



**2025 OCEANO DUNES STATE
VEHICULAR RECREATION AREA
WILDLIFE HABITAT PROTECTION PLAN**

TABLE OF CONTENTS

INTRODUCTION.....	8
PURPOSE AND SCOPE OF THE WILDLIFE HABITAT PROTECTION PLAN	8
LEGAL AND OPERATIONAL REQUIREMENTS	8
RELATIONSHIP WITH OTHER SVRA PLANS.....	9
<i>Pismo State Beach and Pismo Dunes SVRA 1975 General Plan</i>	9
<i>Soil Conservation Plan</i>	9
<i>Public Works Plan</i>	9
<i>Draft Habitat Conservation Plan</i>	10
<i>Draft Natural Community Conservation Plan</i>	11
<i>Biodiversity Management Plan</i>	11
CEQA COMPLIANCE	11
UPDATE CYCLE AND APPROVAL PROCESS.....	12
ADAPTIVE MANAGEMENT STRATEGY	12
SVRA SETTING AND NATURAL RESOURCE ASSESSMENTS	13
DISTRICT OVERVIEW	13
<i>Location</i>	13
<i>History</i>	16
<i>Abiotic Environmental Factors</i>	22
<i>Regional Land Use</i>	27
<i>Park Land Use</i>	29
MANAGEMENT UNITS	32
NATURAL RESOURCE ASSESSMENTS	37
<i>Soils</i>	37
<i>Wildlife Inventory</i>	41
<i>Native Plant Inventory</i>	47
<i>VegCAMP and Plant Communities</i>	48
<i>Sensitive Resource Areas</i>	54
<i>Rare or Endangered Plant and Animal Species and their Supporting Habitats</i>	56

<i>Special Status Plants</i>	80
<i>Non-native Invasive Species</i>	92
<i>Sensitive Aquatic Habitats</i>	94
<i>Wildlife Movement</i>	96
<i>Adaptive Management Relating to Climate Change</i>	98
STATE AND REGIONAL CONSERVATION PLANNING	99
<i>State Wildlife Action Plan (SWAP)</i>	100
<i>California Water Resilience Portfolio</i>	100
<i>California Biodiversity Initiative</i>	101
<i>2018 Safeguarding California Plan</i>	102
WHPP GOALS AND OBJECTIVES	102
WHPP GOALS AS DEFINED BY THE PUBLIC RESOURCE CODE	102
WHPP OBJECTIVES	103
<i>Conservation and Long-term Protection Objectives</i>	104
<i>Restoration and Improvement Objectives</i>	106
MANAGEMENT ACTIONS	110
MONITORING PROGRAM	114
MONITORING RELATED TO VEGETATION, HABITAT, AND SOILS	115
<i>Rare Plant Habitat Monitoring (O1T1, O1T2, O1T3)</i>	116
<i>Native Plant Community Monitoring (O6T1, O7T1, O7T2, O8T1)</i>	119
MONITORING RELATED TO WILDLIFE	122
<i>Western Snowy Plover (SNPL) and California Least Tern (CLTE) Monitoring (O2T1, O2T2, O3T1, O3T2)</i>	123
<i>Tidewater Goby Monitoring (O4T1)</i>	129
<i>California Red-Legged Frog () Monitoring (O5T1)</i>	130
MONITORING RELATED TO SCIENTIFIC RESEARCH AND LONG-TERM TRENDS.....	131
<i>Terrestrial Birds</i>	131
<i>Shoreline Birds</i>	132
<i>Small Mammals</i>	132
<i>Bats</i>	133

<i>Reptiles and Amphibians</i>	133
<i>Talitrids</i>	133
<i>Clams</i>	134
<i>Grunion</i>	135
<i>Other Rare Plant Surveys/ Botanical Inventories</i>	135
EVALUATE AND ADAPT	135
ADAPTIVE MANAGEMENT DECISIONS	135
<i>Standard Chain of Command</i>	136
ANNUAL WHPP REPORT	137
<i>Report Review Process</i>	137
CONSTRAINTS	137
REFERENCES CITED	139
APPENDIX 1: WILDLIFE AND PLANT INVENTORY	153
APPENDIX 2: MANAGEMENT ACTION DETAILS	333
APPENDIX 3: MONITORING METHODOLOGY FOR GOALS AND OBJECTIVES	334
APPENDIX 4: METHODOLOGY FOR SCIENTIFIC RESEARCH AND LONG-TERM TREND MONITORING	360
<i>Terrestrial Birds</i>	360
<i>Shoreline Birds</i>	365
<i>Small Mammals</i>	369
<i>Bats</i>	374
APPENDIX 5: NESTING SEASON MANAGEMENT PLAN	376
APPENDIX 6: PUBLIC RESOURCES CODE RELATED TO THE WILDLIFE HABITAT PROTECTION PLAN	429

LIST OF FIGURES

Figure 1. Steps of the Adaptive Management Process (CDPR 2021)	12
Figure 2 District Boundaries	15
Figure 3 Operational Boundaries.....	16
Figure 4. Acreage Opened to Riding Pre- and Post-1982. Figure credit unknown.	21

Figure 5. Watersheds within Oceano Dunes District (Note: The light blue color represents the Meadow Creek-Frontal Pacific Ocean, which has multiple outlets and therefore extends 3 NOAA nautical miles westward.)	25
Figure 6. Regional Land Use	28
Figure 7. Land Use within Oceano Dunes SVRA.....	31
Figure 8. Management Units.....	34
Figure 9. Soil Map within Oceano Dunes SVRA (CGS, 2011)	40
Figure 10 VegCAMP and Plant Communities	49
Figure 11 Sensitive Resource Areas	55
Figure 12. Non-native Plant Cover throughout the District	93
Figure 13. Sensitive Aquatic Resources (SFEI, 2017).....	95
Figure 14. Wildlife Movement and Habitat Connectivity to the Surrounding Area (Gogol-Prokurat, 2018)	97
Figure 15. Conceptual Model Demonstrating the Interwoven Nature of Soils, Plants, Wildlife, and Habitat within the Ecosystem and the Reflective Interconnected Nature of the PRC Goals, WHPP Objectives, and Management Actions.....	104
Figure 16. Map of Veldt Cover Classes within and Adjacent to Nipomo Mesa Lupine Occupied Habitat	117
Figure 17. Map of Surf Thistle and Beach Spectaclepod Occupied Habitat	118
Figure 18. Map of Nipomo Mesa Lupine Population within Oceano Dunes SVRA.....	119
Figure 19. Map of Foredune Habitat within the Southern Non-Riding Area.....	121
Figure 20. SNPL and CLTE Nest Locations at Oceano Dunes SVRA in 2022	124
Figure 21. Oceano Dunes District Chain of Command.....	136
Figure 22. Locations of Avian Point Counts at Oceano Dunes SVRA	364
Figure 23. Shoreline Bird Survey Segments at ODD.....	368
Figure 24. Small Mammal Camera Trap Plots at ODD.....	373

