Kite; Elanus leucurus; WTKI
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	2

Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Juvenile
Additional Notes:	Both jugs
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 58. 1 record, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Female
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 59. 1 record, yes

Bird (Common or Scientific Name):	Coastal California Gnatcatcher; Polioptila californica californica; CAGN
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling, 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: - 60. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 61. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male

Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 62. 1 record, yes

Bird (Common or Scientific Name):	Northern Harrier; Circus hudsonius; NOHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Foraging, In flight
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Subadult
Additional Notes:	Seen flying around and then diving don into the mulefat.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 63. 1 record, no

Bird (Common or Scientific Name):	European Starling; Sturnus vulgaris; EUST
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:

Bird Observation: - 64. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA

Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Butterfly/Moth

Butterfly/Moth Observation: (1 Item)

Butterfly/Moth Observation: - 1. 1 record

Butterfly/Moth (Common or Scientific Name):	Queen; Danaus gilippus
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A
Number of individuals observed:	

Photo(s) of Butterfly/Moth:

Notes:	

Mammal

Mammal Observation: (2 Items)

Mammal Observation: - 1. 1 record

Mammal (Common or Scientific Name):	Audubons 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):	Common Side-blotched Lizard; Uta stansburiana
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 Fence Lizard; Sceloporus occidentalis
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Reptile:	
Notes:	

G-3 Threat Assessment Form

Scientific Name: Circus hudsonius *Common Name:* *Northern Harrier*

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: Tijuana River Valley Regional Park

Land Owner: County of San Diego, DPR *Land Manager:*

Surveyors & Affiliation: Jaclyn Catino-Davenport (ESA), Brennan Mulrooney (ESA)

Date: June 27, 2023 *Time Start:* *0628*

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: Northern Harrier	*MSP Occurrence ID: N/A*
Preserve: Tijuana River Valley Regional Park	*Occurrence Name: N/A*
Date: June 27, 2023	*Surveyors & Affiliation/Agency: Jaclyn Catino-Davenport (ESA), Brennan Mulrooney (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, ocean

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	5	Feral Pig Activity	1	Erosion	3
Non-Native Grasses	3	Trampling	3	Urban Runoff	3
Non-Native Woody Plants	4	Vandalism	1	Slope Movement	1
Competitive Native Plants	1	Grazing (Y/N/UNK)	Unknown	Soil Compaction	1
Dumping/Trash	3	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: In field across from baseball fields. mowing only, no ground disturbance.

Restoration Project (Impacts): 3 If Observed, Briefly Describe: watering of restoration areas observed

ORV Activity 3 If Observed, List Type(s) of ORV Activity: Border Patrol on ORV

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): Restoration crews

Illegal Trail Use? ☑ Yes ☐ No ☐ Unknown

Describe: Go around signs that say "trail closed" Other Disturbance? List & Rank: _

_____

Collection? Yes:_____No:_____Collector:_____

Collection #:_____Herbarium:_____Species Collected: _____

Collection 2, Collector:_____(enter additional collections on p. 3)

Collection #:_____Herbarium:_____Species Collected: _____

Occurrence ID: N/A Species: Northern Harrier Date: June 27, 2023

VI. MANAGEMENT RECOMMENDATIONS

Continue to conduct nesting surveys, especially for Territory 1.

VII. MANAGEMENT ACTIONS IN LAST YEAR

Conducted nesting surveys for Northern Harriers in 2022 and 2023.

VIII. CNDDB SPECIES DETECTED & NOTES

List any sensitive plant or animal species to add to the CNDDB:

White-tailed Kite, Peregrine Falcon, Cooper's hawk, least Bell's vireo, yellow warbler, yellow-breasted chat, osprey, white-faced ibis, double-crested cormorant, California gnatcatcher

Time Finish: 10:50

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.

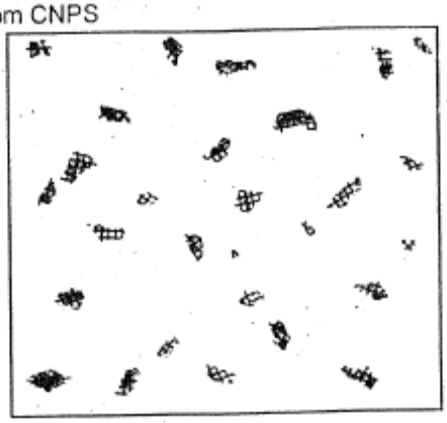
5 = Disturbance occurs in 25% to <50% of area within maximum extent.

6 = Disturbance occurs 50% to <75% of area within maximum extent.

7 = Disturbance occurs ≥75% of area within maximum extent.

Cover Diagrams from CNPS

1%



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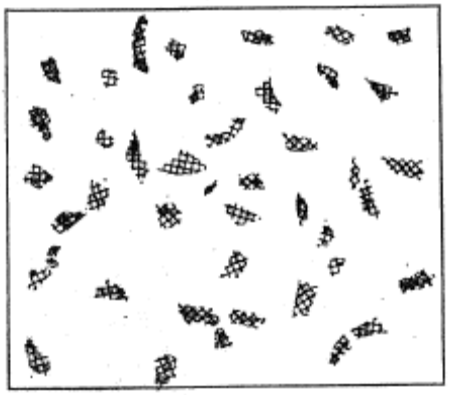

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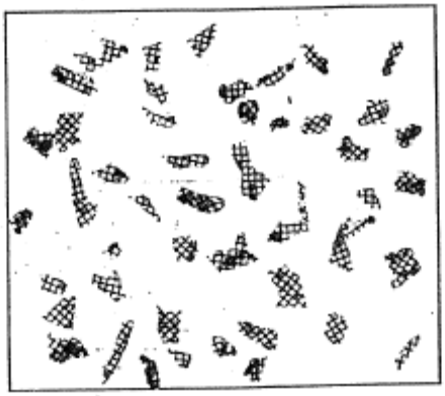

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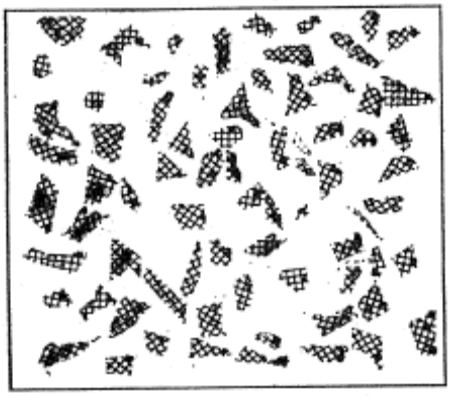

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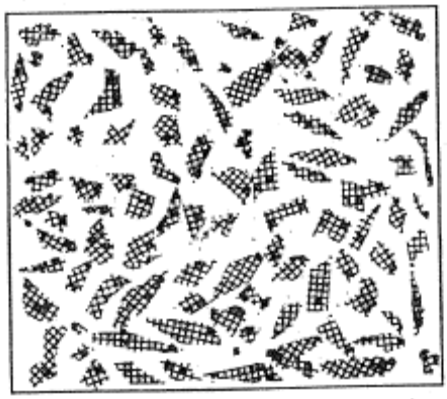

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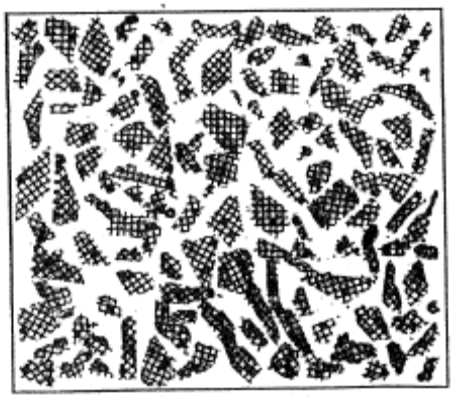

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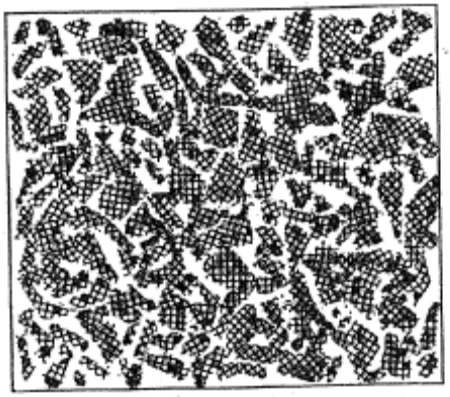

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Appendix H

Least Bell's Vireo USFWS 45-Day Report and Brown-Headed Cowbird Trapping Annual Report

H-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

www.esassoc.com

August 11, 2023

Stacey Love
Carlsbad Fish and Wildlife Service Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: Results of 2023 Focused Least Bell's Vireo Surveys for the Santa Margarita County Preserve Implementation of Targeted Monitoring Plan (TMP), Unincorporated San Diego County, California

Dear Ms. Love:

This letter report presents the methodology and results of focused surveys conducted for least Bell's vireo (*Vireo bellii pusillus*; LBVI) at the Santa Margarita County Preserve (Preserve) located in unincorporated San Diego County, California. Environmental Science Associates (ESA) biologists Florence Chan, Brennan Mulrooney, Jaclyn Catino-Davenport, and Brenda McMillan conducted the surveys to determine the presence or absence of the species within the approximately 211-acre survey area (survey area) as directed by the County of San Diego (County) Department of Parks and Recreation (DPR) Targeted Monitoring Plan (TMP; ESA and ICF 2022).

Project Description and Location

The Preserve is an approximately 211-acre open space preserve located in northern San Diego County, west of Interstate 15 and north of State Route 76 (**Figure 1**; see **Attachment A** for figures). The Preserve is located just east of the northeastern portion of 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 survey area encompasses a portion of the Santa Margarita River and adjacent upland areas, recreational trails and access roads, and the Preserve staging area on the north side of De Luz Road. The Preserve contains a total of 21 vegetation communities and land cover types: Diegan coastal sage scrub, Diegan coastal sage scrub: inland form, southern mixed chaparral, chamise chaparral, scrub oak chaparral, coastal sage-chaparral transition, non-native grassland, wildflower field, southern riparian forest, southern coast live oak riparian forest, southern cottonwood-willow riparian forest, southern sycamore-alder riparian woodland, southern riparian woodland, southern riparian scrub, southern willow scrub, coast live oak woodland, open coast live oak woodland, coast live oak forest, open water, urban/developed, and disturbed habitat (**Figure 3**).

For the purposes of the LBVI survey, all vegetation communities within the Santa Margarita River channel were surveyed. Potentially suitable nesting habitat for LBVI occurs only in 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

Surveys for LBVI were conducted and led by ESA biologists Florence Chan, Brennan Mulrooney, Brenda McMillan, and Jaclyn Catino-Davenport and assisted by Dillon Travis, Mary Cozy, Karla Alcaraz, Amy Orduño-Baez, and Bailey Setzler. Survey methodology followed the U.S. Fish and Wildlife Service's (USFWS's) *Least Bell's Vireo Survey Guidelines* issued January 19, 2001 (USFWS 2001). Eight surveys were conducted between April 11 and June 30, 2023, within all portions of the survey area containing potentially suitable habitat. All vegetation communities within the Santa Margarita River channel were surveyed to encompass all potentially suitable nesting habitat and adjacent habitat potentially used for foraging. Surveys were conducted no less than 10 days apart between dawn and 11:31 a.m. Weather conditions were suitable for all surveys, with overcast to clear skies, winds of 3 miles per hour or less, and temperatures between 50°F and 79°F.

Results

Survey results are summarized in **Table 1** and depicted in **Figure 4**. Completed field forms are provided in **Attachment B**. LBVI were detected during all 2023 focused surveys. Brown-headed cowbirds (*Molothrus ater*; BHCO), which are brood parasites, were also detected within the survey area during protocol LBVI surveys, as summarized in **Table 2** below. BHCO trapping occurred within the Preserve from April 1 to June 30, 2023, and trap locations are depicted in **Figure 4**. Data for trapping results were not available at the time of this report.

Incidental Observations

A complete list of all wildlife observed during the surveys is included in **Attachment C**. Incidentally observed special-status species included Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), great blue heron (*Ardea herodias*), turkey vulture (*Cathartes aura*), Cooper's hawk (*Accipiter cooperii*), red-shouldered hawk (*Buteo lineatus*), 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. Great blue heron is a County Group 2 species. Turkey vulture is a County Group 1 species. Cooper's hawk is a CDFW watch list species and a County Group 1 species. Red-shouldered hawk is a County Group 1 species. Yellow-breasted chat is a CDFW species of special concern and a County Group 1 species. Yellow warbler is a CDFW species of special concern and a County Group 2 species. CDFW California Natural Diversity Database (CNDDB) forms for all state and federal special-status species are provided in **Attachment D**. 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. We estimate that there were approximately 10 territories of yellow warbler and 4 territories of yellow-breasted chat in the survey area.

TABLE 1
LBVI SURVEY RESULTS

Date	Time (start/end)	Wind (mph) (start/end)	Temperature (F) (start/end)	Cloud Cover (start/end)	Results	Surveyors
04/11/23	0630–1100	0/0	50°–58°	100–80	15 adult LBVI Detected	Brennan Mulrooney, Florence Chan
04/21/23	0629–1103	2/0	58°–70°	100–40	14 adult LBVI Detected	Florence Chan, Dillon Travis
05/02/23	0644–1115	0/2	55°–65°	95–45	10 adult LBVI Detected	Florence Chan, Jaclyn Catino-Davenport
05/12/23	0642–1107	1/1	56°–65°	100–60	13 adult LBVI Detected	Florence Chan, Mary Cozy
05/25/23	0630–1131	1/3	55°–75°	100–90	10 adult LBVI Detected	Brenda McMillan, Karla Alcaraz
06/06/23	0600–1100	1/1	58°–64°	60–100	15 adult and 2 juvenile LBVI Detected	Brennan Mulrooney, Florence Chan
06/19/23	0559–1100	0/0	56°–67°	100–100	10 adult and 5 juvenile LBVI Detected	Florence Chan, Amy Orduno-Baez
06/30/23	0555–1100	0/1	57°–79°	100–0	17 adult and 6 juvenile LBVI Detected	Brennan Mulrooney, Bailey Setzler

TABLE 2
BROWN-HEADED COWBIRD DETECTIONS

Date	Count	Latitude (Y)[1]	Longitude (X)[1]
5/02/2023	2	33.4008544	-117.250390
6/30/2023	2	33.408107	-117.249930

[1] Coordinates are in WGS 84

Conclusion

Based on the results of the protocol-level LBVI surveys, the survey area contains LBVI habitat that was occupied by up to 13 LBVI territories. At least six of those territories produced young. Nest searching was not part of this survey protocol; however, one nest was incidentally discovered. The nest was subsequently parasitized by BHCO and was abandoned by the LBVI pair. BHCOs were observed during two surveys and no juvenile BHCOs were observed during any survey.

If there are any questions regarding this report or the results, please feel free to reach out to Brennan Mulrooney at (305) 849-2762 or Florence Chan at (949) 491-2528 or fchan@esassoc.com.

Sincerely,

Brennan Mulrooney
Senior Biologist

Florence Chan
Senior Biologist

Brenda McMillan
Senior Biologist

Jaclyn Catino-Davenport
Principal Biologist

Attachments:

Attachment A: Figures

- Figure 1: Regional Location
- Figure 2: Vicinity Map
- Figure 3: Santa Margarita County Preserve Vegetation Communities – Holland-Oberbauer Classification
- Figure 4: Least Bell's Vireo Survey Results Map

Attachment B: Field Forms

Attachment C: Wildlife Compendium

Attachment D: California Natural Diversity Database (CNDDB) Forms

Certification Statement

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

Brennan Mulrooney
Senior Biologist

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

Florence Chan
Senior Biologist

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

Brenda McMillan
Senior Biologist

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

Jaclyn Catino-Davenport
Principal Biologist

References

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

U.S. Fish and Wildlife Service (USFWS). 2001. Least Bell's Vireo Survey Guidelines. January 19, 2001.

Attachment A

Figures

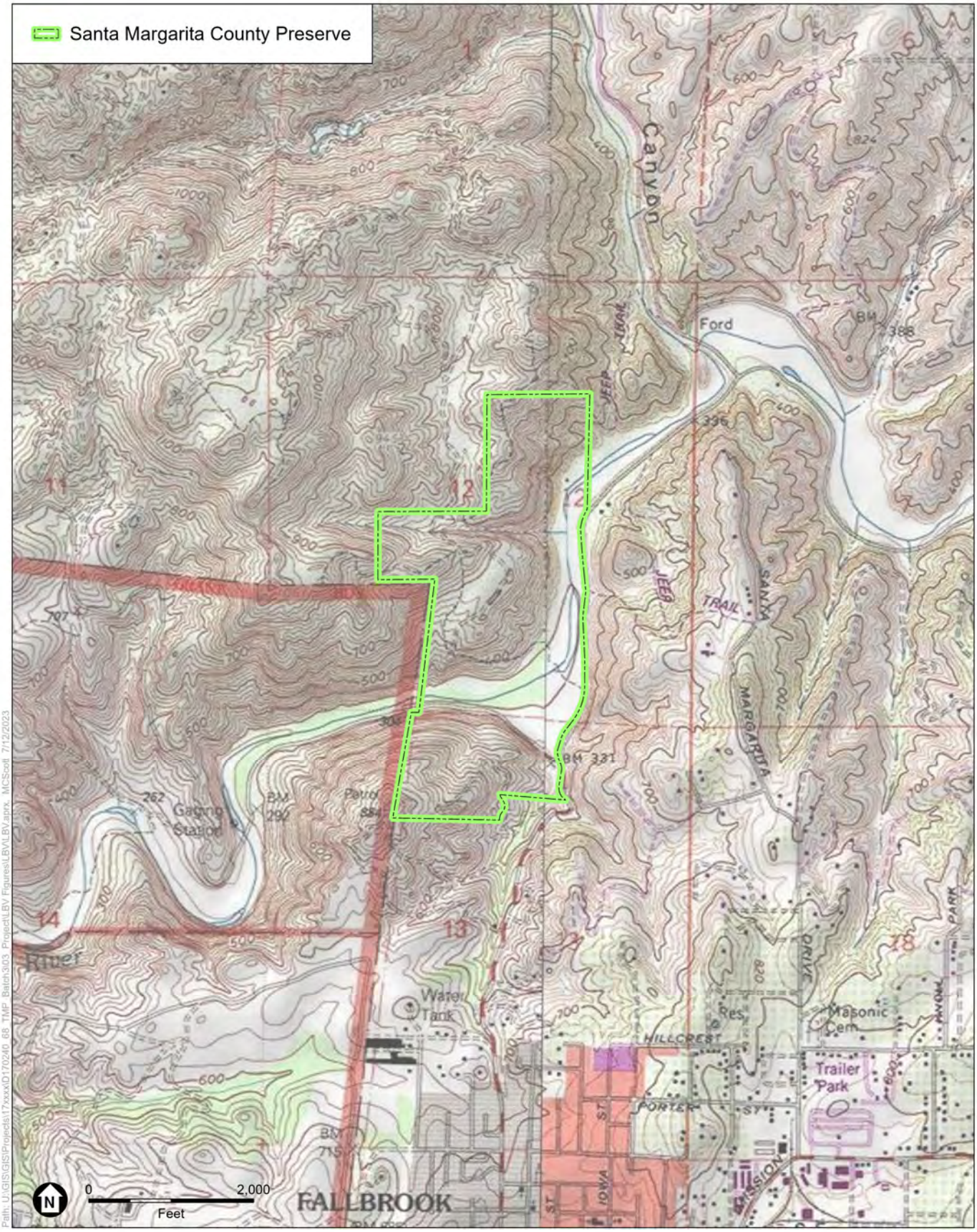
ESA

SOURCE: SanGIS

COSD DPR 557744 TO 68 – Implementation of Targeted Monitoring Plan 2023 Resource-Specific Monitoring and Management
2023 Focused Least Bell's Vireo Surveys for the Santa Margarita County Preserve

ESA

Figure 1
Regional Location



SOURCE: USGS Topoquads
Fallbrook and Temecula

COSD DPR 557744 TO 68 –
Implementation of Targeted Monitoring Plan 2022 Resource-Specific Monitoring and Management
2023 Focused Least Bell's Vireo Surveys 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

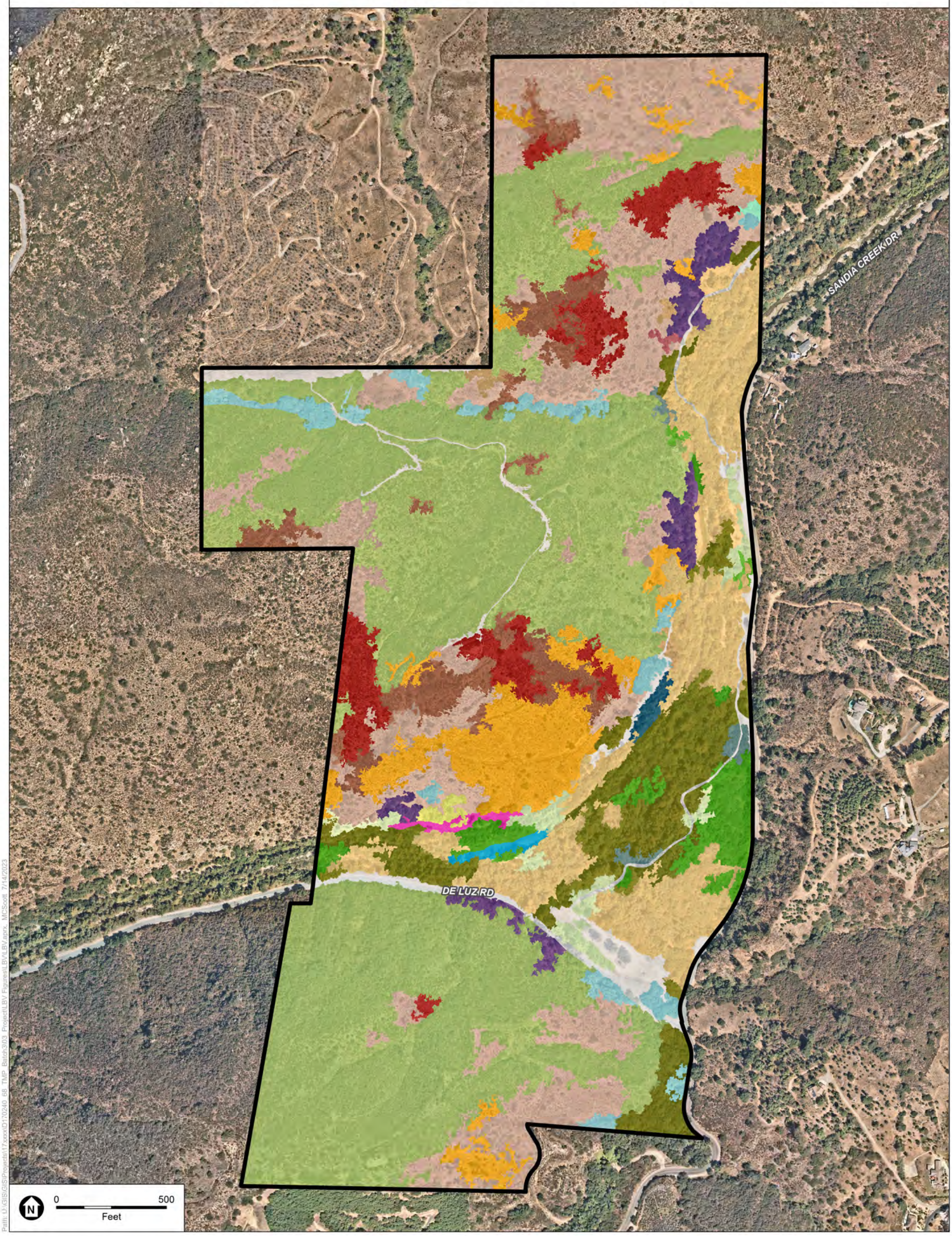
Herbaceous
- 42200 Non-Native Grassland
- 42300 Wildflower Field

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

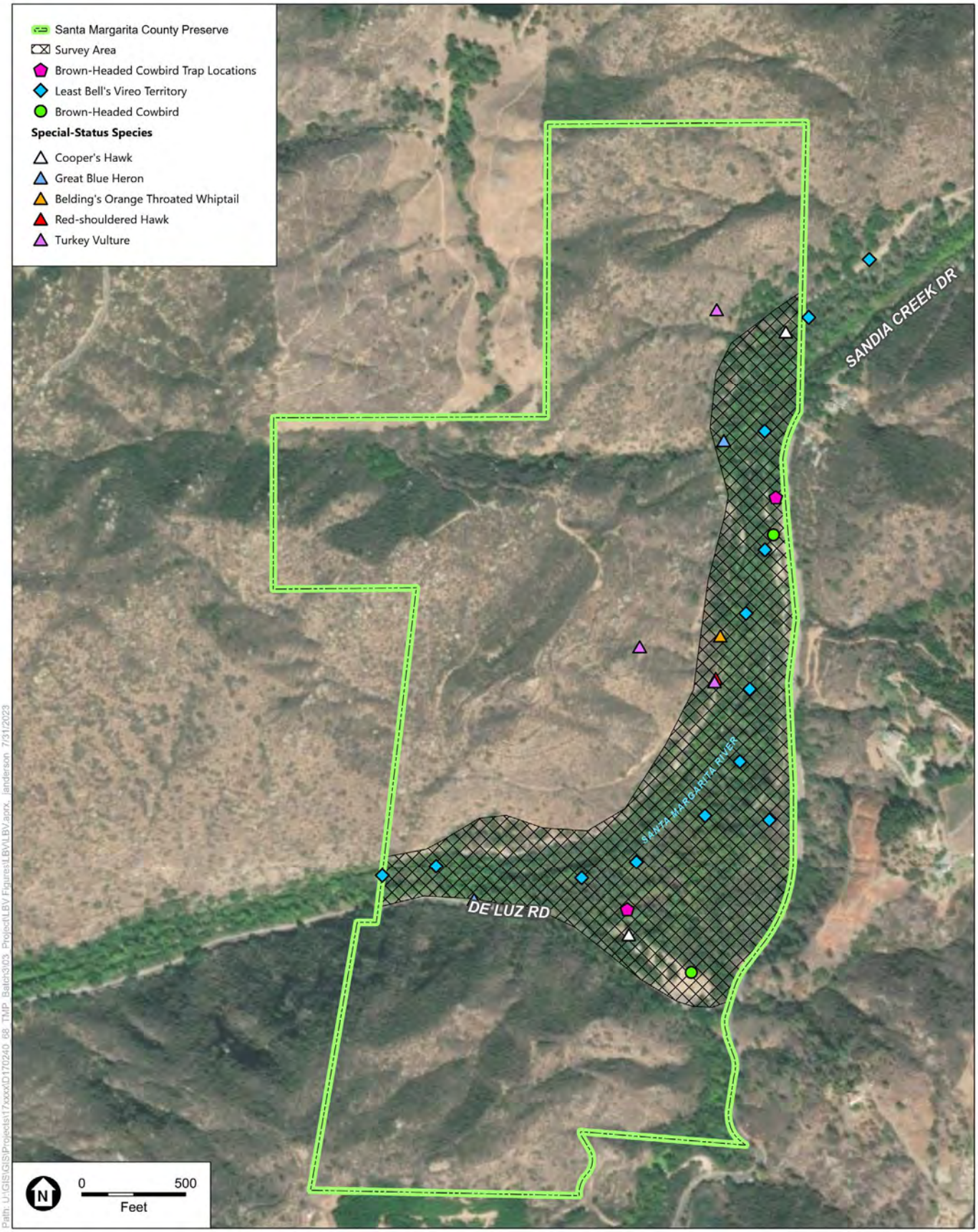


SOURCE: Nearmap, 9/5/2020; ESA, 2023.

COSD DPR 557744 TO 68 – Implementation of Targeted Monitoring Plan 2023 Resource-Specific Monitoring and Management
2023 Focused Least Bell's Vireo Surveys for the Santa Margarita County Preserve

ESA

Figure 3
Santa Margarita County Preserve
Vegetation Communities - Holland-Oberbauer Classification



SOURCE: ESRI, 2023; ESA, 2023

COSD DPR 557744 TO 68 –
Implementation of Targeted Monitoring Plan 2023 Resource-Specific Monitoring and Management
2023 Focused Least Bell's Vireo Surveys for the Santa Margarita County Preserve

ESA

Figure 4
Least Bell's Vireo Survey Results

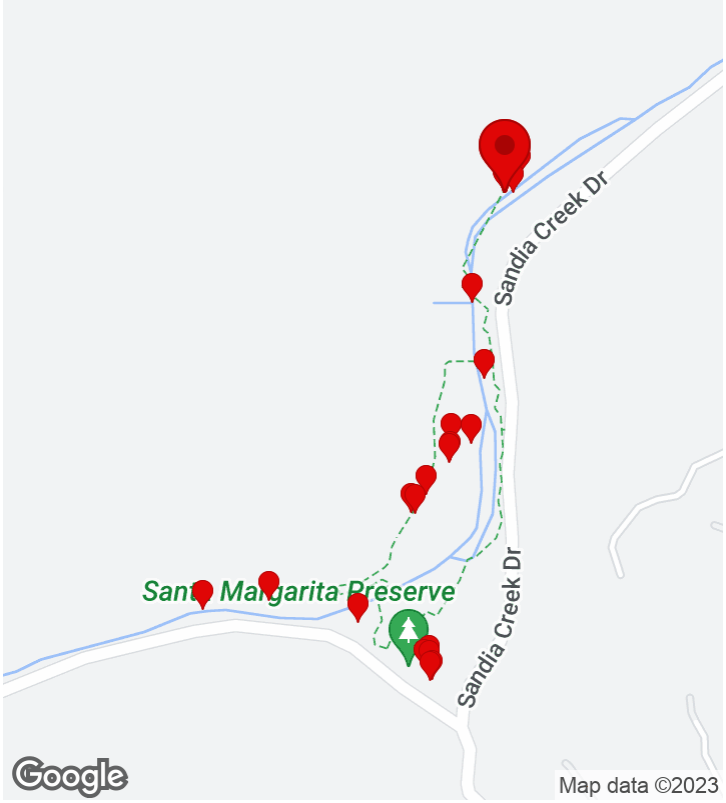
H-2 Brown-Headed Cowbird Trapping Annual Report

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ LBV

7/11/2023, 6:36:16 PM UTC



CREATED

4/11/2023, 3:52:58 PM UTC
by SC Fulcrum03

UPDATED

7/11/2023, 6:36:16 PM UTC
by SC Fulcrum14

LOCATION

33.410109, -117.249349

Parent Form

Project Name:	TMP Monitoring ▸ LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Florence Chan
Date:	April 11, 2023

START Weather Details:

Start - Time:	06:30
Start - Temperature:	50
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 (%):	100
Start - Precipitation (select one):	None
Start - Visibility (select one):	Fair
Start - Notes (if applicable):	

END Weather Details:

Time Out:	11:00
End - Temperature:	58
End - Wind Direction From (select one):	
End - Low Wind Speed:	0
End - High Wind Speed:	0
End - Average Wind Speed:	0
End - Cloud Cover (%):	80
End - Precipitation (select one):	None
End - Visibility (select one):	Good
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	Santa Margarita Preserve.

Notes	12 territories. Three pairs (LBV1, LBV5, LBV12).
Observation Type:	Bird, Amphibian, Reptile
Photos	

Amphibian

Amphibian Observation: (1 Item)

Amphibian Observation: - 1. 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: (46 Items)

Bird Observation: - 1. 1 record, no

Bird (Common or Scientific Name):	American Robin; Turdus migratorius; AMRO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 2. 1 record, no

Bird (Common or Scientific Name):	Ruby-crowned Kinglet; Regulus calendula; RCKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	

Photo(s) of Bird:

Notes:

Bird Observation: - 3. 1 record, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record, no

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record, no

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record, no

Bird (Common or Scientific Name):	Acorn Woodpecker; Melanerpes formicivorus; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 7. 1 record, no

Bird (Common or Scientific Name):	Downy Woodpecker; Dryobates pubescens; DOWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	10
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 10. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	3
Behavior (check all that apply):	Singing/calling
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: - 11. 1 record, no

Bird (Common or Scientific Name):	House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 13. 1 record, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; Empidonax difficilis; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record, no

Bird (Common or Scientific Name):	Oak Titmouse; Baeolophus inornatus; OATI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record, no

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 16. 1 record, no

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 17. 1 record, no

Bird (Common or Scientific Name):	Black Phoebe; Sayornis nigricans; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 18. 1 record, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record, no

Bird (Common or Scientific Name):	House Finch; Haemorhous mexicanus; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 20. 1 record, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; Oreothlypis celata; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 21. 1 record, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; Polioptila caerulea; BGGN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 22. 1 record, no

Bird (Common or Scientific Name):	California Thrasher; Toxostoma redivivum; CATH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 23. 1 record, no

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 24. 1 record, no

Bird (Common or Scientific Name):	Black-chinned Hummingbird; Archilochus alexandri; BCHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 25. 1 record, no

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 26. 1 record, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 27. 1 record, no

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 28. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV2
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 29. 1 record, no

Bird (Common or Scientific Name):	Belted Kingfisher; Megaceryle alcyon; BEKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 30. 1 record, no

Bird (Common or Scientific Name):	Black-headed Grosbeak; Pheucticus melanocephalus; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 31. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Outside park boundary
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	LBVI 08

Bird Observation: - 32. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	LBVI 06

Bird Observation: - 33. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory

Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	LBV5. Paired.

Bird Observation: - 34. 1 record, no

Bird (Common or Scientific Name):	Phainopepla; Phainopepla nitens; PHAI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 35. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV3
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 36. 1 record, yes

Bird (Common or Scientific Name):	Turkey Vulture; Cathartes aura; TUVU
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 37. 1 record, no

Bird (Common or Scientific Name):	Scaly-breasted Munia; Lonchura punctulata; SBMU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 38. 1 record, no

Bird (Common or Scientific Name):	Band-tailed Pigeon; Patagioenas fasciata; BTPI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 39. 1 record, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; Myiarchus cinerascens; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 40. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV10. Heard singing in the distance. Neighbor LBV1 pair was observed at the same time.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 41. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1

Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV11. Heard singing in the distance
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 42. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	LBV12. Paired.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 43. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling

Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	LBV1. Paired.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 44. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV4.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 45. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male

Bird Age (check all that apply):	Adult
Additional Notes:	LBV7
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 46. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV9
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

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:	

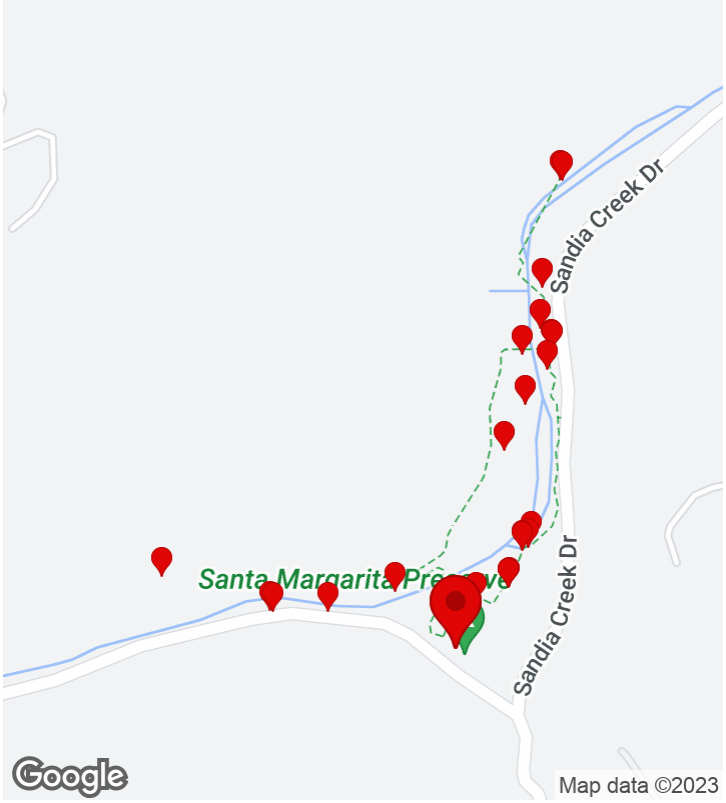
Notes:

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ LBV

7/11/2023, 6:55:45 PM UTC



CREATED

4/21/2023, 1:29:46 PM UTC
by SC Fulcrum14

UPDATED

7/11/2023, 6:55:45 PM UTC
by SC Fulcrum14

LOCATION

33.401725, -117.251618

Parent Form

Project Name:	TMP Monitoring ▸ LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Florence Chan
Assistant Observer/Surveyor:	Dillion Travis
Date:	April 21, 2023

START Weather Details:

Start - Time:	06:29
Start - Temperature:	58
Start - Wind Direction From (select one):	
Start - Low Wind Speed:	0
Start - High Wind Speed:	4
Start - Average Wind Speed:	2
Start - Cloud Cover (%):	100
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Start - Notes (if applicable):	

END Weather Details:

Time Out:	11:03
End - Temperature:	70
End - Wind Direction From (select one):	
End - Low Wind Speed:	0
End - High Wind Speed:	0
End - Average Wind Speed:	0
End - Cloud Cover (%):	40
End - Precipitation (select one):	None
End - Visibility (select one):	
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	Santa Margarita Preserve.

Notes	LBV10, 2 (pair), 9, 3, 5 (pair, nest building), 6 (pair), 7 13, 4 (pair), 12, 11.
Observation Type:	Bird, Nesting Bird Behavior
Photos	

Bird

Bird Observation: (33 Items)

Bird Observation: - 1. 1 record, no

Bird (Common or Scientific Name):	Black Phoebe; Sayornis nigricans; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 2. 1 record, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; Oreothlypis celata; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling

Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV10. Heard in the distance.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	Abundant throughout riparian habitat
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record, no

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record, no

Bird (Common or Scientific Name):	Acorn Woodpecker; Melanerpes formicivorus; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record, no

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record, no

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; Myiarchus cinerascens; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Abundant throughout riparian habitat
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 11. 1 record, no

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:

Bird Observation: - 12. 1 record, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:

Bird Observation: - 13. 1 record, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling, Foraging
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	LBV2. Paired. Singing and foraging together.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record, no

Bird (Common or Scientific Name):	House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 16. 1 record, no

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 17. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling, Foraging
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV9. Countersinging with LBV3.
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 18. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male

Bird Age (check all that apply):	Adult
Additional Notes:	LBV3. Countersinging with LBV9.
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 20. 1 record, no

Bird (Common or Scientific Name):	Mallard; Anas platyrhynchos; MALL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 21. 1 record, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 22. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Nest building
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	LBV5. Pair building in mulefat between the trail and public road. Nest is 1.5-2feet off the ground. 50% complete.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 23. 1 record, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; Polioptila caerulea; BGGN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 24. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling, Foraging
Bird Sex (check all that apply):	Male, Female

Bird Age (check all that apply):	Adult
Additional Notes:	LBV6. Paired. Looking for a suitable nest location.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 25. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV7. Heard singing in the distance.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 26. 1 record, no

Bird (Common or Scientific Name):	Black-headed Grosbeak; Pheucticus melanocephalus; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:

Bird Observation: - 27. 1 record, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; Empidonax difficilis; PSFL

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 28. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV13. New. Singing in the distance between LBV5 and LBV4.
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 29. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult

Additional Notes:	LBV4. Paired. Heard counter singing with new bird LBV13.
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 30. 1 record, no

Bird (Common or Scientific Name):	American Goldfinch; Spinus tristis; AMGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 31. 1 record, no

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 32. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Additional Notes:	LBV11. Singing in the distance infrequently.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 33. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV12. Heard singing in the distance.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Nesting Bird Behavior

Nesting Bird Behavior Observation: (1 Item)

Nesting Bird Behavior Observation: - 1. 1 record

Status of Nest:	Active
Activity Status of Nest:	Nest building
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

Bird Nest Observation

Observation Type:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Nest building
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	LBV5. Nest building in mulefat. 1.5-2 feet off the ground. 50% complete.