LIST OF TABLES

Table 1. MUs at Oceano Dunes SVRA (approximate acreage as of May 2022 and February 2024)	32
Table 2. Federal and State Designated Plant Species.....	80
Table 3. Other Special Status Plant Species	85
Table 4. Summary of Plans, their Geographical Relationship to the Park, and whether the WHPP Contributes to Conservation Objectives	100
Table 5. Summary of Oceano Dunes SVRA WHPP Goals and Objectives and their Associated Management Actions and Monitoring Programs	108
Table 6. Summary of Management Actions and Potential Scheduling over the Next Five Years.....	111
Table 7. A Summary of Monitoring Activities at Oceano Dunes SVRA (ODSVRA)	114
Table 8. Number of SNPL Breeding Adults for the 21-year Period 2002-22	125
Table 9. Number of SNPL Breeding Males, Fledglings, and Chicks Fledging per Breeding Male for the Period 2002-22	126
Table 10. Number of CLTE Breeding Pairs from 2006-22	128
Table 11. Number of CLTE Breeding Pairs, Fledglings, and Fledglings per Pair from 2016-22	129
Table 12. Wildlife Inventory.....	153
Table 13. Nipomo Mesa Lupine Census Results within the Oceano Dunes SVRA	341
Table 14. Results of acoustic detections at four sites in the Oceano Dunes SVRA and adjacent District lands in summer 2017.....	375

LIST OF ABBREVIATIONS

Abbreviation	Definition
BMP	Biodiversity Management Plan
CalEPA	California Environmental Protection Agency
CARI	California Aquatic Resources Inventory
CBB	Crotch's Bumble Bee
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CDPR	California Department of Parks and Recreation
CE	State Endangered
CEQA	California Environmental Quality Act
CGS	California Geological Survey
CI	Credible Interval
CLTE	California Least Tern
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CSLRCD	Coastal San Luis Resource Conservation District
CRLF	California Red-Legged Frog
CRPR	California Rare Plant Rank
CT	State Threatened
DPA	Dune Protected Area
EDRR	Early Detection and Rapid Response
EIR	Environmental Impact Report
ESU	Evolutionary Significant Unit
FE	Federal Endangered
FESA	Federally Endangered Species Act
FT	Federal Threatened
GIS	Geographic Information System
GPS	Global Positioning System
HCP	Habitat Conservation Plan
HMS	Habitat Monitoring System
HUC	Hydrologic Unit Code
IBP	Institute for Bird Populations
IPaC	Information for Planning and Consultation
ITP	Incidental Take Permit

Abbreviation

MOU
MU
NCCP
NI-OHV
NRD
NVCS
NWR
ODD
ODSVRA
OHMVR
OHMVRD
OHV
ORA
PRC
PSB
PWP
RWQCB
SB
SCP
SHPO
SLO
SMART
SNPL
STWG
SVRA
SWAP
TRT
TWG
USDA
USFWS
USGS
VegCAMP
WHPP

Definition

Memorandum of Understanding
Management Unit
Natural Community Conservation Plan
Non-island habitat with OHV
Natural Resources Division
National Vegetation Classification Standard
National Wildlife Refuge
Oceano Dunes District
Oceano Dunes State Vehicular Recreation Area
Off-Highway Motor Vehicle Recreation
Off-Highway Motor Vehicle Recreation Division
Off-Highway Vehicle
Open Riding Area
Public Resources Code
Pismo State Beach
Public Works Plan
Regional Water Quality Control Board
Senate Bill
Soil Conservation Plan
State Historic Preservation Office
San Luis Obispo
Specific, Measurable, Achievable, Realistic, Timely
Western Snowy Plover
State and Tribal Wildlife Grants
State Vehicular Recreation Area
State Wildlife Action Plan
Technical Review Team
Tidewater Goby
United States Department of Agriculture
United States Fish and Wildlife Service
United States Geological Survey
Vegetation Classification and Mapping Program
Wildlife Habitat Protection Plan

INTRODUCTION

PURPOSE AND SCOPE OF THE WILDLIFE HABITAT PROTECTION PLAN

The purpose of a Wildlife Habitat Protection Plan (WHPP) is to define the goals and objectives that drive the adaptive management framework of Oceano Dunes State Vehicular Recreation Area's (Oceano Dunes SVRA/SVRA) natural resource program. The WHPP outlines the wildlife and habitat management actions and monitoring efforts previously referred to as the Habitat Monitoring System (HMS) program. The WHPP serves as a dynamic working document providing land managers with guidance for managing habitat, along with short and long-term resource management objectives and the methods to achieve them. The WHPP utilizes scientific literature, expert opinion, and staff expertise in setting resource management goals. Addressing the spectrum of land management and visitor use activities that affect wildlife habitat at the SVRA, the WHPP details existing conditions, goals and objectives, monitoring, management actions, and a plan for "why and when" management actions are implemented.

For Oceano Dunes SVRA, the WHPP update allows SVRA resource staff to reevaluate and/or build upon the SVRA's current long-term HMS monitoring and management program and restructure it to meet the new legislative requirements of Senate Bill 249 (SB 249). Oceano Dunes SVRA's WHPP provides an overview of the existing biological resources, develops new wildlife habitat goals and objectives focused on conservation and improvement, describes the wildlife monitoring program, and applies adaptive management principles. The Oceano Dunes SVRA WHPP contributes to the California Department of Parks and Recreation's (California Department of Parks and Recreation [CDPR], State Parks) mission to preserve California's extraordinary biological diversity while providing opportunities for high-quality recreation.

It should be noted that Oceano Dunes SVRA and Pismo State Beach (PSB) are managed by CDPR as Oceano Dunes District (ODD, District). This WHPP is intended for Oceano Dunes SVRA; however, portions of Pismo State Beach that facilitate access for off-highway vehicle (OHV) recreation and are being managed similarly to Oceano Dunes SVRA will be included in the WHPP.

LEGAL AND OPERATIONAL REQUIREMENTS

Since 1988, California Public Resources Code (PRC) has required a WHPP for each SVRA that focuses on sustaining a viable species composition. In 2017, SB 249 amended the PRC requiring that a WHPP which conserves and improves wildlife habitats be developed for each SVRA. SB 249 added other specific WHPP requirements, including considering statutorily required state and regional conservation objectives, applying best available science, and including the annual

monitoring undertaken at each SVRA to ensure WHPP objectives are being met. Specific PRC §5090 language relating to the WHPPs can be found in Appendix 6.

RELATIONSHIP WITH OTHER SVRA PLANS

Oceano Dunes SVRA's WHPP is a planning document that guides the management of natural resources within the SVRA's boundaries. The WHPP was developed in coordination with the SVRA's other principal management and planning documents. The other related guiding documents for Oceano Dunes SVRA include the 1975 General Plan, 2022 Soil Conservation Plan (SCP), Draft Public Works Plan (PWP), Draft Habitat Conservation Plan (HCP), soon-to-be Draft Natural Community Conservation Plan (NCCP), and Biodiversity Management Plan (BMP). The WHPP will be modified and consistent with each of these plans as they become final.

Pismo State Beach and Pismo Dunes SVRA 1975 General Plan

PSB and Oceano Dunes SVRA are managed in compliance with the General Development Plan, which provides direction and guidance for District purposes, broad land use planning uses, and program-based goals and guidelines. The 1975 General Development Plan was amended in 1982 and 1994.

Soil Conservation Plan

Oceano Dunes SVRA resources staff, at the time of writing this WHPP, are in the process of developing a SCP to comply with the Department's 2020 Soil Conservation Standard and Guidelines (CDPR 2020a). The plan describes the different measures, practices, and strategies used to ensure compliance standards within the SVRA are being met. The SCP focuses on the sustainable management of soil resources and implementing long-term prescribed use within the SVRA. Note, Oceano Dunes SVRA also has an extensive program dedicated to control and minimize indirect emissions of dust which is summarized in the SCP but described more thoroughly in other documents.