Photo(s) of Bird:

Photo(s) of Nesting Bird Behavior:

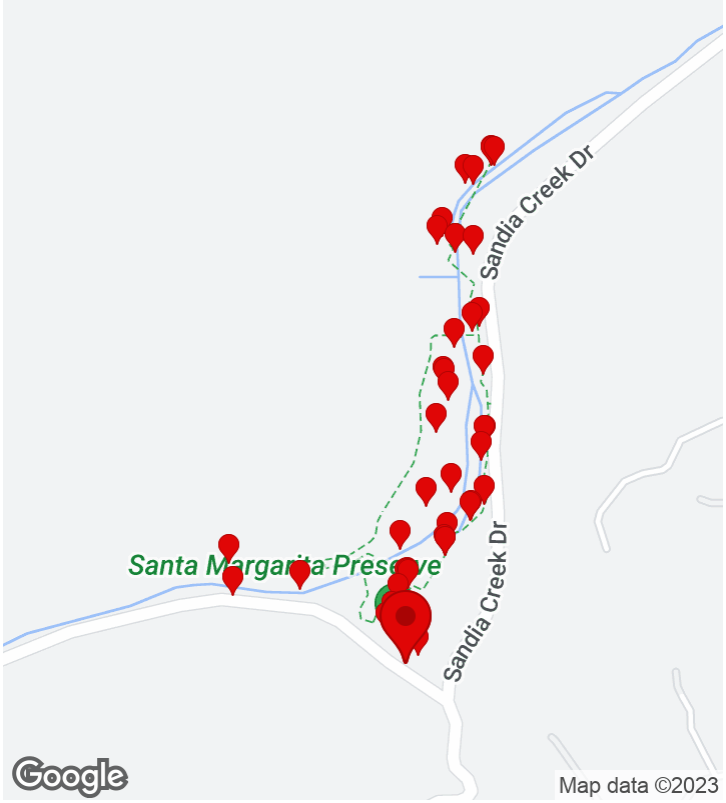
Notes:

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ LBV

7/11/2023, 7:03:17 PM UTC



CREATED

5/2/2023, 1:44:15 PM UTC
by SC Fulcrum05

UPDATED

7/11/2023, 7:03:17 PM UTC
by SC Fulcrum14

LOCATION

33.401200, -117.251171

Parent Form

Project Name:	TMP Monitoring ▸ LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Florence Chan
Assistant Observer/Surveyor:	Jaclyn Catino-Davenport
Date:	May 2, 2023

START Weather Details:

Start - Time:	06:44
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 (%):	95
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Start - Notes (if applicable):	

END Weather Details:

Time Out:	11:15
End - Temperature:	65
End - Wind Direction From (select one):	E
End - Low Wind Speed:	0
End - High Wind Speed:	4
End - Average Wind Speed:	2
End - Cloud Cover (%):	45
End - Precipitation (select one):	None
End - Visibility (select one):	Good
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	Santa Margarita Preserve.

Notes	LBV2, 3, 13 (paired), 5 (paired), 6, 7, 10, 11.
Observation Type:	Amphibian, Bird, Reptile

Photos

Amphibian

Amphibian Observation: (1 Item)

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:	

Bird

Bird Observation: (47 Items)

Bird Observation: - 1. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 2. 1 record, no

Bird (Common or Scientific Name):	Hooded Oriole; Icterus cucullatus; HOOR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; Empidonax difficilis; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 5. 1 record, no

Bird (Common or Scientific Name):	Acorn Woodpecker; Melanerpes formicivorus; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record, no

Bird (Common or Scientific Name):	California Scrub-Jay; Aphelocoma californica; CASJ
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record, no

Bird (Common or Scientific Name):	House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 9. 1 record, no

Bird (Common or Scientific Name):	American Goldfinch; Spinus tristis; AMGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record, no

Bird (Common or Scientific Name):	Downy Woodpecker; Dryobates pubescens; DOWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record, no

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 13. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record, no

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record, no

Bird (Common or Scientific Name):	Black-headed Grosbeak; Pheucticus melanocephalus; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 16. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Territory #2
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 17. 1 record, no

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 18. 1 record, no

Bird (Common or Scientific Name):	Allen's Hummingbird; Selasphorus sasin; ALHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 19. 1 record, no

Bird (Common or Scientific Name):	House Finch; Haemorhous mexicanus; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 20. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Territory #3
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 21. 1 record, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 22. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Two males counter singing
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 23. 1 record, no

Bird (Common or Scientific Name):	Northern Flicker; Colaptes auratus; NOFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 24. 1 record, no

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 25. 1 record, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; Oreothlypis celata; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 26. 1 record, no

Bird (Common or Scientific Name):	Cassin's Kingbird; Tyrannus vociferans; CAKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 27. 1 record, no

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 28. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 29. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Foraging, Singing/calling
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	Territory #13. Paired. Singing and foraging together around the territory.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 30. 1 record, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; Polioptila caerulea; BGGN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 31. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	LBV5. Nest appeared to be abandoned. No activity at the nest. Male heard singing from over side of trail and didn't scold our presence when approaching nest. Upon closer inspection, one BHCO egg seen in nest.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 32. 1 record, no

Bird (Common or Scientific Name):	Brown-headed Cowbird; Molothrus ater; BHCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	2
Photo(s) of Bird:	
Notes:	Pair, 1 male and 1 female

Bird Observation: - 33. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Foraging, Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV6. Low in foliage. Likely nesting.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 34. 1 record, no

Bird (Common or Scientific Name):	Band-tailed Pigeon; Patagioenas fasciata; BTPI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:

Bird Observation: - 35. 1 record, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; Myiarchus cinerascens; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:

Bird Observation: - 36. 1 record, no

Bird (Common or Scientific Name):	Mallard; Anas platyrhynchos; MALL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 37. 1 record, no

Bird (Common or Scientific Name):	Ruby-crowned Kinglet; Regulus calendula; RCKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 38. 1 record, no

Bird (Common or Scientific Name):	California Thrasher; Toxostoma redivivum; CATH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 39. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Territory #7
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 40. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 41. 1 record, no

Bird (Common or Scientific Name):	Hermit Thrush; Catharus guttatus; HETH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 42. 1 record, no

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 43. 1 record, no

Bird (Common or Scientific Name):	Costa's Hummingbird; Calypte costae; COHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 44. 1 record, yes

Bird (Common or Scientific Name):	Red-shouldered Hawk; Buteo lineatus; RSHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 45. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory

Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Territory #10, likely single male.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 46. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV11. Singing in the distance.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 47. 1 record, no

Bird (Common or Scientific Name):	Black Phoebe; Sayornis nigricans; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:

Reptile

Reptile Observation: (1 Item)

Reptile Observation: - 1. 1 record

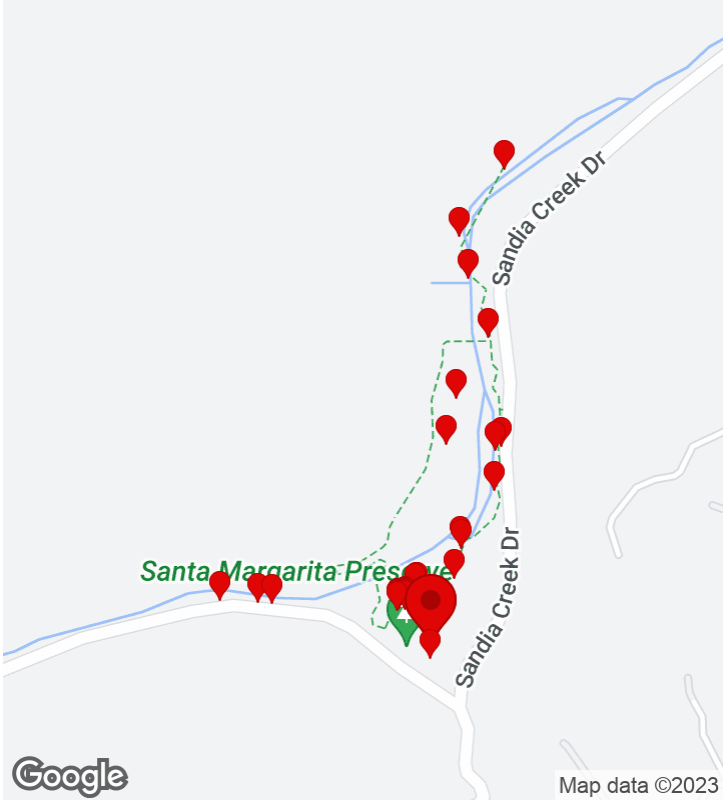
Reptile (Common or Scientific Name):	Western Fence Lizard; Sceloporus occidentalis
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Reptile:	
Notes:	

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ LBV

5/12/2023, 8:29:30 PM UTC



CREATED

5/12/2023, 1:42:35 PM UTC
by SC Fulcrum14

UPDATED

5/12/2023, 8:29:30 PM UTC
by SC Fulcrum14

LOCATION

33.401606, -117.250899

Parent Form

Project Name:	TMP Monitoring ▸ LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Florence Chan
Assistant Observer/Surveyor:	Mary Cozy
Date:	May 12, 2023

START Weather Details:

Start - Time:	06:42
Start - Temperature:	56
Start - Wind Direction From (select one):	N
Start - Low Wind Speed:	0
Start - High Wind Speed:	2
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:	11:07
End - Temperature:	65
End - Wind Direction From (select one):	SW
End - Low Wind Speed:	0
End - High Wind Speed:	2
End - Average Wind Speed:	
End - Cloud Cover (%):	60
End - Precipitation (select one):	None
End - Visibility (select one):	Good
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	Santa Margarita Preserve.

Notes	LBV14, 2, 9, 3, 5 (paired), 6, 7, 13 (paired), 4,11,12.
Observation Type:	Bird

Photos

Bird

Bird Observation: (33 Items)

Bird Observation: - 1. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 2. 1 record, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; Oreothlypis celata; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record, no

Bird (Common or Scientific Name):	Hermit Warbler; Setophaga occidentalis; HEWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
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, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record, no

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; Empidonax difficilis; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record, no

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record, no

Bird (Common or Scientific Name):	California Scrub-Jay; Aphelocoma californica; CASJ
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record, no

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record, no

Bird (Common or Scientific Name):	Acorn Woodpecker; Melanerpes formicivorus; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 13. 1 record, no

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record, no

Bird (Common or Scientific Name):	Hooded Oriole; Icterus cucullatus; HOOR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record, no

Bird (Common or Scientific Name):	House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 16. 1 record, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 17. 1 record, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 18. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV9. Heard in the distance.
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1

Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV14. New. Heard in the distance. Countered briefly with LBV9. Confirmed two territories.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 20. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV2. Heard in the distance.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 21. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling

Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV3. In the distance.
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 22. 1 record, no

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 23. 1 record, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 24. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling

Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult
Additional Notes:	LBV5. Pair observed briefly as they potentially switched incubation duties. Male took over as female flew off. Potential nest in grape or area around 4 sycamores.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 25. 1 record, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; Polioptila caerulea; BGGN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 26. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV6. Heard in the distance.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 27. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV7. Heard in the distance.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 28. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	2
Behavior (check all that apply):	Singing/calling, Foraging
Bird Sex (check all that apply):	Female, Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV13. Male singing, making contact calls with the female, and and making short scolding call. Female heard calling.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 29. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory, Visual
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV4. Uses both sides of the trail. Brief singing.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 30. 1 record, yes

Bird (Common or Scientific Name):	Great Blue Heron; Ardea herodias; GBHE
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	Flying over
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, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV12. On the hillside and in the habitat.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 32. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV11. In the distance.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 33. 1 record, no

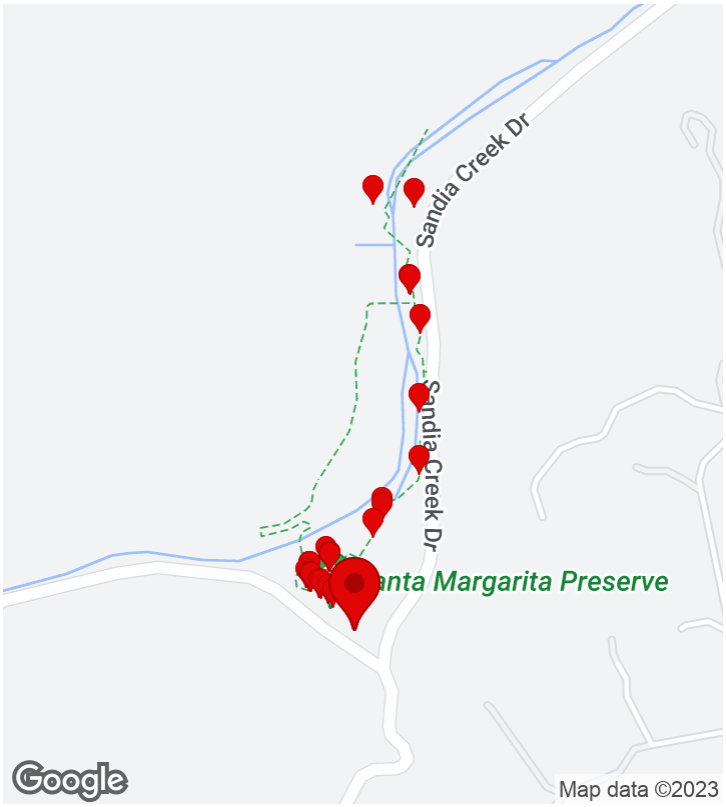
Bird (Common or Scientific Name):	Black Phoebe; Sayornis nigricans; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ LBV

5/25/2023, 6:51:56 PM UTC



CREATED

5/25/2023, 1:33:21 PM UTC
by SC Fulcrum13

UPDATED

5/25/2023, 6:51:56 PM UTC
by SC Fulcrum13

LOCATION

33.401221, -117.250899

Parent Form

Project Name:	TMP Monitoring ▸ LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Brenda McMillan
Assistant Observer/Surveyor:	Karla Alcaraz
Date:	May 25, 2023

START Weather Details:

Start - Time:	06:30
Start - Temperature:	55
Start - Wind Direction From (select one):	
Start - Low Wind Speed:	1
Start - High Wind Speed:	
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:	11:31
End - Temperature:	75
End - Wind Direction From (select one):	SW
End - Low Wind Speed:	2
End - High Wind Speed:	6
End - Average Wind Speed:	3
End - Cloud Cover (%):	90
End - Precipitation (select one):	None
End - Visibility (select one):	Good
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	

Notes	2 cowbirds - DISREGARD THIS OBS - ASSOC WITH TRAPS
Observation Type:	Bird
Photos	

Bird

Bird Observation: (31 Items)

Bird Observation: - 1. 1 record, no

Bird (Common or Scientific Name):	Black-headed Grosbeak; Pheucticus melanocephalus; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	male observed perched, singing and foraging

Bird Observation: - 2. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	males observed foraging, singing, and flying

Bird Observation: - 3. 1 record, no

Bird (Common or Scientific Name):	Acorn Woodpecker; Melanerpes formicivorus; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record, no

Bird (Common or Scientific Name):	Northern Rough-winged Swallow; Stelgidopteryx serripennis; NRWS
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	2

Photo(s) of Bird:

Notes:	Nest in metal horse tie posts. females were observed flying in and out of nest with prey and pool packets. Males were observed foraging and exhibiting territorial flight behavior around nest; juveniles were heard calling for food from nest cavity.

Bird Observation: - 5. 1 record, no

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record, yes

Bird (Common or Scientific Name):	Cooper's Hawk; Accipiter cooperii; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	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:	heard calling; no visual observation

Bird Observation: - 7. 1 record, no

Bird (Common or Scientific Name):	American Robin; Turdus migratorius; AMRO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	2
Photo(s) of Bird:	
Notes:	observed foraging around horse corrals

Bird Observation: - 8. 1 record, no

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record, no

Bird (Common or Scientific Name):	House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; Empidonax difficilis; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record, no

Bird (Common or Scientific Name):	California Scrub-Jay; Aphelocoma californica; CASJ

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 13. 1 record, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	heard calling, observed flying and foraging

Bird Observation: - 14. 1 record, no

Bird (Common or Scientific Name):	Brown-headed Cowbird; Molothrus ater; BHCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	Heard calling, no visual ; BIRDS in TRAPS DISREGARD OBS

Bird Observation: - 15. 1 record, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; Empidonax difficilis; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 16. 1 record, no

Bird (Common or Scientific Name):	Hooded Oriole; Icterus cucullatus; HOOR

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	visual and auditory observations

Bird Observation: - 17. 1 record, no

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 18. 1 record, no

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record, no

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	perched and calling in flight

Bird Observation: - 20. 1 record, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	small flock observed foraging along edge of trail

Bird Observation: - 21. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling, In flight
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	16 LBV notes; 10 were heard calling; 6 were perched and singing males; 1 male was heard counter-calling.

Bird Observation: - 22. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Unknown

Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	males were observed exhibiting mating flight behavior

Bird Observation: - 23. 1 record, no

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	heard calling

Bird Observation: - 24. 1 record, no

Bird (Common or Scientific Name):	White-breasted Nuthatch; Sitta carolinensis; WBNU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	visual and auditory observation

Bird Observation: - 25. 1 record, no

Bird (Common or Scientific Name):	House Finch; Haemorhous mexicanus; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 26. 1 record, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 27. 1 record, no

Bird (Common or Scientific Name):	Phainopepla; Phainopepla nitens; PHAI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 28. 1 record, no

Bird (Common or Scientific Name):	Hutton's Vireo; Vireo huttoni; HUVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	male observed foraging and calling from willows

Bird Observation: - 29. 1 record, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; Oreothlypis celata; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	visual and auditory observation

Bird Observation: - 30. 1 record, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 31. 1 record, no

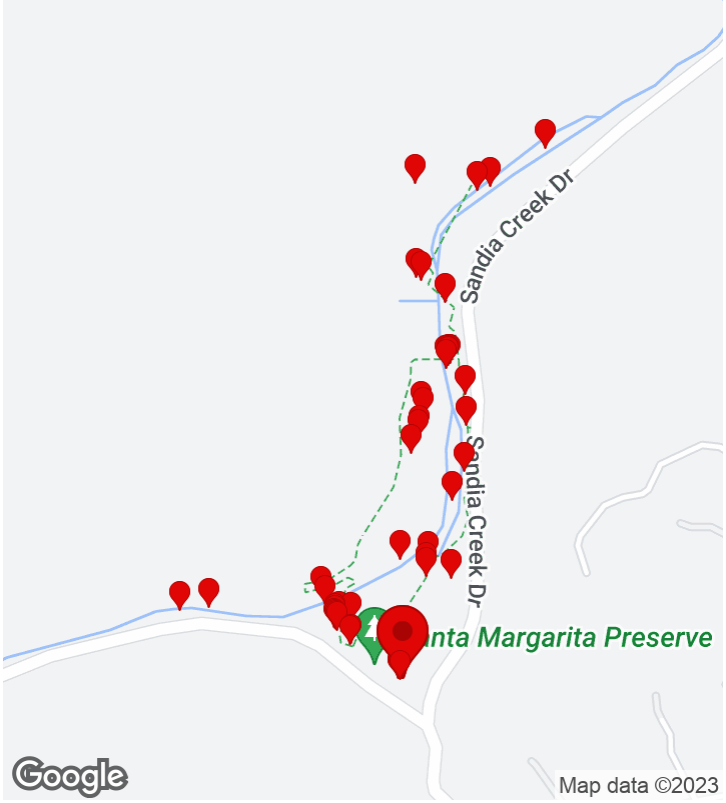
Bird (Common or Scientific Name):	Northern Flicker; Colaptes auratus; NOFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	visual observation; male observed flying over tree canopy

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ LBV

6/30/2023, 4:15:48 PM UTC



CREATED

6/6/2023, 1:15:09 PM UTC
by SC Fulcrum03

UPDATED

6/30/2023, 4:15:48 PM UTC
by SC Fulcrum03

LOCATION

33.401365, -117.250816

Parent Form

Project Name:	TMP Monitoring ▸ LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Florence Chan
Assistant Observer/Surveyor:	Brennan Mulrooney
Date:	June 6, 2023

START Weather Details:

Start - Time:	06:00
Start - Temperature:	58
Start - Wind Direction From (select one):	E
Start - Low Wind Speed:	0
Start - High Wind Speed:	1
Start - Average Wind Speed:	1
Start - Cloud Cover (%):	60
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Start - Notes (if applicable):	

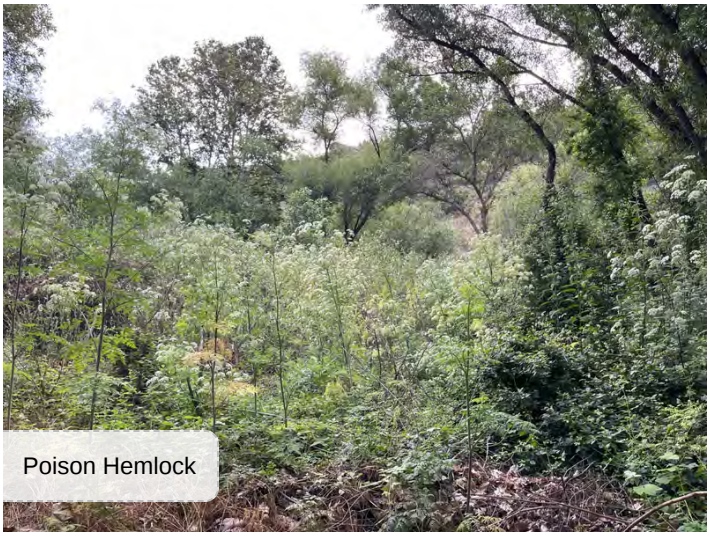
END Weather Details:

Time Out:	11:00
End - Temperature:	64
End - Wind Direction From (select one):	E
End - Low Wind Speed:	1
End - High Wind Speed:	2
End - Average Wind Speed:	1
End - Cloud Cover (%):	100
End - Precipitation (select one):	None
End - Visibility (select one):	
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	

Notes	
Observation Type:	Bird, Amphibian, Nesting Bird Behavior

Photos


Poison Hemlock

Italian thistle

Radish

Nonnative opuntia

Illegal dumping of yard waste.

Amphibian

Amphibian Observation: (1 Item)

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:	

Bird

Bird Observation: (47 Items)

Bird Observation: - 1. 1 record, no

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 2. 1 record, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record, no

Bird (Common or Scientific Name):	Black-headed Grosbeak; Pheucticus melanocephalus; BHGR

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record, no

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record, no

Bird (Common or Scientific Name):	Oak Titmouse; Baeolophus inornatus; OATI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record, no

Bird (Common or Scientific Name):	Common Raven; Corvus corax; CORA

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV 1
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record, no

Bird (Common or Scientific Name):	White-breasted Nuthatch; Sitta carolinensis; WBNU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record, no

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record, no

Bird (Common or Scientific Name):	California Thrasher; Toxostoma redivivum; CATH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 13. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH

Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	3
Behavior (check all that apply):	Singing/calling
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: - 14. 1 record, no

Bird (Common or Scientific Name):	House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record, no

Bird (Common or Scientific Name):	Downy Woodpecker; Dryobates pubescens; DOWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 16. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI

Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV10
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 17. 1 record, no

Bird (Common or Scientific Name):	American Robin; Turdus migratorius; AMRO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 18. 1 record, no

Bird (Common or Scientific Name):	Northern Rough-winged Swallow; Stelgidopteryx serripennis; NRWS
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI

Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 2
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 20. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 9 Counter singing with LBVI 2
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 21. 1 record, no

Bird (Common or Scientific Name):	Allen's Hummingbird; Selasphorus sasin; ALHU
Is the Bird Sensitive ?	no

Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 22. 1 record, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; Empidonax difficilis; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 23. 1 record, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; Myiarchus cinerascens; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 24. 1 record, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 25. 1 record, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; Oreothlypis celata; OCWA
Is the Bird Sensitive ?	no

Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 26. 1 record, no

Bird (Common or Scientific Name):	Phainopepla; Phainopepla nitens; PHAI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 27. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 5 pair, but male is not singing near where we saw a silent female. Male eventually came in and sang in spot where we saw the female disappear into a hood looking spot for a nest.
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 28. 1 record, no

Bird (Common or Scientific Name):	Black-chinned Hummingbird; Archilochus alexandri; BCHU

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 29. 1 record, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 30. 1 record, no

Bird (Common or Scientific Name):	Scaly-breasted Munia; Lonchura punctulata; SBMU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 31. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult

Additional Notes:	LBVI 13 singing in oak on slope later in the morning. Watched it foraging for about 10 minutes. Saw it carrying food and we think we saw two fledglings in the oaks.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 32. 1 record, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 33. 1 record, yes

Bird (Common or Scientific Name):	Turkey Vulture; Cathartes aura; TUVU
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	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: - 34. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI

Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 6 sounds like it's singing on a nest.

Photo(s) of Bird:

Photo(s) of Bird:

Notes:

Bird Observation: - 35. 1 record, yes

Bird (Common or Scientific Name):	Great Blue Heron; Ardea herodias; GBHE
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	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: - 36. 1 record, no

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 37. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 7
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 38. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes

Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 8
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 39. 1 record, no

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 40. 1 record, no

Bird (Common or Scientific Name):	Hutton's Vireo; Vireo huttoni; HUVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 41. 1 record, no

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no

Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 42. 1 record, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 43. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Foraging in oaks either side of the trail. Followed by a silent bird briefly. Heard contact calls. LBVI 4?
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 44. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes

Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Foraging, Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	Had a brief glimpse of a second bird that could have been the female. LBVI 3
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 45. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 11 singing solo
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 46. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 12 sang once then disappeared
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 47. 1 record, no

Bird (Common or Scientific Name):	Acorn Woodpecker; Melanerpes formicivorus; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Nesting Bird Behavior

Nesting Bird Behavior Observation: (1 Item)

Nesting Bird Behavior Observation: - 1. 1 record

Status of Nest:	Active
Activity Status of Nest:	Confirmed adults using nests
Bird (Common or Scientific Name):	Black-chinned Hummingbird; Archilochus alexandri; BCHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Bird Nest Observation

Observation Type:	Visual

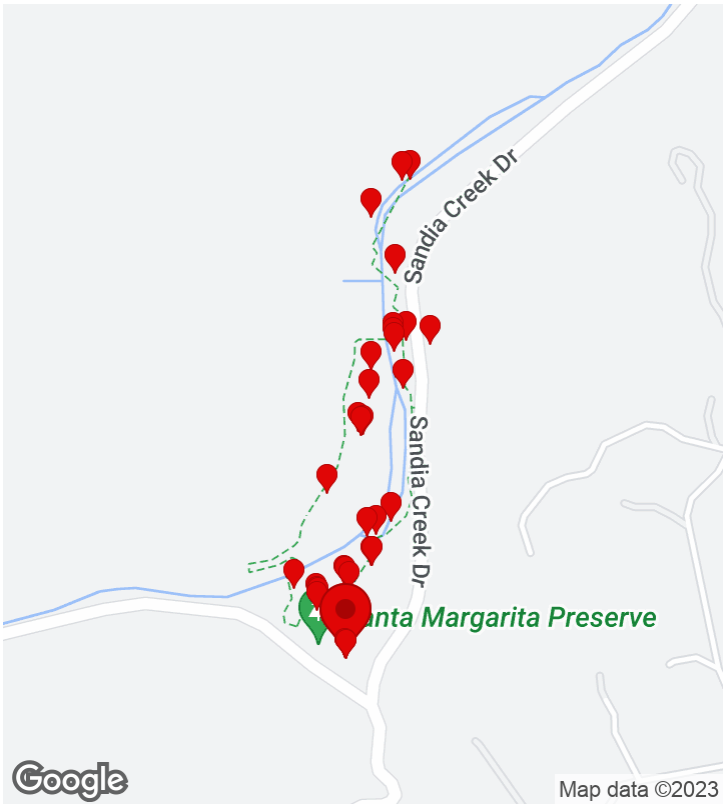
Number of individuals observed:	1
Behavior (check all that apply):	Incubating
Bird Sex (check all that apply):	Female
Bird Age (check all that apply):	Adult
Additional Notes:	In sycamore
Photo(s) of Bird:	
Photo(s) of Nesting Bird Behavior:	
Notes:	

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ LBV

7/11/2023, 8:07:00 PM UTC



CREATED

6/19/2023, 12:59:28 PM UTC
by SC Fulcrum14

UPDATED

7/11/2023, 8:07:00 PM UTC
by SC Fulcrum14

LOCATION

33.401404, -117.250837

Parent Form

Project Name:	TMP Monitoring ▸ LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Florence Chan
Assistant Observer/Surveyor:	Amy Orduno-Baez
Date:	June 19, 2023

START Weather Details:

Start - Time:	05:59
Start - Temperature:	56
Start - Wind Direction From (select one):	S
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	100
Start - Precipitation (select one):	None
Start - Visibility (select one):	Fair
Start - Notes (if applicable):	

END Weather Details:

Time Out:	11:00
End - Temperature:	67
End - Wind Direction From (select one):	
End - Low Wind Speed:	0
End - High Wind Speed:	0
End - Average Wind Speed:	0
End - Cloud Cover (%):	100
End - Precipitation (select one):	None
End - Visibility (select one):	Fair
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	Santa Margarita Preserve

Notes	LBV 14, 3,9,5,6,7, 13, 4
Observation Type:	Bird, Amphibian
Photos	

Amphibian

Amphibian Observation: (2 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:	

Bird

Bird Observation: (32 Items)

Bird Observation: - 1. 1 record, no

Bird (Common or Scientific Name):	Acorn Woodpecker; Melanerpes formicivorus; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 2. 1 record, no

Bird (Common or Scientific Name):	Oak Titmouse; Baeolophus inornatus; OATI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record, no

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record, no

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record, no

Bird (Common or Scientific Name):	House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 6. 1 record, no

Bird (Common or Scientific Name):	Mallard; Anas platyrhynchos; MALL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; Empidonax difficilis; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record, no

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record, no

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 10. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
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: - 11. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	2
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: - 12. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV14. Heard in the distance. Countered with LBV9 briefly.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 13. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory, Visual
Number of individuals observed:	4
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV9. Briefly countered with LBV14. Pair foraging with at least 2 fledglings. Observed begging fledglings getting fed by female.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 14. 1 record, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV3. Singing in the distance.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 16. 1 record, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 17. 1 record, no

Bird (Common or Scientific Name):	Black-headed Grosbeak; Pheucticus melanocephalus; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 18. 1 record, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; Oreothlypis celata; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record, no

Bird (Common or Scientific Name):	Allen's Hummingbird; Selasphorus sasin; ALHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 20. 1 record, no

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 21. 1 record, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; Polioptila caerulea; BGGN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 22. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory, Visual
Number of individuals observed:	3
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV5. Singing and making contact calls with a female and at least one fledgling in the oak and sumac slope on the other side of the street.
Photo(s) of Bird:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 23. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory, Visual
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV6. Singing infrequently.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 24. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory, Visual
Number of individuals observed:	3
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult, Juvenile
Additional Notes:	LBV7. Male and at least two fledglings foraging and calling in the habitat. Alarm calls made due to a Cooper’s hawk in the area.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 25. 1 record, yes

Bird (Common or Scientific Name):	Cooper's Hawk; Accipiter cooperii; COHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Juvenile
Additional Notes:	In LBV7 territory.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 26. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV13. Heard in the distance.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 27. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory

Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV4. Heard in the distance.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 28. 1 record, no

Bird (Common or Scientific Name):	Phainopepla; Phainopepla nitens; PHAI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 29. 1 record, no

Bird (Common or Scientific Name):	Eurasian Collared-Dove; Streptopelia decaocto; ECDO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 30. 1 record, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 31. 1 record, no

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 32. 1 record, no

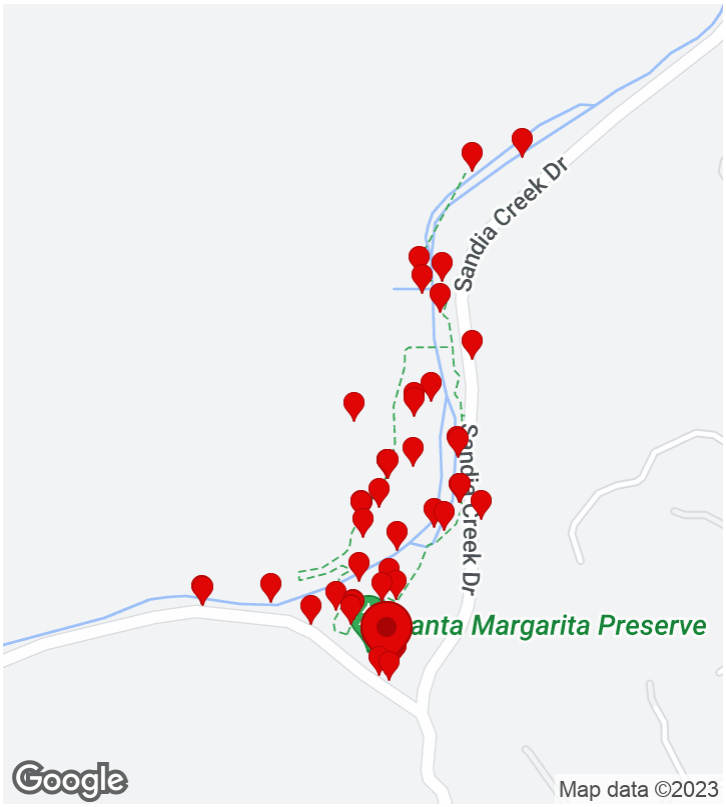
Bird (Common or Scientific Name):	Ash-throated Flycatcher; Myiarchus cinerascens; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ LBV

6/30/2023, 11:18:05 PM UTC



CREATED

6/30/2023, 12:55:34 PM UTC
by SC Fulcrum03

UPDATED

6/30/2023, 11:18:05 PM UTC
by SC Fulcrum03

LOCATION

33.401220, -117.251033

Parent Form

Project Name:	TMP Monitoring ▸ LBV
Preserve/Park Name	Santa Margarita
General Survey Type	TMP Monitoring
Specific Survey Type	LBV Protocol
Observer/Surveyor:	Brennan Mulrooney
Assistant Observer/Surveyor:	Bailey Setzler
Date:	June 30, 2023

START Weather Details:

Start - Time:	05:55
Start - Temperature:	57
Start - Wind Direction From (select one):	SW
Start - Low Wind Speed:	0
Start - High Wind Speed:	0
Start - Average Wind Speed:	0
Start - Cloud Cover (%):	100
Start - Precipitation (select one):	Misting
Start - Visibility (select one):	Fair
Start - Notes (if applicable):	

END Weather Details:

Time Out:	11:00
End - Temperature:	79
End - Wind Direction From (select one):	SW
End - Low Wind Speed:	0
End - High Wind Speed:	2
End - Average Wind Speed:	1
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	

Notes	Found 10 (singing/begging), 1 (singing), 2 (singing), 9 (family), 3 calling/singing carrying food, 4 (family), 5 family, 6 pair with one juv, 7 (family 2fl), 8 (singing), 13 singing/calling, 11 singing
Observation Type:	Bird, Amphibian, Reptile, Butterfly/Moth, Mammal
Photos	

Amphibian

Amphibian Observation: (1 Item)

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:	Heard adult

Bird

Bird Observation: (47 Items)

Bird Observation: - 1. 1 record, no

Bird (Common or Scientific Name):	Downy Woodpecker; Dryobates pubescens; DOWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 2. 1 record, no

Bird (Common or Scientific Name):	White-breasted Nuthatch; Sitta carolinensis; WBNU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record, no

Bird (Common or Scientific Name):	Western Wood-Pewee; Contopus sordidulus; WEWP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record, yes

Bird (Common or Scientific Name):	Yellow Warbler; Setophaga petechia; YEWA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record, no

Bird (Common or Scientific Name):	Orange-crowned Warbler; Oreothlypis celata; OCWA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; Myiarchus cinerascens; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record, no

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record, no

Bird (Common or Scientific Name):	Hutton's Vireo; Vireo huttoni; HUVI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record, no

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record, no

Bird (Common or Scientific Name):	White-breasted Nuthatch; Sitta carolinensis; WBNU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 13. 1 record, no

Bird (Common or Scientific Name):	Pacific-slope Flycatcher; Empidonax difficilis; PSFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A

Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record, no

Bird (Common or Scientific Name):	California Scrub-Jay; Aphelocoma californica; CASJ
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record, no

Bird (Common or Scientific Name):	Song Sparrow; Melospiza melodia; SOSP
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 16. 1 record, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; Polioptila caerulea; BGGN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 17. 1 record, yes

Bird (Common or Scientific Name):	Yellow-breasted Chat; Icteria virens; YBCH
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 18. 1 record, no

Bird (Common or Scientific Name):	Black-headed Grosbeak; Pheucticus melanocephalus; BHGR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record, no

Bird (Common or Scientific Name):	Oak Titmouse; Baeolophus inornatus; OATI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 20. 1 record, no

Bird (Common or Scientific Name):	Common Yellowthroat; Geothlypis trichas; COYE
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 21. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Unknown
Additional Notes:	Singing and Begging call, never seen. LBVI 10
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 22. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 1
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 23. 1 record, no

Bird (Common or Scientific Name):	Acorn Woodpecker; Melanerpes formicivorus; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 24. 1 record, no

Bird (Common or Scientific Name):	Band-tailed Pigeon; Patagioenas fasciata; BTPI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 25. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBV 2. Counter singing with 9
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 26. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	3
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male, Female
Bird Age (check all that apply):	Adult, Juvenile
Additional Notes:	LBVI 9. Counter singing with 2. Pair with 1 fledge
Photo(s) of Bird:	

Photo(s) of Bird:	
Notes:	

Bird Observation: - 27. 1 record, no

Bird (Common or Scientific Name):	Phainopepla; Phainopepla nitens; PHAI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 28. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both

Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 3. Saw male fly across the road toward river and Counter sing with 9. Heard a calling/begging bird, but could never confirm it was female or juv. Saw adult calling with food, but it never found anyone to feed.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 29. 1 record, no

Bird (Common or Scientific Name):	Lazuli Bunting; Passerina amoena; LAZB
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 30. 1 record, no

Bird (Common or Scientific Name):	Black-chinned Hummingbird; Archilochus alexandri; BCHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 31. 1 record, no

Bird (Common or Scientific Name):	Allen's Hummingbird; Selasphorus sasin; ALHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 32. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 4. Pair with one fledge
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 33. 1 record, no

Bird (Common or Scientific Name):	House Wren; Troglodytes aedon; HOWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 34. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both

Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 13. Heard/saw one bird singing and calling, never saw or heard response.
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 35. 1 record, no

Bird (Common or Scientific Name):	Brown-headed Cowbird; Molothrus ater; BHCO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	2
Photo(s) of Bird:	
Notes:	

Bird Observation: - 36. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	3
Behavior (check all that apply):	Singing/calling, Territorial display
Bird Sex (check all that apply):	Male, Female, Unknown
Bird Age (check all that apply):	Adult, Juvenile
Additional Notes:	LBV 5. Singing and attacking a CASJ
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 37. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling, Foraging
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 6. Calling with food in bill, but eventually just ate it. Then saw adult pair near river with juv heard begging in willows
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 38. 1 record, no

Bird (Common or Scientific Name):	California Thrasher; Toxostoma redivivum; CATH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 39. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Both

Number of individuals observed:	4
Behavior (check all that apply):	Foraging, Singing/calling
Bird Sex (check all that apply):	Female, Male
Bird Age (check all that apply):	Adult, Juvenile
Additional Notes:	Lbvi 7, family with 2 juvs
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 40. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 8
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 41. 1 record, no

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:

Bird Observation: - 42. 1 record, no

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 43. 1 record, no

Bird (Common or Scientific Name):	Anna's Hummingbird; Calypte anna; ANHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 44. 1 record, no

Bird (Common or Scientific Name):	Northern Flicker; Colaptes auratus; NOFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 45. 1 record, yes

Bird (Common or Scientific Name):	Turkey Vulture; Cathartes aura; TUVU
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1

Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Bird Observation: - 46. 1 record, no

Bird (Common or Scientific Name):	Black Phoebe; Sayornis nigricans; BLPH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 47. 1 record, yes

Bird (Common or Scientific Name):	Least Bell's Vireo; Vireo bellii pusillus; LBVI
Is the Bird Sensitive ?	yes
Sub-Species Info:	Breeds from central California south to n. Baja CA

Sensitive Bird Observation

Observation Type:	Auditory
Number of individuals observed:	1
Behavior (check all that apply):	Singing/calling, Perched (not singing)
Bird Sex (check all that apply):	Male
Bird Age (check all that apply):	Adult
Additional Notes:	LBVI 11. Counter singing with 10
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:

Butterfly/Moth

Butterfly/Moth Observation: (6 Items)

Butterfly/Moth Observation: - 1. 1 record

Butterfly/Moth (Common or Scientific Name):	Lorquin's Admiral; Limenitis lorquini
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):	Cabbage White; Pieris rapae
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):	Western Tiger Swallowtail; Papilio rutulus
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A
Number of individuals observed:	

Butterfly/Moth Observation: - 4. 1 record

Butterfly/Moth (Common or Scientific Name):	Marine Blue; Leptotes marina
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A
Number of individuals observed:	

Butterfly/Moth Observation: - 5. 1 record

Butterfly/Moth (Common or Scientific Name):	Orange Sulphur; Colias eurytheme

Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A
Number of individuals observed:	

Butterfly/Moth Observation: - 6. 1 record

Butterfly/Moth (Common or Scientific Name):	Satyr Comma; Polygonia satyrus
Is the Butterfly/Moth Sensitive ?	no
Sub-Species Info:	N/A
Number of individuals observed:	
Photo(s) of Butterfly/Moth:	
Notes:	