Public Works Plan

PSB and Oceano Dunes SVRA are located in the Coastal Zone and are currently managed consistent with a Coastal Development Permit (CDP) issued in 1982 for development projects anticipated in the General Plan, including kiosks at its vehicle entrances on Grand Avenue and Pier Avenue, an OHV staging area, perimeter fencing, fencing around sensitive resources, and setting camping and day-use limits in the SVRA. The Coastal Commission approved CDP 4-82-300 for these projects in June 1982.

Since the original approval, there have been five amendments to the CDP¹. These amendments included changes to the OHV staging area, fencing installation, increase of beach camping limits, elimination of equestrian access in the Oso Flaco Lake area, and adjustments to the interim use limits for vehicles, both street-legal and OHV. Changes also included the creation of a technical review team (TRT) that reviewed specific CDP requirements, progress made on the requirements and reported annually to the Coastal Commission. From 2001 to 2018, State Parks provided updates to the Coastal Commission as required and the TRT submitted annual reports.

The Draft PWP, when approved by State Parks and the Coastal Commission, could supersede the CDP in its entirety at which time, the PWP could become the main management plan for the District to achieve Coastal Act compliance and would additionally provide guidance for day to day management and implementation of any associated Development Projects. The General Plan would continue to provide overall guidance for long-term investments, as well as statutory land management authority for the District. The proposed Draft PWP includes existing, new proposed, and potential future activities. The majority of Draft PWP management activities already occur in the Draft PWP area and in many cases have been occurring for decades. Specific proposed development projects, other small development projects, and implementation of other park management programs are included in the Draft PWP. A Draft Environmental Impact Report (EIR) will analyze impacts on the physical environment associated with PWP implementation. The Draft PWP also includes the sunset of the TRT.

Note: PWP progress is currently stalled until the courts rule on the sixth amendment to the 1982 permit. Updates to this section will occur when there has been resolution of the court decisions.

Draft Habitat Conservation Plan

Park operations, including visitor uses, visitor services, facility maintenance, and resource management, may also affect federally and state listed endangered or threatened species including western snowy plover (*Charadrius nivosus nivosus*; SNPL), California least tern (*Sternula antillarum browni*; CLTE), California red-legged frog (*Rana draytonii*; CRLF), and tidewater goby (*Eucyclogobius newberryi*), as well as four federally- and two state-listed plant species. State Parks has prepared a draft HCP and associated Draft EIR for the Oceano Dunes District in support of its application to the U.S. Fish and Wildlife Service (USFWS) for issuance of an incidental take permit (ITP) for federally listed animal species authorized under Sections

¹ In March 2021 the Coastal Commission adopted a sixth amendment to the 1982 CDP (4-82-300). That amendment is still undergoing judicial review and some of the conditions are being implemented through a mutually agreed upon stay during the pendency of the appeal.

10(a)(1)(A) and 10(a)(1)(B) of the Federal Endangered Species Act (FESA; 16 USC § 1531 et seq). Additionally, the HCP addresses federally and state listed plant species. The HCP EIR is independent of and separate from the PWP EIR. However, where appropriate, baseline information, findings, Avoidance and Minimization Measures, and findings for specific small development projects are also covered in the HCP EIR.

Draft Natural Community Conservation Plan

California Fish and Game Code section 2835 authorizes California Department of Fish and Wildlife (CDFW) to permit the take of any covered species, including species designated as fully protected species, whose conservation and management are provided for in an approved NCCP. CDPR is currently in the information gathering stage of the NCCP which will include coverage for multiple state and federally listed species. The NCCP program takes a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity. An NCCP identifies and provides for the regional or area-wide protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity- in this case, motorized and non-motorized recreation (CDPR 2020b).

Biodiversity Management Plan

In the fall of 2020, State Parks and CDFW collaborated to develop a Biodiversity Management Plan. The Biodiversity Management Plan describes the unique biological diversity of Oceano Dunes SVRA, management goals and objectives required to conserve this biodiversity, and the needed actions to achieve these goals. It also provides guidance on the process and procedures for short and long-term management actions. Planning and management addresses potential impacts of SVRA uses on vegetation and plant communities, sensitive and protected habitat areas, and wildlife species.

CEQA COMPLIANCE

The WHPP identifies resource objectives and general types of projects and/or actions that can or will be taken to ensure progress on meeting the WHPP objectives. The WHPP is not a project under CEQA and thus does not undergo California Environmental Quality (CEQA) review, but if projects or actions are identified within the WHPP, CDPR will follow procedures for meeting CEQA compliance. Once a project or action has been selected for implementation, it will undergo CEQA review using the CDPR Project Evaluation Form to determine the necessary documentation for compliance.

UPDATE CYCLE AND APPROVAL PROCESS

This WHPP will be evaluated at least once every five years. Each revision will include a summary of wildlife habitat protection, restoration planning, and conservation at the SVRA since the previous WHPP revision and a description of the goals and objectives for the next five years. The update will reflect changes to landcover, land use, species occurrence, and disturbance, and updates to monitoring protocols.

Updated WHPPs will be approved by the Oceano Dunes District Senior Environmental Scientist and District Superintendent. Following internal reviews within the Department, the WHPP will be made available for public review, will be submitted to the Natural Resource Division (NRD) for Best Available Science determination, and finally submitted to the Off-Highway Motor Vehicle Recreation Division (OHMVRD) for review and approval. If a CEQA review is deemed necessary, it will be completed at that time.

ADAPTIVE MANAGEMENT STRATEGY

“Adaptive management” is a common strategy and fundamental component of implementing the best available science in natural resource management. Adaptive management includes assessing existing conditions, developing objectives based on those conditions, identifying management actions, and monitoring these actions, which allows evaluation and adjustment of practices (Figure 1). This WHPP provides information on natural resource planning for each step of the adaptive management process.

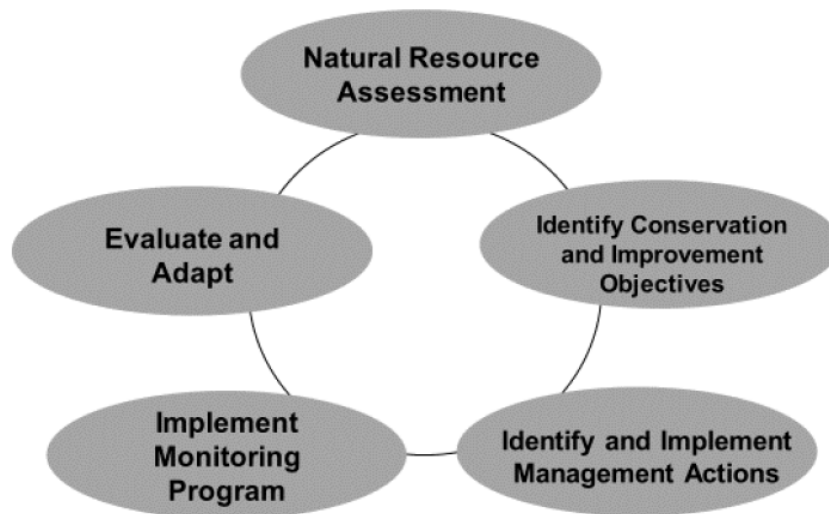


Figure 1. Steps of the Adaptive Management Process (CDPR 2021)

SVRA SETTING AND NATURAL RESOURCE ASSESSMENTS

The following chapter provides information on the Oceano Dunes SVRA setting and natural resource assessments. The setting and natural resource assessments are used to understand important conservation issues within the SVRA. Additionally, this information provides the basis or baseline for applying adaptive management. The following sections include an overview of District history and setting characteristics; regional context and land use; PRC-required wildlife and native plant inventories; invasive species distribution; and details regarding sensitive resources and wildlife movement, including landscape connectivity.

DISTRICT OVERVIEW

Location

Oceano Dunes District comprises 5,005 acres and includes PSB and the Oceano Dunes SVRA (located in San Luis Obispo (SLO) County, California) (Figure 2). The District, which is managed by CDPR, is bounded by the City of Pismo Beach to the north, the Guadalupe-Nipomo Dunes National Wildlife Refuge to the south, urban and agricultural land to the east, and the Pacific Ocean to the west. The Oceano Dunes SVRA is a significant portion of the Guadalupe-Nipomo Dunes complex. The Guadalupe-Nipomo Dunes complex extends from Pismo Beach south to Point Sal and roughly from State Route 1 to the Pacific Ocean in SLO and Santa Barbara counties. The Guadalupe-Nipomo Dunes complex is a relatively intact coastal dune and dune scrub ecosystem varying in width from 2 to 5 miles.

Pismo State Beach (PSB), established in 1934, comprises approximately 1,515 acres, which includes the beach, two campgrounds (North Beach and Oceano), Pismo Dunes Natural Preserve (Dunes Preserve), and the freshwater Oceano Lagoon and Pismo Lake. PSB also contains a concessionaire-operated golf course and restaurant, the Pismo State Beach Monarch Butterfly Grove Day Use Area, 4.6 miles of non-motorized trails, and approximately 2 miles of beach accessible to street-legal vehicles south of Grand and Pier Avenues, which also provides access and a direct nexus to the adjacent Oceano Dunes SVRA.

PSB shares two permanent entrances with Oceano Dunes SVRA, one at Grand Avenue in the City of Grover Beach and one at Pier Avenue, in the unincorporated community of Oceano. Street-legal vehicles, including motorhomes and other camping vehicles and vehicles towing trailers, can access both PSB and Oceano Dunes SVRA via the sand ramp entrances at the end of Grand Avenue and Pier Avenue. Only street-legal vehicles are allowed between Grand Avenue and marker Post 2 (Vehicle Area), an area of approximately 59 acres and roughly 2 miles of beach. OHVs must be transported by street-legal vehicles to the SVRA which begins at marker Post 2 (Figure 2).

Per the Public Resources Code (PRC 5090 *et seq.*) and SB 249, WHPPs only apply to SVRA lands (i.e. Oceano Dunes SVRA). Because PSB is facilitating access for the OHV recreation that occurs at Oceano Dunes SVRA and because street legal vehicles drive on portions of PSB, there are certain PSB monitoring and management activities that are associated with this WHPP. For example, fisheries and California red-legged frog surveys occur at PSB within Arroyo Grande Creek and Lagoon because of a clear OHV nexus. Small mammal, shorebird, and terrestrial bird monitoring also occurs within PSB at control sites that were selected for experimental design purposes. The locations of PSB that are managed similarly to Oceano Dunes SVRA and are being used as WHPP monitoring sites, are shown in Figure 3 (purple polygons).

The outer boundary of Oceano Dunes SVRA comprises 3,490 acres, with 2,711 of those acres open to visitor use in some form of public access. Oceano Dunes SVRA offers a variety of recreational activities, including dispersed beach camping, beach play, nature exploration, fishing, horseback riding, ocean sports, and a wide range of educational and safety programs. OHV recreation occurs south of Post 2 within the open riding area (ORA) (Figure 2). Both OHVs and street-legal vehicles are allowed in the ORA which consists of roughly 2 miles of beach and approximately 835 acres of dunes. When combining this with the rest of the Street-legal Vehicle Area from Grand Avenue to Post 2, approximately 4 miles of beach and 894 acres are available for street-legal vehicles². Nearly 2,596 acres, or almost three-quarters of the SVRA outside the ORA, are restricted from OHV use for resource protection (Figure 2).

² Prior to 2019, approximately 1500 acres were open to vehicles with seasonal closures reducing the riding area to 1200 acres. Since implementation of dust control measures, the current vehicle riding area as of February 2024 is 894 acres. A proportion of the 412 acres of dust control projects emplaced to date is outside of the riding area on open sand sheets.