Mammal

Mammal Observation: (1 Item)

Mammal Observation: - 1. 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: (3 Items)

Reptile Observation: - 1. 1 record

Reptile (Common or Scientific Name):	Striped Racer; Masticophis lateralis
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 Fence Lizard; Sceloporus occidentalis
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Reptile:	
Notes:	

Reptile Observation: - 3. 1 record

Reptile (Common or Scientific Name):	Orange-throated Whiptail; Aspidoscelis hyperythrus
Is the Reptile Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Reptile Observation

Observation Type (check all that apply):	Visual sighting
Number of individuals observed:	1
Behavior (check all that apply):	Foraging
Reptile Sex (check all that apply):	Unknown
Reptile Age (check all that apply):	Adult
Additional Notes:	
Photo(s) of Reptile:	
Photo(s) of Reptile:	
Notes:	

Attachment C

Wildlife Compendium

ESA

Scientific Name	Common Name	Status (Federal/State/Local)[1]
INSECTS		
Lepidoptera	Moths and Butterflies	
Lycaenidae	Gassamer-Winged Butterflies	
Leptotes marina	Marine Blue	None/None/None
Papiliondiae	Swallowtails	
Papilio rutulus	Western Tiger Swallowtail	None/None/None
Pieridae	Whites, Yellows and Sulphurs	
Colias eurytheme	Orange Sulphur	None/None/None
* *Pieris rapae*	Cabbage White	None/None/None
Nymphalidae	True Brushfoots	
Limenitis lorquini	Lorquin's Admiral	None/None/None
Polygonia satyrus	Satyr Comma	None/None/None
AMPHIBIANS		
Anura	Frogs	
Bufonidae	True Toads	
Anaxyrus boreas	Western Toad	None/None/None
Hylidae	Treefrogs	
Pseudacris hypochondriaca	Baja California Treefrog	None/None/None
Ranidae	True Frogs	
Lithobates catesbeianus	American Bullfrog	None/None/None
REPTILES		
Squamata	Squamates	
Colubridae	Colubrids	
Masticophis lateralis	Striped Racer	None/None/None
Phrynosomatidae	Phrynosomatid Lizards	
Sceloporus occidentalis	Western Fence Lizard	None/None/None
Teiidae	Whiptails and Racerunners	
Aspidoscelis hyperythrus beldingi	Belding's Orange-throated Whiptail	None/WL/Group 2
BIRDS		
Anseriformes		
Anatidae	Waterfowl	
Anas platyrhynchos	Mallard	None/None/None

Scientific Name	Common Name	Status (Federal/State/Local)[1]
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
Apodiformes		
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
Pelicaniformes		
Ardeidae	Herons, Bitterns, and Allies	
Ardea herodias	Great Blue 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 lineatus	Red-shouldered Hawk	None/None/Group 1
Buteo jamaicensis	Red-tailed Hawk	None/None/None
Coraciiformes		
Alcedinidae	Kingfishers	
Megaceryle alcyon	Belted Kingfisher	None/None/None
Piciformes		
Picidae	Woodpeckers	
Colaptes auratus	Northern Flicker	None/None/None
Melanerpes formicivorus	Acorn Woodpecker	None/None/None
Dryobates pubescens	Downy Woodpecker	None/None/None
Dryobates nuttallii	Nuttall's Woodpecker	None/None/None
Passeriformes		
Tyrannidae	Tyrant Flycatchers	
Myiarchus cinerascens	Ash-throated Flycatcher	None/None/None
Contopus sordidulus	Western Wood-Pewee	None/None/None
Empidonax difficilis	Pacific-slope Flycatcher	None/None/None

Scientific Name	Common Name	Status (Federal/State/Local)[1]
Sayornis nigricans	Black Phoebe	None/None/None
Tyrannus vociferans	Cassin's Kingbird	None/None/None
Virionidae	Vireos	
Vireo bellii pusillus	Least Bell's Vireo	FE/SE/Draft NC MSCP, Group 1
Vireo huttoni	Hutton's Vireo	None/None/None
Corvidae	Jays and Crows	
Aphelocoma californica	California Scrub-Jay	None/None/None
Corvus corax	Common Raven	None/None/None
Paridae	Chickadees and Tits	
Baeolophus inornatus	Oak Titmouse	None/None/None
Hirundinidae	Swallows and Martins	
Stelgidopteryx serripennis	Northern Rough-winged Swallow	None/None/None
Aegithalidae	Bushtits	
Psaltriparus minimus	Bushtit	None/None/None
Sylviidae	Sylviid Warblers	
Chamaea fasciata	Wrentit	None/None/None
Regulidae	Kinglets	
Corthylio calendula	Ruby-crowned Kinglet	None/None/None
Ptiliogonatidae	Silky-flycatchers	
Phainopepla nitens	Phainopepla	None/None/None
Sittidae	Nuthatches	
Sitta carolinensis	White-breasted Nuthatch	None/None/None
Polioptilidae	Gnatcatchers	
Polioptila caerulea	Blue-gray Gnatcatcher	None/None/None
Troglodytidae	Wrens	
Troglodytes aedon	House Wren	None/None/None
Thryomanes bewickii	Bewick's Wren	None/None/None
Mimidae	Thrashers	
Toxostoma redivivum	California Thrasher	None/None/None
Turdidae	Thrushes	
Catharus guttatus	Hermit Thrush	None/None/None
Turdus migratorius	American Robin	None/None/None
Estrildidae	Waxbills and Allies	
* *Lonchura punctulata*	Scaly-breasted Munia	None/None/None

Scientific Name	Common Name	Status (Federal/State/Local)[1]
Fringillidae	Finches	
Haemorhous mexicanus	House Finch	None/None/None
Spinus psaltria	Lesser Goldfinch	None/None/None
Spinus tristis	American Goldfinch	None/None/None
Passerellidae	New World Sparrows	
Melospiza melodia	Song Sparrow	None/None/None
Melozone crissalis	California Towhee	None/None/None
Pipilo maculatus	Spotted Towhee	None/None/None
Icteriidae	Yellow-breasted Chats	
Icteria virens	Yellow-breasted Chat	None/SSC/Group 1
Icteridae	Orioles, Grackles, and Cowbirds	
Icterus cucullatus	Hooded Oriole	None/None/None
Molothrus ater	Brown-headed Cowbird	None/None/None
Parulidae	Wood Warblers	
Leiothlypis celata	Orange-crowned Warbler	None/None/None
Geothlypis trichas	Common Yellowthroat	None/None/None
Setophaga petechia	Yellow Warbler	None/SSC/Group 2
Setophaga occidentalis	Hermit Warbler	None/None/None
Cardinalidae	Cardinals and Allies	
Pheucticus melanocephalus	Black-headed Grosbeak	None/None/None
Passerina amoena	Lazuli Bunting	None/None/None

MAMMALS

Sciuridae	Squirrels	
Otospermophilus beecheyi	California Ground Squirrel	None/None/None

[1] FE: Federally Endangered
SE: State Endangered
WL: California Department of Fish and Wildlife Watch List
SSC: California Department of Fish and Wildlife Species of Special Concern
Draft NC MSCP: Proposed Covered Species 2017 Draft North County MSCP
Group 1: Animals of high sensitivity (listed or specific natural history requirements) (County)
Group 2: Animals declining but not in immediate threat of extinction or extirpation (County)

* Non-native species

Attachment D

California Natural Diversity Database (CNDDB) Forms

ESA

Attachment D. California Natural Diversity Database (CNDDB) Forms

ObserverName*	**ObserverContact***	**SciName***	ComName	SpFound(Y/N)	SpDetermine	ID_Confidence	**ObservationDate***	**NumberObserved***	Phenology	Collection	AnimalAgeClass	**AnimalSiteUse***	**AnimalBehavior***
Brenda McMillan	bmcmillan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	5/25/2023	16			16 adults	foraging, nesting and or migrating	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	4/11/2023	11			10 adults, 1 unknown age	foraging, nesting and or migrating	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	6/30/2023	18			18 adults, 1 unknown age	foraging, nesting and or migrating	singing, foraging, territorial display
Florence Chan	fchan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	4/21/2023	16			16 adults	foraging, nesting and or migrating	singing, foraging
Florence Chan	fchan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	5/2/2023	9			8 adults, 1 unknown age	foraging, nesting and or migrating	singing, foraging
Florence Chan	fchan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	5/12/2023	14			14 adults	foraging, nesting and or migrating	singing, foraging, nesting activity
Florence Chan	fchan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	6/6/2023	12			10 adults, 2 unknown age	foraging, nesting and or migrating	singing, foraging
Florence Chan	fchan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	y		very confident	6/19/2023	15			15 adults	foraging, nesting and or migrating	singing, foraging
Brenda McMillan	bmcmillan@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	5/25/2023	3			5 adults	foraging, nesting	singing, foraging,
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	4/11/2023	10			10 adults	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	6/30/2023	1			1 unknown age	foraging, nesting	singing, foraging
Florence Chan	fchan@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	4/21/2023	1			1 adults	foraging, nesting	singing, foraging
Florence Chan	fchan@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	5/2/2023	3			3 adults	foraging, nesting	singing, foraging
Florence Chan	fchan@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	5/12/2023	2			2 adults	foraging, nesting	singing, foraging
Florence Chan	fchan@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	6/6/2023	1			1 adult	foraging, nesting	singing, foraging
Florence Chan	fchan@esassoc.com	Setophaga petechia	Yellow Warbler	y		very confident	6/19/2023	2			2 adults	foraging, nesting	singing, foraging
Brenda McMillan	bmcmillan@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	5/25/2023	5			5 adults	foraging, nesting	singing, foraging, territorial display
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	4/11/2023	3			3 unknown age	foraging, nesting	singing, foraging
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	6/30/2023	1			1 unknown age	foraging, nesting	singing, foraging
Florence Chan	fchan@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	4/21/2023	1			1 adult	foraging, nesting	singing, foraging
Florence Chan	fchan@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	5/2/2023	2			2 adults	foraging, nesting	singing, foraging
Florence Chan	fchan@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	5/12/2023	1			1 adult	foraging, nesting	singing, foraging
Florence Chan	fchan@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	6/6/2023	3			3 unknown age	foraging, nesting	singing, foraging
Florence Chan	fchan@esassoc.com	Icteria virens	Yellow-breasted Chat	y		very confident	6/19/2023	2			2 adults	foraging, nesting	singing, foraging
Brenda McMillan	bmcmillan@esassoc.com	Accipter cooperii	Cooper's Hawk	y		very confident	5/25/2023	1			1 unknwn age	foraging, nesting	singing
Brennan Mulrooney	bmulrooney@esassoc.com	Cathartes aura	Turkey Vulture	y		very confident	4/11/2023	1			1 unknown age	foraging	in flight
Brennan Mulrooney	bmulrooney@esassoc.com	Cathartes aura	Turkey Vulture	y		very confident	6/30/2023	1			1 unknown age	foraging	in flight
Florence Chan	fchan@esassoc.com	Buteo lineatus	Red-shouldered Hawk	y		very confident	5/2/2023	1			1 unknown age	foraging, nesting	singing/calling
Florence Chan	fchan@esassoc.com	Cathartes aura	Turkey Vulture	y		very confident	6/6/2023	1			1 unknown age	foraging	in flight
Florence Chan	fchan@esassoc.com	Ardea herodias	Great Blue Heron	y		very confident	6/6/2023	1			2 unknown age	foraging	foraging
Florence Chan	fchan@esassoc.com	Accipter cooperii	Cooper's Hawk	y		very confident	6/19/2023	1			3 unknown age	foraging, nesting	in flight
Florence Chan	fchan@esassoc.com	Aspidoscelis hyperythra	Orange-throated Whiptail	y		very confident	6/30/2023	1			1 adult	foraging, nesting	foraging

Attachment D. 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
Brenda McMillan	bmcmillan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard		33.40318	-117.25031			GoogleEarth		LBVI Protocol Survey								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard		33.41012	-117.24936			GoogleEarth		LBVI Protocol Survey								
Brennan Mulrooney	bmulrooney@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard		33.40238	-117.25212			GoogleEarth		LBVI Protocol Survey								
Florence Chan	fchan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard		33.40282	-117.25049			GoogleEarth		LBVI Protocol Survey								
Florence Chan	fchan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard		33.41013	-117.24927			GoogleEarth		LBVI Protocol Survey								
Florence Chan	fchan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard		33.40338	-117.250256			GoogleEarth		LBVI Protocol Survey								
Florence Chan	fchan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	heard		33.410188	-117.24895			GoogleEarth		LBVI Protocol Survey								
Florence Chan	fchan@esassoc.com	Vireo bellii pusillus	Least Bell's Vireo	seen and heard		33.40304	-117.25029			GoogleEarth		LBVI Protocol Survey								
Brenda McMillan	bmcmillan@esassoc.com	Setophaga petechia	Yellow Warbler	seen and heard		33.40171	-117.25148			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	heard		33.41012	-117.24936			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Setophaga petechia	Yellow Warbler	heard		33.40139	-117.25087			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Setophaga petechia	Yellow Warbler	heard		33.40234	-117.251805			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Setophaga petechia	Yellow Warbler	heard		33.40427	-117.250209			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Setophaga petechia	Yellow Warbler	heard		33.40231	-117.25159			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Setophaga petechia	Yellow Warbler	heard		33.40229	-117.25228			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Setophaga petechia	Yellow Warbler	heard		33.40269	-117.25087			GoogleEarth		Incidental								
Brenda McMillan	bmcmillan@esassoc.com	Icteria virens	Yellow-breasted Chat	seen and heard		33.40318	-117.25031			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	heard		33.41012	-117.249346			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Icteria virens	Yellow-breasted Chat	heard		33.40278	-117.25098			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Icteria virens	Yellow-breasted Chat	heard		33.40224	-117.25178			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Icteria virens	Yellow-breasted Chat	heard		33.40513	-117.24949			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Icteria virens	Yellow-breasted Chat	heard		33.40226	-117.25161			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Icteria virens	Yellow-breasted Chat	heard		33.40237	-117.25226			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Icteria virens	Yellow-breasted Chat	heard		33.40258	-117.25076			GoogleEarth		Incidental								
Brenda McMillan	bmcmillan@esassoc.com	Accipter cooperii	Cooper's Hawk	heard		33.40194	-117.25185			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Cathartes aura	Turkey Vulture	seen		33.40531	-117.25053			GoogleEarth		Incidental								
Brennan Mulrooney	bmulrooney@esassoc.com	Cathartes aura	Turkey Vulture	seen		33.40576	-117.25172			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Buteo lineatus	Red-shouldered Hawk	heard		33.40535	-117.25052			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Cathartes aura	Turkey Vulture	seen		33.41024	-117.25055			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Ardea herodias	Great Blue Heron	seen		33.4085	-117.25042			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Accipter cooperii	Cooper's Hawk	seen		33.40995	-117.24946			GoogleEarth		Incidental								
Florence Chan	fchan@esassoc.com	Aspidoscelis hyperythra	Orange-throated Whiptail	seen		33.40593	-117.25044			GoogleEarth		Incidental								

H-2 Brown-Headed Cowbird Trapping Annual Report

SANTA MARGARITA COUNTY PRESERVE
BROWN-HEADED COWBIRD TRAPPING PROGRAM 2023

PREPARED FOR

COUNTY OF SAN DIEGO DEPARTMENT OF PARKS AND RECREATION
5500 OVERLAND AVENUE, SUITE 410
SAN DIEGO, CA 92123

SEPTEMBER 2023

SANTA MARGARITA COUNTY PRESERVE
BROWN-HEADED COWBIRD TRAPPING PROGRAM 2023

PREPARED FOR

COUNTY OF SAN DIEGO DEPARTMENT OF PARKS AND RECREATION
5500 OVERLAND AVENUE, SUITE 410
SAN DIEGO, CA 92123

PREPARED BY

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UNDER SUBCONTRACT TO

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San Diego, CA 92108

SEPTEMBER 2023

SANTA MARGARITA COUNTY PRESERVE
BROWN-HEADED COWBIRD TRAPPING PROGRAM 2023

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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 response to detections of least Bell's vireo nest parasitism incidentally observed during 2021 Targeted Monitoring Plan (TMP) surveys (ESA 2022) and was recommended to continue in 2023 based on 2022 brown-headed cowbird trapping results (ESA 2023). 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 2023. Traps were placed within riparian habitat that provides suitable nesting habitat for the vireo.

A total of seven brown-headed cowbirds were removed from the project area between April 1 and June 30, 2023. Captures included four adult males, two adult females, and one juvenile. 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 2023. Non-target captures included three California scrub jays (*Aphelocoma californica*), two song sparrows (*Melospiza melodia*), and one California thrasher (*Toxostoma redivivum*). 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 in the Santa Margarita County Preserve (Preserve) on behalf of the County of San Diego Department of Parks and Recreation in 2022. 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) and was recommended to continue in 2023 based on 2022 brown-headed cowbird trapping results (ESA 2023). 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.

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 an approximately 211-acre open space property located just east of Camp Pendleton Marine Corps Base and north of the city of Fallbrook (Appendix A: Figure A-1). Trapping in 2023 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 2023, two traps were placed along the Santa Margarita River within the Preserve in the same locations as those in 2022 (Appendix A: Figure A-2). The primary goal of this trapping program is to maintain suitable breeding habitat for least Bell's vireo and maintain vireo breeding pairs within the Preserve. A primary consideration is to locate traps in those habitats most suitable for nesting, and to do so in a manner that provides acceptable coverage of the project area. Traps were placed within the riparian habitat, approximately 0.7 km from each other, in locations that were easily accessible by vehicle. Trap #1 was located approximately 0.2 km northwest of the intersection of De Luz Road and Sandia Creek Drive. This trap was placed adjacent to a trail at the north end of the Preserve staging area. Trap #2 was placed approximately 0.8 km north of the De Luz Road/Sandia Creek Drive intersection a short distance west of the road. Both traps were placed within riparian habitat, behind brush, to obscure view by the public.

5. METHODS

TW Biological Services personnel performed trapping operations from April 1 through June 30, 2023. The two traps were delivered to the project area and assembled on March 23, 2023. The traps were activated on April 1, 2023. 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, 2023. 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, 2023, both traps were deactivated and on July 12, 2023, the traps were dismantled and removed from the project area.

6. RESULTS

6.1 Brown-Headed Cowbird Captures

A total of seven cowbirds were captured within the Preserve between April 1 and June 30, 2023 (Table 6-1; Appendix B: Table B-2). These included four adult males, two adult females, and one juvenile. The first adult male and female cowbird captures occurred on May 2, 2023; and the first juvenile cowbird capture occurred on June 24, 2023. There were 182 actual trap days out of a potential of 182. Total trap days are calculated by multiplying the number of traps by the number of days they are in operation, then subtracting the number of days individual traps are inactive for various reasons such as vandalism. There were 0.03 cowbirds captured per trap day during the 2023 project period. The ratio of male to female captures was 2:1.

TABLE 6-1. BROWN-HEADED COWBIRDS CAPTURED PER TRAP IN 2023

Trap Number	Cowbirds Captured			
	Adult Male	Adult Female	Juvenile	Total
1	1	0	0	**1**
2	3	2	1	**6**
Total	**4**	**2**	**1**	**7**

6.2 Non-Target Species

There were six non-target species capture events in the project area in 2023 (Table 6-2). Non-target captures included three California scrub jays, two song sparrows, and one California thrasher. 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 2023

Common Name	Scientific Name	Capture Events
California Scrub Jay	*Aphelocoma californica*	3
Song Sparrow	*Melospiza melodia*	2
California Thrasher	*Toxostoma redivivum*	1
	Total	**6**

6.3 Trap Vandalism

No incidences of vandalism occurred during the 2023 trapping period.

6.4 Parasitism

During 2023 TMP surveys, ESA biologists incidentally discovered a least Bell's vireo nest (-117.2495566, 33.40709889) that was subsequently parasitized by brown-headed cowbird and was abandoned by the least Bell's vireo pair.

7. DISCUSSION AND RECOMMENDATIONS

A total of seven brown-headed cowbirds, including four adult males, two adult females, and one juvenile, were removed from the project area in 2023.

Trap #2 captured nearly the same number of birds as last year; Trap #1 captured significantly fewer birds than in 2022 (Table 7-1). The significance of the decreased capture numbers in this trap is difficult to assess given the limited number of years for comparison. Variations in capture numbers in individual traps from one year to the next are not unusual.

TABLE 7-1. BROWN-HEADED COWBIRDS CAPTURED PER TRAP FROM 2022–2023

	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

Possible reasons for decline can include annual variations in cowbird migration and dispersal patterns, changes in cowbird populations, variations in movements of cowbirds within the project area, the presence of other nearby trapping programs, or natural or small-scale changes at individual trap locations (e.g., surrounding vegetative cover, composition, or disturbance).

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. The specific location of Trap #1 is currently overgrown with grapevine. Relocating this trap to a more open area may help improve capture numbers and decrease parasitism. We recommend evaluating the vegetation prior to trap placement next season and adjusting the specific placement of Trap #1 as needed in 2024.

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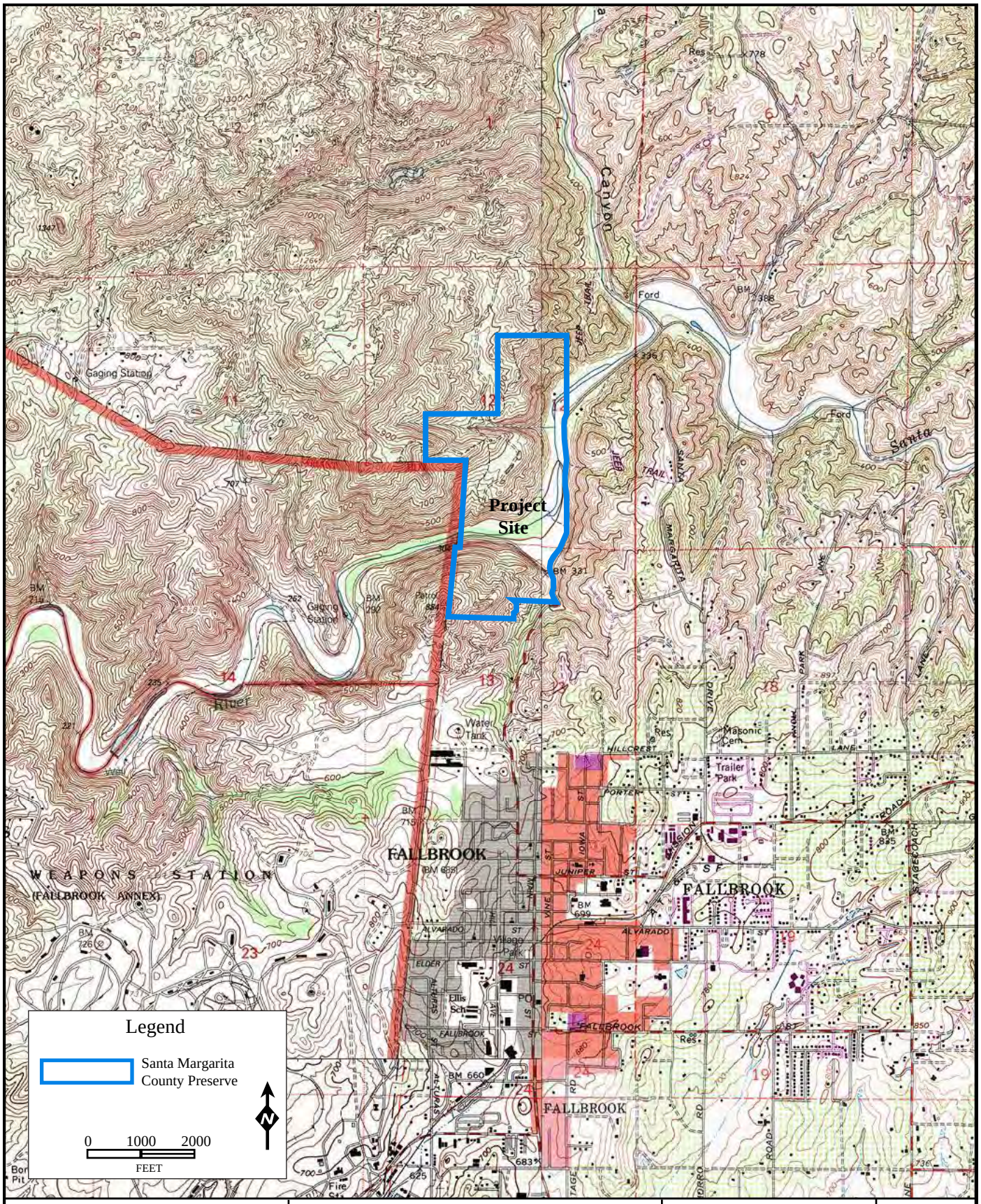
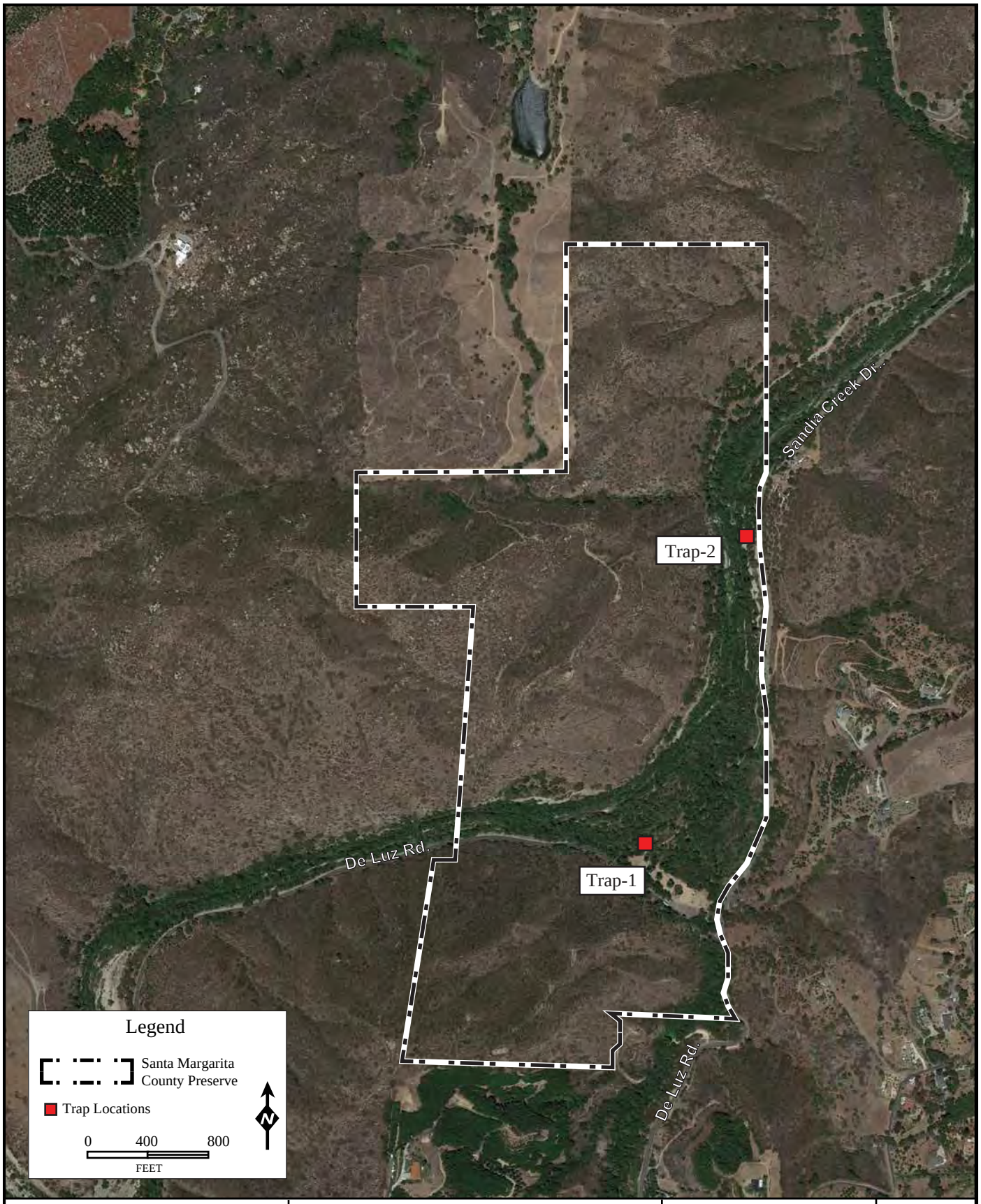
APPENDIX A

FIGURES



TW Biological Services	2023 SANTA MARGARITA COUNTY PRESERVE BROWN-HEADED COWBIRD TRAPPING PROJECT	Project Site	FIGURE
	Project No: SMCP-01-23	Map Source: Fallbrook and Temecula 7.5' USGS Quadrangle Maps	A-1



TW Biological Services

2023 SANTA MARGARITA COUNTY PRESERVE
BROWN-HEADED COWBIRD
TRAPPING PROJECT

Project No: SMCP-01-23

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 2023

	Trap GPS Coordinates (Decimal Degrees WGS84)		
Trap Number	Y-North	X-West	Elevation (feet)
1	33.402263	-117.251844	326
2	33.407742	-117.249581	317

TABLE B-2. BROWN-HEADED COWBIRDS CAPTURED PER TRAP PER WEEK IN 2023

Week		Trap 1			Trap 2			**Total**		
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	0	0	0	0	0	0	**0**	**0**	**0**
3	15-21 April	0	0	0	0	0	0	**0**	**0**	**0**
4	22-28 April	0	0	0	0	0	0	**0**	**0**	**0**
5	29 April-5 May	0	0	0	1	1	0	**1**	**1**	**0**
6	6-12 May	0	0	0	0	1	0	**0**	**1**	**0**
7	13-19 May	0	0	0	1	0	0	**1**	**0**	**0**
8	20-26 May	0	0	0	0	0	0	**0**	**0**	**0**
9	27 May-2 June	1	0	0	0	0	0	**1**	**0**	**0**
10	3-9 June	0	0	0	0	0	0	**0**	**0**	**0**
11	10-16 June	0	0	0	1	0	0	**1**	**0**	**0**
12	17-23 June	0	0	0	0	0	0	**0**	**0**	**0**
13	24-30 June	0	0	0	0	0	1	**0**	**0**	**1**
Total		**1**	**0**	**0**	**3**	**2**	**1**	**4**	**2**	**1**

M= Adult Male, F= Adult Female, J= Juvenile

APPENDIX C

COWBIRD TRAP INFORMATION/DO NOT DISTURB SIGN ATTACHED TO EACH TRAP

PLEASE DO NOT DISTURB

THIS TRAP IS OPERATED IN COOPERATION WITH THE
U.S. FISH AND WILDLIFE SERVICE
AND
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

THE OPERATION OF THIS TRAP IS PART OF A MANAGEMENT PROGRAM FOR THE ENDANGERED LEAST BELL'S VIREO

ALL TRAPPED BIRDS ARE TREATED HUMANELY IN ACCORDANCE WITH ESTABLISHED FEDERAL AND STATE PROTOCOL.

FOR ADDITIONAL INFORMATION ON THE OPERATION OF THIS TRAP PLEASE CONTACT:

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Appendix I

Stephens' Kangaroo Rat Monitoring and Maintenance Memorandums and Representative Photographs

I-1 Stephens' Kangaroo Rat Habitat Assessment Memorandum: Ramona Grasslands County Preserve

FALL 2023 STEPHENS' KANGAROO RAT MONITORING

RAMONA GRASSLANDS COUNTY PRESERVE

RAMONA, SAN DIEGO COUNTY, CALIFORNIA

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December 5, 2023

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LIST OF ATTACHMENTS

A: FIGURES
B: SITE PHOTOGRAPHS
C: FIELD FORMS

EXECUTIVE SUMMARY

Environmental Science Associates (ESA) was contracted by the County of San Diego (County) Department of Parks and Recreation (DPR) with Blackhawk Environmental, Inc. 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 2023. Survey methodology followed the Targeted Monitoring Plan (TMP) (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 2023. While fall 2023 monitoring was conducted at a similar time of year compared to previous monitoring efforts, due to the above-average rain year between fall 2022 and fall 2023, a greater percentage of annual vegetation was living/standing, compared to the typical dry and largely senesced conditions observed during the fall 2022 monitoring effort. For a historical perspective, several monitoring efforts have occurred since 2016. The winter 2019 monitoring occurred during a period when abundant, green, and freshly growing annual vegetation was present following recent, above-average rainfall. In comparison, the 2017–2018, fall 2021, and fall 2022 monitoring occurred when the annual vegetation was generally dry and senesced, following some of the worst drought years in recorded California history. As a result, monitoring plots in fall 2023 were similar to the winter 2019 results in that they contained above-average percentages of living herb density, dense grasses, and obstruction factors. This, in turn, resulted in lower evidence of SKR runways, tracks, scat, dust-bathing sites, and other surface SKR sign in 2023 compared to the 2022 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.

While the fall 2023 monitoring results demonstrated comparable occupancy overall compared to prior years, there was a significant reduction in SKR habitat suitability when compared to the fall 2022 monitoring. A significant decrease of plots with high potential to occur was documented in 2023, compared to 2022's results, indicating that conditions were less favorable for SKR from 2022 to 2023. This result is likely due to the above-average rainfall between 2022 and 2023 in the greater San Diego area, but it could also be due to a combination of other factors, such as annual fluctuations in habitat characteristics, SKR population dynamics, different timings of the 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, 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. 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 TMP was revised in December 2022 (ESA and ICF 2022) to incorporate 10 additional open space parks and preserves (Preserve Group 2) and to confirm monitoring and management goals and objectives for TMP-covered species at the newly added open space parks and preserves. The TMP is an adaptive management plan that includes both focused goals and objectives for target resources and detailed monitoring protocols and is intended to achieve the management directives for species per the adopted South County MSCP Framework Management Plan (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, 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 20 open space parks and preserves: Barnett Ranch County Preserve, Boulder Oaks County Preserve, Del Dios Highlands County Preserve, El Capitan County Preserve, El Monte Regional Park, Furby-North Property, Hellhole Canyon County Preserve, Lakeside Linkage County Preserve, Lawrence and Barbara Daley County Preserve, Louis A. Stelzer County Park, Lusardi Creek County Preserve, Mount Olympus County Preserve, Oakoasis County Preserve, Ramona Grasslands County Preserve, Santa Margarita County Preserve, Simon County Preserve, Stoneridge County Preserve, Sycamore Canyon/Goodan Ranch County Preserve, Tijuana River Valley Regional Park, and Wilderness Gardens County Preserve.

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 its property. Treated effluent is disposed of on RMWD property and on ranchland east of Rangeland Road through infiltration in a series of spray fields. The irrigated spray fields are an important year-round source of green forage for cattle grazing. The RMWD property is located west and east of Rangeland Road and is bordered by the Preserve to the north, south, and west.

The Ramona Airport is east of Rangeland Road and borders the Preserve to the north and south. Low-density residential areas are present to the north of the Preserve (accessible by Rangeland Road), adjacent to the Preserve's southern boundary, and along much of the Preserve's western and 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 (contains portions of SKR Management Area 1), 2B (contains portions of SKR Management Area 1 and 2), 3A, 3B (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- 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 2023 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 field personnel are listed 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 Hayley Milner Dillon Travis	10-24-23	0805–1530	59–73	0–3 / 3-8	10 / 5	None
Kris Alberts Hayley Milner Dillon Travis	10-25-23	0815–1400	59–64	0-1 / 1–4	100 / 90	Light mist

All monitoring plots were located in the field using the cellular ArcGIS Collector application. Representative photographs were taken from the southeast corner of each plot, facing northwest (Attachment B). The biologists then walked systematic transects through each plot searching for kangaroo rat sign (e.g., burrows, scat, tracks, trails through vegetation, dust-bathing sites) until 100 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 C). These assessment variables were modeled after field forms used by Brehme et al. (2016) (adapted from a field form in Montgomery et al. 2008). Based on the quality of potentially suitable SKR habitat and the density of apparent kangaroo rat sign, each plot was assigned a SKR-potential rating using primarily the following criteria:

- High Potential
    - 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 winter of 2017–2018 (ICF 2018) to the winter of 2019 (ESA and Blackhawk Environmental, Inc. 2019) to the fall of 2021 (ESA and Blackhawk Environmental, Inc. 2021) to the fall of 2022 (ESA and Blackhawk Environmental, Inc. 2022) and to the fall of 2023 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 2022 and fall 2023 results only. Results of the 2023 SKR habitat assessment for each sample plot are provided in Table 3. In 2023, habitat assessments were conducted at 28 sample plots; 14 were determined to be potentially or likely occupied by SKR, and 14 were determined to be unoccupied. Each plot was rated for SKR potential, and in total, 8 sample plots were characterized as having a high potential, 10 were characterized as having a medium potential, 10 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	2022–2023 Change
SKR Occupancy	Occupied	14	19	14	15	14	-1
	Unoccupied	14	9	14	13	14	+1
SKR Potential	High	11	21	17	15	8	-7
	Medium	5	1	5	7	10	+3
	Low	7	6	6	5	10	+5
	No	5	0	0	1	0	-1

Table 3. SKR Habitat Assessment Summary

Fall 2023										Fall 2022
Plot ID	**% Bare Ground**	**Living Herb Density**	**Shrub/Tree Density (%)**	**Plant Litter (Dead) (%)**	**Gopher/ Ground Squirrel Density^**	**Obstruction Factor**	***Potential K-Rat Sign**	**SKR Occupancy Determination**	**Rating†**	**Rating†**
A1-1	0–5	Low	0	50–75	Low/Medium	Low	B, TD	Occupied	Medium**	High**
A1-2	0–5	High	0	50–75	Low/Low	High	None	Not Occupied	Low	None
A1-3	0–5	Medium	0	50–75	Low/High	Low	None	Not Occupied	Medium	High**
A1-4	0–5	High	0	50–75	Low/Low	High	None	Not Occupied	Low	Low
A1-5	0–5	Low	0–5	50–75	Medium/Medium	Medium	None	Not Occupied	Low	Medium
A1-6	0–5	Low	0–5	50–75	Low/Low	Medium	S	Occupied	Medium**	High**
A2-1	5–25	Low	0–5	50–75	Low/High	Low	B, S, O	Occupied	High**	High**
A2-6	0–5	High	0–5	50–75	Low/Medium	Medium	B, S	Occupied	High**	High**
A2-7	0–5	Medium	0–5	50–75	Low/Low	High	None	Not Occupied	Low	High**
A3-1	5–25	Medium	0	50–75	Low/High	Low	B, S	Occupied	High**	High**
A3-2	5–25	Medium	0	50–75	Low/High	Low	B, S, TD	Occupied	High**	High
A3-3	5–25	Medium	0	50–75	Low/High	Low	B, S	Occupied	High**	High**
2A-1	5–25	Medium	0–5	50–75	Medium/Medium	High	None	Not Occupied	Low	Low
2B-1	0–5	Low	0–5	50–75	Low/Medium	Medium	B, S	Occupied	High**	Low
2B-2	0–5	High	0–5	50–75	Low/Medium	Medium	B, S, TD	Occupied	Low**	Low
2B-3	0–5	Medium	0–5	50–75	Low/Low	Medium	B, S	Occupied	High**	High**
2B-4	0–5	Low	0	50–75	Low/Medium	Medium	None	Not Occupied	Low	Medium**
3A-1	0–5	Medium	0	50–75	Low/Low	High	None	Not Occupied	Low	Low
3A-4	0–5	Medium	0	50–75	Low/Low	High	None	Not Occupied	Low	N/A
3A-6	0–5	Medium	0	50–75	Low/Low	Low	None	Not Occupied	Medium	High
3A-7	0–5	Medium	0	50–75	Medium/Low	Medium	B, S	Occupied	Medium**	High**
3A-8	0–5	Medium	0–5	50–75	Low/Medium	Low	None	Not Occupied	Medium	High**
3B-1	0–5	Low	0	50–75	High/Low	Medium	None	Not Occupied	Low	Medium
3B-2	0–5	Medium	0–5	50–75	Medium/Low	Medium	None	Not Occupied	Medium	Medium
3B-3	0–5	Medium	0	50–75	Low/High	Low	None	Not Occupied	Medium	Medium
3B-4	5–25	Medium	0	50–75	Low/High	Low	B, S	Occupied	High**	Medium
3B-5	0–5	Medium	0–5	50–75	Low/High	Medium	B, S, TV	Occupied	Medium**	Medium**
3B-6	0–5	Medium	0–5	50–75	Low/Medium	Medium	B, S	Occupied	Medium**	High**

^= 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; O = Other
** = Exhibited habitat conditions and observed sign indicates plot is likely occupied by SKR.
† = Estimated potential for SKR occupancy based on habitat community condition and observed kangaroo rat sign.