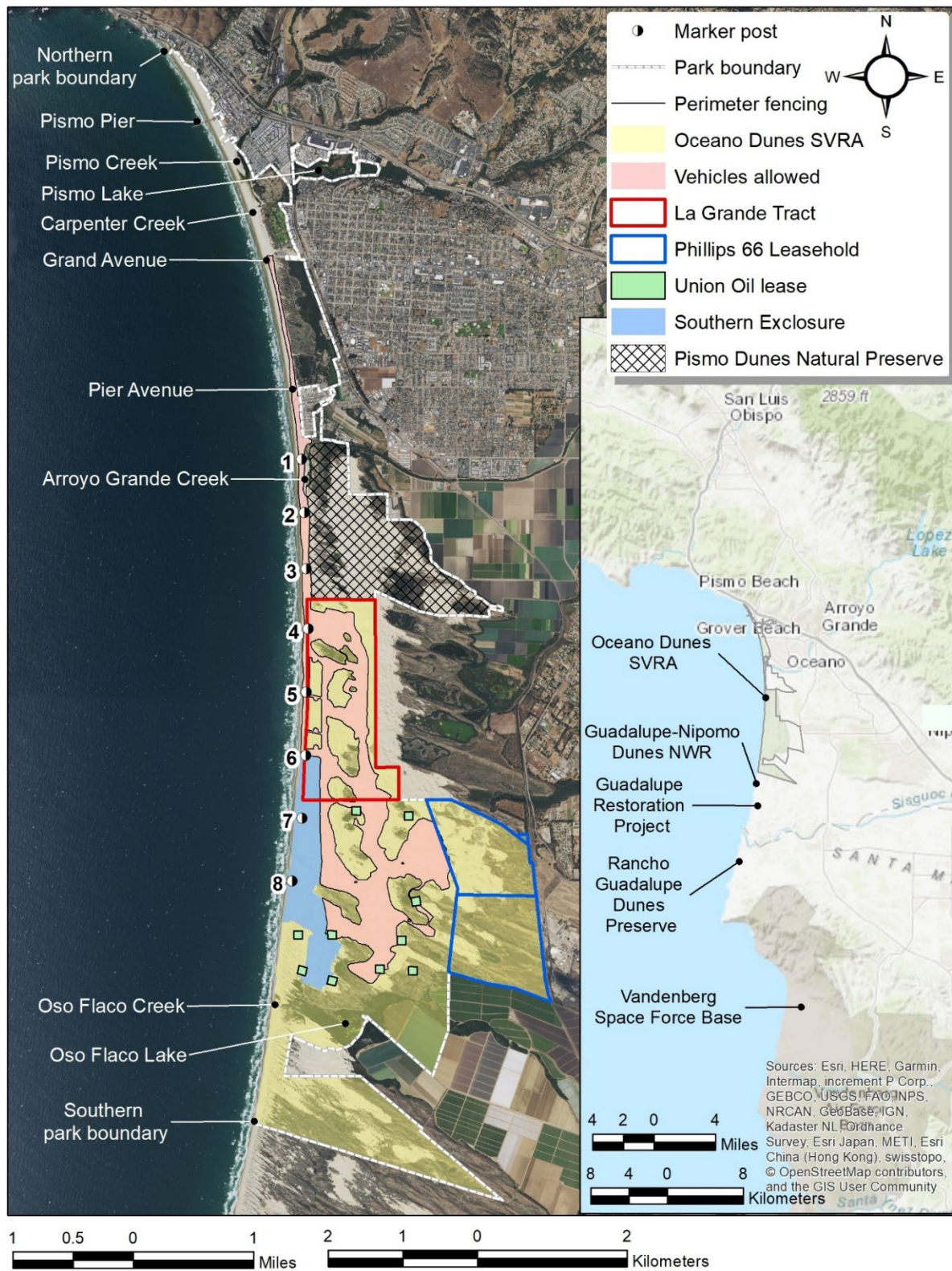


Figure 2 District Boundaries for Oceano Dunes District

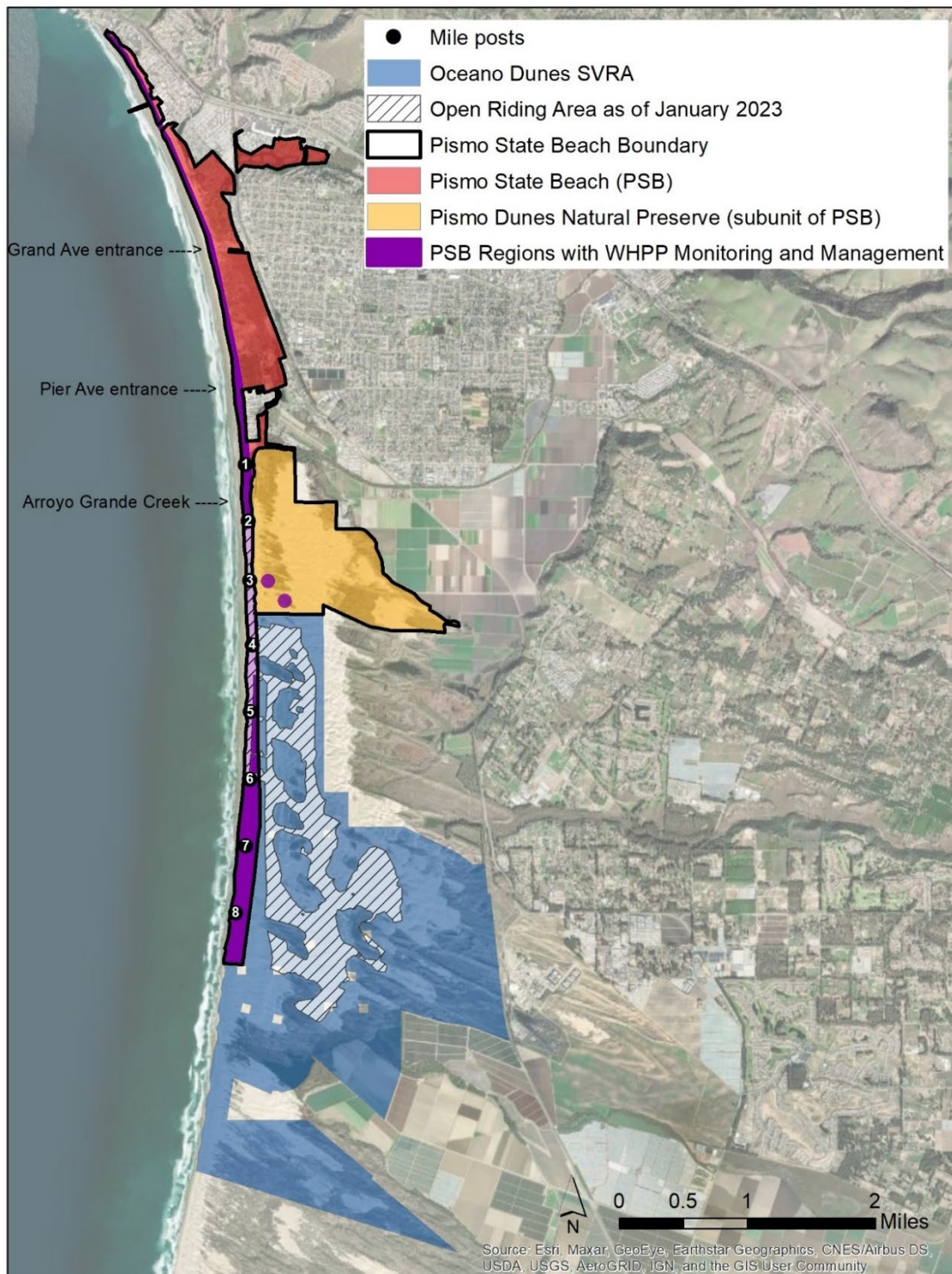


Figure 3 Operational Boundaries for Oceano Dunes District

History

The Northern Chumash have inhabited the region for well over 10,000 years. Their traditional territory around European contact likely ranged from the Santa Maria River through the Coast Ranges and along the Pacific Ocean to approximately Point Estero. The Northern Chumash were complex hunter-gatherer-fishers that utilized various resources varying across season and region. The largest villages were permanently inhabited adjacent to the coast while smaller settlements spanned the more interior locations. The Chumash had a complex sociopolitical system with a hereditary chief, religious specialists, and other high-ranking individuals. Wealth accumulation and economic redistribution through trade and feasting were important economic structures. Craft specialization is seen in the production of intricate and diverse basketry, shell beads, and other tools. The environment was actively managed with techniques such as periodic fire to facilitate growth and gathering of important plant resources and encourage the presence of animals for hunting. Early accounts for the region describe Chief Buchon, who had authority to direct attacks and command tribute. The first Europeans to traverse the area were members of Portola's over land expedition of 1769. Gaspar de Portola was a Spanish military officer known for leading the Portola expedition into California (Carr 2013).

Father Junipero Serra, the Franciscan friar credited with establishing the Mission System in Alta California, brought at least three exotic weed species with him which were wild oats, mustard, and wild radish (Barbour 1993, WPA 1939). Invasive plants were likely introduced through contaminated seed lots, imported forage, and packing materials. By 1824 another dozen invasive weed species were growing up and down California. When the Southern Pacific Railroad was building its line along the California coast, they introduced European beach grass as a dune stabilizer, and in the early 20th century, the California Division of Highways utilized "hottentot fig", also known as ice plant, to landscape its nascent roadways. By 1925, 292 exotic plant species were a part of the state's landscape (Cooper 1967).

Throughout the 19th century, the land had a series of Spanish and American owners. During the 1930s and 1940s, the dunes were inhabited by a group of artists, writers, and recluses who collectively called themselves the "Dunites" (Hammond 1992).

OHV recreation in the Guadalupe-Nipomo Dunes complex precedes CDPR acquisition of the SVRA. As early as 1900, people rode horses and buggies on the beach for not only utilitarian purposes but for rest and relaxation. In 1907, a two-story dance pavilion (the La Grande Pavilion) was constructed on the beach south of Pier Avenue, and soon after, a 1,000-foot pier was constructed at the end of Pier Avenue. At about the same time, people started driving cars on the beach and even explored the dunes on early motorcycles. Early advertisements for lots in Oceano described a strand "18 miles long of clean white sand" boasting "the fastest

automobile track in America” (Austin and Hammond 2010). By 1915, photos show long lines of automobiles parked on the beach. The pavilion was torn down in 1920-21, and much of the pier was removed in 1931 to make room for auto racing along the shore (Austin and Hammond 2010).

California was transformed during World War II. Many major industries sprang up in the state, virtually overnight, for the war effort. Henry J. Kaiser built steel mills and shipyards, the federal government acquired hundreds of thousands of acres of land for military bases, and hundreds of thousands of troops passed through California on their way to and from the War in the Pacific (Gregory 2016, Harth et al. 1991). Between 1940 and 1950, the county’s population increased by fifty percent, from 33,246 to 51,417. The state’s population doubled between 1940 and 1950, to 10.5 million, and increased by another five million in the next ten years, to 15.8 million. Today it stands at about 38.9 million. A corresponding increase in public works infrastructure – water projects, building thousands of miles of freeway, and the growth of the State Park System—was required to accommodate the growth (Starr 2009). Tremendous environmental, social, economic and recreational impacts also occurred during this time period. After World War II, a huge military surplus of light off-road vehicles like the Jeep and rugged motorcycles were available on the market. The Jeeps were popular with buyers who used them as recreational vehicles to explore California’s vast network of secondary roadways, both paved and dirt. This led to the start of off-roading as a weekend hobby. The World War II Jeeps were soon joined by the Jeep company’s civilian models and similar vehicles from Japan (Toyota, Datsun) and Great Britain (Land Rover) (Sheridan 1979).

After World War II, and especially with the growth of dune buggies in the late 1950s and 1960s, motorized vehicles traversed the publicly and privately owned beach and dunes from the north end of Pismo Beach all the way to Point Sal, in Santa Barbara County. Camping along the beach and in the dunes also grew in popularity.

At a California State Park Commission meeting held in Santa Barbara in 1966, Commissioner Margaret Wentworth Owings argued for the southern San Luis Obispo County dunes to be acquired for a State Park, and that the Park be extended south into Santa Barbara County as far as the existing Point Sal State Beach. The Sierra Club Executive Committee reaffirmed its support of the Nipomo Dunes as a State Park and approved of Diablo Canyon as an alternate site for PG&E’s proposed nuclear power plant (Brower 1990, Cohen 1988). The subsequent sale of the land to the State resulted in the first official SVRA. SVRAs were approved by the Legislature in 1971 but it appears that it took a few years to establish Pismo Dunes as an official SVRA. At approximately the same time, in San Luis Obispo County, the opportunities to ride or drive on the beach were becoming increasingly restricted. For example, in April of 1970, the Morro Bay

State Park sand spit was closed to OHVs, and in November, the City of Morro Bay banned vehicles from its coastal beaches north of Morro Rock.

In 1971, through enactment of the Chappie-Z' Berg Off-Highway Motor Vehicle Law, the State Legislature addressed the growing use of motorized vehicles off-highway by adopting requirements for the registration and operation of these vehicles. In addition, the law provided funding for administration of the Off-Highway Motor Vehicle Recreation (OHMVR) Program, along with providing facilities for off-highway motor vehicle recreation. The law was founded on the principle that "effectively managed areas and adequate facilities for the use of OHVs and conservation and enforcement are essential for ecologically balanced recreation." The law required maintenance and oversight to allow for sustainable OHV use consistent with good environmental stewardship (Engbeck 1980).

In 1974, CDPR purchased the first portion of the official Oceano Dunes SVRA when it acquired 847 acres (from about Post 7 to Post 8) with the intent of continuing the existing OHV recreation. At the time of acquisition, access to the beach and dunes were largely uncontrolled, and vehicles stretched bumper to bumper for five or six miles along the beach on major holidays (CDPR 1975). In addition, at that time, some vehicles accessed Oceano Dunes SVRA from private lands along Oso Flaco Road. Pismo Dunes State Vehicular Recreation Area was classified by the State Park Commission on July 12, 1974, and opened to the public, as an extension of Pismo State Beach. It is the first off-highway motor vehicle recreation park established in the California State Park System. There was no charge for day use, and a \$1.50 charge per night for primitive camping on the beach. On Labor Day weekend of 1974 the first "Sand Nationals" were held at PSB (CDPR 1975).

In 1977, CDPR acquired an additional 366 acres of coast and dune, including Oso Flaco Lake, which was closed to vehicle use in 1982. State Park's new park division, the OHMVR Division, took over the active management of the SVRA. Soon thereafter, the SVRA was renamed the Oceano Dunes SVRA. Having assembled most of the operational boundaries of the current state beach and Oceano Dunes SVRA by 1982, CDPR established the current formal entrance stations and fenced boundaries. These boundaries demarcated the motorized and non-motorized recreation areas and reduced motorized access to the Oceano Dunes SVRA and surrounding lands. There was an estimated 15,000 acres open to OHV use prior to 1982 (Figure 4).

The Off-Highway Motor Vehicle Act was signed into law in 1982 and has since been amended several times. It is now referred to as the Off-Highway Motor Vehicle Recreation Act of 2003. Per PRC 5090.02(c)(1), the legislative intent is that OHV areas be expanded, added to, and managed to sustain areas for long-term motor vehicle recreation, and that the OHMVR Program support motorized off-highway access to non-motorized recreation opportunities. It was also in 1982

when the name changed from Pismo Dunes SVRA to Oceano Dunes SVRA (Austin and Hammond 2010).

The Oceano Dunes SVRA, situated within the much larger Nipomo-Guadalupe Dunes complex, constitutes an important landscape shaped by both natural and cultural forces. The Park plays, and continues to occupy, an important role not only in recreational opportunities and resource protection activities but also in the rich history of the Central Coast of California.