4.0 DISCUSSION

Overall occupancy for fall 2023 remained similar to previous monitoring years with 14 occupied plots, compared to 15 occupied plots in fall 2022, 14 in fall 2021, 19 in fall 2019, and 14 in winter 2017–2018 (Table 2). However, there was a significant downshift in the number of high SKR-potential plots in 2023 compared to previous years (Table 3). For all 28 plots, the fall 2023 monitoring resulted in only 8 plots with high potential for SKR, compared to 15 plots with high potential in fall 2022, 17 in fall 2021, 21 in fall 2019, and 11 in winter 2017–2018. This, in turn, resulted in an increase in plots with low and medium SKR potential for 2023. When comparing only the 16 permanent plots, 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. This is a decrease of seven plots with high potential for SKR from fall 2022, as well as an increase of five medium-potential plots, an increase of three low-potential plots, and a decrease of one no-potential plot compared to fall 2022 monitoring efforts.

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 variables such as 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 2023 monitoring efforts showed an overall decrease in SKR potential, which may be partly attributed to the heavy above-average rainfall observed in the greater San Diego region between fall 2022 and fall 2023. 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. Grazing in 2022 – 2023 was atypical due to a change in grazing lessee and a capital improvement project.

- January – April 2022. Grazing occurred on the Preserve from January through April 2022, until Tellam and Tellam Cattle no longer had a grazing agreement with DPR.
- May – December 2022. Cattle were removed for the remainder of 2022.
- November 2022. Marcus Battaglia, James Greer, and Remy Greer entered a new grazing agreement with DPR.
- January 2023 – present. Cattle were added to the Preserve in January 2023 and grazing resumed.
- June 2023 – present. Ramona Municipal Water District began a pipeline replacement project in the southeast portion of the Preserve in June 2023 and the new grazing lessee is unable to graze that portion of the Preserve.

Areas in which grazing was not observed within the past 3 to 6 months, or that are not grazed at all, were correlated with low or medium SKR potential. The majority of the annual vegetation present in the high- or medium-potential SKR monitoring plots consisted of broadleaf filaree (*Erodium botrys*), a

low-growing annual plant that facilitates SKR movement and is a potential food source. Taller growths of annual vegetation such as short pod mustard (*Hirschfeldia incana*), as well as dense perennial vegetation such as western ragweed (*Ambrosia psilostachya*) and vinegar weed (*Trichostema lanceolatum*) and dense annual grasses were observed in several low- and medium-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 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 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. December 22, 2022.

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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 Draft Targeted Monitoring Plan Update. Prepared for the County of San Diego Department of Parks and Recreation. December 2022.

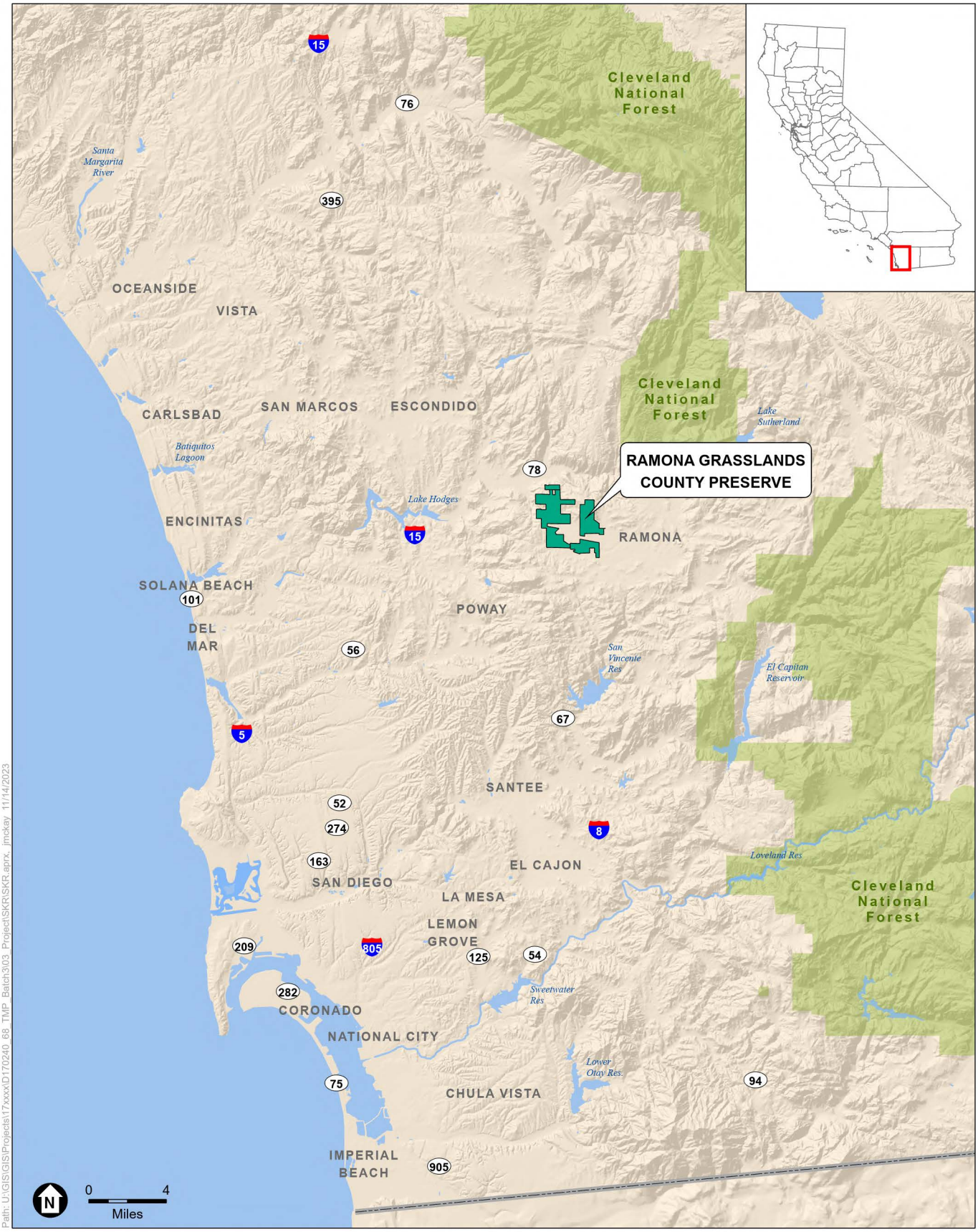
ICF
2017 *2016 Stephens' Kangaroo Rat Monitoring at the Ramona Grasslands Preserve, Ramona, San Diego County, California*. Prepared for the County of San Diego Department of Parks and Recreation.

2018 *Winter 2017–2018 Stephens' Kangaroo Rat Monitoring at the Ramona Grasslands Preserve, Ramona San Diego County, California.* Prepared for the County of San Diego Department of Parks and Recreation.

Montgomery, S. J., D. J. Grout, C. M. Wolf, V. M. Shoblock, A. Davenport, and R. N. Knight
2008 *Stephens' kangaroo rat monitoring program, and results of annual monitoring sessions between spring 2002 and fall 2004, at Naval Weapons Station Seal Beach Detachment Fallbrook*. Unpublished report submitted by SJM Biological Consultants to the Environmental Programs and Services Office, Naval Weapons Station Seal Beach Detachment Fallbrook, Fallbrook, CA.

Attachment A

Figures

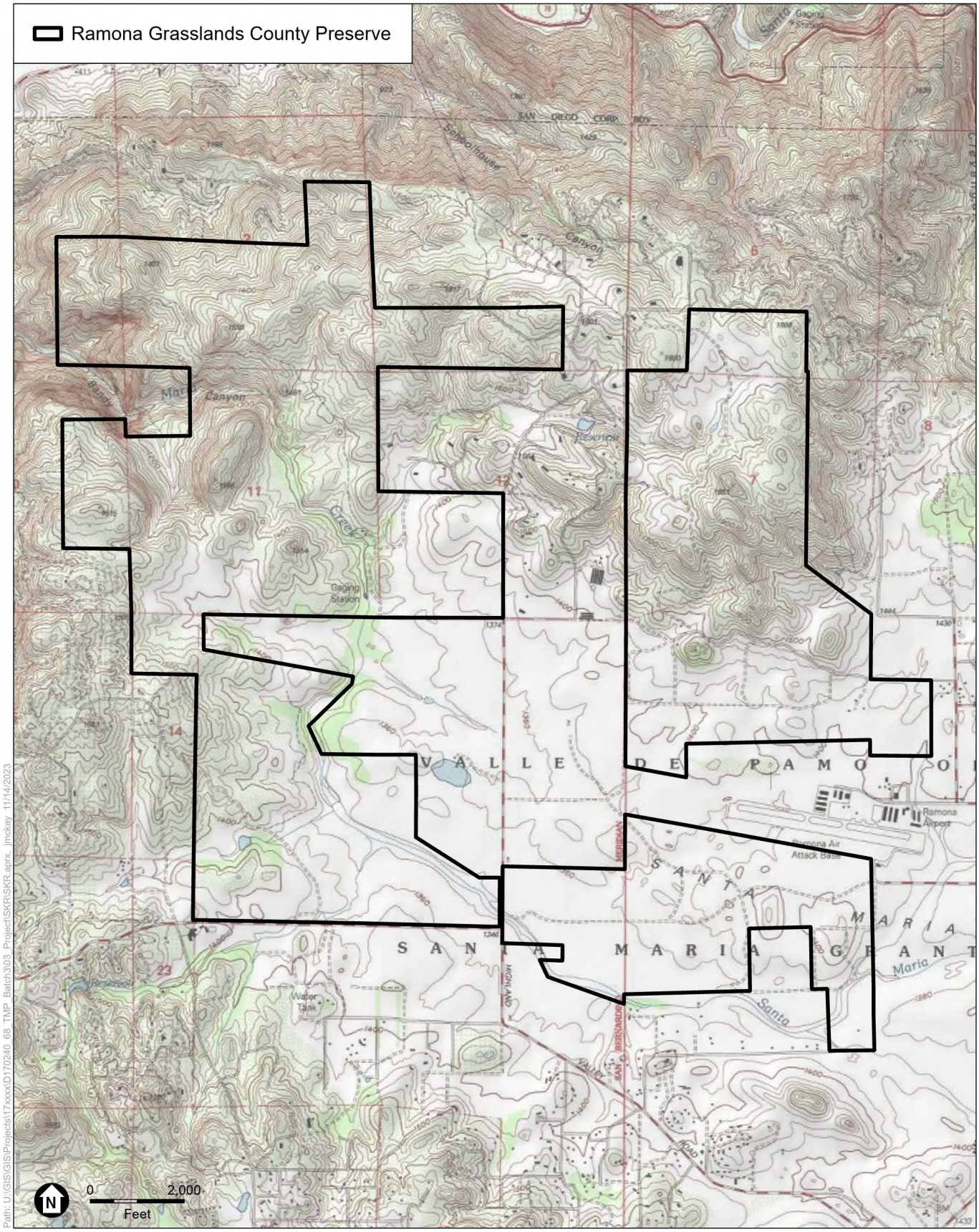


SOURCE: ESRI; SanGIS, 2023

COSD DPR 557744 TO 68 - Implementation of Targeted Monitoring Plan 2023 Resource-Specific Monitoring and Management
Fall 2023 SKR Habitat Monitoring Memorandum – Ramona Grasslands County Preserve

ESA

Figure 1
Regional Location



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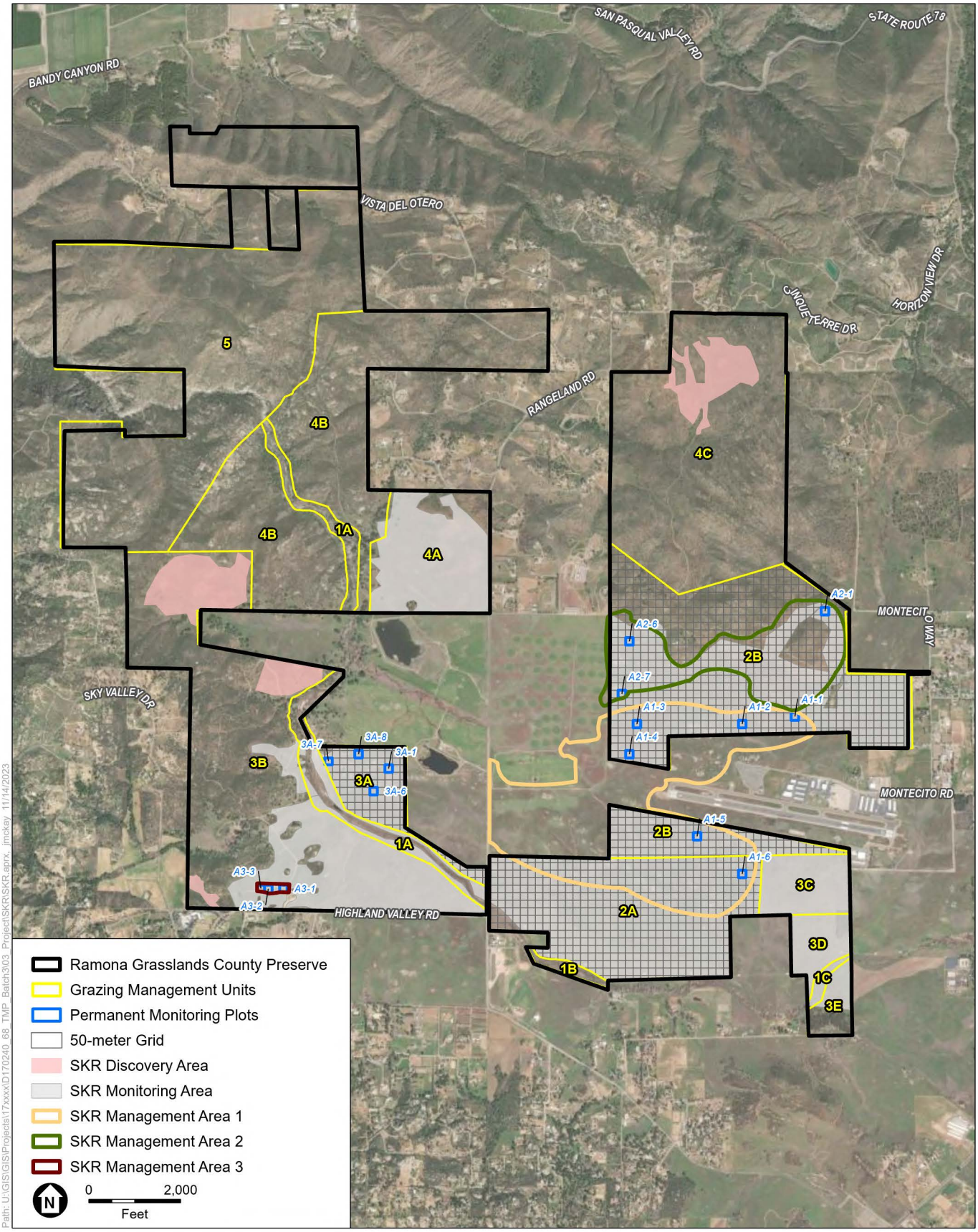
SOURCE: USGS 7.5 minute, San Pasqual quadrangle

COSD DPR 557744 TO 68 - Implementation of Targeted Monitoring Plan 2023 Resource-Specific Monitoring and Management
Fall 2023 SKR Habitat Monitoring Memorandum – Ramona Grasslands County Preserve

Figure 2
Project Location

ESA

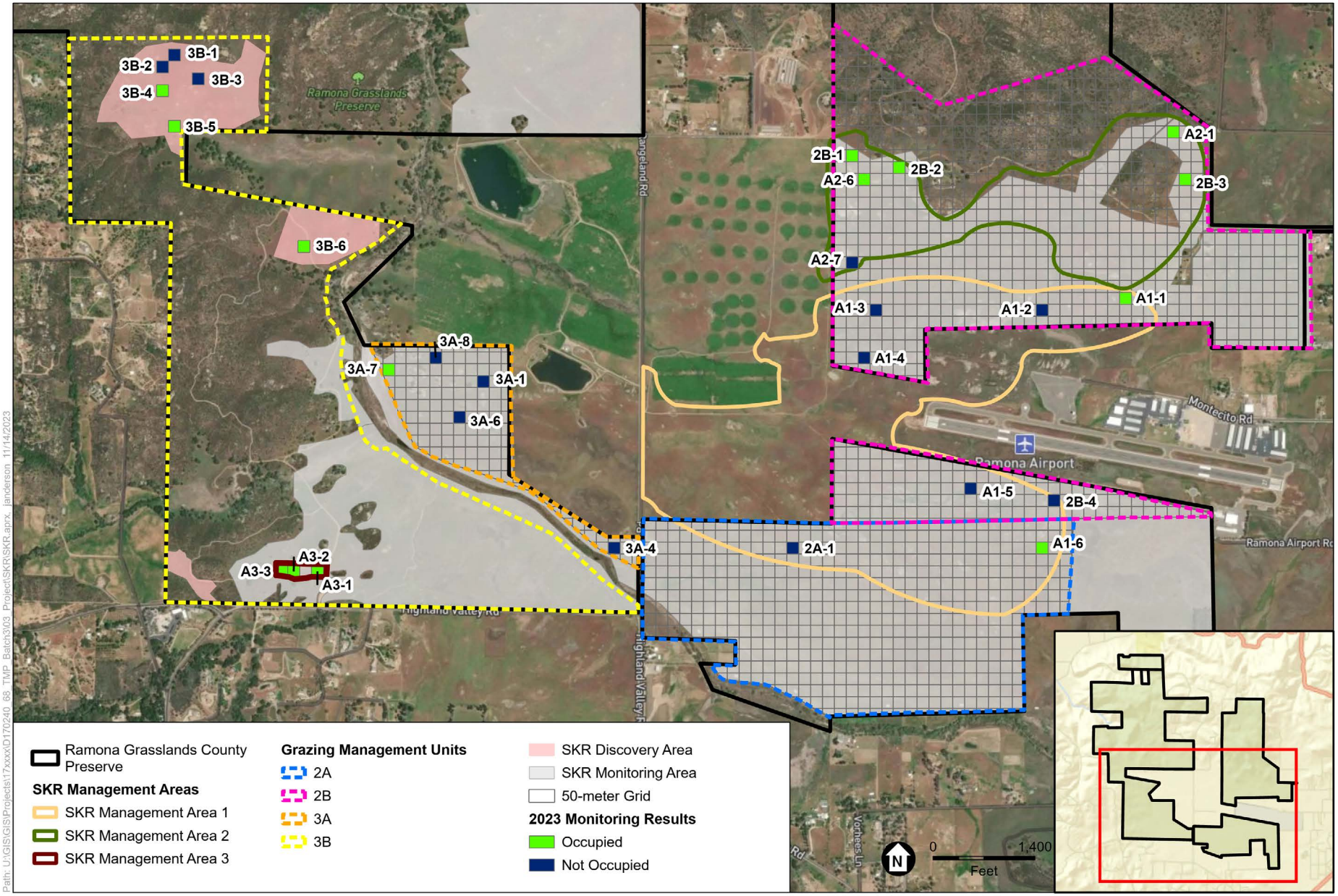


SOURCE: ESRI, 2023

COSD DPR 557744 TO 68 - Implementation of Targeted Monitoring Plan 2023 Resource-Specific Monitoring and Management
Fall 2023 SKR Habitat Monitoring Memorandum – Ramona Grasslands County Preserve

Figure 3
SKR Monitoring and Management Areas

ESA



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SOURCE: Mapbox; ESA, 2023

COSD DPR 557744 TO 68 - Implementation of Targeted Monitoring Plan 2023 Resource-Specific Monitoring and Management
Fall 2023 SKR Habitat Monitoring Memorandum – Ramona Grasslands County Preserve

ESA

Figure 4
2023 SKR Monitoring Results

Attachment B
Site Photographs

2A-1

2B-1

2B-2

2B-3

2B-4

3A-1

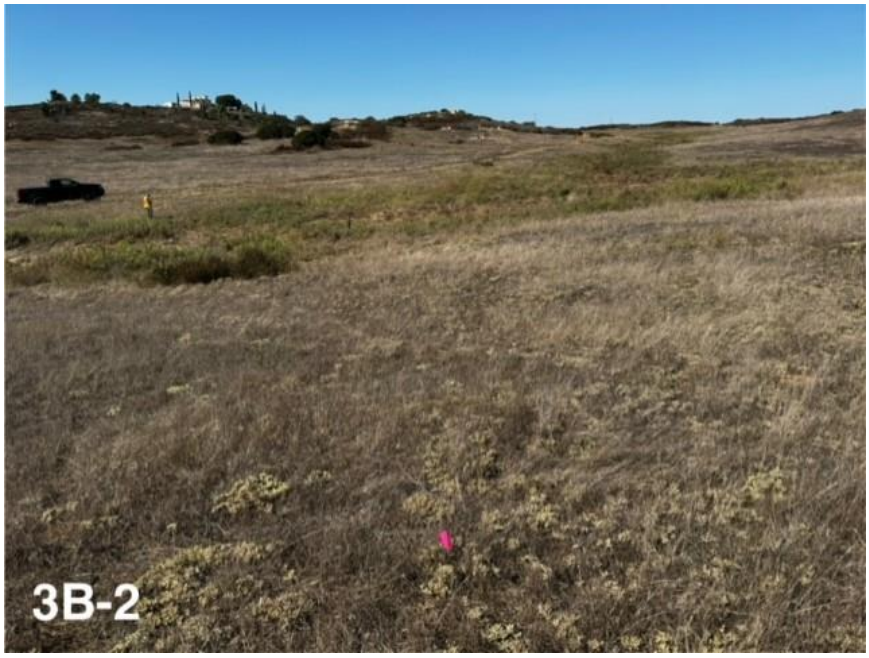
3A-4

3A-6

3A-7

3A-8

3B-1



3B-2

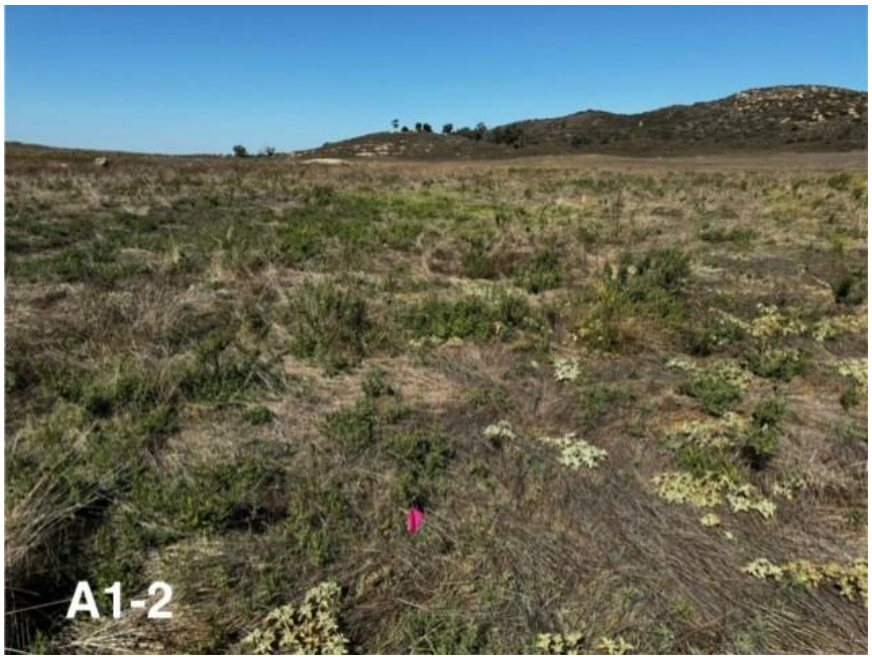
3B-3

3B-4

3B-5

3B-6

A1-1



A1-2

A1-3

A1-4

A1-5

A1-6

A2-1

A2-6

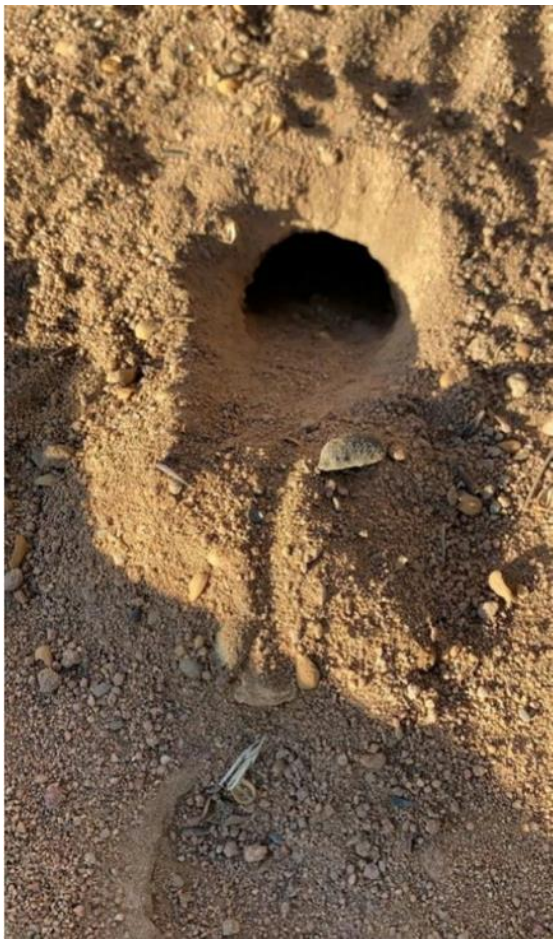
A2-7

A3-1

A3-2

A3-3

Stephens' kangaroo rat burrow at plot A3-1.



Kangaroo rat burrow with tail drag marks at plot A1-1

Kangaroo rat burrow with scat at plot 3A-7.

Attachment C
Field Forms

SKR Monitoring – Habitat Assessment Form

Plot Number: 2A-1 **Date/ Time:** 10/25/2023 13:31

Grazing Management Unit: NA **SKR Management Area:** 2

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley Milner

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Construction fencing and small pond take up 60% or more of 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%

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 spp., Hirschfeldia incana, Erodium spp.

Grasses - List 3 Dominant Species: Avena barbata, Distichlis spicata, Bromus hordaceous

Shrubs - List 3 Dominant Species: Isocoma menziesii

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 25, 2023 1:31 PM	**Preserve:** Ramona Grasslands Preserve
Plot: 2A-1	**Observers:** Dillon Travis, Kris Alberts, Hayley Milner

SKR Monitoring – Habitat Assessment Form

Plot Number: 2B-1 **Date/ Time:** 10/24/2023 10:32

Grazing Management Unit: NA **SKR Management Area:** 2

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Grounds squirrel, gopher, and KR burrows next to each other (pic 1)

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 spp., Herschfeldia incana, Erodium spp.

Grasses - List 3 Dominant Species: Bromus rubens, Bromus hordaceous, Avena barbata

Shrubs - List 3 Dominant Species: Artemesia 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 24, 2023 10:32 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 2B-1	**Observers:** Dillon Travis, Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 2B-2 **Date/ Time:** 10/24/2023 09:59

Grazing Management Unit: NA **SKR Management Area:** 2

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Invaded with mustard, little bare ground, excluding road that passes through middle of 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%

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 spp., Ambrosia psilostachya

Grasses - List 3 Dominant Species: Bromus rubens, Bromus diandrus, Avena barbata

Shrubs - List 3 Dominant Species: Isocoma menziesii, 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 24, 2023 9:59 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 2B-2	**Observers:** Dillon Travis, Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 2B-3 **Date/ Time:** 10/24/2023 08:56

Grazing Management Unit: NA **SKR Management Area:** 2

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Large field of standing mustard with scattered open space.

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 spp., Herschfeldia incana, Erodium spp.

Grasses - List 3 Dominant Species: Bromus spp., Avena barbata

Shrubs - List 3 Dominant Species: 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 24, 2023 8:56 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 2B-3	**Observers:** Dillon Travis, Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 2B-4 **Date/ Time:** 10/24/2023 12:53

Grazing Management Unit: NA **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Dominated by Brome and Mustard. No bare ground, 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: Hirschfeldia incana, Croton spp., Trichostema lanceolatum

Grasses - List 3 Dominant Species: Bromus hordaceous, Bromus matridensis, Bromus spp.

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 24, 2023 12:53 PM	**Preserve:** Ramona Grasslands Preserve
Plot: 2B-4	**Observers:** Dillon Travis, Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 3A-1 **Date/ Time:** 10/25/2023 11:26

Grazing Management Unit: NA **SKR Management Area:** 3

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley Milner

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Large amount of plant litter and faller grass. 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: Croton spp., Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Bromus hordaceous, Avena barbata, 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 25, 2023 11:26 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 3A-1	**Observers:** Dillon Travis, Kris Alberts, Hayley Milner

SKR Monitoring – Habitat Assessment Form

Plot Number: 3A-4 **Date/ Time:** 10/25/2023 13:18

Grazing Management Unit: NA **SKR Management Area:** 3

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley Milner

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Invaded by Avena and Brome. The grass is old and is laying flat covering virtually all of 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%

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

Grasses - List 3 Dominant Species: Avena barbata, 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 25, 2023 1:18 PM	**Preserve:** Ramona Grasslands Preserve
Plot: 3A-4	**Observers:** Dillon Travis, Kris Alberts, Hayley Milner

SKR Monitoring – Habitat Assessment Form

Plot Number: 3A-6 **Date/ Time:** 10/25/2023 11:35

Grazing Management Unit: NA **SKR Management Area:** 3

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley Milner

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☑ Medium ☐ Low ☐ None

Comments: Dead and fallen Bromus makes up majority of plot. low obstruction factor, 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%

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 spp., Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Bromus hordaceous, Avena barbata, 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 25, 2023 11:35 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 3A-6	**Observers:** Dillon Travis, Kris Alberts, Hayley Milner

SKR Monitoring – Habitat Assessment Form

Plot Number: 3A-7 **Date/ Time:** 10/25/2023 10:52

Grazing Management Unit: NA **SKR Management Area:** 3

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley Milner

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☑ Medium ☐ Low ☐ None

Comments: Invaded by mustards. Gopher burrows dominant. Adjacent sandy area has SKR 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: Croton spp., Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Bromus hordaceous, Avena barbata, 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 25, 2023 10:52 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 3A-7	**Observers:** Dillon Travis, Kris Alberts, Hayley Milner

SKR Monitoring – Habitat Assessment Form

Plot Number: 3A-8 **Date/ Time:** 10/25/2023 11:11

Grazing Management Unit: NA **SKR Management Area:** 3

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley Milner

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☑ Medium ☐ Low ☐ None

Comments: Low obstruction factor, 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%

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 spp., Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Bromus hordaceous, Avena barbata, Distichlis spicata

Shrubs - List 3 Dominant Species: 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 25, 2023 11:11 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 3A-8	**Observers:** Dillon Travis, Kris Alberts, Hayley Milner

SKR Monitoring – Habitat Assessment Form

Plot Number: 3B-1 **Date/ Time:** 10/24/2023 13:45

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Dominated by grasses and veg around stream that intersects the 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, Croton spp., Hirschfeldia incana

Grasses - List 3 Dominant Species: Bromus diandrus, Avena barbata, Bromus spp.

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 24, 2023 1:45 PM	**Preserve:** Ramona Grasslands Preserve
Plot: 3B-1	**Observers:** Dillon Travis, Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 3B-2 **Date/ Time:** 10/24/2023 13:32

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☐ High ☑ Medium ☐ Low ☐ None

Comments: Both a dry stream and dirt road intersect 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, Herschfeldia incana, Croton spp.

Grasses - List 3 Dominant Species: Bromus diandrus, Bromus madritensis, Avena barbata

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Artemesia 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 24, 2023 1:32 PM	**Preserve:** Ramona Grasslands Preserve
Plot: 3B-2	**Observers:** Dillon Travis, Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: 3B-3 **Date/ Time:** 10/25/2023 09:48

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley Milner

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☑ Medium ☐ Low ☐ None

Comments: Little bare ground, mostly plant litter. No SKR sign but habitat is not bad.

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 spp., Hirschfeldia incana, Corethrogyne filaginifolia

Grasses - List 3 Dominant Species: Bromus hordaceous, Avena barbata, 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 25, 2023 9:48 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 3B-3	**Observers:** Dillon Travis, Kris Alberts, Hayley Milner

SKR Monitoring – Habitat Assessment Form

Plot Number: 3B-4 **Date/ Time:** 10/25/2023 10:21

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley Milner

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Burrows at the eastern border of plot. Low obstruction factor.

Plot Habitat Descriptors

Describe current land use: ☑ Grazing ☐ Open Space ☐ Other

Soil Surface Hardness: ☐ Hard ☑ Medium ☐ Soft

Living/Standing Herb Density: ☐ High ☑ Medium ☐ Low

Bare Ground: ☐ 0 ☐ 0-5% ☑ 5-25% ☐ 25-50% ☐ 50-75%

Plant Litter (dead): ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☑ 50-75%

Forb Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☑ 25-50% ☐ 50-75%

Grass Cover: ☐ 0 ☑ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75%

Shrub Cover: ☑ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75%

Forbs - List 3 Dominant Species: Croton spp., Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Bromus hordaceous, Avena barbata, 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 25, 2023 10:21 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 3B-4	**Observers:** Dillon Travis, Kris Alberts, Hayley Milner

SKR Monitoring – Habitat Assessment Form

Plot Number: 3B-5 **Date/ Time:** 10/25/2023 09:27

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley Milner

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☑ Medium ☐ Low ☐ None

Comments: Invaded by Hirschfeldia and brome. Where bare ground is there are potential SKR burrows and trails through veg.

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 spp., Hirschfeldia incana, Trichostema lanceolatum

Grasses - List 3 Dominant Species: Bromus hordaceous, Avena barbata, Distichlis spicata

Shrubs - List 3 Dominant Species: Artemesia 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 25, 2023 9:27 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 3B-5	**Observers:** Dillon Travis, Kris Alberts, Hayley Milner

SKR Monitoring – Habitat Assessment Form

Plot Number: 3B-6 **Date/ Time:** 10/25/2023 09:07

Grazing Management Unit: NA **SKR Management Area:** None

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley Milner

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☑ Medium ☐ Low ☐ None

Comments: Invaded by brome. Small patch of bare ground has possible SKR 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: Croton spp., Hirschfeldia incana, Erigeron canadensis

Grasses - List 3 Dominant Species: Bromus hordaceous, Muhlenbergia rigens, Avena barbata

Shrubs - List 3 Dominant Species: Isocoma menziesii

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 25, 2023 9:07 AM	**Preserve:** Ramona Grasslands Preserve
Plot: 3B-6	**Observers:** Dillon Travis, Kris Alberts, Hayley Milner

SKR Monitoring – Habitat Assessment Form

Plot Number: A1-1 **Date/ Time:** 10/24/2023 08:31

Grazing Management Unit: NA **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☐ High ☑ Medium ☐ Low ☐ None

Comments: Little to no bare ground, mostly litter. KR burrows and tail drag tracks

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 spp., Ambrosia psilostachya, Hirschfeldia incana

Grasses - List 3 Dominant Species: Bromus rubens, Avena barbata, Bromus diandrus

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 24, 2023 8:31 AM	**Preserve:** Ramona Grasslands Preserve
Plot: A1-1	**Observers:** Dillon Travis, Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A1-2 **Date/ Time:** 10/24/2023 12:02

Grazing Management Unit: NA **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Completely invaded by salt grass. No 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%

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 spp., Croton spp., Hirschfeldia incana

Grasses - List 3 Dominant Species: Distichlis spicata, Avena barbata, Bromus spp.

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 24, 2023 12:02 PM	**Preserve:** Ramona Grasslands Preserve
Plot: A1-2	**Observers:** Dillon Travis, Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A1-3 **Date/ Time:** 10/24/2023 11:15

Grazing Management Unit: NA **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☐ High ☑ Medium ☐ Low ☐ None

Comments: No observed 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: Hirschfeldia incana, Croton spp., Ambrosia psilostachya

Grasses - List 3 Dominant Species: Bromus madritensis, Distchlis 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): None.

Date: October 24, 2023 11:15 AM	**Preserve:** Ramona Grasslands Preserve
Plot: A1-3	**Observers:** Dillon Travis, Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A1-4 **Date/ Time:** 10/24/2023 11:41

Grazing Management Unit: NA **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Invaded with salt grass, no burrows detected at all

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, Rumex spp.

Grasses - List 3 Dominant Species: distichlis spicata, 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 24, 2023 11:41 AM	**Preserve:** Ramona Grasslands Preserve
Plot: A1-4	**Observers:** Dillon Travis, Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A1-5 **Date/ Time:** 10/24/2023 14:51

Grazing Management Unit: NA **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Albertsdo

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Dominated by Brome, Salt grass, and Avena. 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: Croton spp., Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Distichlus spicata, Avena barbata, Bromus hordaceous

Shrubs - List 3 Dominant Species: Scrophularia 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 24, 2023 2:51 PM	**Preserve:** Ramona Grasslands Preserve
Plot: A1-5	**Observers:** Dillon Travis, Kris Albertsdo

SKR Monitoring – Habitat Assessment Form

Plot Number: A1-6 **Date/ Time:** 10/24/2023 14:34

Grazing Management Unit: NA **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☐ High ☑ Medium ☐ Low ☐ None

Comments: Dominated by Brome, Distichlus spicata. Potential SKR scat

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 spp., Deinandra spp.

Grasses - List 3 Dominant Species: Bromus hordaceous, Distichlis spicata, Gastridium phleoides

Shrubs - List 3 Dominant Species: Isocoma mensiesii

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 24, 2023 2:34 PM	**Preserve:** Ramona Grasslands Preserve
Plot: A1-6	**Observers:** Dillon Travis, Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A2-1 **Date/ Time:** 10/24/2023 09:12

Grazing Management Unit: NA **SKR Management Area:** 2

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Open space checkered with buckwheat and dead mustard.

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 spp., Herschfeldia incana, Corethrogyne filaginifolia

Grasses - List 3 Dominant Species: Bromus rubens, Bromus diandrus, Avena barbata

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Artemesia 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 24, 2023 9:12 AM	**Preserve:** Ramona Grasslands Preserve
Plot: A2-1	**Observers:** Dillon Travis, Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A2-6 **Date/ Time:** 10/24/2023 10:16

Grazing Management Unit: NA **SKR Management Area:** 2

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Burrows on side of dirt berm next to old stream(see 2nd, 3rd pic)

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 spp., Herschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Bromus rubens, Bromus diandrus, Avena barbata

Shrubs - List 3 Dominant Species: Isocoma menziesii

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 24, 2023 10:16 AM	**Preserve:** Hellhole Canyon Preserve
Plot: A2-6	**Observers:** Dillon Travis, Kris Alberts

SKR Monitoring – Habitat Assessment Form

Plot Number: A2-7 **Date/ Time:** 10/24/2023 10:52

Grazing Management Unit: NA **SKR Management Area:** 2

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Highly invaded with grass and mustard, no observed 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%

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 spp., Hirschfeldia incana, Ambrosia psilostachya

Grasses - List 3 Dominant Species: Bromus madritensis, Bromus hordaceous, Distichlis spicata

Shrubs - List 3 Dominant Species: 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 24, 2023 10:52 AM	**Preserve:** Ramona Grasslands Preserve
Plot: A2-7	**Observers:** Dillon Travis

SKR Monitoring – Habitat Assessment Form

Plot Number: A3-1 **Date/ Time:** 10/25/2023 12:37

Grazing Management Unit: NA **SKR Management Area:** 3

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley Milner

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Optimal habitat. Low obstruction factor.

Plot Habitat Descriptors

Describe current land use: ☑ Grazing ☐ Open Space ☐ Other

Soil Surface Hardness: ☑ Hard ☐ Medium ☐ Soft

Living/Standing Herb Density: ☐ High ☑ Medium ☐ Low

Bare Ground: ☐ 0 ☐ 0-5% ☑ 5-25% ☐ 25-50% ☐ 50-75%

Plant Litter (dead): ☐ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☑ 50-75%

Forb Cover: ☐ 0 ☐ 0-5% ☐ 5-25% ☑ 25-50% ☐ 50-75%

Grass Cover: ☐ 0 ☑ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75%

Shrub Cover: ☑ 0 ☐ 0-5% ☐ 5-25% ☐ 25-50% ☐ 50-75%

Forbs - List 3 Dominant Species: Croton spp., Hirschfeldia incana, Erodium spp.

Grasses - List 3 Dominant Species: Bromus hordaceous, Avena barbata, 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 25, 2023 12:37 PM	**Preserve:** Ramona Grasslands Preserve
Plot: A3-1	**Observers:** Dillon Travis, Kris Alberts, Hayley Milner

SKR Monitoring – Habitat Assessment Form

Plot Number: A3-2 **Date/ Time:** 10/25/2023 12:47

Grazing Management Unit: NA **SKR Management Area:** 3

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley Milner

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Optimal habitat. Low obstruction factor. Several burrows located.

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 spp., Hirschfeldia incana, Erodium spp.

Grasses - List 3 Dominant Species: Bromus hordaceous, Avena barbata, 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 25, 2023 12:47 PM	**Preserve:** Ramona Grasslands Preserve
Plot: A3-2	**Observers:** Dillon Travis, Kris Alberts, Hayley Milner

SKR Monitoring – Habitat Assessment Form

Plot Number: A3-3 **Date/ Time:** 10/25/2023 12:52

Grazing Management Unit: NA **SKR Management Area:** 3

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley Milner

Trapping needed to confirm SKR vs DKR? ☐ Yes ☑ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Optimal habitat. Low obstruction factor. Continue the previous years management bc it is working at these sites.

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 spp., Hirschfeldia incana, Erodium spp.

Grasses - List 3 Dominant Species: Bromus hordaceous, Avena barbata, 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 25, 2023 12:52 PM	**Preserve:** Ramona Grasslands Preserve
Plot: A3-3	**Observers:** Dillon Travis, Kris Alberts, Hayley Milner

I-2 Stephens' Kangaroo Rat Habitat Assessment Memorandum: Hellhole Canyon County Preserve

FALL 2023 STEPHENS' KANGAROO RAT MONITORING

HELLHOLE CANYON COUNTY PRESERVE

VALLEY CENTER, SAN DIEGO COUNTY, CALIFORNIA

Prepared for:
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Resource Management Division
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December 5, 2023

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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 2023. 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 and 2022 SKR habitat assessments (ESA and Blackhawk Environmental, Inc. 2021, 2022) associated with 2021 and 2022 TMP Resource-Specific Monitoring (ESA 2022, 2023).

This report summarizes results of the SKR habitat assessment within the Preserve for the fall of 2023. While fall 2023 monitoring was conducted at a similar time of year compared to previous monitoring efforts, due to the above-average rain year between fall 2022 and fall 2023, a greater percentage of annual vegetation was living/standing, compared to the typical dry and largely senesced conditions observed during the 2020 trapping surveys and the fall 2021 and 2022 monitoring efforts. As a result, monitoring plots in fall 2023 were anticipated to yield lower SKR presence results. While some of the SKR monitoring areas in 2023 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 2020–2022, other areas saw an increase in obstruction factors, thus decreasing suitable habitat for SKR.

The fall 2023 monitoring results demonstrated a reduction in SKR habitat suitability compared to that of the fall 2020 trapping survey and fall 2021 and 2022 monitoring efforts. The fall 2020 live trapping survey yielded one 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 and 2022, 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 and fall 2022, and the lack of obstruction factors that would preclude SKR potential between the three proximal plots. In 2023, however, plot 1 was not considered potentially occupied due to the lack of kangaroo rat sign observed. Additionally, the potential for SKR was reduced to low and medium for plots 1 and 3, respectively, compared to high potential ratings in previous years. Despite these 2023 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. 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 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 to confirm monitoring and management goals and objectives for TMP-covered species at the newly added open space parks and preserves, including SKR at Hellhole Canyon County Preserve (Preserve). The TMP is an adaptive management plan that includes both focused goals and objectives for target resources and detailed monitoring protocols and is intended to achieve the management directives for species per the adopted South County MSCP Framework Management Plan (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, 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 20 open space parks and preserves: Barnett Ranch County Preserve, Boulder Oaks County Preserve, Del Dios Highlands County Preserve, El Capitan County Preserve, El Monte Regional Park, Furby-North Property, Hellhole Canyon County Preserve, Lakeside Linkage County Preserve, Lawrence and Barbara Daley County Preserve, Louis A. Stelzer County Park, Lusardi Creek County Preserve, Mount Olympus County Preserve, Oakoasis County Preserve, Ramona Grasslands County Preserve, Santa Margarita County Preserve, Simon County Preserve, Stoneridge County Preserve, Sycamore Canyon/Goodan Ranch County Preserve, Tijuana River Valley Regional Park, and Wilderness Gardens County Preserve.

Project Location and Description

Hellhole Canyon County 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.

Hellhole Canyon County Preserve is in the eastern portion of the unincorporated area of Valley Center (Attachment A, Figure 1). The Preserve is in Township 11 South, Range 1 West, and Range 1 East as depicted on the United States Geological Survey (USGS) 7.5-minute Rodriguez Mountain quadrangle (Attachment A, Figure 2). The Preserve is in northeastern San Diego County in the Peninsular Geomorphic Range and consists of mountain and peak faces of Rodriguez Mountain, rocky hills, unnamed streams, drainages, Hell Creek, and valleys north and east of Paradise Mountain. Elevations range from approximately 457 meters (1,500 feet) above mean sea level within Hell Creek to approximately 1,143 meters (3,750 feet) above mean sea level on the western face of Rodriguez Mountain in the eastern section of the Preserve. SKR were historically observed within the Sierra Verde Addition of the Preserve. Suitable annual and perennial grassland and open coastal sage scrub habitat for SKR is present within the northeast corner of the Sierra Verde Addition of the Preserve, and SKR and Dulzura kangaroo rat (*Dipodomys simulans*) presence were confirmed during baseline trapping surveys conducted in 2020.

2.0 METHODS

SKR Monitoring Area Determination

The SKR Monitoring Area was originally determined based on the 2020 baseline visual habitat assessment and live-trapping results. Within the Preserve, suitable SKR habitat is confined to the northeastern corner of the Sierra Verde Addition. Potentially suitable SKR habitat (i.e., flat terrain and/or gentle slopes that support low-growing, open habitat) were included within the SKR Monitoring Area. The current SKR Monitoring Area focused on open coastal sage scrub and annual and perennial grassland habitats as the only area in the larger Hellhole Canyon County Preserve that provides suitable SKR habitat with connectivity to the high-quality expansive grassland habitat within the adjacent Rancho Guejito (Attachment A, Figure 3).

Monitoring Plots

Baseline SKR trapping surveys were conducted in 2020 within the northeastern corner of the Sierra Verde Addition and confirmed SKR presence in one of the three trapping plots (plot 2). Per the updated TMP (ESA and ICF 2022), the 2023 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 Hayley Milner Dillon Travis	10-23-23	0915–1135	61–63	0–2 / 1–3	100 / 80	Light mist

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 C). These assessment variables were modeled after field forms used by Brehme et al. (2016) (adapted from a field form in Montgomery et al. 2008. Based on the quality of potentially suitable SKR habitat and the density of apparent kangaroo rat sign, each plot was assigned a SKR-potential rating using primarily the following criteria:

- High Potential
    - 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, and fall 2023 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 2022 to fall 2023 (ESA and Blackhawk Environmental, Inc. 2022). Results of the 2023 SKR habitat assessment for each sample plot are provided in Table 3. In 2023, habitat assessments were conducted at three monitoring plots, two of which were determined to be occupied or potentially occupied by SKR. Each plot was rated for SKR potential, and only one plot was characterized as having high potential, while one plot was characterized as medium potential and one as low potential. None of the sample plots were found to have no potential for SKR (Attachment A, Figure 4).

Table 2. SKR Habitat Assessment Comparison

		Fall 2020	Fall 2021	Fall 2022	Fall 2023	2022–2023 Change
SKR Occupancy	**Occupied**	1	3*	3*	2*	-1
	Unoccupied	2	0	0	1	+1
SKR Potential	**High**	3	3	3	1	-2
	Medium	0	0	0	1	+1
	Low	0	0	0	1	+1
	No	0	0	0	0	0

*Occupancy status in fall 2023 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 kangaroo rat sign in plots 2 and 3 during fall 2023, 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 2023										Fall 2022
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	Low/Low	Medium	None	Not Occupied	Low	High**
2	5–25	Low	0–5	25–50	Low/Low	Low	B, S, T	Occupied	High**	High**
3	0–5	Medium	25–50	25–50	Low/Low	Medium	B, S	Occupied	Medium**	High**

^ = 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 2.

4.0 DISCUSSION

SKR occupancy potential decreased for two of the three monitoring plots in fall 2023 compared to prior monitoring efforts in fall 2021 and fall 2022. 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 and 2022 habitat assessments. During the 2023 monitoring efforts, however, only two of the three plots potentially detected SKR (Table 3). Differentiating between SKR and DKR sign is not conclusive in and of itself; however, there are no obstruction factors that could preclude the possibility of SKR from any of the three sites, especially considering the proximity of the three sites (within 150 feet of one another). Therefore, 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. Potential for SKR in plots 1 and 3 decreased to low and medium, respectively. 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, 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 is likely to increase vegetation density and height, which may increase obstruction factors. The period between the fall 2022 and fall 2023 monitoring efforts was marked by a significantly 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 2023 monitoring effort, all three plots were observed to have had mowing conducted in portions of the plots within the last 6 months. Despite this, an increase in living/standing herb density and overall vegetation coverage, as well as a decrease in bare ground, was observed in plots 1 and 3. Plot 2 presented similar findings as previous years, with more open areas primarily vegetated with low-growing filarees (*Erodium spp.*) that 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 and 3, compared to findings in 2022 and 2021, reducing the potential for SKR.

To enable consistent data comparisons on a year-to-year basis, it is recommended that future monitoring be conducted during the dry season (July through November), following the precedent set by the fall 2020, fall 2021, fall 2022, and fall 2023 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.

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.

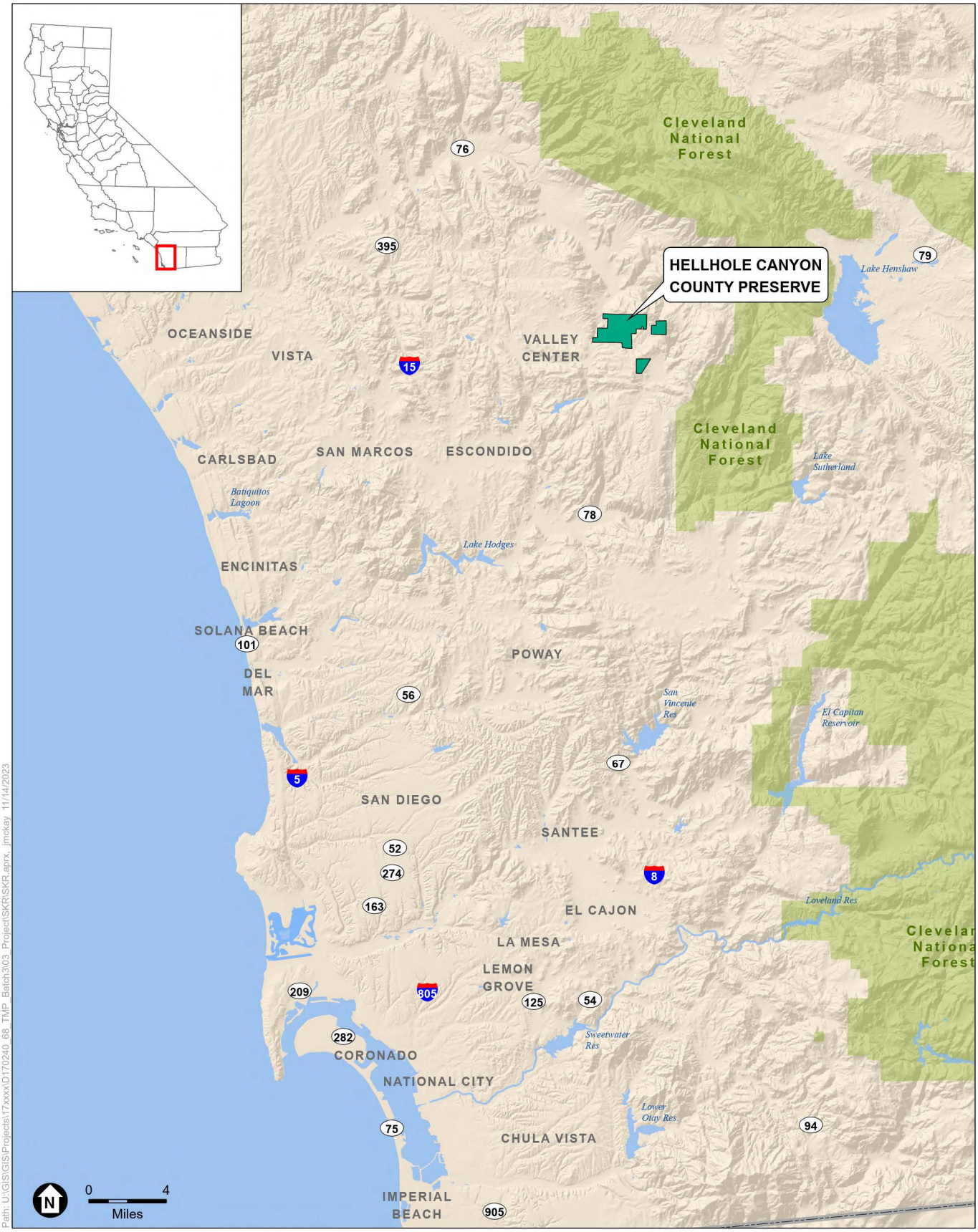
ESA and ICF
2015 Comprehensive Monitoring Plan (now referred to as the "Targeted Monitoring Plan." Prepared for the County of San Diego Department of Parks and Recreation. July 2015.

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

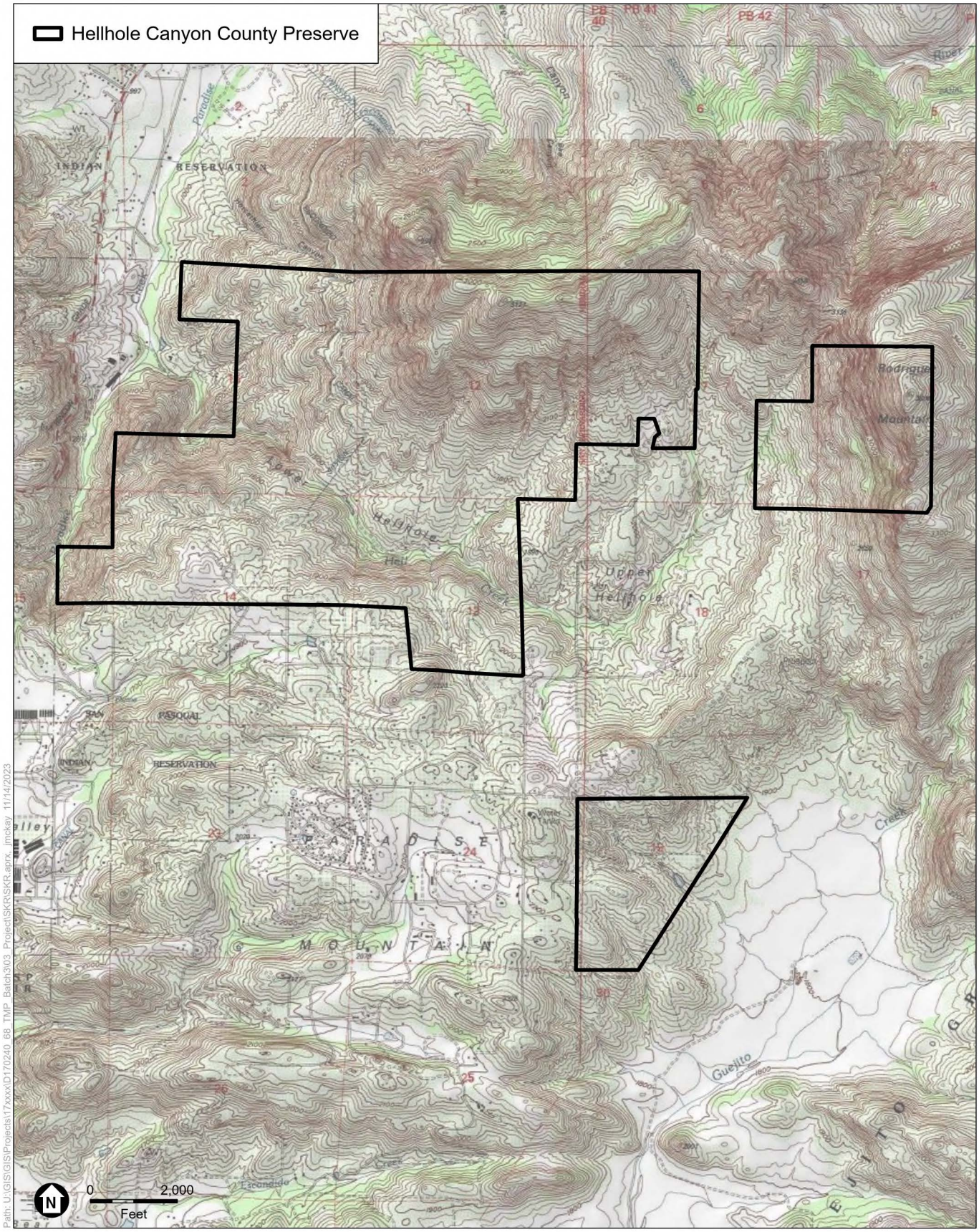


SOURCE: ESRI; SanGIS, 2023

COSD DPR 5577 44 TO 68 - Implementation of Targeted Monitoring Plan 2023 Resource-Specific Monitoring and Management
Fall 2023 SKR Habitat Monitoring Memorandum – Hellhole Canyon County Preserve

Figure 1
Regional Location

ESA



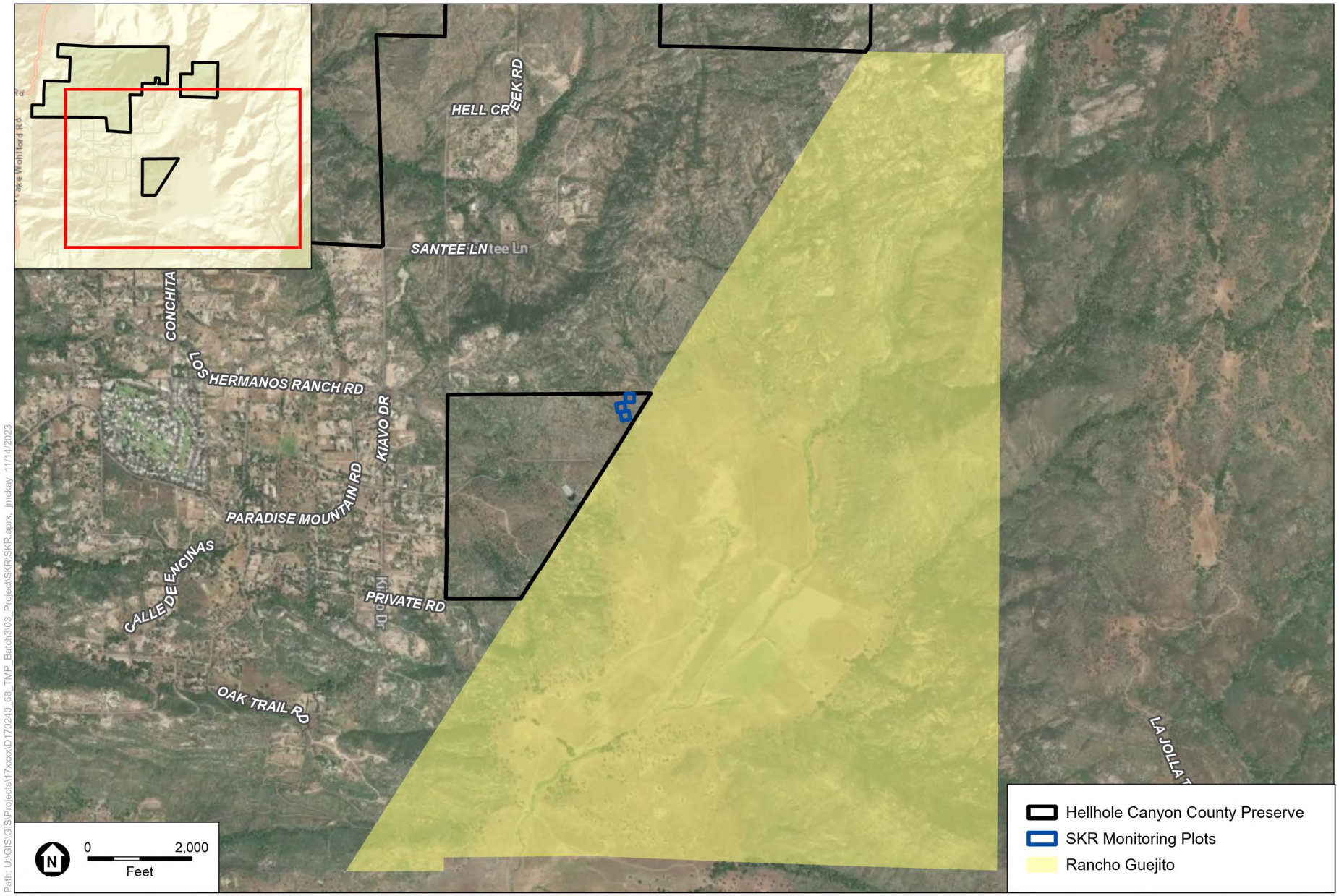
Path: U:\GIS\GIS\Projects\17xxxx\D170240_68_TMP_Batch3\03_Project\SKR\SKR.aprx, jmckay, 11/14/2023

SOURCE: USGS 7.5 minute, Rodriguez Mountain quadrangle

COSD DPR 5577 44 TO 68 - Implementation of Targeted Monitoring Plan 2023 Resource-Specific Monitoring and Management
Fall 2023 SKR Habitat Monitoring Memorandum – Hellhole Canyon County Preserve

Figure 2
Project Location

ESA

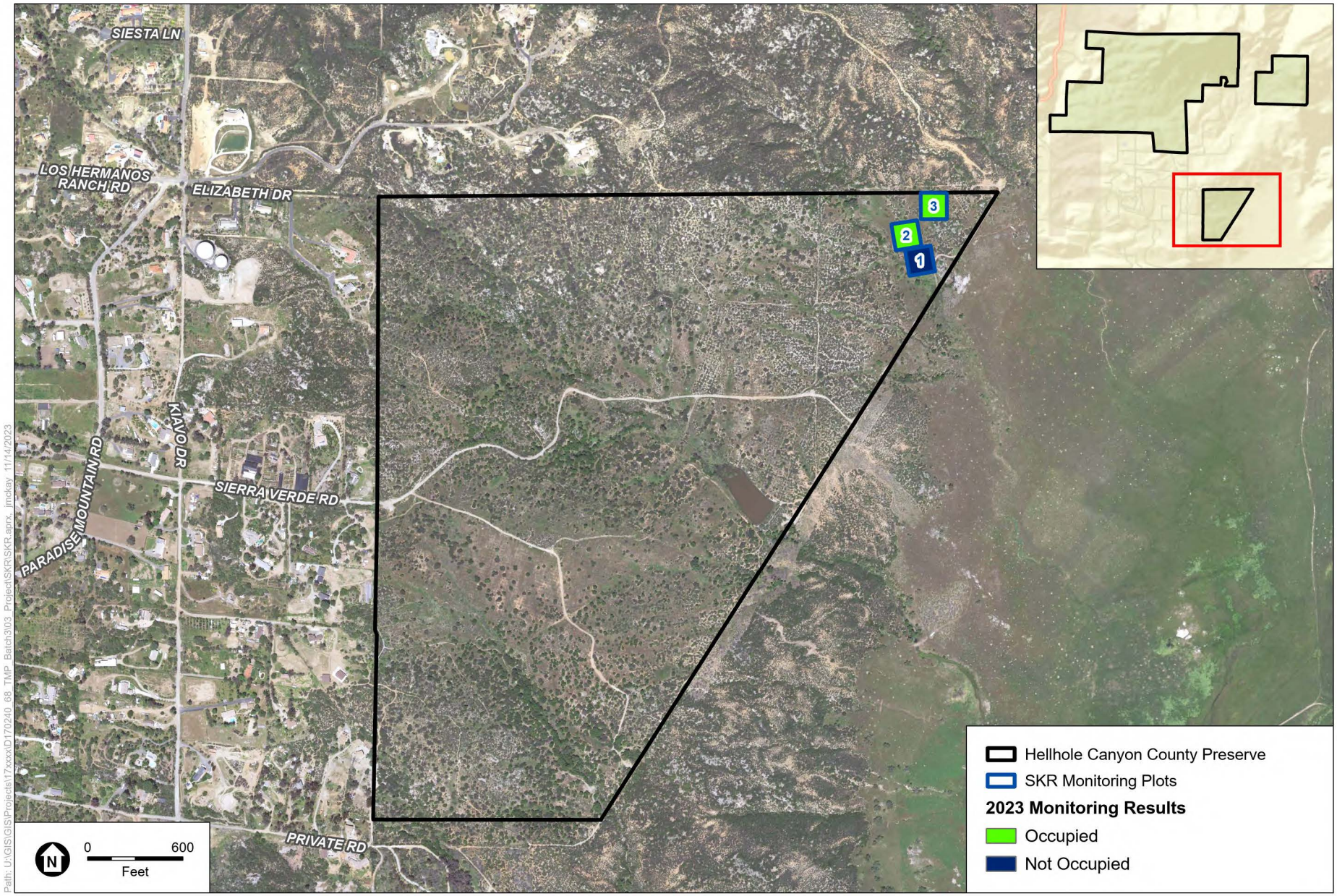


SOURCE: ESRI, 2023; SanGIS, 2023

COSD DPR 5577 44 TO 68 - Implementation of Targeted Monitoring Plan 2023 Resource-Specific Monitoring and Management
Fall 2023 SKR Habitat Monitoring Memorandum – Hellhole Canyon County Preserve

ESA

Figure 3
SKR Monitoring Area



SOURCE: NAIP, 2020; SanGIS, 2023; ESA, 2023.

COSD DPR 5577 44 TO 68 - Implementation of Targeted Monitoring Plan 2023 Resource-Specific Monitoring and Management
Fall 2023 SKR Habitat Monitoring Memorandum – Hellhole Canyon County Preserve

ESA

Figure 4
2023 SKR Monitoring Results

Attachment B
Site Photographs

Plot 1

Plot 2

Plot 3

Attachment C
Field Forms

SKR Monitoring – Habitat Assessment Form

Plot Number: 1 **Date/ Time:** 10/23/2023 09:07

Grazing Management Unit: NA **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☐ High ☐ Medium ☑ Low ☐ None

Comments: Plot 1 has had vegetation management (weed whacked grasses/ mustard) detritus was left in place covering area in detritus. 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: Croton spp., Hercshfeldia incana, Erodium spp.

Grasses - List 3 Dominant Species: Bromus spp. (like rubens), Avena barbata,

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Artemesia californica, Bacharris salicifolia

Trees - Dominant Species: Quercus berbidifolia

Abundance of ACTIVE Gopher Excavations: ☐ High ☐ Medium ☑ Low

Abundance of INACTIVE Gopher Excavations: ☑ High ☐ Medium ☐ Low

Abundance of ground squirrel burrows: ☐ High ☐ Medium ☑ Low

Substrate Disturbance: ☐ None ☐ Grazing ☐ Grading ☐ Discing ☐ Furrows

Grazing - Estimate When? ☐ past 3 months ☐ past 6 months ☐ past 12 months ☐ Older

Grading - Estimate When? ☐ past 3 months ☐ past 6 months ☐ past 12 months ☐ Older

Discing- Estimate When? ☐ past 3 months ☐ past 6 months ☐ past 12 months ☐ Older

Furrows- Estimate When? ☐ past 3 months ☐ past 6 months ☐ past 12 months ☐ Older

Mowing – Estimate When? ☐ past 3 months ☑ past 6 months ☐ past 12 months ☐ Older

Dirt Road – Estimate When? ☐ past 3 months ☐ past 6 months ☐ past 12 months ☐ Older

Paved Road – Estimate When? ☐ past 3 months ☐ past 6 months ☐ past 12 months ☐ Older

Other? Describe: Estimate When? ☐ past 3 months ☐ past 6 months ☐ past 12 months ☐ Older

Potential Kangaroo Rat Sign? ☐ Scat ☐ Burrow(s) ☐ Tracks ☐ Tail Drag ☐ Caching/foraging craters

Other(Describe): None.

Date: October 23, 2023 9:07 AM	**Preserve:** Hellhole Canyon Preserve
Plot: 1	**Observers:** Dillon Travis, Kris Alberts, Hayley

SKR Monitoring – Habitat Assessment Form

Plot Number: 2 **Date/ Time:** 10/23/2023 10:31

Grazing Management Unit: NA **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☑ High ☐ Medium ☐ Low ☐ None

Comments: Located one burrow and scat. Area was mowed and refuse left in place and is now litter/detritus

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, Erodium spp., Croton

Grasses - List 3 Dominant Species: Bromus spp, Avena barbata

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Artemsesia California

Trees - Dominant Species: Quercus berbirifolia

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: Weed whacking 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 23, 2023 10:31 AM	**Preserve:** Hellhole Canyon Preserve
Plot: 2	**Observers:** Dillon Travis, Kris Alberts, Hayley

SKR Monitoring – Habitat Assessment Form

Plot Number: 3 **Date/ Time:** 10/23/2023 10:54

Grazing Management Unit: NA **SKR Management Area:** 1

Digital Photographs taken @ SE Corner of Plot? ☑ Yes ☐ No

Observer(s): Dillon Travis, Kris Alberts, Hayley

Trapping needed to confirm SKR vs DKR? ☑ Yes ☐ No

Overall SKR Potential: ☐ High ☑ Medium ☐ Low ☐ None

Comments: Was mowed/whacked. Wasn't collected so old plants are now detritus/litter. Less KR sign compared to last year.

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 spp, Tocalote, Herschfeldia incana

Grasses - List 3 Dominant Species: Avena barbata, Bromus hordaceaous, Bromus spp.

Shrubs - List 3 Dominant Species: Eriogonum fasciculatum, Gutierrezia spp, Artemesia californica

Trees - Dominant Species: Quercus spp., Malosma laurnina, Citrus spp.

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 23, 2023 10:54 AM	**Preserve:** Hellhole Canyon Preserve
Plot: 3	**Observers:** Dillon Travis, Kris Alberts, Hayley

I-3 Cultural Monitoring Memorandum for Stephens' Kangaroo Rat Focused Management: Hellhole Canyon County Preserve

ESA

80 South Lake Avenue
Suite 570
Pasadena, CA 91101
626.204.6170 phone
626.204.6171 fax

esassoc.com

memorandum

date	October 12, 2023
to	Jennifer Price, Department of Parks and Recreation Resource Management Division, County of San Diego
cc	Adrienne Lee and Sonya Vargas, Environmental Science Associates
from	Kyle Garcia and Joel Aspeytia, Environmental Science Associates
subject	Stephens' Kangaroo Rat Habitat Maintenance – Cultural Resources Summary

The County of San Diego (County) Department of Parks and Recreation (DPR) 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 update (ESA and ICF 2022). The TMP includes focused goals and objectives for target resources and detailed monitoring protocols and adaptive management for 22 species, including Stephens' kangaroo rat (SKR; *Dipodomys stephensi*) (ESA and ICF 2022). Annual habitat assessment monitoring for SKR at Hellhole Canyon County Preserve began in 2021. In response to these monitoring results, habitat enhancement for SKR was recommended to reduce vegetation density and increase open ground to support SKR movement across the landscape (ESA 2022; ESA 2023).

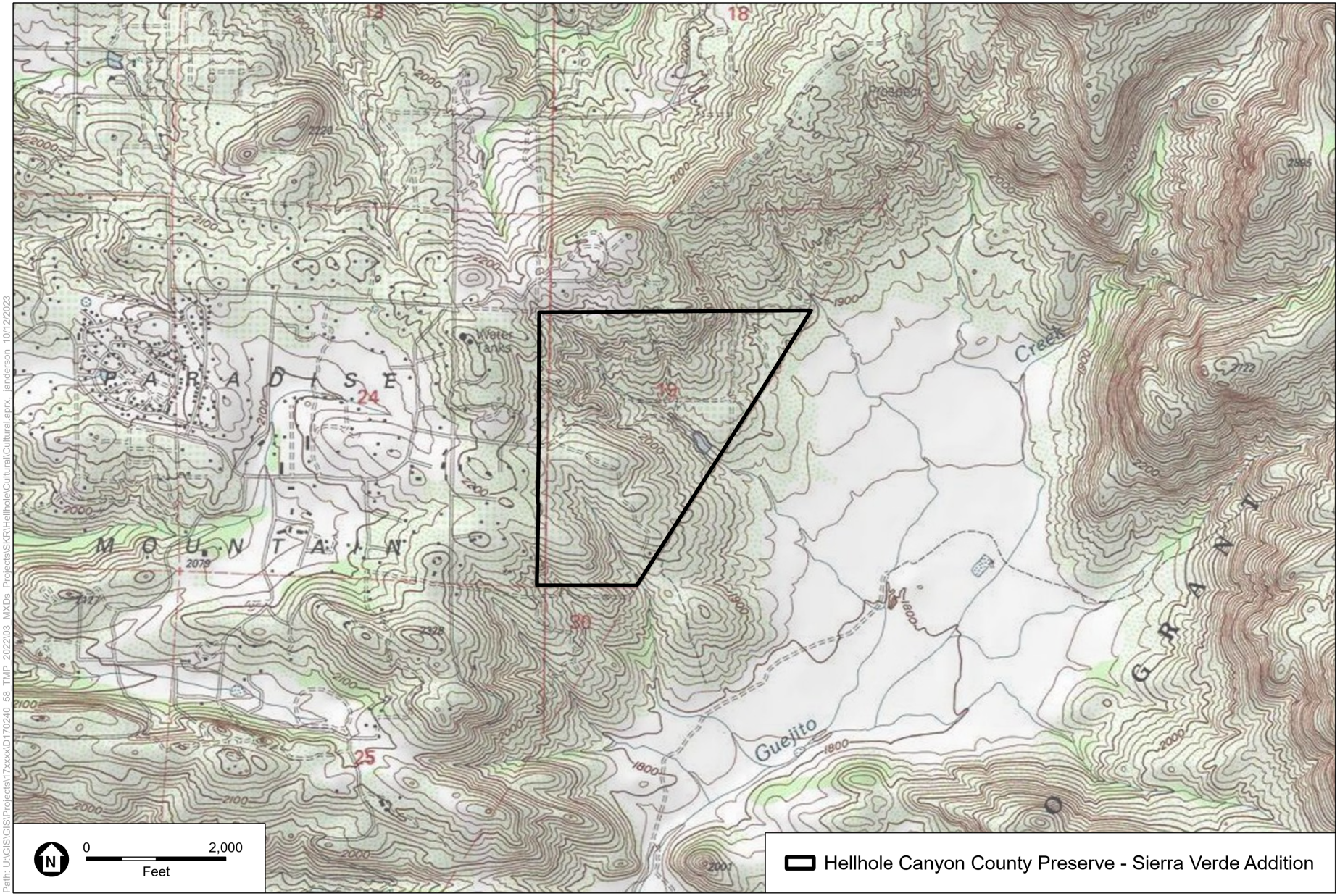
Environmental Science Associates (ESA) was retained by County DPR to provide archaeological monitoring in support of SKR habitat enhancement maintenance at the Sierra Verde Addition of the Hellhole Canyon County Preserve located east of the community of Valley Center in unincorporated San Diego County (**Figure 1**).

The habitat maintenance included the use of mechanical weed whips to cut back invasive non-native vegetation. This habitat maintenance occurred in an area of high archaeological sensitivity in the immediate vicinity of four previously recorded prehistoric archaeological sites (P-37-011900, -013393, -026394, and -038744) consisting of lithic, groundstone, and ceramic scatters with associated bedrock milling features (**Figure 2**). ESA documented these four archaeological sites in 2019 as part of a cultural resources inventory report prepared for the Hellhole Canyon County Preserve Additions (ESA 2019). In the inventory report, the four sites were not formally evaluated, but were identified as having moderate to high probability to be significant resources.

Given the archaeological sensitivity of the habitat maintenance area and the potential significance of the four archaeological sites, ESA cultural resources specialists Kyle Garcia, M.A., RPA, and Joel Aspeytia, B.A., delineated 20-foot exclusionary areas around each of the four sites' boundaries (Figure 2) on September 22, 2023, prior to the start of maintenance activities. The exclusionary area was marked with pink pin flags to identify areas

for the Habitat West maintenance crew to avoid (**Figure 3**). In addition, ESA cultural resources specialist Joel Aspeytia was present on September 25–26, 2023, to ensure the maintenance crew did not encroach into the exclusionary areas established at each of the four sites (Figure 3).

As a result of the establishment of the 20-foot exclusionary areas and the presence of a cultural resources specialist during ground-disturbing activities, no elements of the four prehistoric archaeological sites were impacted during the habitat maintenance activities. ESA recommends no further work.



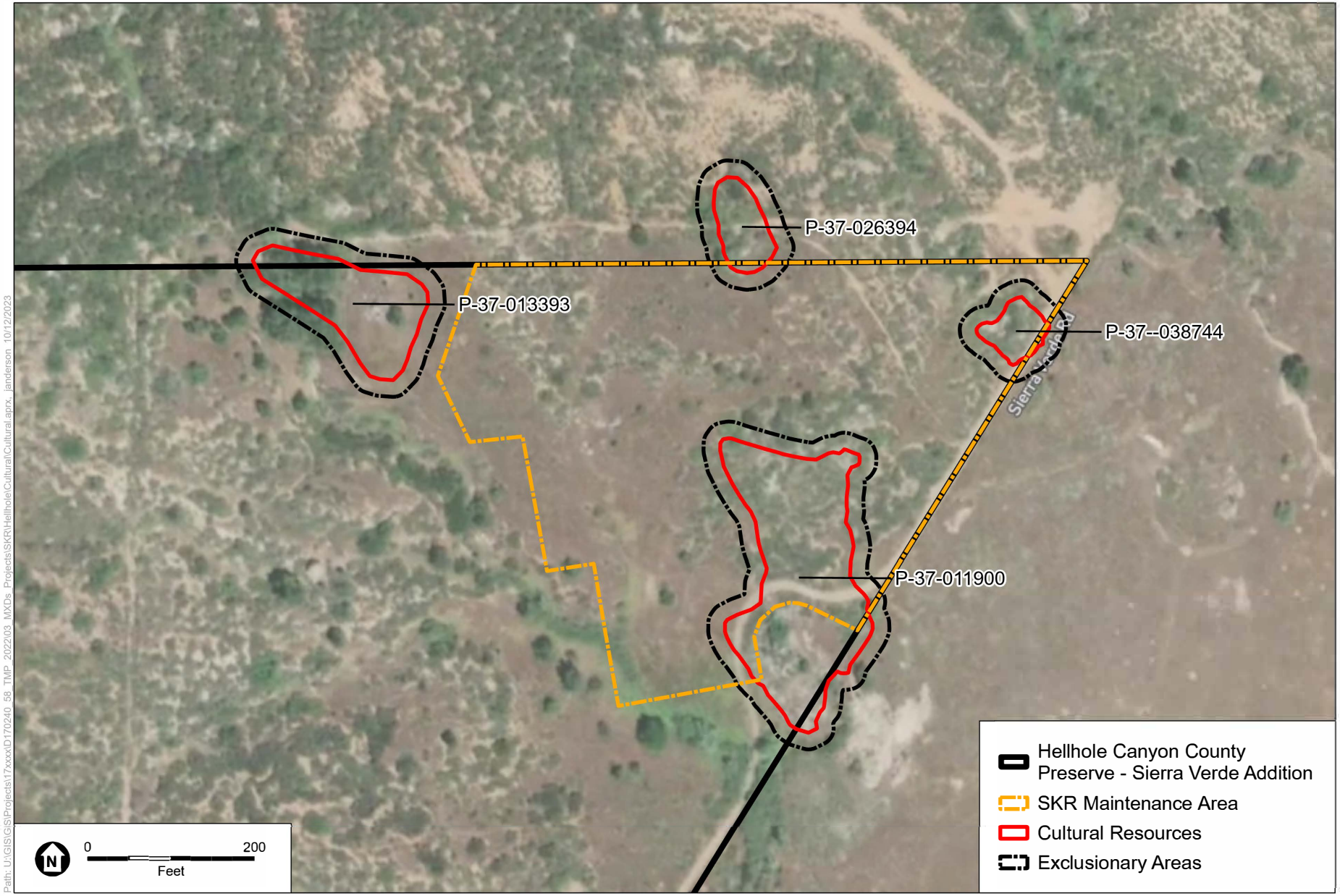
USGS 7.5' Topo Quad Rodriguez Mountain 1980, 1985; SanGIS 2019

COSD DPR 5577 44 TO 68 – Implementation of Targeted Monitoring Plan –
2023 Resource-Specific Monitoring and Management
Stephen's Kangaroo Rat Habitat Maintenance – Cultural Resources Summary

Figure 1
Project Location

ESA

Path: U:\GIS\GIS\Projects\17xxxx\D170240_58_TMP_2022\03_MXDs_Projects\SKR\Hellhole\Cultural\Cultural.aprx, janderson 10/12/2023



Path: U:\GIS\GIS\Projects\17xxxx\D170240_58_TMP_2022\03_MXDs_Projects\SKR\Hellhole\Cultural\Cultural.aprx, janderson 10/12/2023

Mapbox 2018; SanGIS 2019

COSD DPR 5577 44 TO 68 – Implementation of Targeted Monitoring Plan – 2023 Resource-Specific Monitoring and Management
Stephen's Kangaroo Rat Habitat Maintenance – Cultural Resources Summary

Figure 2
Cultural Resource Exclusionary Areas

ESA

Overview of pin flag exclusionary area placement in progress, view to southwest.