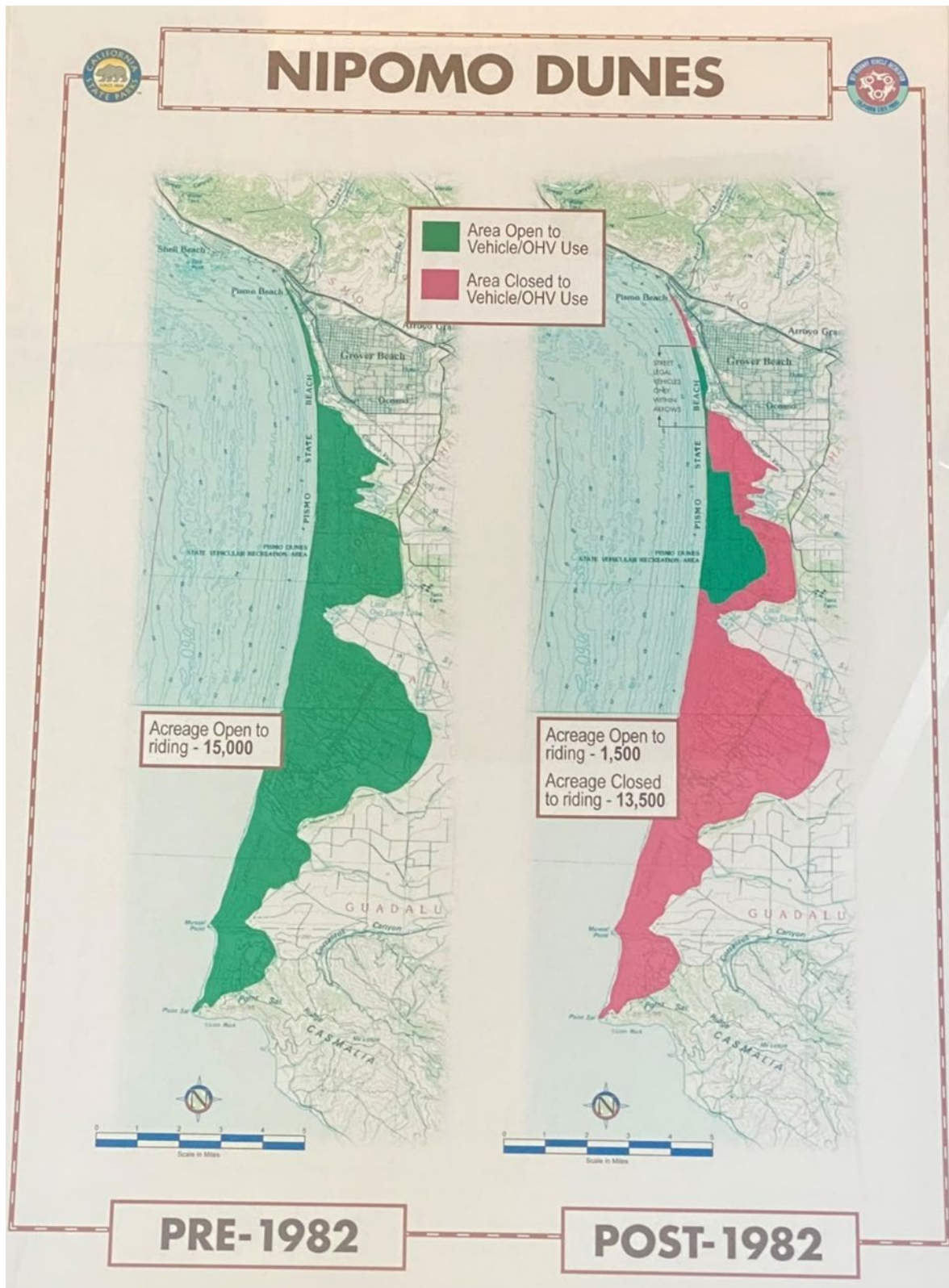


Figure 4. Acreage Opened to OHV Riding Pre- and Post-1982. Figure credit unknown.

Abiotic Environmental Factors

Local Climate

Oceano Dunes SVRA has a Mediterranean climate characterized by year-round mild temperatures of little diurnal fluctuation, mild winters, and warm dry summers. A band of low clouds often occurs along the immediate coast during the summer months. This cloudy zone moves inland during the night and early morning hours and recedes offshore during the day. The Pacific Ocean's influence keeps coastal temperatures moderate, with annual average highs of 67-68 degrees Fahrenheit (F) and annual average lows of 46-47 degrees (F) (California Energy Commission 2025). Local precipitation, based on a weather station installed in Oceano by the County of San Luis Obispo Public Works department, has ranged between 2.99-27.81 inches with an average of 13.01 inches per year (beginning July 1) from 2013 to 2022 (slocountywater.org).

Along the coast of California, wind predominately blows from the west and northwest. These prevailing wind patterns are most pronounced during the spring (March to June). During this period, hourly average wind speeds typically exceed 20 mph or more from approximately late morning to late afternoon/early evening, with little variation in wind direction. The winds become light and variable at night and in the early morning hours.

Hydrology and Watersheds

Four watersheds exist in Oceano Dunes District, defined from Hydrological Unit boundaries from the U.S. Geological Survey (USGS) Watershed Boundary Dataset Hydrologic Unit Code 12 (HUC12): Lower Arroyo Grande Creek, Pismo Creek, Meadow Creek-Frontal Pacific Ocean, and Oso Flaco Creek (Figure 5).

Source: California Water Resources Control Boards Geographic Information System (GIS) server <https://gispublic.waterboards.ca.gov/portal/home/> - Hydrography/Watershed_Boundary_Dataset

1. Lower Arroyo Grande Creek (19,394 acres, HUC: 180600060605)

The Lower Arroyo Grande Creek watershed is in the southern portion of San Luis Obispo County. The water quality and quantity of Arroyo Grande Creek and estuary are influenced by water uses upstream. Lopez Dam is a primary water supply for some local municipalities and agricultural interests. Small domestic and agricultural water uses downstream of Lopez Dam also reduce the amount of surface water available for the lower reaches of Arroyo Grande Creek. In drought years, groundwater pumping and surface diversions have caused portions of lower Arroyo Grande Creek to completely dry up, resulting in dry creek beds and a much smaller lagoon (Rischbieter 2008, 2009a, 2013). During summer months or during extremely dry winters

when stormwater runoff and baseflow are the lowest, Arroyo Grande Creek becomes impounded by a sandbar and forms a lagoon instead of flowing into the ocean.

2. Pismo Creek (24,135 acres, HUC: 180600060703)

The Arroyo Grande Creek watershed historically also included the lower portion of Pismo Creek, located to the north of Arroyo Grande Creek. Prior to 1911 when an extreme flood event occurred, Pismo Creek's lower drainage included Pismo Lake and what today is called Meadow Creek. Lower Pismo Creek joined with Arroyo Grande Creek in its lowest reaches and flowed into the ocean. Grading in the 1950s rerouted Pismo Creek to its current configuration. The Pismo Creek channel/lagoon system trends southerly with a break in the barrier beach generally occurring one to several hundred yards south of Addie Street. The lagoon forms seasonally at the mouth of Pismo Creek, varying annually in size depending on rainfall and on sand drift and accumulation.

3. Meadow Creek-Frontal Pacific Ocean (62,019 acres, HUC: 180600060705)

Pismo Lake lies 0.5 miles east of the Pacific Ocean and is fed by Meadow Creek. The upper reaches of Meadow Creek feed into Pismo Lake at Fourth Street in the City of Pismo Beach. Pismo Lake then drains into the lower reaches of Meadow Creek at the Union Pacific Railroad crossing and State Route 1. The construction of the Union Pacific Railroad was likely one of the first major alterations to the hydrology of this watershed. Meadow Creek is a remnant marsh drainage system that drains Pismo Lake, flows south to the North Beach Campground through the Pismo Beach Golf Course, and empties into the Oceano (Meadow Creek) Lagoon. Meadow Creek then enters Arroyo Grande Creek just upstream of its confluence with the ocean. Flood control gates were installed at the point where Meadow Creek meets the Arroyo Grande Creek Flood Control Channel levee to prevent Arroyo Grande Creek storm surge backwater from infiltrating the lowland marsh area and damaging nearby homes. Carpenter Creek is a small braid channel of Meadow Creek that, with sufficient flow, can connect to the Pismo Creek Lagoon south of the North Beach Campground.

This watershed is a frontal drainage with multiple outlets, which typically gets included with offshore hydrologic units, making the extent of the western boundary approximately 3 miles offshore at the NOAA Three Nautical Mile Line (USGS 2013).