Overview of habitat maintenance activities, view to northwest.

SOURCE: ESA, 2023

COSD DPR 5577 44 TO 68 – Implementation of Targeted Monitoring Plan – 2023 Resource-Specific Monitoring and Management
Stephen's Kangaroo Rat Habitat Maintenance – Cultural Resources Summary

Figure 3
Representative Maintenance Photographs

References

Environmental Science Associates (ESA). 2019. *Cultural Resources Survey and Inventory for the Hellhole Canyon Preserve Additions, County of San Diego, California*. Prepared for the County of San Diego Department of Parks and Recreation. August 2019.

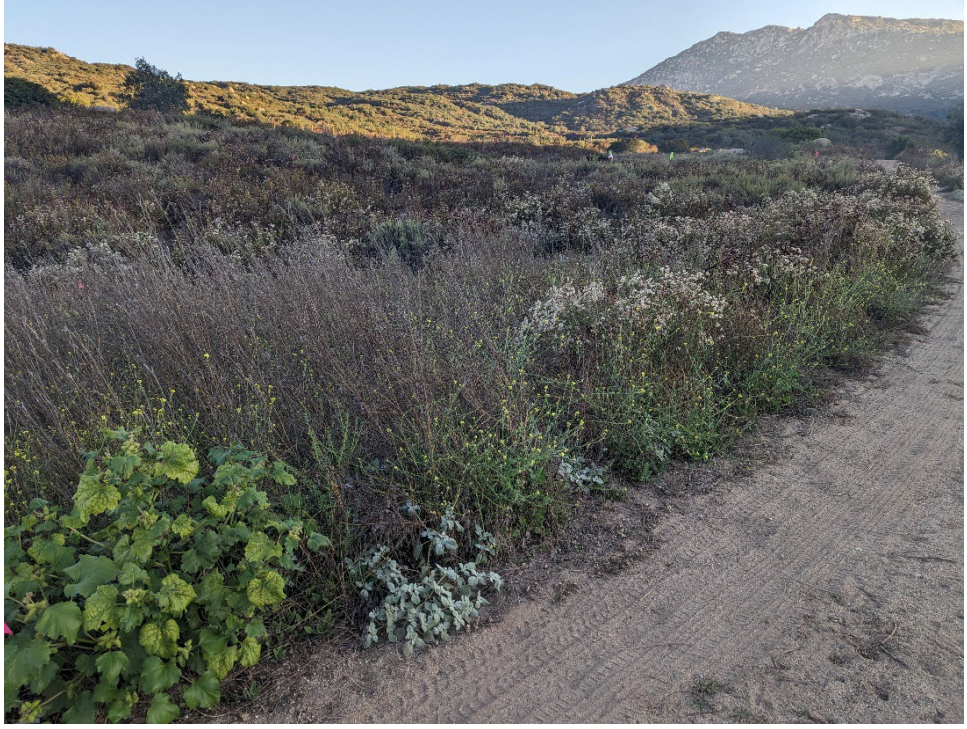
ESA. 2022. *Targeted Monitoring Plan Resource-Specific Monitoring 2021 Annual Report*. Prepared for the County of San Diego Department of Parks and Recreation. May 2022.

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 and ICF International, Inc. (ICF). 2015. *Comprehensive Monitoring Plan* (Targeted Monitoring Plan). Prepared for the County of San Diego Department of Parks and Recreation. July 2015.

ESA and ICF. 2022. *Targeted Monitoring Plan Update*. Prepared for the County of San Diego Department of Parks and Recreation. December 2022.

I-4 Stephens' Kangaroo Rat Focused Management Representative Photographs: Hellhole Canyon County Preserve



Representative photograph of the Stephens' kangaroo rat management area prior to management activities.

Representative photograph of the Stephens' kangaroo rat management area after management activities.

Representative photograph of the Stephens' kangaroo rat management area prior to management activities.

Representative photograph of the Stephens' kangaroo rat management area after management activities.

Representative photograph during management activities at the Stephens' kangaroo rat management area.

Appendix J

Bat Survey & Habitat Assessment Field Forms

J-1 Survey Field Forms

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Pallid/Townsends Bat

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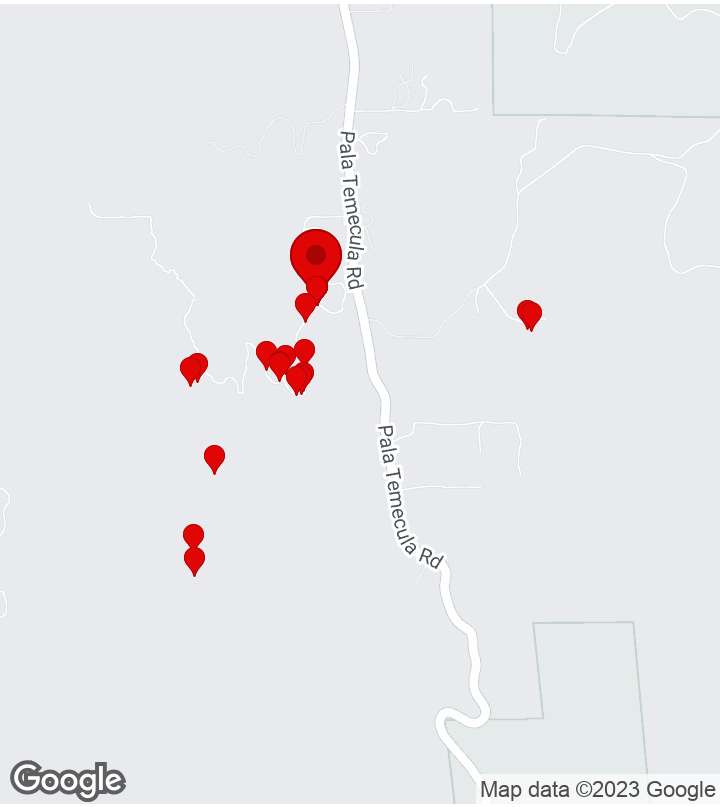


CREATED

6/21/2023, 12:41:48 AM UTC
by SC Fulcrum05

UPDATED

6/21/2023, 4:37:49 AM UTC
by SC Fulcrum05

LOCATION

33.423601, -117.090490

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:	June 20, 2023

START Weather Details:

Start - Time:	17:41
Start - Temperature:	74.6
Start - Wind Direction From (select one):	SW
Start - Low Wind Speed:	0
Start - High Wind Speed:	7.5
Start - Average Wind Speed:	2.9
Start - Cloud Cover (%):	0
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Start - Notes (if applicable):	

END Weather Details:

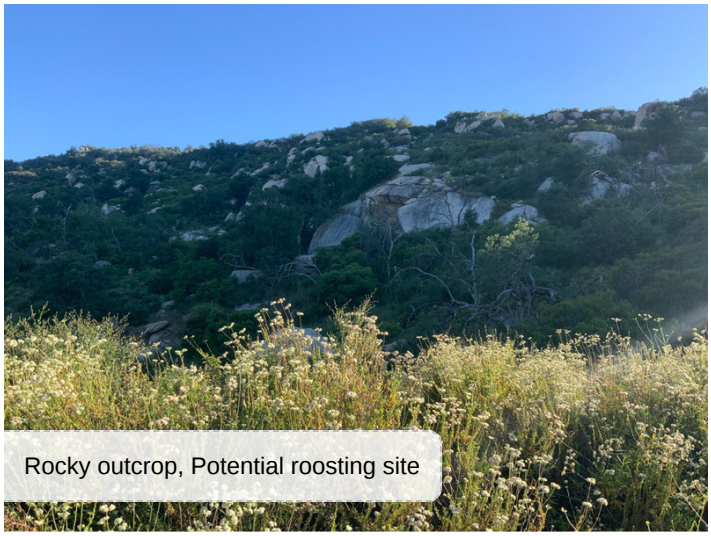
Time Out:	21:32
End - Temperature:	66.5
End - Wind Direction From (select one):	S
End - Low Wind Speed:	0.7
End - High Wind Speed:	1.4
End - Average Wind Speed:	1
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	Good
End - Notes (if applicable):	
Total Hours:	

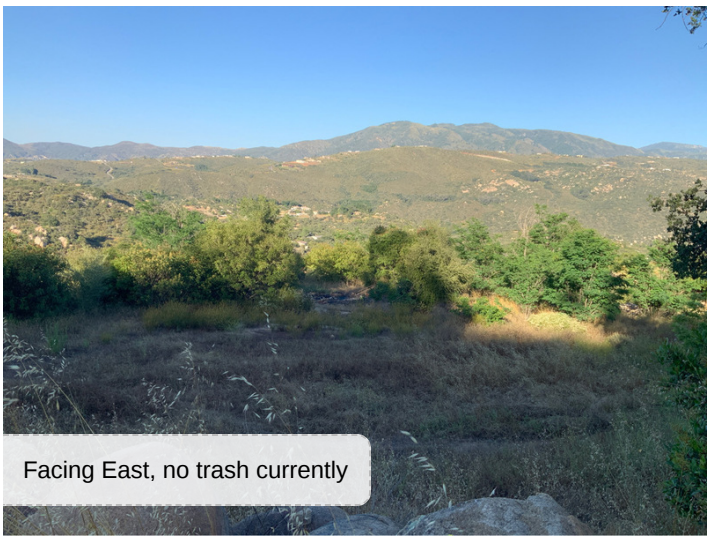
Project Location (description):	

Notes	Foot print and dirt pie tracks seen along trail, sunset weather 60.7 F, 0 wind, visibility good
Observation Type:	Bird, Mammal, Amphibian

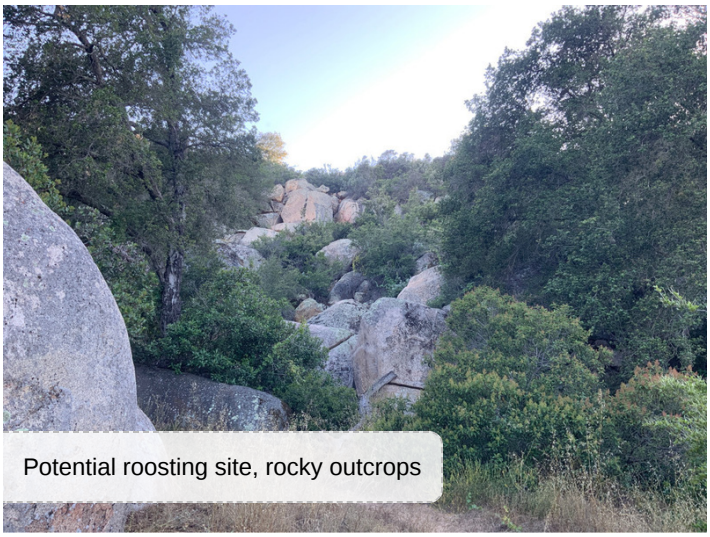
Photos

Facing South


Rocky outcrop, Potential roosting site


Facing East, no trash currently

Potential roosting site


Potential roosting site, rocky outcrops

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: (20 Items)

Bird Observation: - 1. 1 record, no

Bird (Common or Scientific Name):	American Crow; Corvus brachyrhynchos; AMCR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 2. 1 record, no

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record, no

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record, no

Bird (Common or Scientific Name):	European Starling; Sturnus vulgaris; EUST
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; Polioptila caerulea; BGGN

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record, no

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record, no

Bird (Common or Scientific Name):	Phainopepla; Phainopepla nitens; PHAI

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record, no

Bird (Common or Scientific Name):	Hooded Oriole; Icterus cucullatus; HOOR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 13. 1 record, no

Bird (Common or Scientific Name):	Northern Flicker; Colaptes auratus; NOFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record, no

Bird (Common or Scientific Name):	Allen's Hummingbird; Selasphorus sasin; ALHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record, no

Bird (Common or Scientific Name):	Canyon Wren; Catherpes mexicanus; CANW

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 16. 1 record, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; Myiarchus cinerascens; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 17. 1 record, no

Bird (Common or Scientific Name):	California Scrub-Jay; Aphelocoma californica; CASJ
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 18. 1 record, no

Bird (Common or Scientific Name):	Oak Titmouse; Baeolophus inornatus; OATI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record, no

Bird (Common or Scientific Name):	California Thrasher; Toxostoma redivivum; CATH

Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 20. 1 record, yes

Bird (Common or Scientific Name):	Barn Owl; Tyto alba; BNOW
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:	

Mammal

Mammal Observation: (1 Item)

Mammal Observation: - 1. 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:	

Bat Echo Meter Survey Details

Survey Station/Location (number)	Mt Olympus preserve
Survey Duration (minutes)	90
General Notes (detectability, habitat, etc.)	
Photos	

Observation (1 Item)

Observation - 1. Western small-footed myotis (Myotis ciliolabrum)

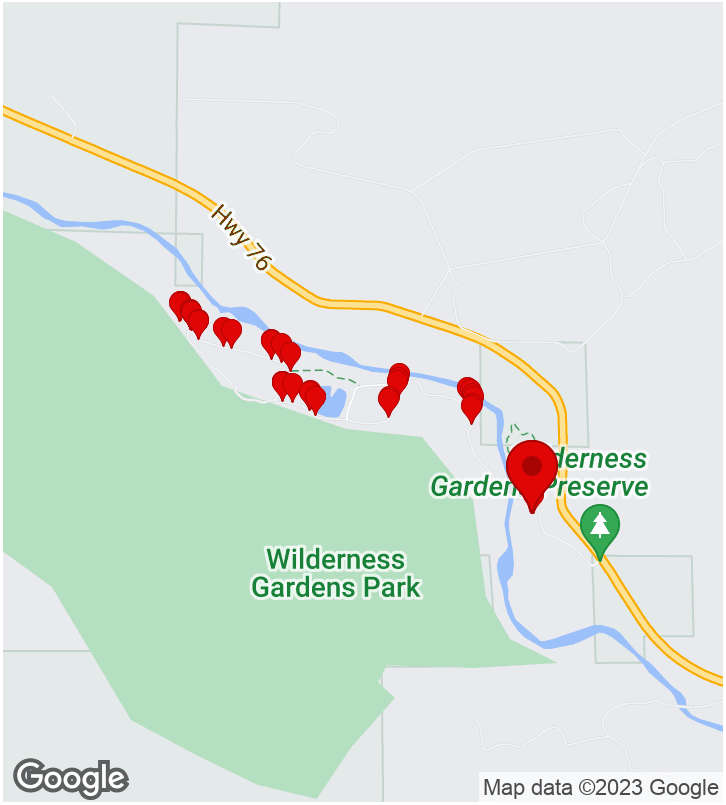
Species Observed	Western small-footed myotis (Myotis ciliolabrum)
Observation Notes	(18/18 2118), (2/6 2105)

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Pallid/Townsends Bat

6/24/2023, 5:06:35 AM UTC



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6/24/2023, 1:36:19 AM UTC
by SC Fulcrum05

UPDATED

6/24/2023, 5:06:35 AM UTC
by SC Fulcrum05

LOCATION

33.348035, -117.026818

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:	Jaclyn Catino-Davenport
Assistant Observer/Surveyor:	Dillion Travis
Date:	June 23, 2023

START Weather Details:

Start - Time:	18:36
Start - Temperature:	76.5
Start - Wind Direction From (select one):	W
Start - Low Wind Speed:	0.1
Start - High Wind Speed:	3.3
Start - Average Wind Speed:	1.7
Start - Cloud Cover (%):	0
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Start - Notes (if applicable):	

END Weather Details:

Time Out:	21:41
End - Temperature:	63.1
End - Wind Direction From (select one):	W
End - Low Wind Speed:	0
End - High Wind Speed:	2.3
End - Average Wind Speed:	0.8
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	Good
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	

Notes	Start of acoustic collection weather: temp 66F, avg wind 1.9mph, max wind 4mph, visibility good End of acoustic collection weather: temp 63.1F, avg wind 0.8mph, max wind 2.3mph, visibility good
Observation Type:	Bird, Reptile, Mammal, Amphibian

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: (22 Items)

Bird Observation: - 1. 1 record, yes

Bird (Common or Scientific Name):	Turkey Vulture; Cathartes aura; TUVU
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	Visual
Number of individuals observed:	1
Behavior (check all that apply):	In flight
Bird Sex (check all that apply):	Unknown
Bird Age (check all that apply):	Unknown
Additional Notes:	
Photo(s) of Bird:	

Photo(s) of Bird:

Notes:	

Bird Observation: - 2. 1 record, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; Polioptila caerulea; BGGN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	Singing

Bird Observation: - 3. 1 record, no

Bird (Common or Scientific Name):	California Towhee; Melozone crissalis; CALT
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	Singing

Bird Observation: - 4. 1 record, no

Bird (Common or Scientific Name):	Red-tailed Hawk; Buteo jamaicensis; RTHA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 5. 1 record, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record, no

Bird (Common or Scientific Name):	Oak Titmouse; Baeolophus inornatus; OATI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record, no

Bird (Common or Scientific Name):	Nuttall's Woodpecker; Dryobates nuttallii; NUWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 9. 1 record, no

Bird (Common or Scientific Name):	Northern Flicker; Colaptes auratus; NOFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record, yes

Bird (Common or Scientific Name):	Red-shouldered Hawk; Buteo lineatus; RSHA
Is the Bird Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Bird Observation

Observation Type:	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: - 11. 1 record, no

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 13. 1 record, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; Myiarchus cinerascens; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record, no

Bird (Common or Scientific Name):	Cassin's Kingbird; Tyrannus vociferans; CAKI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 15. 1 record, no

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 16. 1 record, no

Bird (Common or Scientific Name):	Northern Mockingbird; Mimus polyglottos; NOMO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 17. 1 record, no

Bird (Common or Scientific Name):	Hooded Oriole; Icterus cucullatus; HOOR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Bird Observation: - 18. 1 record, no

Bird (Common or Scientific Name):	White-throated Swift; Aeronautes saxatalis; WTSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	2
Photo(s) of Bird:	
Notes:	

Bird Observation: - 19. 1 record, no

Bird (Common or Scientific Name):	House Finch; Haemorhous mexicanus; HOFI
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	2
Photo(s) of Bird:	
Notes:	

Bird Observation: - 20. 1 record, no

Bird (Common or Scientific Name):	Cliff Swallow; Petrochelidon pyrrhonota; CLSW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	2
Photo(s) of Bird:	
Notes:	

Bird Observation: - 21. 1 record, yes

Bird (Common or Scientific Name):	Barn Owl; Tyto alba; BNOW
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: - 22. 1 record, no

Bird (Common or Scientific Name):	Common Poorwill; Phalaenoptilus nuttallii; COPO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	1
Photo(s) of Bird:	
Notes:	

Mammal

Mammal Observation: (1 Item)

Mammal Observation: - 1. 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: (1 Item)

Reptile Observation: - 1. 1 record

Reptile (Common or Scientific Name):	Red Diamond Rattlesnake; Crotalus ruber
Is the Reptile Sensitive ?	yes
Sub-Species Info:	N/A

Sensitive Reptile Observation

Observation Type (check all that apply):	Visual sighting
Number of individuals observed:	1
Behavior (check all that apply):	Moving (flushed)
Reptile Sex (check all that apply):	Unknown
Reptile Age (check all that apply):	Juvenile
Additional Notes:	
Photo(s) of Reptile:	

Photo(s) of Reptile:	
Notes:	

Bat Echo Meter Survey Details

Survey Station/Location (number)	Preserve
Survey Duration (minutes)	100
General Notes (detectability, habitat, etc.)	
Photos	

Observation (15 Items)

Observation - 1. Western pipistrelle (Parastrellus hesperus)

Species Observed	Western pipistrelle (Parastrellus hesperus)
Observation Notes	Visual, 34/54, 41/44, 20:06, 21/60 20:34, 9/9 20:36, 33/33 20:36,

Observation - 2. Silver-haired bat (Lasionycteris noctivagans)

Species Observed	Silver-haired bat (Lasionycteris noctivagans)
Observation Notes	8/11 , likely big brown 20:07, 9/20 20:33, 23/44 20:37, 15/25 8:38, 1/4 21:10

Observation - 3. Western red bat (Lasiurus blossevillii)

Species Observed	Western red bat (Lasiurus blossevillii)
Observation Notes	4/4, 2/2 not accurate 20:28,

Observation - 4. Silver-haired bat (Lasionycteris noctivagans)

Species Observed	Silver-haired bat (Lasionycteris noctivagans)
Observation Notes	20/41, 26/35, 3/5 20:10, 7/16 20:57,

Observation - 5. Big brown bat (Eptesicus fuscus)

Species Observed	Big brown bat (Eptesicus fuscus)
Observation Notes	39/93, 16/59, 20:10

Observation - 6. Big brown bat (Eptesicus fuscus)

Species Observed	Big brown bat (Eptesicus fuscus)
Observation Notes	36/74 20:11

Observation - 7. Big brown bat (Eptesicus fuscus)

Species Observed	Big brown bat (Eptesicus fuscus)
Observation Notes	19/59 20:11,

Observation - 8. Big brown bat (Eptesicus fuscus)

Species Observed	Big brown bat (Eptesicus fuscus)

Observation Notes	41/89, 30/59, 15/74, 24/60 71/108, 37/84, 42/97, 28/41 30/95, 10/26, 12/29, 30/98, 24/38 20:33, at least 3 Indvs seen at once, 7/42, 20/42 20:34, 25/52 20;40, 16/20 20:54, 15/53 21:06, 24/61 21;06, 29/65 21:17

Observation - 9. Mexican free-tailed bat (Tadarida brasiliensis)

Species Observed	Mexican free-tailed bat (Tadarida brasiliensis)
Observation Notes	11/18, 37/77 visual, 4/8, 4/4 20:27, 6/9 20:53, 5/10 20:55, 2/2? 21:02,

Observation - 10. Hoary bat (Lasiurus cinereus)

Species Observed	Hoary bat (Lasiurus cinereus)
Observation Notes	15/32, 2/3 northern mockingbird calling 20:14, 9/77 20:33

Observation - 11. Western small-footed myotis (Myotis ciliolabrum)

Species Observed	Western small-footed myotis (Myotis ciliolabrum)
Observation Notes	29/58 20:27, 14/21 20:41, 8/11 20:47

Observation - 12.

Species Observed	
Observation Notes	

Observation - 13. Pallid bat (Antrozous pallidus)

Species Observed	Pallid bat (Antrozous pallidus)
Observation Notes	3/9 20:47, 33/90 20:50, 16/50 20:51, 14/18 20:53, 9/12 21:03, 40/57 21:12

Observation - 14. Yuma myotis (Myotis yumanensis)

Species Observed	Yuma myotis (Myotis yumanensis)
Observation Notes	9/11 20:47, 23/41 20:48, 9/21 20:48, 30/109 20:49, 1/3 20:50, 8/11 20:52, 41/68 21:04, 58/87 21:04, 42/72 21:04, 4/10 21:07, 76/122 21:07, 51/91 21:13, 3/4 21:19, 33/36 21:22, 5/6 21:22

Observation - 15. California myotis (Myotis californicus)

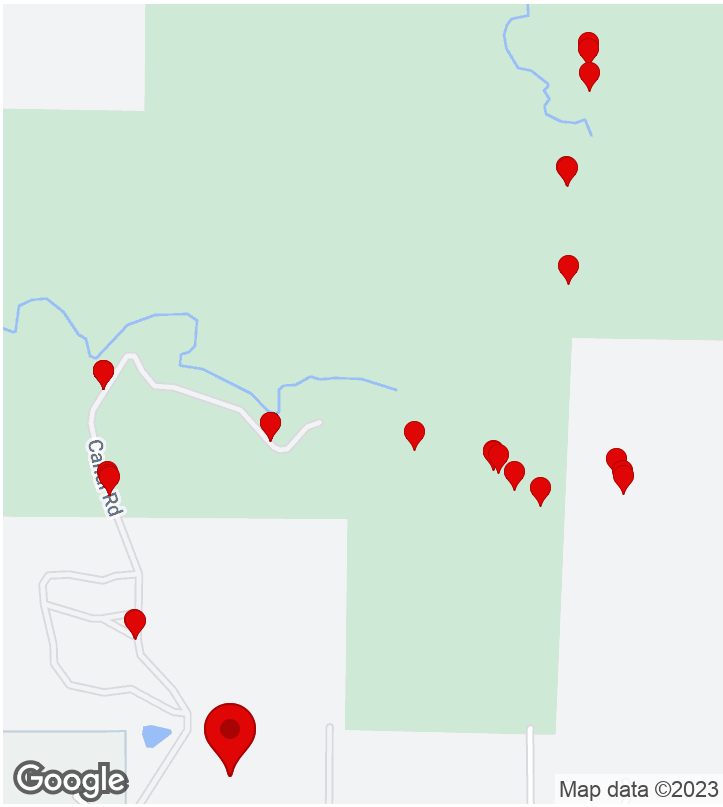
Species Observed	California myotis (Myotis californicus)
Observation Notes	21:01, 12/14 21:19, 10/16 21:19, 22/22 21:20, 2/2 , 21:20, 21/42 21:20

2_COSD DPR Bio

Biology Surveys (SoCal Bio ONLY)

TMP Monitoring ▸ Pallid/Townsends Bat

6/27/2023, 4:38:13 AM UTC



CREATED

6/27/2023, 1:14:34 AM UTC
by SC Fulcrum05

UPDATED

6/27/2023, 4:38:13 AM UTC
by SC Fulcrum05

LOCATION

33.219467, -116.951721

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:	June 26, 2023

START Weather Details:

Start - Time:	18:14
Start - Temperature:	76.3
Start - Wind Direction From (select one):	SW
Start - Low Wind Speed:	1.2
Start - High Wind Speed:	6.2
Start - Average Wind Speed:	3.7
Start - Cloud Cover (%):	0
Start - Precipitation (select one):	None
Start - Visibility (select one):	Good
Start - Notes (if applicable):	

END Weather Details:

Time Out:	21:31
End - Temperature:	60.5
End - Wind Direction From (select one):	N
End - Low Wind Speed:	0
End - High Wind Speed:	0.9
End - Average Wind Speed:	0
End - Cloud Cover (%):	0
End - Precipitation (select one):	None
End - Visibility (select one):	Good
End - Notes (if applicable):	
Total Hours:	

Project Location (description):	

Notes	Hell creek running, seepage location, sunset weather 69.1, visibility good, max 3.3, avg 1.4,
Observation Type:	Bird, Mammal, Reptile

Photos

Bird

Bird Observation: (16 Items)

Bird Observation: - 1. 1 record, no

Bird (Common or Scientific Name):	Wrentit; Chamaea fasciata; WREN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 2. 1 record, no

Bird (Common or Scientific Name):	Ash-throated Flycatcher; Myiarchus cinerascens; ATFL
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 3. 1 record, no

Bird (Common or Scientific Name):	California Quail; Callipepla californica; CAQU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 4. 1 record, no

Bird (Common or Scientific Name):	Bewick's Wren; Thryomanes bewickii; BEWR
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 5. 1 record, no

Bird (Common or Scientific Name):	Spotted Towhee; Pipilo maculatus; SPTO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 6. 1 record, no

Bird (Common or Scientific Name):	Bushtit; Psaltriparus minimus; BUSH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 7. 1 record, no

Bird (Common or Scientific Name):	Common Raven; Corvus corax; CORA
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 8. 1 record, no

Bird (Common or Scientific Name):	Allen's Hummingbird; Selasphorus sasin; ALHU
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 9. 1 record, no

Bird (Common or Scientific Name):	Acorn Woodpecker; Melanerpes formicivorus; ACWO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 10. 1 record, no

Bird (Common or Scientific Name):	Blue-gray Gnatcatcher; Polioptila caerulea; BGGN
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 11. 1 record, no

Bird (Common or Scientific Name):	Lesser Goldfinch; Spinus psaltria; LEGO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 12. 1 record, no

Bird (Common or Scientific Name):	Mourning Dove; Zenaida macroura; MODO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 13. 1 record, no

Bird (Common or Scientific Name):	California Thrasher; Toxostoma redivivum; CATH
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Bird Observation: - 14. 1 record, yes

Bird (Common or Scientific Name):	Southern California Rufous-crowned Sparrow; Aimophila ruficeps canescens; RSCP - SoCal
Is the Bird Sensitive ?	yes
Sub-Species Info:	Found from Los Angeles County south to Baja California Norte

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: - 15. 1 record, no

Bird (Common or Scientific Name):	Common Poorwill; Phalaenoptilus nuttallii; COPO
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	

Notes:	

Bird Observation: - 16. 1 record, no

Bird (Common or Scientific Name):	Great Horned Owl; Bubo virginianus; GHOW
Is the Bird Sensitive ?	no
Sub-Species Info:	N/A
Number of Individuals:	
Photo(s) of Bird:	
Notes:	

Mammal

Mammal Observation: (1 Item)

Mammal Observation: - 1. 1 record

Mammal (Common or Scientific Name):	Audubons 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):	Common Side-blotched Lizard; Uta stansburiana
Is the Reptile Sensitive ?	no
Sub-Species Info:	N/A
Photo(s) of Reptile:	
Notes:	

Bat Echo Meter Survey Details

Survey Station/Location (number)	Hellhole canyon
Survey Duration (minutes)	90
General Notes (detectability, habitat, etc.)	
Photos	

Observation (7 Items)

Observation - 1. Western pipistrelle (Parastrellus hesperus)

Species Observed	Western pipistrelle (Parastrellus hesperus)
Observation Notes	5/9 2013,

Observation - 2. Western pipistrelle (Parastrellus hesperus)

Species Observed	Western pipistrelle (Parastrellus hesperus)
Observation Notes	6/6, 6/8, 6/7, 2020; 10/11 2020, at least two individuals bats

Observation - 3. Pallid bat (Antrozous pallidus)

Species Observed	Pallid bat (Antrozous pallidus)
Observation Notes	59/115 2039,

Observation - 4. Big brown bat (Eptesicus fuscus)

Species Observed	Big brown bat (Eptesicus fuscus)
Observation Notes	35/89 2040, 15/44 2040, 26/63 2040, 24/48 2040, 27/58 2041, 15/43 2041, 14/60 2042

Observation - 5. Pallid bat (Antrozous pallidus)

Species Observed	Pallid bat (Antrozous pallidus)
Observation Notes	22/35 2042

Observation - 6. Hoary bat (Lasiurus cinereus)

Species Observed	Hoary bat (Lasiurus cinereus)

Observation Notes	2/7 2107

Observation - 7. California myotis (Myotis californicus)

Species Observed	California myotis (Myotis californicus)
Observation Notes	6/6 2059

J-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: June 20, 2023 *Time Start: 1741*

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: June 20, 2023 *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	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: Trails appeared to have been trimmed.

Restoration Project (Impacts): 1 If Observed, Briefly Describe: _____

ORV Activity 3 If Observed, List Type(s) of ORV Activity: Motorcycle/single-wheel

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: OHV and potential hikers fron BLM lands Other Disturbance? List & Rank: 3 (0-10%)

Collection? Yes:_____No:_____Collector:_____

Collection #:_____Herbarium:_____Species Collected: _____

Collection 2, Collector:_____(enter additional collections on p. 3)

Collection #:_____Herbarium:_____Species Collected: _____

Occurrence ID: _____ Species: Pallid Bat, Townsend's Big-eared Bat Date: June 20, 2023

VI. MANAGEMENT RECOMMENDATIONS

Stop illegal access especially where trails are coming in from BLM land at the top of the Preserve.

VII. MANAGEMENT ACTIONS IN LAST YEAR

Trash cleaned up.

VIII. CNDDB SPECIES DETECTED & NOTES

List any sensitive plant or animal species to add to the CNDDB:

N/A

Time Finish: 21:30

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.

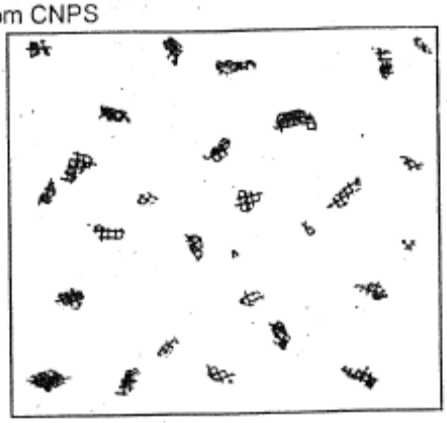
5 = Disturbance occurs in 25% to <50% of area within maximum extent.

6 = Disturbance occurs 50% to <75% of area within maximum extent.

7 = Disturbance occurs ≥75% of area within maximum extent.

Cover Diagrams from CNPS

1%



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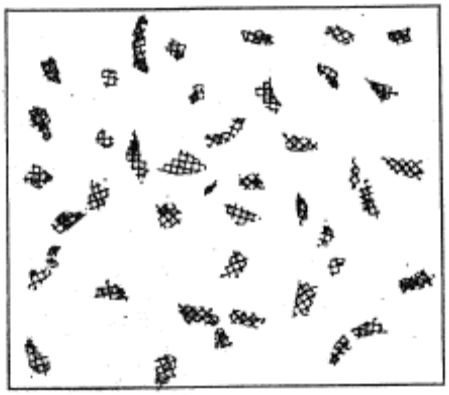

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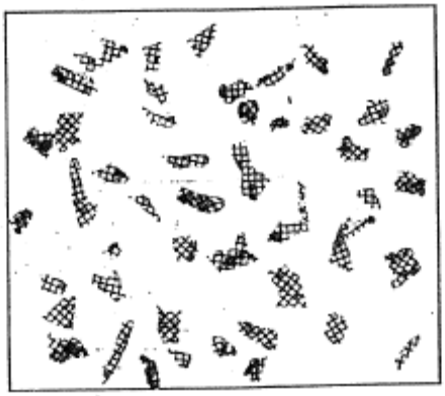

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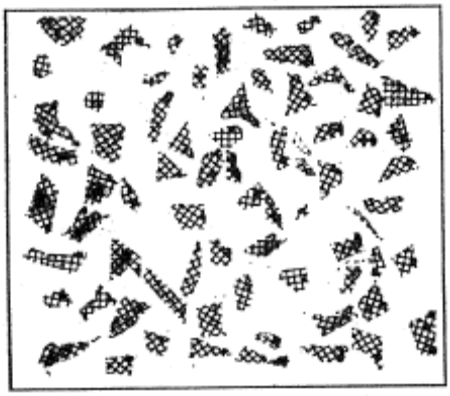

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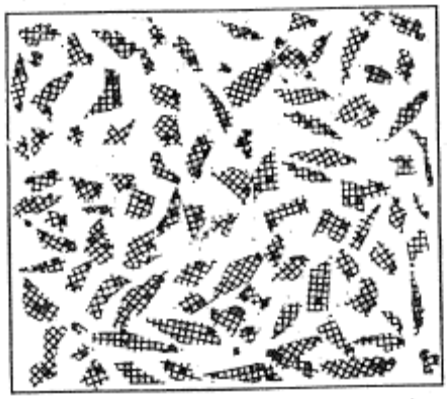

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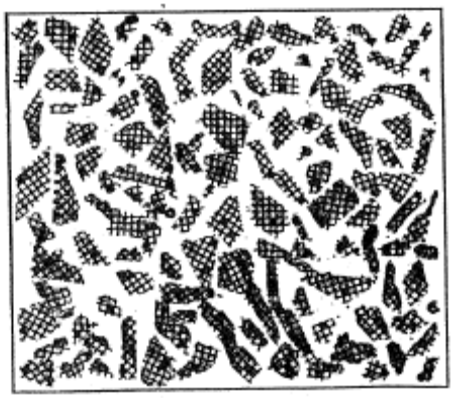
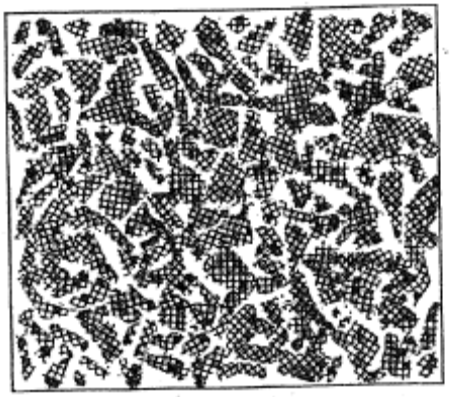


50%



75%

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: Jaclyn Catino-Davenport (ESA), Dillon Travis (ESA)

Date: June 23, 2023 *Time Start: 1836*

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: June 23, 2023 *Surveyors & Affiliation/Agency: Jaclyn Catino-Davenport (ESA), Dillon Travis (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	_	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: June 23, 2023

VI. MANAGEMENT RECOMMENDATIONS

Reduce vegetation height within the retention pond to allow more open areas over the water for bats to drink and forage from.

VII. MANAGEMENT ACTIONS IN LAST YEAR

Reducing trash within the Preserve.

VIII. CNDDB SPECIES DETECTED & NOTES

List any sensitive plant or animal species to add to the CNDDB:

Red Rattlesnake

Time Finish: 20:45

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.

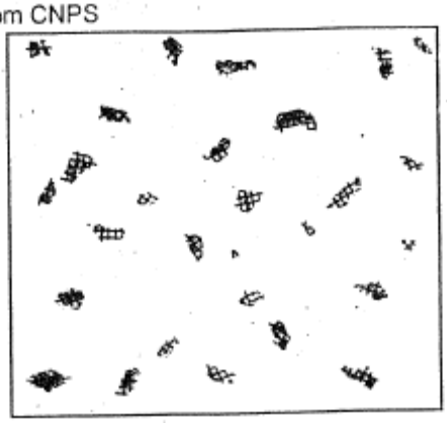
5 = Disturbance occurs in 25% to <50% of area within maximum extent.

6 = Disturbance occurs 50% to <75% of area within maximum extent.

7 = Disturbance occurs ≥75% of area within maximum extent.

Cover Diagrams from CNPS

1%



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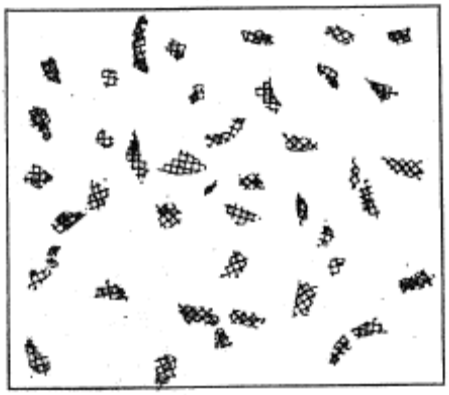

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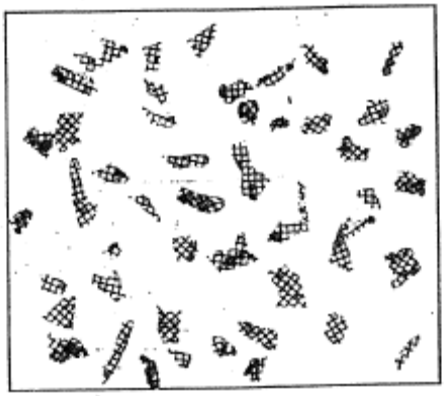

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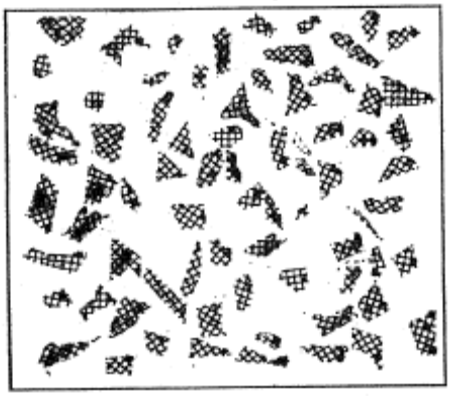

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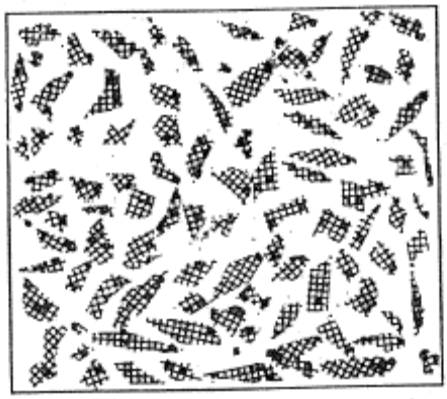

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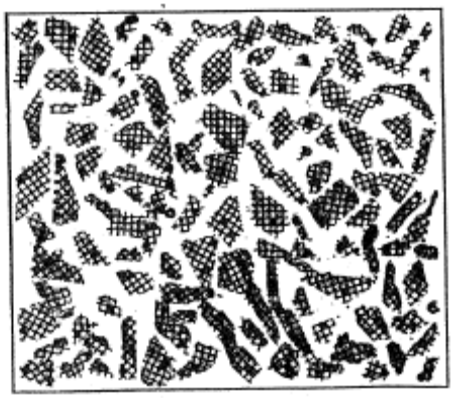

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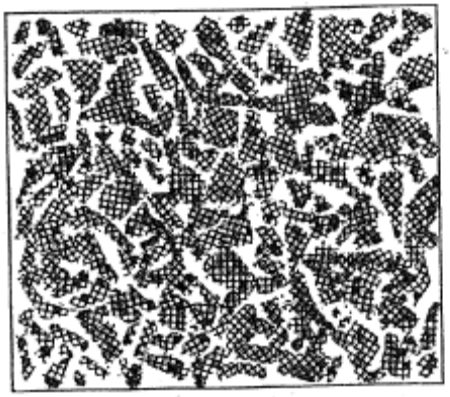

75%

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: June 26, 2023 *Time Start:1814*

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: June 26, 2023 *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	2	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: Horse tracks on trails closed to the public Other Disturbance? List & Rank:

_____

Collection? Yes:_____No:_____Collector:_____

Collection #:_____Herbarium:_____Species Collected: _____

Collection 2, Collector:_____(enter additional collections on p. 3)

Collection #:_____Herbarium:_____Species Collected: _____

Occurrence ID: _____ Species: Pallid Bat, Townsend's Big-eared Bat Date: June 26, 2023

VI. MANAGEMENT RECOMMENDATIONS

Continue to reduce illegal access to closed trails including for horses, hikers, bikers, and offroad vehicles.

VII. MANAGEMENT ACTIONS IN LAST YEAR

Reducing unauthorized offroad vehicle use on the Preserve

VIII. CNDDB SPECIES DETECTED & NOTES

List any sensitive plant or animal species to add to the CNDDB:

Southern California Rufous-crowned Sparrow

Time Finish: 19:45

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.

Cover Diagrams from CNPS

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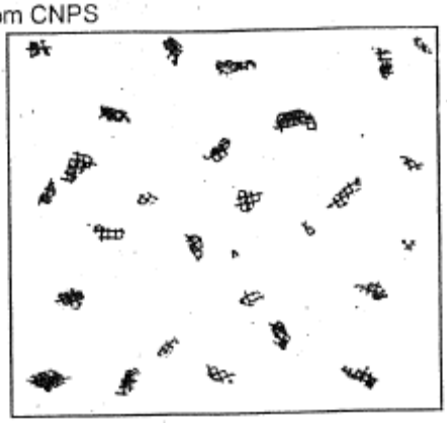

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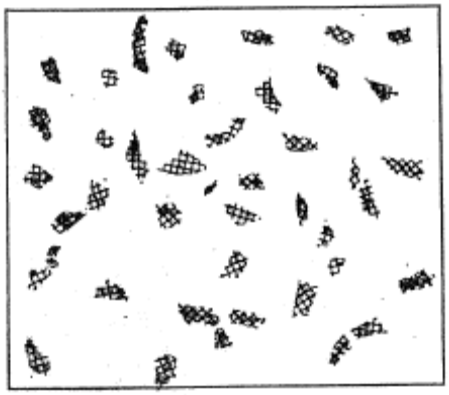

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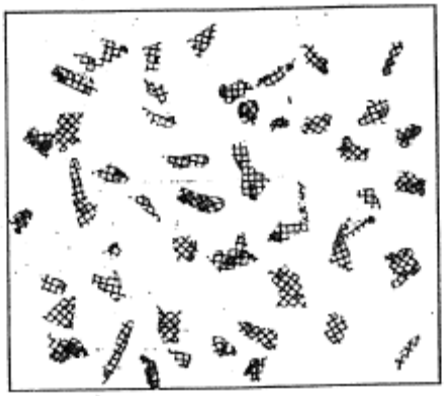

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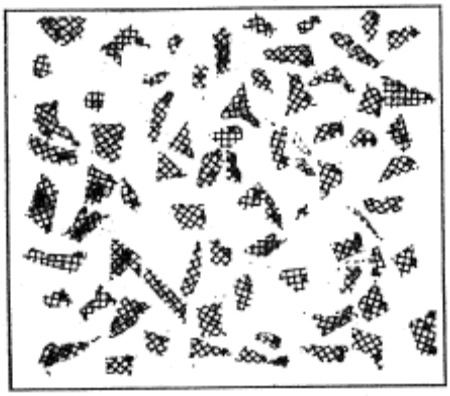

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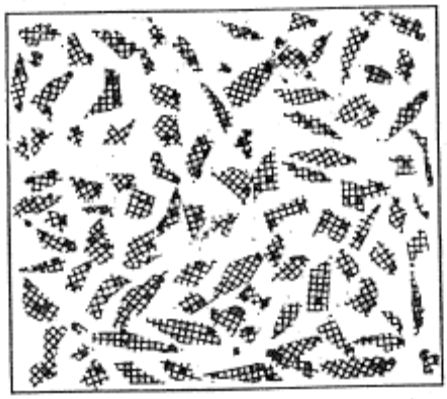

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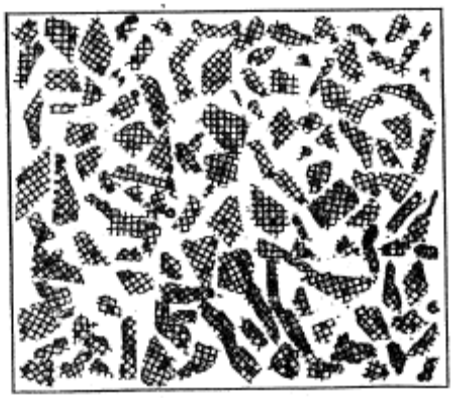

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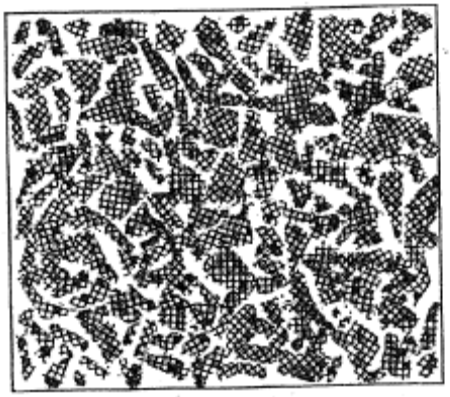

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Appendix K

Peak Forage Production and Residual Dry Matter Monitoring Reports

K-1 Ramona Grasslands County Preserve Peak Forage Production Monitoring Report

ESA

2355 Northside Drive
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San Diego, CA 92108
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July 19, 2023

Jennifer Price
County of San Diego
Department of Parks and Recreation
5500 Overland Avenue, Suite 410
San Diego, CA 92123

Subject: Ramona Grasslands County Preserve Spring 2023 Peak Forage Production Monitoring

Dear Ms. Price:

At the request of the County of San Diego Department of Parks and Recreation (DPR), Environmental Science Associates (ESA) monitored peak forage production in April 2023 at 58 predetermined vegetation monitoring plots (monitoring plots) within the Ramona Grasslands County Preserve (Preserve). The Preserve is in the Santa Maria Valley, southwest of the unincorporated township of Ramona and northeast of the city of Poway in central San Diego County (**Figure 1**).

DPR's livestock grazing program includes goals for improving and maintaining biodiversity, reducing wildfire hazards, and maintaining soil health. Grazing on the Preserve is managed under the *Ramona Grasslands, Santa Ysabel, and Boulder Oaks Preserves Grazing Management Plan* (Grazing Management Plan) (ESA 2019). The Grazing Management Plan designates grazing management units within the Preserve and monitors the effects of cattle grazing on the land to support the following management goals and objectives:

- Goal 1: Maintain and improve biodiversity:
  - Objective 1.1. Reduce abundance of non-native annual grasses.
  - Objective 1.2. Maintain and improve habitat for raptors.
  - Objective 1.4. Maintain and improve habitat for arroyo toad (*Anaxyrus californicus*).
  - Objective 1.5. Maintain and improve habitat for Stephens' kangaroo rat (SKR; *Dipodomys stephensi*).
- Goal 2: Reduce wildfire hazard:
  - Objective 2.1. Reduce thatch buildup and continuity of fine fuels.
  - Objective 2.2. Reduce the abundance of non-native annual grasses.
- Goal 3: Maintain soil health:
  - Objective 3.1. Maintain minimum RDM standards to protect soil structure.

The Grazing Management Plan includes performance standards and a monitoring plan to monitor the effectiveness of management prescriptions in achieving the Plan's goals and objectives. Annual peak forage production monitoring measures annual forage production. It allows for detection of year-to-year fluctuations in forage production. The grazing lessee submits an annual report to DPR. The annual reports include livestock type,

class, numbers, and dates of use of each management unit used by the grazing lessee's livestock. This data is field verified by DPR staff and is integrated with observations made from monitoring to help assess the extent to which grazing management may be related to changing conditions being observed. DPR uses peak forage production and residual dry matter (RDM) monitoring to determine whether stocking rate adjustments are necessary to meet RDM targets and the associated goals and objectives.

Peak forage production is determined by measuring the biomass (e.g., grass) in the rangeland at the end of rapid spring growth. Measuring peak forage production assesses the amount of forage available for grazing and informs stocking rates. California's annual rangelands characteristically have large year-to-year fluctuations in forage production (UCANR 2016). Forage production is influenced by temperature and rainfall. The temperature and the amount of soil moisture available during the winter/spring growing season determine how much forage will be produced. Rapid spring growth occurs when weather begins warming in late winter or early spring and continues for a short time until soil moisture is exhausted. Peak forage production occurs at the end of rapid spring growth, when soil moisture levels limit vegetative growth and plants mature and set seed. At this point, the forage is at its peak and monitoring is conducted to determine annual forage production.

Samples were collected and peak production was measured following the University of California Agriculture and Natural Resources' (UCANR's) *Rangeland Management Series Annual Range Forage Production* recommendations (UCANR 2016) and *Guidelines for Residual Dry Matter Management on Coastal and Foothill Rangelands in California* (Bartolome et al. 2002). Peak forage production was monitored at 58 monitoring plots within management units 1A, 2A, 2B, 3A, 3B, 3C, 3D, 3E, 4A, and 4B. This year, 2023, was the second time peak forage production was monitored.

Marcus Battaglia, James Greer, and Remy Greer hold a grazing agreement with DPR. Cattle were added to the Preserve in January 2023. No grazing occurred on the Preserve in 2022.

Methods

Peak forage production was monitored at 58 monitoring plots within management units 1A, 2A, 2B, 3A, 3B, 3C, 3D, 3E, 4A, and 4B (**Figure 2**). Sampling was conducted on April 7 and 10, 2023, by ESA biologists Amanda French, Jaclyn Catino-Davenport, Karla Alcaraz, and Mary Cozy. A sampling hoop with a 13.25-inch interior diameter (hoop area is 0.96 square feet) was tossed randomly and sampled three times within each monitoring plot. All aboveground biomass, including vegetation and thatch, were collected (samples) within the hoop using gardening shears or by gathering manually. These samples were stored in paper bags. Samples did not include tree leaves (e.g., oaks [*Quercus* spp.]), as referenced in the RDM methodology (Bartolome et al. 2002). Woody shrubs (e.g., scrub oak [*Quercus berberidifolia, xacutidens*]), perennial species, and summer annuals were also excluded from collection. Dominant plant species observed within and in the vicinity of the monitoring plots were recorded, as were special-status species or invasive non-native species incidentally observed while traveling to and from monitoring plots. One monitoring plot within management unit 1A and one within management unit 2A were underwater due to high water levels along streams within those management units. Therefore, samples were not taken at these monitoring plots as they were inaccessible.

ESA biologists processed the samples in the ESA office located at 626 Wilshire Boulevard #1100, Los Angeles, California 90017. All samples were air-dried and weighed in grams using a digital scale. ESA biologists excluded the weight of the paper bags. The weights of the three samples from each monitoring plot were averaged and then converted to pounds per acre (lb/acre) by a multiplication of 100 (Bartolome et al. 2002). The average lb/acre for each management unit was calculated by averaging all monitoring plots within a management unit. The averaged value is the peak forage production for the management unit for the year. The two monitoring plots that were not sampled during peak forage production monitoring were not factored into the averaged value.

The National Oceanic and Atmospheric Administration monitors annual precipitation levels at climate stations across California. Precipitation values are reported by water year (October–September). ESA documented the current water year precipitation data from the Ramona climate station. This allows for year-to-year fluctuations in forage production influenced by rainfall to be documented.

Results

Table 2 displays the plant species observed within or adjacent to the monitoring plots in spring 2023 in order of observed abundance. Plant species included in the sample are indicated as *collected*. Trees, woody shrubs, perennials, and summer annuals were not collected per the sampling protocol and are indicated as *not collected*.

TABLE 2
PLANT SPECIES OBSERVED WITHIN AND ADJACENT TO MONITORING PLOTS

Common Name	Scientific Name	Collected	Not Collected[1]
red brome*	*Bromus rubens*	✓	
ripgut brome*	*Bromus diandrus*	✓	
longbeak filaree*	*Erodium botrys*	✓	
slender oat*	*Avena barbata*	✓	
wild oat*	*Avena fatua*	✓	
soft chess brome*	*Bromus hordeaceus*	✓	
redstem filaree*	*Erodium cicutarium*	✓	
foxtail barley*	*Hordeum murinum*	✓	
California buckwheat	*Eriogonum fasciculatum*		✓
chamise	*Adenostema fasciculatum*		✓
California sagebrush	*Artemisia californica*		✓
black mustard*	*Brassica nigra*		✓
compact brome*	*Bromus madritensis*	✓	
short-pod mustard*	*Hirschfeldia incana*		✓
Menzies' goldenbush	*Isocoma menziesii*		✓
miniature lupine	*Lupinus bicolor*	✓	
laurel sumac	*Malosma laurina*		✓
chilicothe	*Marah macrocarpa*		✓
bur clover*	*Medicago polymorpha*	✓	

Common Name	Scientific Name	Collected	Not Collected[1]
rusty popcorn flower	*Plagiobothrys nothofulvus*	✓	
coast live oak	*Quercus agrifolia*		✓
wild radish*	*Raphanus sativus*		✓
Russian thistle*	*Salsola tragus*		✓
London rocket*	*Sisymbrium irio*	✓	
hairy vetch*	*Vicia villosa*	✓	

NOTES:
Species identified in this table are listed in order of dominance throughout the monitoring plots.
* Non-native plant species.
1 Trees, woody shrubs, perennials, and summer annuals were not collected per the sampling protocol (Bartolome et al. 2002).

Invasive Non-Native Plant Incidental Observations

Non-native plant species such as red brome, ripgut brome, longbeak filaree, slender oat, wild oat, soft chess brome, redstem filaree, foxtail barley, black mustard, compact brome, short-pod mustard, bur clover, wild radish, Russian thistle, and London rocket were observed during monitoring. No high-priority invasive non-native plants were observed. These incidental observations are not representative of comprehensive invasive non-native plant mapping.

Special-Status Species Incidental Observations

A golden eagle (*Aquila chrysaetos*), a Multiple Species Conservation Program (MSCP)–covered species, was observed within management units 2B and 3B during spring 2023 peak forage production monitoring (**Figure 3**). Additionally, a coastal California gnatcatcher (*Polioptila californica* ssp. *californica*), a MSCP–covered species, was observed within management unit 2B during spring 2023 peak forage production monitoring.

Annual Precipitation

The current annual precipitation recorded for water year 2023 is 23 inches at the Ramona climate station (NOAA 2023). This is the value for October 1, 2022 through April 18, 2023. Normal precipitation from October 1 through April 18 is 13.54 inches. The precipitation is tracking at 170 percent of normal. For the full water year (October 1 through September 30), normal precipitation is 14.65 inches.

Peak Forage Production Values

The average lb/acre of peak forage for a given management unit is presented in **Table 3** and in Figure 3. All management units, with the exception of 2B, 3D, 4A, and 4B, had lower average peak forage production values in 2023 than in 2022. Monitoring plots T20, located in management unit 1A, and 18, located in management unit 2A, were inaccessible during spring peak forage production monitoring and were not sampled. The monitoring plots not sampled within management units 1A and 2A were located adjacent to streams and were underwater due to heavy spring precipitation and subsequent increased stream flows. Since no samples were

taken at monitoring plots T20 and 18, average peak forage production results exclude these monitoring plots. The results of the average peak forage production values from each monitoring plot in 2023 can be found in **Attachment A**.

TABLE 3
SUMMARY OF MANAGED RESOURCES AND PEAK FORAGE PRODUCTION MONITORING RESULTS

		Average Peak Forage Production (lb/acre)	
Management Unit	**Managed Resources**	**2022**	**2023**
1A	Riparian pastures and arroyo toad habitat	5,522	1,667
2A	SKR habitat	3,119	2,526
2B	SKR habitat	2,171	2,505
3A	SKR habitat	3,453	2,100
3B	Species diversity, fire hazard reduction, and soil conservation	3,767	1,640
3C	Vernal pool habitat	3,389	2,889
3D	Vernal pool habitat	2,722	3,444
3E	Restoration	4,458	1,825
4A	Species diversity, fire hazard reduction, and soil conservation	1,389	2,478
4B	Species diversity, fire hazard reduction, and soil conservation	1,144	1,317
4C	Not grazed	N/A	N/A
5	Not grazed	N/A	N/A

NOTES:
lb/acre = pounds per acre
N/A = not applicable, no monitoring plots established for these management units
SKR = Stephens' kangaroo rat
These results are an average of the peak production values of all monitoring plots per management unit from 2023.

Conclusions

Peak forage production and RDM monitoring allow for identification of forage gaps, fine-tuning of grazing plans, and development of contingency plans for drought. These two monitoring points allow for adjustment of stocking rates for each management unit based on (1) amount of forage available, (2) whether RDM targets were met, and (3) annual weather conditions (e.g., drought). For example, if forage availability dictates a certain stocking rate, but RDM is above target levels at the end of the season, the stocking rate may be increased with the same forage availability. Year-to-year weather variability must also be considered—forage production and composition will vary depending on rainfall and temperature.

This is the second time peak forage production monitoring was conducted at the Preserve. Over time, DPR will use monitoring results to detect year-to-year fluctuations in forage production.

Peak forage production monitoring targets are not established for the Preserve or per management unit; rather peak forage production monitoring results inform stocking rates. The following decision-making parameters will be considered:

- Identify the amount of peak forage available in the spring.
- Determine stocking rate peak forage supports; adjust stocking rate as appropriate.
- Measure RDM in the fall.
- Determine if the stocking rate was appropriate to achieve RDM targets by management unit.
- Adjust stocking rate assumptions related to peak forage availability and ability to achieve RDM targets; placement of livestock attractions (e.g., water) may also be considered.

Together with RDM monitoring and grazing reports, DPR will use the results to determine whether stocking rate adjustments are necessary to meet RDM targets and the associated goals and objectives. Adjustments to stocking rates should be made in collaboration with the grazing lessee.

If you have questions, please feel free to contact me at (530) 966-4294 or afrench@esassoc.com.

Sincerely,

Amanda French
Biologist

Attachments: Figure 1 – Preserve Location
Figure 2 – Monitoring Plot Locations
Figure 3 – Peak Forage Production Results
Attachment A – Results of 2023 Peak Forage Production 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.

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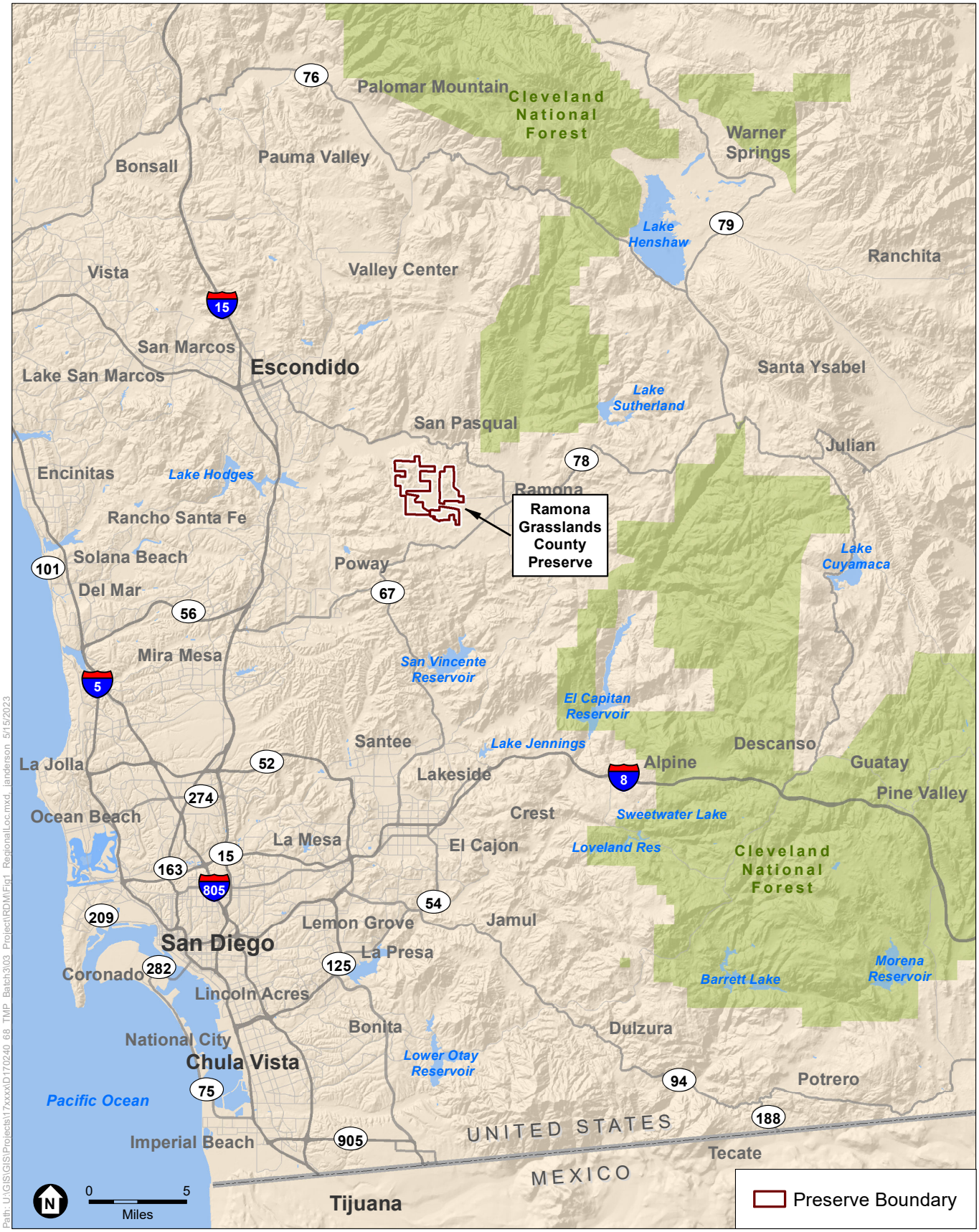
University of California Agriculture and Natural Resources (UCANR). 2016. *Rangeland Management Series Annual Range Forage Production.* ANR Publication 8018. January 2016.

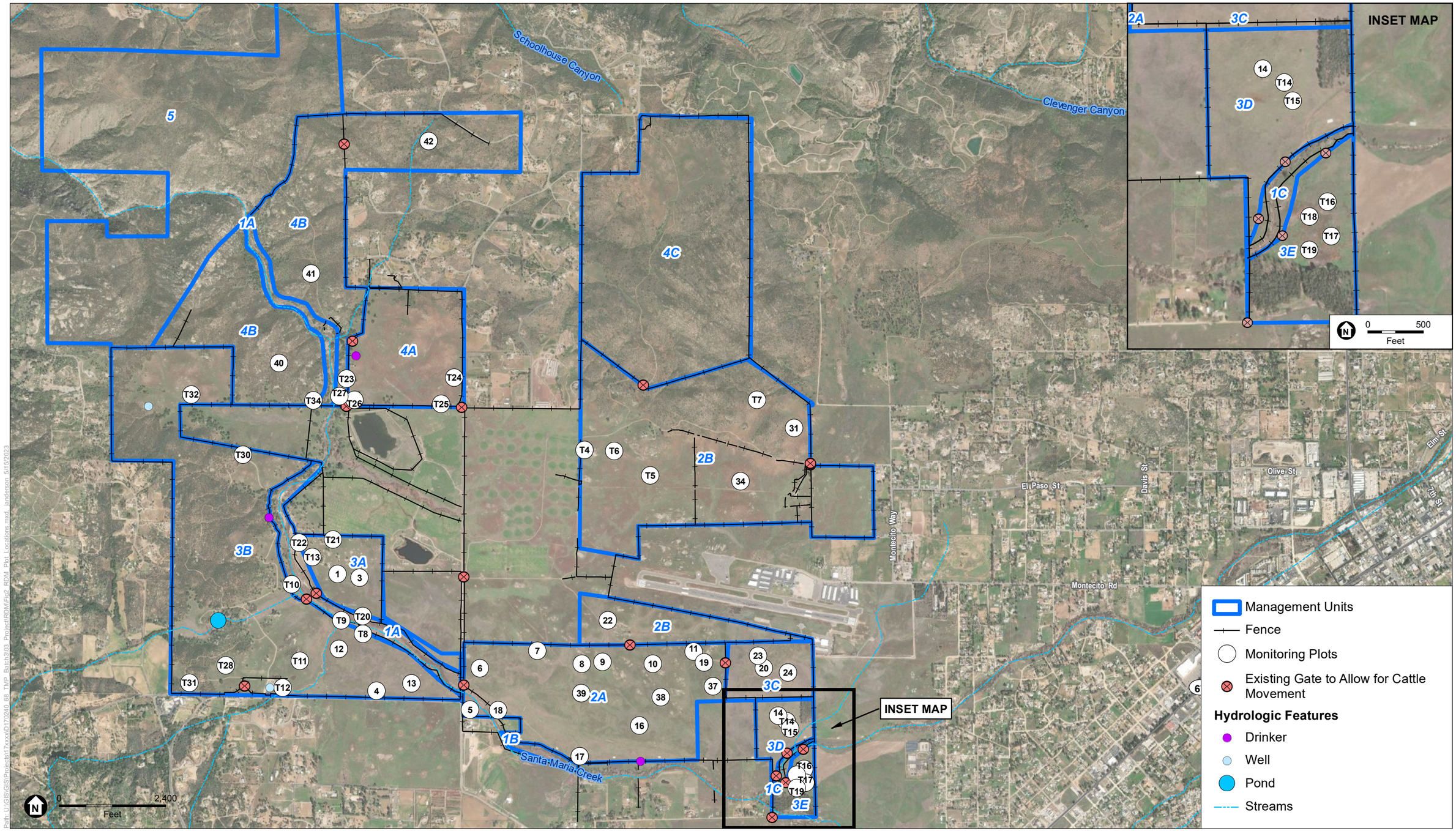


SOURCE: ESRI

COSD DPR 557744 TO 68 – Implementation of Targeted Monitoring Plan 2023 Resource-Specific Monitoring
Ramona Grasslands County Preserve Spring 2023 Peak Forage Production Monitoring Report

ESA

Figure 1
Preserve Location

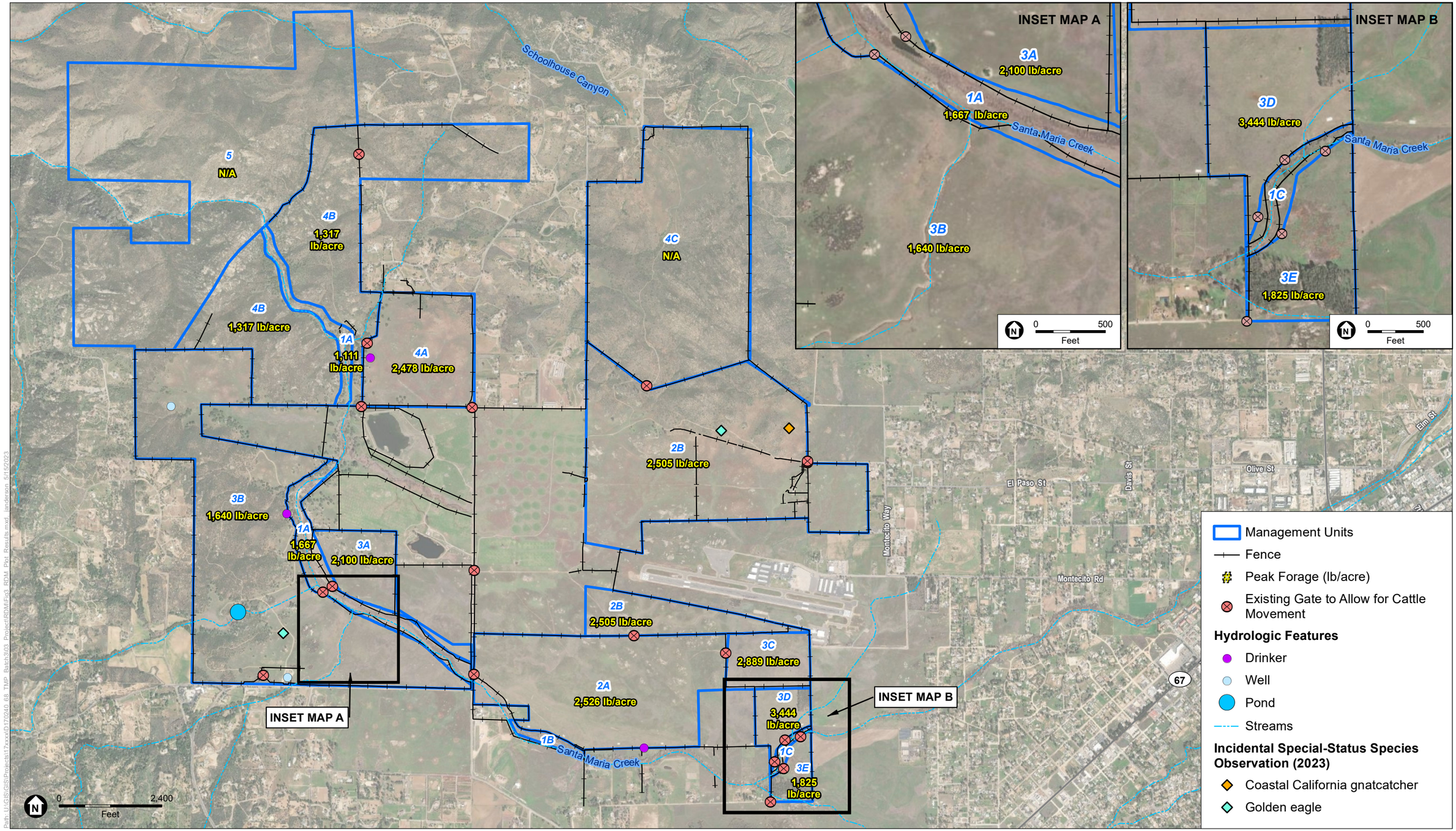


SOURCE: ESRI, AECOM 2017; ESA 2023

COSD DPR 557744 TO 68 – Implementation of Targeted Monitoring Plan 2023 Resource-Specific Monitoring
Ramona Grasslands County Preserve Spring 2023 Peak Forage Production Monitoring Report

ESA

Figure 2
Monitoring Plot Locations



SOURCE: ESRI, AECOM 2017; ESA 2021

COSD DPR 557744 TO 68 – Implementation of Targeted Monitoring Plan 2023 Resource-Specific Monitoring
Ramona Grasslands County Preserve Spring 2023 Peak Forage Production Monitoring Report

ESA

Figure 3
Peak Forage Production Results

Attachment A

Results of 2023 Peak Forage Production Monitoring at the Preserve

ATTACHMENT A
RESULTS OF 2023 PEAK FORAGE PRODUCTION MONITORING AT THE PRESERVE

Management Unit	Plot #	Date Collected	Monitoring Plot Average (grams) 2023	Pounds per Acre 2023
1A	T9	4/7/2023	16.3	1633
1A	T10	4/7/2023	17.0	1700
1A	T20	4/7/2023	N/A	N/A
2A	5	4/7/2023	32.7	3267
2A	6	4/7/2023	23.0	2300
2A	7	4/7/2023	21.3	2133
2A	8	4/7/2023	20.3	2033
2A	9	4/7/2023	32.7	3267
2A	10	4/7/2023	18.3	1833
2A	11	4/7/2023	12.3	1233
2A	16	4/7/2023	20.0	2000
2A	17	4/7/2023	35.7	3567
2A	18	4/7/2023	N/A	N/A
2A	19	4/7/2023	31.3	3133
2A	37	4/7/2023	30.3	3033
2A	38	4/7/2023	25.3	2533
2A	39	4/7/2023	25.0	2500
2B	22	4/7/2023	28.3	2833
2B	31	4/10/2023	20.3	2033
2B	34	4/10/2023	27.3	2733
2B	T4	4/10/2023	16.3	1633
2B	T5	4/10/2023	25.3	2533
2B	T6	4/10/2023	23.0	2300
2B	T7	4/10/2023	34.7	3467
3A	1	4/10/2023	22.0	2200
3A	3	4/10/2023	23.7	2367
3A	T13	4/10/2023	9.3	933
3A	T21	4/10/2023	27.0	2700
3A	T22	4/7/2023	23.0	2300
3B	4	4/7/2023	15.7	1567
3B	12	4/7/2023	11.7	1167
3B	13	4/7/2023	17.7	1767
3B	T8	4/7/2023	7.3	733
3B	T11	4/7/2023	22.3	2233
3B	T12	4/7/2023	12.3	1233
3B	T28	4/7/2023	16.3	1633

Management Unit	Plot #	Date Collected	Monitoring Plot Average (grams) 2023	Pounds per Acre 2023
3B	T30	4/7/2023	24.3	2433
3B	T31	4/7/2023	11.7	1167
3B	T32	4/7/2023	24.7	2467
3C	20	4/7/2023	36.7	3667
3C	23	4/7/2023	20.3	2033
3C	24	4/7/2023	29.7	2967
3D	14	4/7/2023	37.0	3700
3D	T14	4/7/2023	37.3	3733
3D	T15	4/7/2023	29.0	2900
3E	T16	4/10/2023	35.3	3533
3E	T17	4/10/2023	0.0[1]	0
3E	T18	4/10/2023	21.0	2100
3E	T19	4/10/2023	16.7	1667
4A	T24	4/10/2023	18.7	1867
4A	T25	4/10/2023	28.7	2867
4A	T26	4/10/2023	27.0	2700
4B	T23	4/10/2023	20.3	2033
4B	T27	4/7/2023	24.7	2467
4B	T34	4/7/2023	11.7	1167
4B	40	4/7/2023	0.0[1]	0
4B	41	4/10/2023	13.7	1367
4B	42	4/10/2023	8.7	867

NOTES:

N/A = Monitoring plot T20 within management unit 1A and monitoring plot 18 within management unit 2A were underwater due to high water levels within the Santa Maria Creek during 2023 peak forge production monitoring.

[1] No aboveground biomass, including vegetation and thatch and excluding woody shrubs, perennial species, and summer annuals, was present within the monitoring plot at the time of monitoring

K-2 Ramona Grasslands County Preserve Residual Dry Matter Monitoring Report

ESA

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619.719.4201 fax

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December 21, 2023

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 2023

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 2023 at 58 predetermined vegetation monitoring plots within the Ramona Grasslands County Preserve (Preserve). The Preserve is located in the Santa Maria Valley, southwest of the unincorporated township of Ramona and northeast of the city of Poway in central San Diego County (**Figure 1**; 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.

Grazing occurred on the Preserve from January through April 2022, until Tellam and Tellam Cattle no longer had a grazing agreement with DPR. After April 2022, the cattle were removed for the remainder of 2022. On November 7, 2022, Marcus Battaglia, James Greer, and Remy Greer entered a new grazing agreement with DPR. Through this grazing agreement, cattle were added to the Preserve in January 2023 and grazing resumed on the Preserve.

Methods

RDM monitoring for all 58 vegetation monitoring plots was conducted on September 11 and 12, 2023, by ESA biologists Adrienne Lee, Amanda French, Bailey Setzler, and Dillon Travis (**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 626 Wilshire Boulevard #1100, Los Angeles, California 90017. All samples were air-dried and weighed in grams using a digital scale. Biologists excluded the weight of the paper bags. The weights of the three biomass samples from each of the vegetation monitoring plots were averaged and then converted to pounds per acre (lb/acre) by a multiplication of 100 (Bartolome et al. 2002). The average lb/acre for each management unit was then calculated by averaging all RDM plots within a management unit.

The average lb/acre for a given management unit was compared to the target RDM values established for each management unit (**Table 1**). 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 1
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 2023: wild oat (*Avena* spp.), brome grass (*Bromus* spp.), doveweed, filaree (*Erodium* spp.), and short-pod mustard (*Hirschfeldia incana*). Wild oat, brome grass, and filaree were collected during RDM sampling, while western ragweed (*Ambrosia psilostachya*), doveweed, 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*), western ragweed, yerba mansa (*Anemopsis californica*), California sagebrush (*Artemisia californica*), saltbush (*Atriplex* spp.), mule fat (*Baccharis salicifolia*), cluster lily (*Brodiaea* sp.), tocalote (*Centaurea melitensis*), Bermuda grass (*Cynodon dactylon*), clustered tarweed (*Deinandra fasciculata*), saltgrass (*Distichlis spicata*), daisy (*Erigeron* sp.), California buckwheat (*Eriogonum fasciculatum*), Italian ryegrass (*Festuca perennis*), nit grass (*Gastridium phleoides*), common sunflower (*Helianthus annus*), graceful tarplant (*Holocarpha virgata* ssp. *elongata*), barley (*Hordeum* spp.), goldenbush (*Isocoma* sp.), rush (*Juncus* sp.), prickly lettuce (*Lactuca serriola*), cheeseweed (*Malva parviflora*), oaks, wild radish (*Raphanus sativus*), white sage (*Salvia apiana*), common catchfly (*Silene gallica*), vinegarweed (*Trichostema lanceolatum*), and rough cocklebur (*Xanthium strumarium*). Bermuda grass, Italian ryegrass, and nit grass 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 2023 monitoring.

Special-Status Species Incidental Observations

A southern mule deer (*Odocoileus hemionus fuliginatus*), a County of San Diego Group 2 species and Multiple Species Conservation Program (MSCP)-covered species, was observed within management unit 4B during fall 2023 RDM monitoring (**Figure 3**). Additionally, a red-shouldered hawk (*Buteo lineatus*), a County of San Diego Group 1 species and MSCP-covered species, was observed within management unit 3E.

Residual Dry Matter Values and Recommendations

All management units, with the exception of 1A and 4B, had higher RDM values than their target values. Management units 1A and 4B fell within the target RDM values for the unit. Results of RDM analyses are depicted in Figure 3.

The majority of management units were above their target RDM values in 2023. This can be attributed to a few factors: (1) increased annual rainfall; (2) lack of grazing; and (3) late-season rainfall. Ramona Airport reported approximately 21.1 inches of accumulated rainfall from January to September 2023—a significant increase compared to the approximately 4 inches of accumulated rainfall from January to September 2022 (NOAA 2023). Cattle were onsite from January through April 2022 until the original grazing lessee, Tellam and Tellam Cattle, no longer had a grazing agreement with DPR. After April 2022, cattle were removed from the Preserve for the remainder of 2022. Grazing resumed in January 2023 through a new grazing agreement with Marcus Battaglia, James Greer, and Remy Greer. The late-season rainstorm on August 20, 2023, prior to RDM monitoring, could have also played a part in these results, as many plant species took advantage of the rainfall and began sprouting. 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 2023 RDM values are summarized in **Table 2**. The results of the average RDM values from each of the individual RDM plots from 2011 through 2023 can be found in **Attachment A**.

TABLE 2
SUMMARY OF 2023 RDM RESULTS

Management Unit	Target RDM Value	Average RDM (lb/acre)													2023 Results
		2011*	2012*	2013*	2014*	2015*	2016*	2017*	2018*	2019*	2020	2021	2022	2023	
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	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	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	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	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	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	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	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	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	Does not meet 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	Meets grazing requirements.
4C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	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	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 2023.

Management Unit 1A

RDM levels in management unit 1A average 1,333 lb/acre, which is within the target RDM value range of 800 to 2,000 lb/acre in the Grazing Management Plan (Table 2). 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 3,886 lb/acre, which is above the target RDM value range of 400 to 800 lb/acre in the Grazing Management Plan (Table 2). 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 2024 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 (CRPR 1B.2), were not observed during the 2023 surveys. Coulter's saltbush and graceful tarplant were last observed in this management unit in 2013 and 2020. Southern tarplant was last observed in this management unit in 2021. The high RDM levels resulting from thatch buildup could preclude the emergence of rare plants.

Management Unit 2B

RDM levels in management unit 2B average 2,881 lb/acre, which is above the target RDM value range of 400 to 800 lb/acre in the Grazing Management Plan (Table 2). 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 2024 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 2023 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 2,447 lb/acre, which is above the target range of RDM value range of 400 to 800 lb/acre in the Grazing Management Plan (Table 2). 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 2024 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 2023 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 2,193 lb/acre, which is above the target range of 800 to 1,500 lb/acre in the Grazing Management Plan (Table 2). 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 was detected during 2023 surveys. San Diego gumplant (*Grindelia halli*) was previously detected during 2021 surveys

but was not detected within this management unit during 2023 surveys. The high RDM levels resulting from thatch buildup could preclude the emergence of rare plants.

Management Unit 3C

RDM levels in management unit 3C average 3,600 lb/acre, which is above the target range of 800 to 1,500 lb/acre in the Grazing Management Plan (Table 2). 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. As recommended in the Targeted Monitoring Plan (TMP) (ESA and ICF 2022), a springtime vernal pool survey to assess the health of the vernal pool complex was conducted in 2023. The vernal pool survey assessed the plant community and habitat function of the vernal pools and provided comprehensive management recommendations (ESA 2023). Based on the results of the springtime vernal pool survey, cattle grazing frequency and rotations should be carefully monitored to restrict access to vernal pool and playa habitat during the wet season[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 it has not been detected during recent monitoring efforts from 2019 through 2023. The high RDM levels resulting from thatch buildup could preclude the emergence of rare plants.

Management Unit 3D

RDM levels in management unit 3D average 2,667 lb/acre, which is above the target range of 800 to 1,500 lb/acre in the Grazing Management Plan (Table 2). 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).

[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.

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. As recommended in the TMP (ESA and ICF 2022), a springtime vernal pool survey to assess the health of the vernal pool complex was conducted in 2023. The vernal pool survey assessed the plant community and the habitat function of the vernal pools and provided comprehensive management recommendations (ESA 2023). Based on the results of the springtime vernal pool survey, cattle grazing frequency and rotations should be carefully monitored to restrict access to vernal pool and playa habitat during the wet season[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 but was not detected during the 2023 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 6,858 lb/acre, which is above the target range of 800 to 1,500 lb/acre in the Grazing Management Plan (Table 2). 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. As of 2023, grazing has still not been reinstated within this management unit, which has contributed to the high RDM levels.

Continued active restoration can be implemented using a combination of mechanical removal by mowing, herbicide, and/or targeted grazing as recommended by the Ramona Grasslands Preserve Vegetation Management Plan (ICF 2012) to return this management unit to a grass regime. Quantitative vegetation monitoring is recommended to document before-and-after conditions and determine restoration progress and success. Relevé assessment of the management unit using the California Native Plant Society 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 2023 surveys, although it was previously detected within this management unit during 2021 surveys. The high RDM levels resulting from thatch buildup could preclude the emergence of rare plants.

[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.

Management Unit 4A

RDM levels in management unit 4A average 1,800 lb/acre, which is above the target range of 800 to 1,500 lb/acre in the Grazing Management Plan (Table 2). 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 2023 surveys. 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.

Management Unit 4B

RDM levels in management unit 4B average 1,294 lb/acre, which is within the target range of 800 to 1,500 lb/acre in the Grazing Management Plan (Table 2). 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 2023 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 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 2023. This unit consists of southern mixed chaparral, disturbed southern mixed chaparral, and coastal sage scrub (ICF 2012). This unit should be monitored for invasive non-native plant invasion.

Management Unit 5

Management unit 5 is not proposed for grazing due to topography; therefore, no RDM monitoring was conducted in this unit in 2023. This unit should be monitored for invasive non-native plant invasion.

Summary and Recommendations

All RDM values, with the exception of management units 1A and 4B, were above the target RDM values. Management units 1A and 4B had RDM values within their target RDM value range. In 2023, RDM values in all management units except 1A increased from 2022 results. Management unit 2A had the most significant increase in RDM value this season.

The majority of management units were above their target RDM values in 2023. Results were likely influenced by the increased annual rainfall in 2023, including the late-season rainstorm event in August 2023 that initiated vegetative growth. Extreme fluctuations in rainfall in recent years (e.g., drought conditions in 2018, above-average rainfall in 2019, below-average to average rainfall in 2020, and drought conditions in 2021 and 2022)

drive substantial variability in vegetative cover from year to year. As mentioned in the *Results* section, the increase in RDM values between 2022 and 2023 is likely due to above-average rainfall levels in the region. Ramona Airport reported approximately 21.1 inches of accumulated rainfall from January to September 2023 compared to approximately 6.5 inches of accumulated rainfall from January to September 2021 and approximately 4 inches of accumulated rainfall from January to September 2022 (NOAA 2023).

To better estimate how much biomass is available and likely to persist in a given year, ESA initiated annual spring peak forage production monitoring on the Preserve, with the inaugural monitoring effort in April 2022. Based on the results of this monitoring, the grazing regime can be adjusted accordingly by either increasing or decreasing heads of cattle or grazing duration/frequency. Spring peak forage production monitoring is recommended to be conducted annually to better inform the grazing lessee on grazing practices for a given year.

Based on the annual RDM monitoring results, the following measures are recommended for all management units:

- 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 spring peak forage monitoring in all units (except 4C and 5). This monitoring assesses the amount of forage available for grazing in a given year, allowing the grazing lessees to adjust their grazing regime (e.g., stocking density and grazing duration) with the RDM target values in mind to meet management targets.
- Continue long-term RDM monitoring in all units (except 4C and 5). This is important to make sure that RDM values do not exceed or drop below the range needed to meet the management targets and increase biodiversity.
- Invasive non-native plant mapping should be conducted throughout the Preserve annually, if feasible, per the monitoring recommendations in the TMP (ESA and ICF 2022).
- Continue active restoration of management unit 3E to remove 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 2018–2023 surveys. Native grass seed should be planted around water troughs and in bare ground near water troughs to improve soil quality. Seed should be from a local, credible source or collected within the Preserve by hired seed collectors or DPR rangers who have been taught by a consultant how to collect native plant seeds. Plant species that could be distributed in areas with bare ground, such as those around the troughs, include purple needlegrass (*Stipa pulchra*), nodding needlegrass (*Stipa cernua*), wild rye (*Elymus triticoides*), and Lemmon's canary grass (*Phalaris lemmonii*). These species have been verified as native grasses found within the Preserve, according to the San Diego Natural History Museum (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 TMP (ESA and ICF 2022). Rare plants have been incidentally observed during RDM monitoring; however, these incidental observations are not representative of comprehensive rare plant surveys. Rare plant surveys should focus on areas with rare soils and sensitive habitats, and areas where rare plants have been recorded in the past. The rare plant surveys should be used to update the sensitive plant maps from the Vegetation Management Plan (ICF 2012), identify populations of sensitive species for more intensive monitoring, and determine if any new sensitive species are present. Following the completion of rare plant surveys, monitoring plots located within sensitive plant populations should be adjusted to avoid impacts to the species.
- Cattle grazing frequency and rotations should be carefully monitored to restrict access to vernal pool and playa habitat during the wet season[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 TMP-recommended frequencies (ESA and ICF 2022).
- Conduct SKR surveys, per the TMP (ESA and ICF 2022). SKR burrow count/sign surveys, quantitative habitat assessments, and SKR live trapping should be conducted to determine whether grazing is meeting management goals for this species, or if other management actions are needed.

If you have questions, please feel free to contact me at (530) 966-4294 or afrench@esassoc.com.

Sincerely,

Amanda French
Biologist

Attachments: Figure 1 – Preserve Location
Figure 2 – Monitoring Plot Locations
Figure 3 – RDM Plot Results
Attachment A – Results of 2011–2023 RDM Monitoring at the Preserve

[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.

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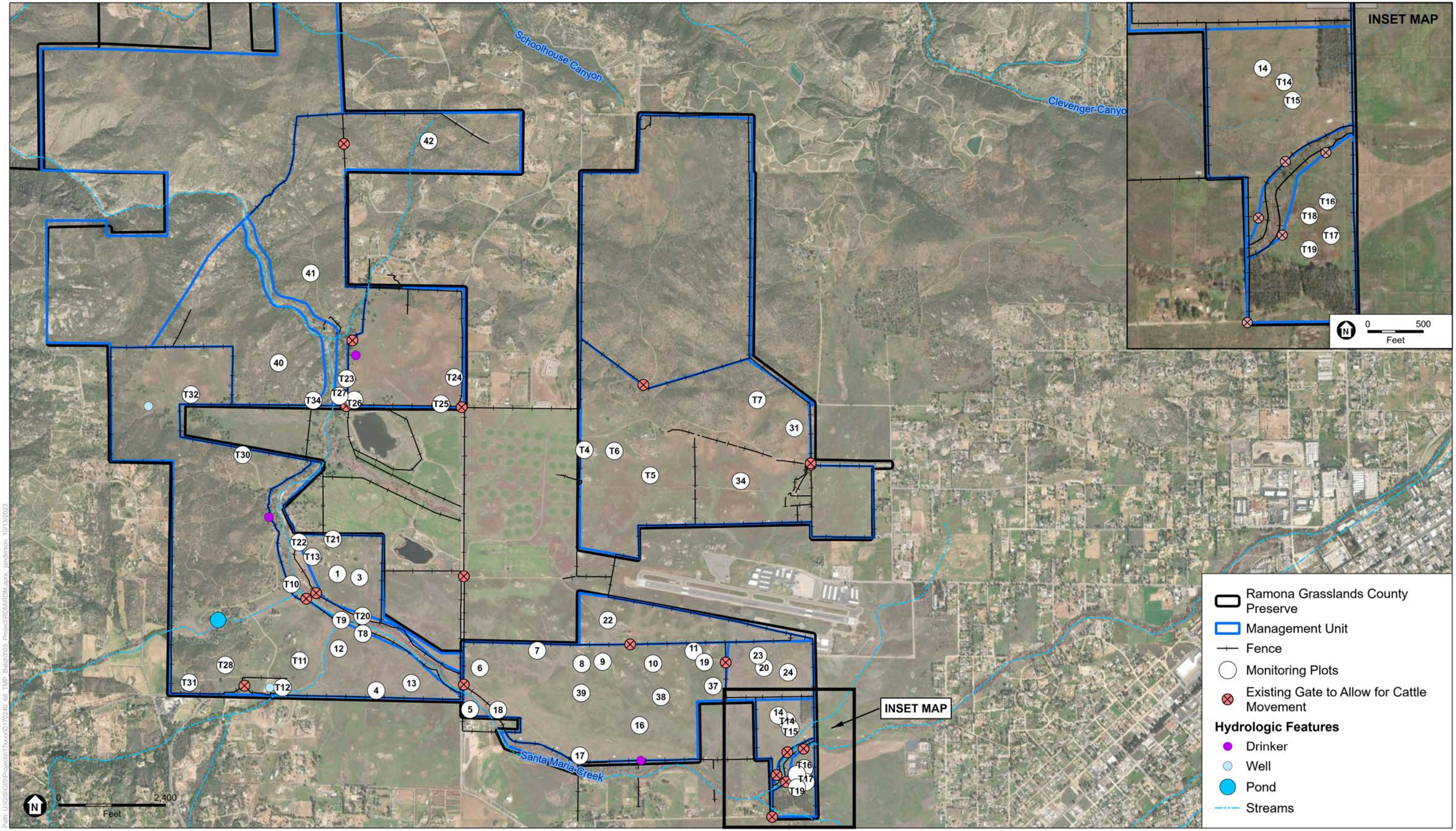
SOURCE: ESRI

COSD DPR 557744 TO 68 – Implementation of Targeted Monitoring Plan –
2023 Resource-Specific Monitoring and Management
Ramona Grasslands County Preserve Fall 2023 Residual Dry Matter Monitoring Report

Figure 1
Preserve Location

ESA

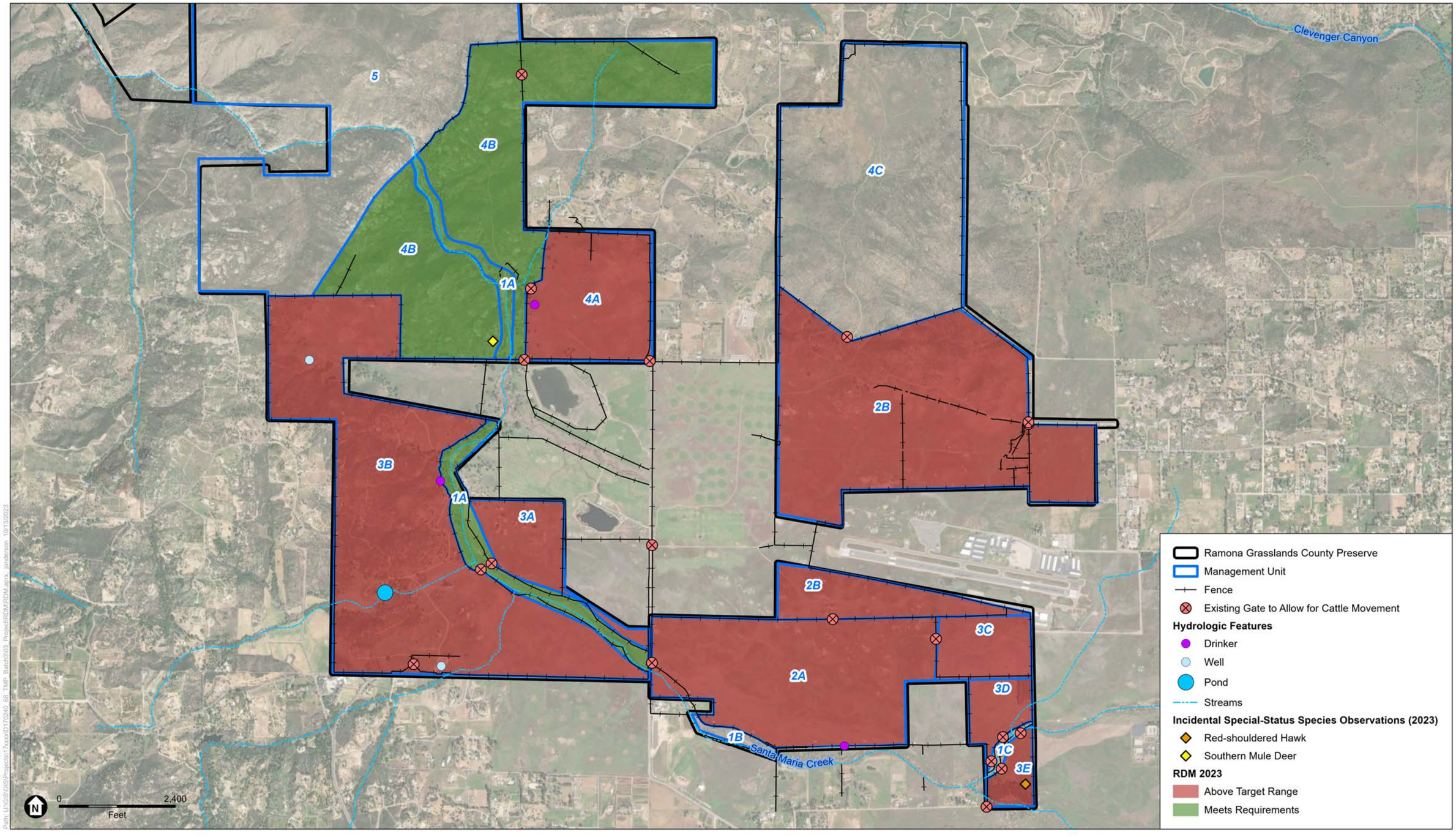


SOURCE: ESRI, AECOM 2017; ESA 2023

COSD DPR 557744 TO 68 – Implementation of Targeted Monitoring Plan – 2023 Resource-Specific Monitoring and Management
Ramona Grasslands County Preserve Fall 2023 Residual Dry Matter Monitoring Report

ESA

Figure 2
Monitoring Plot Locations



SOURCE: ESRI, AECOM 2017; ESA 2023

COSD DPR 557744 TO 68 – Implementation of Targeted Monitoring Plan – 2023 Resource-Specific Monitoring and Management
Ramona Grasslands County Preserve Fall 2023 Residual Dry Matter Monitoring Report

Figure 3
RDM Plot Results

ESA

Attachment A

Results of 2011–2023 RDM Monitoring at the Preserve

TABLE A-1
RESULTS OF 2011–2023 RDM MONITORING AT THE PRESERVE

Management Unit	Plot #	Date Collected	Monitoring Plot Average (grams) 2011	Pounds per Acre 2011	Date Collected	Monitoring Plot Average (grams) 2012	Pounds per Acre 2012	Date Collected	Monitoring Plot Average (grams) 2013	Pounds per Acre 2013	Date Collected	Monitoring Plot Average (grams) 2014	Pounds per Acre 2014	Date Collected	Monitoring Plot Average (grams) 2015	Pounds per Acre 2015	Date Collected	Monitoring Plot Average (grams) 2016	Pounds per Acre 2016	Date Collected	Monitoring Plot Average (grams) 2017	Pounds per Acre 2017	Date Collected	Monitoring Plot Average (grams) 2018	Pounds per Acre 2018	Date Collected	Monitoring Plot Average (grams) 2019	Pounds per Acre 2019	Date Collected	Monitoring Plot Average (grams) 2020	Pounds per Acre 2020	Date Collected	Monitoring Plot Average (grams) 2021	Pounds per Acre 2021	Date Collected	Monitoring Plot Average (grams) 2022	Pounds per Acre 2022	Date Collected	Monitoring Plot Average (grams) 2023	Pounds per Acre 2023
1A	T9	10/4/2011	51.3	5133	10/10/2012	23.2	2320	10/9/2013	2	200	10/24/2014	2.4	240	10/21/2015	4.8	480	10/25/2016	16.3	1630	10/24/2017	4.2	420	12/27/2018	5	500	10/14/2019	27.7	2766.7	10/27/2020	40.33	4033	10/11/2021	33.67	3367	9/13/2022	25.33	2533	9/11/2023	20.3	2033
1A	T10	10/5/2011	25	2500	10/10/2012	18.8	1880	10/8/2013	12.6	1260	10/24/2014	4.9	490	10/21/2015	4.3	430	10/25/2016	3.3	330	10/24/2017	7.8	780	12/27/2018	0	0	10/14/2019	17.3	1733.3	10/27/2020	25.33	2533	10/11/2021	21.33	2133	9/13/2022	22.67	2267	9/11/2023	19.7	1967
1A	T20	10/5/2011	70.7	7067	10/10/2012	22.1	2210	10/9/2013	3	300	10/24/2014	6.3	630	10/21/2015	1.4	140	10/25/2016	5.7	570	10/24/2017	8.37	837	12/27/2018	2	200	10/14/2019	30.7	3066.7	10/27/2020	59.67	5967	10/11/2021	0.00	0	9/13/2022	26.33	2633	9/11/2023	0.0	0
2A	5	10/3/2011	93.7	9367	10/9/2012	37.5	3750	10/7/2013	26.6	2660	10/27/2014	26.1	2610	10/21/2015	5.6	560	10/27/2016	36	3600	10/26/2017	10.2	1020	12/28/2018	6.33	633	10/14/2019	57	5700	10/28/2020	33.67	3367	10/11/2021	36.00	3600	9/13/2022	16.67	1667	9/11/2023	21.7	2167
2A	6	10/3/2011	83.3	8333	10/9/2012	25.4	2540	10/7/2013	15	1500	10/27/2014	0.5	50	10/21/2015	5.9	590	10/27/2016	8	800	10/26/2017	2.5	250	12/27/2018	0	0	10/14/2019	32	3200	10/28/2020	29.67	2967	10/11/2021	20.00	2000	9/13/2022	15.67	1567	9/11/2023	37.3	3733
2A	7	10/3/2011	31	3100	10/9/2012	35.2	3520	10/10/2013	11	1100	10/27/2014	2.6	260	10/21/2015	12.7	1270	10/27/2016	1.3	130	10/26/2017	3.6	360	12/28/2018	0.67	67	10/14/2019	28	2800	10/28/2020	37.33	3733	10/11/2021	22.00	2200	9/13/2022	17.33	1733	9/11/2023	38.7	3867
2A	8	10/3/2011	66.7	6667	10/9/2012	35.2	2790	10/10/2013	22	2200	10/23/2014	5.4	540	10/22/2015	17.5	1750	10/27/2016	10	1000	10/26/2017	18.1	1810	12/28/2018	0.67	67	10/14/2019	39.3	3933.3	10/28/2020	46.67	4667	10/11/2021	27.00	2700	9/13/2022	20.00	2000	9/11/2023	29.7	2967
2A	9	10/3/2011	60.3	6033	10/9/2012	42.9	4290	10/10/2013	33	3300	10/23/2014	5.4	540	10/22/2015	17.8	1780	10/27/2016	3	300	10/26/2017	3.67	367	12/28/2018	1	100	10/14/2019	47.7	4766.7	10/28/2020	44.33	4433	10/11/2021	26.67	2667	9/13/2022	28.00	2800	9/11/2023	67.7	6767
2A	10	10/3/2011	44.7	4467	10/9/2012	31.9	3190	10/7/2013	17	1700	10/22/2014	3.7	370	10/22/2015	4.5	450	10/27/2016	9	900	10/26/2017	10.03	1003	12/28/2018	0.33	33	10/14/2019	34.3	3433.3	10/28/2020	35.33	3533	10/11/2021	21.67	2167	9/13/2022	22.00	2200	9/11/2023	25.7	2567
2A	11	10/4/2011	56	5600	10/9/2012	27.9	2790	10/8/2013	7.3	730	10/22/2014	3.4	340	10/22/2015	5.2	520	10/27/2016	21	2100	10/26/2017	11.9	1190	12/28/2018	1.33	133	10/14/2019	26	2600	10/28/2020	26.00	2600	10/11/2021	24.33	2433	9/13/2022	25.67	2567	9/11/2023	25.7	2567
2A	16	10/4/2011	60.7	6067	10/9/2012	31.2	3120	10/8/2013	19.3	1930	10/23/2014	2.3	230	10/22/2015	5.6	560	10/27/2016	30	3000	10/26/2017	10.8	1080	12/28/2018	1.33	133	10/14/2019	5	500	10/28/2020	17.67	1767	10/11/2021	20.33	2033	9/13/2022	17.00	1700	9/11/2023	18.7	1867
2A	17	10/4/2011	83.7	8367	10/3/2012	37.9	3790	10/7/2013	24.6	2460	10/27/2014	4.2	420	10/22/2015	6.2	620	10/27/2016	36	3600	10/26/2017	22.5	2250	12/28/2018	0.33	33	10/14/2019	39.3	3933.3	10/28/2020	37.33	3733	10/11/2021	25.67	2567	9/13/2022	40.00	4000	9/11/2023	66.7	6667
2A	18	10/3/2011	73	7300	10/3/2012	27.7	2770	10/7/2013	14.7	1470	10/27/2014	2.9	290	10/21/2015	13.2	1320	10/27/2016	6	600	10/26/2017	20.6	2060	12/28/2018	33.33	3333	10/14/2019	80	8000	10/28/2020	61.67	6167	10/11/2021	39.00	3900	9/13/2022	48.33	4833	9/11/2023	85.3	8533
2A	19	10/4/2011	40	4000	10/9/2012	35.7	3570	10/8/2013	9.3	930	10/22/2014	0.4	40	10/22/2015	31.9	3190	10/27/2016	8.6	860	10/26/2017	6.57	657	12/28/2018	1.33	133	10/14/2019	15.7	1566.7	10/28/2020	48.33	4833	10/11/2021	15.00	1500	9/13/2022	14.00	1400	9/11/2023	21.7	2167
2A	37	10/4/2011	56	5600	10/9/2012	44.5	4450	10/8/2013	7.6	760	10/22/2014	11.1	1110	10/22/2015	10.3	1030	10/27/2016	8.6	860	10/26/2017	9.83	983	12/28/2018	0.67	67	10/14/2019	8.7	866.7	10/28/2020	14.33	1433	10/11/2021	16.67	1667	9/13/2022	12.00	1200	9/11/2023	27.7	2767
2A	38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	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
2A	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10/14/2019	13.7	1366.7	10/28/2020	15.67	1567	10/11/2021	22.33	2233	9/13/2022	12.67	1267	9/11/2023	43.7	4367
2B	22	10/3/2011	60	6000	10/9/2012	14.7	1470	10/7/2013	15	1500	10/23/2014	3.1	310	10/20/2015	34.1	3410	10/27/2016	8.6	860	10/26/2017	4.9	490	12/28/2018	21.67	2167	10/14/2019	61	6100	10/28/2020	56.33	5633	10/11/2021	19.33	1933	9/13/2022	6.33	633	9/12/2023	56.3	5633
2B	31	10/4/2011	26.3	2633	10/3/2012	19.7	1970	10/9/2013	3.6	360	10/22/2014	4.6	460	10/20/2015	7.7	770	10/26/2016	11.3	1130	10/25/2017	5.5	550	12/28/2018	0.67	67	10/15/2019	17.3	1733.3	10/29/2020	26.00	2600	10/12/2021	12.67	1267	9/13/2022	3.33	333	9/12/2023	22.0	2200
2B	34	10/4/2011	48.3	4833	10/3/2012	14.8	1480	10/7/2013	2	200	10/22/2014	2	200	10/20/2015	3.6	360	10/26/2016	16	1600	10/25/2017	7.2	720	12/28/2018	0.33	33	10/15/2019	22.3	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
2B	T4	10/4/2011	37.3	3733	10/3/2012	28.8	2880	10/7/2013	9	900	10/22/2014	4.4	440	10/20/2015	6.1	610	10/26/2016	0	0	10/25/2017	6.67	667	12/28/2018	0.33	33	10/15/2019	29.7	2966.7	10/29/2020	26.67	2667	10/12/2021	32.33	3233	9/13/2022	7.33	733	9/12/2023	15.3	1533
2B	T5	10/4/2011	39.7	3967	10/3/2012	17.5	1750	10/7/2013	10	1000	10/22/2014	0.7	70	10/20/2015	21.9	2190	10/26/2016	1.7	170	10/25/2017	14.53	1453	12/28/2018	0.33	33	10/15/2019	37.3	3733.3	10/29/2020	35.00	3500	10/12/2021	51.67	5167	9/13/2022	36.33	3633	9/12/2023	32.0	3200
2B	T6	10/4/2011	24	2400	10/3/2012	11.2	1120	10/7/2013	19	1900	10/22/2014	3.9	390	10/20/2015	2.1	210	10/26/2016	3.7	370	10/25/2017	6.37	637	12/28/2018	0.33	33	10/15/2019	13.3	1333.3	10/29/2020	26.67	2667	10/12/2021	19.33	1933	9/13/2022	15.67	1567	9/12/2023	18.3	1833
2B	T7	10/4/2011	41.3	4133	10/3/2012	22.4	2240	10/7/2013	6.7	670	10/22/2014	2.4	240	10/20/2015	3.2	320	10/26/2016	11	1100	10/25/2017	10.73	1073	12/28/2018	0	0	10/15/2019	40.7	4066.7	10/29/2020	60.33	6033	10/12/2021	34.67	3467	9/13/2022	10.33	1033	9/12/2023	26.3	2633
3A	1	10/4/2011	36	3600	10/10/2012	31.5	3150	10/8/2013	4.6	460	10/24/2014	1.1	110	10/21/2015	3.3	330	10/25/2016	2	200	10/24/2017	18.83	1883	12/27/2018	0	0	10/14/2019	17	1700	10/27/2020	41.00	4100	10/11/2021	30.33	3033	9/13/2022	27.00	2700	9/12/2023	24.7	2467
3A	3	10/4/2011	22.3	2233	10/10/2012	15.4	1540	10/8/2013	1	100	10/24/2014	0.1	10	10/21/2015	0.9	90	10/25/2016	1	100	10/24/2017	13.4	1340	12/27/2018	0.33	33	10/14/2019	30.3	3033.3	10/27/2020	41.33	4133	10/11/2021	17.67	1767	9/13/2022	26.67	2667	9/12/2023	37.7	3767
3A	T13	10/5/2011	50.3	5033	10/10/2012	50	5000	10/9/2013	4	400	10/24/2014	2.8	280	10/21/2015	1.3	130	10/25/2016	1.3	130	10/24/2017	14.3	1430	12/27/2018	0.67	67	10/14/2019	4.7	466.7	10/27/2020	6.67	667	10/11/2021	23.00	2300	9/13/2022	12.67	1267	9/12/2023	11.0	1100
3A	T21	10/5/2011	17.7	1767	10/10/2012	34.8	3480	10/9/2013	5	500	10/24/2014	2.3	230	10/21/2015	3.7	370	10/25/2016	9.7	970	10/24/2017	12.43	1243	12/27/2018	0	0	10/14/2019	18.7	1866.7	10/27/2020	29.00	2900	10/11/2021	32.00	3200	9/13/2022	5.00	500	9/12/2023	21.3	2133
3A	T22	10/5/2011	24.3	2433	10/10/2012	8.1	810	10/9/2013	4.6	460	10/24/2014	0.5	50	10/21/2015	2.7	270	10/25/2016	0.1	10	10/24/2017	17.1	1710	12/27/2018	0	0	10/14/2019	17.7	1766.7	10/27/2020	12.00	1200	10/11/2021	24.00	2400	9/13/2022	10.00	1000	9/11/2023	27.7	2767
3B	4	10/3/2011	10	1000	10/9/2012	25	2500	10/7/2013	11	1100	10/23/2014	2.2	220	10/21/2015	0.5	50	10/25/2016	5.6	560	10/24/2017	5.73	573	12/27/2018	0.33	33	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
3B	12	10/4/2011	25.7	2567	10/10/2012	21.4	2140	10/9/2013	5.6	560	10/24/2014	8.9	890	10/21/2015	5.9	590	10/25/2016	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
3B	13	10/3/2011	36.7	3667	10/9/2012	32.9	3290	10/7/2013	25	2500	10/23/2014	11.5	1150	10/21/2015	4.9	490	10/25/2016	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
3B	T8	10/4/2011	33.3	3,333	10/10/2012	15.2	1520	10/9/2013	1.6	160	10/24/2014	5.8	580	10/21/2015	2.7	270	10/25/2016	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
3B	T11	10/5/2011	29	2900	10/9/2012	30.6	3060	10/9/2013	0	0	10/27/2014	0.6	60	10/21/2015	4.1	410	10/25/2016	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
3B	T12	10/5/2011	12.3	1233	10/9/20212	45.1	4510	10/7/2013	10	1000	10/27/2014	0.8	80	10/21/2015	2.6	260	10/25/2016	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
3B	T28	10/21/2011	28	2800	10/9/2012	19.5	1950	10/9/2013	4.6	460	10/27/2014	2.1	210	10/21/2015	2.9	290	10/25/2016	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
3B	T30	10/21/2011	31.5	3150	10/3/2012	16.8	1680	10/9/2013	1.6	160	10/24/2014	2.4	240	10/27/2015	5.6	560	10/26/2016	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
3B	T31	10/21/2011	15	1500	10/10/2012	20.3	2030	10/9/2013	2.1	210	10/27/2014	2.6	260	10/21/2015	6.1	610	10/25/2016	7	700	10/24/2017	9.03	903	12/27/2018	0	0	10/14/2019	0.3	33.3	10/28/2020	12.33	1233	10/12/2021	7.33	733	9/13/2022	6.67	667	9/11/2023	4.7	467
3B	T32	10/21/2011	30	3000	10/3/2012	13.7	1370	10/10/2013	2	200	10/24/2014	3.3	330	10/27/2015	3.2	320	10/26/2016	16.7	1670	10/24/2017	7.07	707	12/27/2018	0	0	10/15/2019	40.7	4066.7	10/27/2020	46.33	4633	10/12/2021	36.00	3600	9/13/2022	11.67	1167	9/11/2023	39.3	3933
3C	20	10/3/2011	58	5800	10/9/2012	35.7	3570	10/8/2013	16	1600	10/22/2014	7.7	770	10/22/2015	6.7	670	10/27/2016	20	2000	10/26/2017	7.6	760	12/28/2018	0.33	33	10/14/2019	25.3	2533.3	10/28/2020	21.33	2,133	10/11/2021	36.33	3633	9/13/2022	29.33	2933	9/11/2023	32.7	3267

Management Unit	Plot #	Date Collected	Monitoring Plot Average (grams) 2011	Pounds per Acre 2011	Date Collected	Monitoring Plot Average (grams) 2012	Pounds per Acre 2012	Date Collected	Monitoring Plot Average (grams) 2013	Pounds per Acre 2013	Date Collected	Monitoring Plot Average (grams) 2014	Pounds per Acre 2014	Date Collected	Monitoring Plot Average (grams) 2015	Pounds per Acre 2015	Date Collected	Monitoring Plot Average (grams) 2016	Pounds per Acre 2016	Date Collected	Monitoring Plot Average (grams) 2017	Pounds per Acre 2017	Date Collected	Monitoring Plot Average (grams) 2018	Pounds per Acre 2018	Date Collected	Monitoring Plot Average (grams) 2019	Pounds per Acre 2019	Date Collected	Monitoring Plot Average (grams) 2020	Pounds per Acre 2020	Date Collected	Monitoring Plot Average (grams) 2021	Pounds per Acre 2021	Date Collected	Monitoring Plot Average (grams) 2022	Pounds per Acre 2022	Date Collected	Monitoring Plot Average (grams) 2023	Pounds per Acre 2023
3C	23	10/4/2011	41	4100	10/9/2012	19.7	1970	10/8/2013	7.7	770	10/22/2014	7.9	790	10/22/2015	5.4	540	10/27/2016	13	1300	10/26/2017	7.63	763	12/28/2018	5	500	10/14/2019	45.7	4566.7	10/28/2020	15.67	1567	10/11/2021	29.00	2900	9/13/2022	11.00	1100	9/11/2023	28.7	2867
3C	24	10/3/2011	22.7	2267	10/9/2012	31.3	3130	10/8/2013	6.7	670	10/22/2014	8.7	870	10/22/2015	0	0	10/27/2016	13.3	1330	10/26/2017	12.33	1233	12/28/2018	1.67	167	10/14/2019	7.7	766.7	10/28/2020	26.00	2600	10/11/2021	46.00	4600	9/13/2022	33.33	3333	9/11/2023	46.7	4667
3D	14	10/4/2011	93	9300	10/9/2012	23.3	2330	10/9/2013	17.6	1760	10/23/2014	14.4	1440	10/20/2015	0.1	10	10/27/2016	18	1800	10/25/2017	7.73	773	12/28/2018	1	100	10/14/2019	4.7	466.7	10/28/2020	22.33	2233	10/11/2021	27.00	2700	9/13/2022	23.67	2367	9/11/2023	38.0	3800
3D	T14	10/5/2011	46.3	4633	10/9/2012	45.6	4560	10/9/2013	12	1,200	10/23/2014	10.9	1090	10/22/2015	0.4	40	10/27/2016	7	700	10/25/2017	7.57	757	12/28/2018	1	100	10/14/2019	1.3	133.3	10/28/2020	14.33	1433	10/11/2021	27.67	2767	9/13/2022	26.00	2600	9/11/2023	14.0	1400
3D	T15	10/5/2011	66.3	6633	10/9/2012	43.3	4330	10/9/2013	12.6	1260	10/23/2014	18.2	1820	10/22/2015	10.6	1060	10/27/2016	10.7	1070	10/25/2017	5.97	597	12/28/2018	3	300	10/14/2019	8.7	866.7	10/28/2020	17.33	1733	10/11/2021	24.00	2400	9/13/2022	26.00	2600	9/11/2023	28.0	2800
3E	T16	10/5/2011	0	0	10/10/2012	330	330	10/7/2013	25	2500	10/23/2014	6.7	670	10/22/2015	5.3	530	*	*	*	10/25/2017	92.7	9270	12/28/2018	89	8900	10/14/2019	1.7	166.7	10/28/2020	0.00	0	10/11/2021	27.00	2700	9/13/2022	66.00	6600	9/11/2023	136.7	13667
3E	T17	10/5/2011	0	0	10/10/2012	0	0	10/7/2013	22	2200	10/23/2014	8.5	850	10/22/2015	27.4	2740	*	*	*	10/25/2017	44.87	4487	12/28/2018	0.33	33	10/14/2019	0	0	10/28/2020	0.00	0	10/11/2021	0.00	0	9/13/2022	28.00	2800	9/11/2023	0.0	0
3E	T18	10/5/2011	0	0	10/10/2012	160	160	10/7/2013	26	2600	10/23/2014	34.5	3450	10/22/2015	13.6	1,360	*	*	*	10/25/2017	59.37	5937	12/28/2018	75.67	7567	10/14/2019	10	1000	10/28/2020	4.00	400	10/11/2021	37.00	3700	9/13/2022	80.67	8067	9/11/2023	84.3	8433
3E	T19	10/5/2011	0	0	10/10/2012	0	0	10/7/2013	28.6	2860	10/23/2014	12.2	1220	10/22/2015	6.9	690	*	*	*	10/25/2017	0	0	12/28/2018	71.33	7133	10/14/2019	25.3	2533.3	10/28/2020	37.00	3700	10/11/2021	43.00	4300	9/13/2022	49.67	4967	9/11/2023	53.3	5333
4A	T24	10/5/2011	35.3	3533	10/3/2012	24	2400	10/10/2013	22	2200	10/24/2014	0	0	10/21/2015	5.5	550	10/25/2016	0.7	70	10/25/2017	5.17	517	12/27/2018	1.33	133	10/15/2019	34.3	3433.3	10/27/2020	23.00	2300	10/12/2021	15.00	1500	9/13/2022	6.33	633	9/12/2023	20.3	2033
4A	T25	10/5/2011	42.7	4267	10/3/2012	17.3	1730	10/9/2013	11.6	1160	10/24/2014	1.2	120	10/21/2015	1.6	160	10/25/2016	7	700	10/25/2017	7.93	793	12/27/2018	0.33	33	10/15/2019	29.7	2966.7	10/27/2020	26.33	2633	10/12/2021	13.00	1300	9/13/2022	12.67	1267	9/12/2023	17.3	1733
4A	T26	10/5/2011	45.7	4567	10/3/2012	30.9	3090	10/8/2013	29	2900	10/24/2014	1.8	180	10/20/2015	8.3	830	10/26/2016	19	1900	10/25/2017	13.17	1317	12/27/2018	0.67	67	10/15/2019	11.7	1166.7	10/27/2020	7.33	733	10/12/2021	10.00	1000	9/13/2022	8.33	833	9/12/2023	16.3	1633
4B	T23	10/5/2011	30.3	3033	10/3/2012	10.5	1050	10/10/2013	22.3	2230	10/24/2014	4.5	450	10/20/2015	0.2	20	10/25/2016	0	0	10/25/2017	1.73	173	12/27/2018	3.67	367	10/15/2019	5	500	10/27/2020	13.67	1367	10/12/2021	44.67	4467	9/13/2022	29.33	2933	9/12/2023	10.3	1033
4B	T27	10/5/2011	27.3	2733	10/3/2012	10.7	1070	10/8/2013	12.3	1230	10/27/2014	3.2	320	10/20/2015	30.9	3,090	10/26/2016	16.3	1630	10/25/2017	7.23	723	12/27/2018	0.33	33	10/15/2019	22.3	2233.3	10/27/2020	19.00	1900	10/12/2021	19.00	1900	9/13/2022	6.67	667	9/12/2023	10.7	1067
4B	T34	10/21/2011	23	2300	10/3/2012	13	1300	10/10/2013	1.7	170	10/27/2014	4.3	430	10/20/2015	0.5	50	10/26/2016	2.7	270	10/25/2017	8.23	823	12/27/2018	3.33	333	10/15/2019	9.3	933.3	10/27/2020	16.00	1600	10/12/2021	26.33	2633	9/13/2022	18.67	1867	9/12/2023	21.3	2133
4B	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10/15/2019	3.3	333.3	10/27/2020	0.00	0	10/12/2021	0.00	0	9/13/2022	0.00	0	9/12/2023	0.0	0
4B	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10/15/2019	17.7	1766.7	10/27/2020	27.33	2733	10/12/2021	24.00	2400	9/13/2022	11.67	1167	9/12/2023	28.0	2800
4B	42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10/15/2019	27.3	2733.3	10/27/2020	19.67	1967	10/12/2021	8.33	833	9/13/2022	10.00	1000	9/12/2023	7.3	733