4. Oso Flaco Creek (12,497 acres, HUC: 180600060704)

The Oso Flaco Creek watershed consists mainly of agricultural land. Oso Flaco Creek flows into Oso Flaco Lake and ultimately to the Pacific Ocean. At approximately 39 acres, Oso Flaco Lake is the largest of the freshwater lakes associated with the Guadalupe-Nipomo Dunes complex. Water quality in the Oso Flaco watershed has been found by the Regional Water Quality Control

Board to be impaired by several pollutants related to agricultural practices, including pesticides, nitrate, and excessive sediment (CSLRCD 2013).

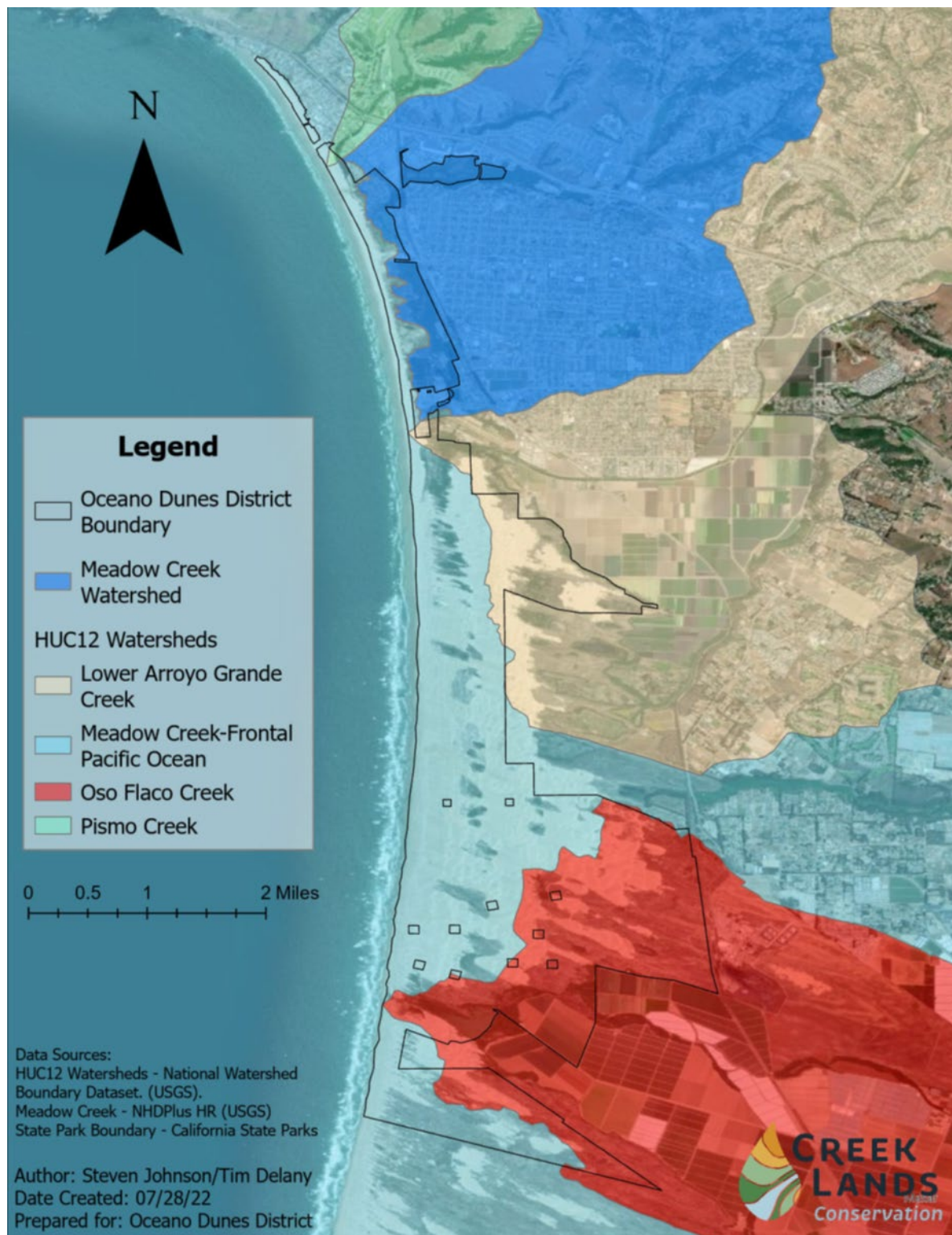


Figure 5. Watersheds within Oceano Dunes District (Note: The light blue color represents the Meadow Creek-Frontal Pacific Ocean, which has multiple outlets and therefore extends 3 NOAA nautical miles westward.)

Noise

The existing sound environment at Oceano Dunes SVRA is influenced by aircraft overflights, train noise, high wind, industrial uses from Phillips 66, and transportation sound emanating from vehicular traffic on the site and nearby roadways. The operation of OHVs is the predominant sound source from within the SVRA (CSDA 2021). Visitors can enjoy the sounds of nature, such as singing birds, croaking frogs, and crashing waves.

Cultural Resources

The Oceano Dunes District encompasses a culturally sensitive area with a high density of documented archaeological resources. Approximately half the District has been formally surveyed for cultural resources during various investigations. As of March 2022, 88 archaeological sites and 11 archaeological isolate resources have been documented. This includes 85 Native American archaeological sites, two historic-era archaeological sites, and one multi-component archaeological site.

All cultural resources are treated as eligible for the California or National Register until they are formally evaluated, and a determination is made with State Historic Preservation Office concurrence. Preservation in place is the preferred method to protect the integrity and character of an identified cultural resource. This typically involves closure of the area with fencing, signage, or other barriers to prohibit entrance. Certain environmental, geological, and/or cultural and recreational factors may initiate additional protective measures. For Native American resources, protective measures are developed, discussed, and implemented through consultation with tribal groups traditionally and culturally affiliated with the area. Enhanced protection may involve mechanical capping of a resource using surrounding sand or introducing native vegetation around and/or over the resource to reduce visibility and facilitate natural sand accumulation. In rarer circumstances, protection of archaeological resources may require artifact collection or excavation, though this is limited to circumstances where damage, destruction, or loss of the resource is an imminent threat. Ground disturbing projects with potential to encounter unknown subsurface archaeological resources may initiate archaeological and Native American monitoring and appropriate inadvertent discovery protocols.

Considering the perpetual and rapid changes inherent in the dune environment and the density of known archaeological resources, there is potential that unknown archaeological resources exist both in previously surveyed and unsurveyed areas. Persistent archaeological survey and site condition assessments are implemented to track shifts in archaeological visibility. The District implements a proactive archaeological resource condition monitoring program that periodically visits documented resources to check changes in archaeological visibility, ensure

effectiveness of implemented protection measures, and recommend appropriate site-specific management objectives. The adaptive management approach facilitates management of cultural resources in a dynamic and changing landscape.

Regional Land Use

The Oceano Dunes SVRA is a significant portion of the Guadalupe-Nipomo Dunes complex which extends from Pismo Beach south to Point Sal. The complex includes the Guadalupe-Nipomo Dunes National Wildlife Refuge, which is owned and managed by USFWS; the Guadalupe oil field (Guadalupe Restoration Project), which is owned and managed by Chevron Corporation; Rancho Guadalupe County Park, which is owned and managed by the County of Santa Barbara; and private property, including Corralitos Ranch just north of Vandenberg Airforce Base. (Figure 6).

Immediately bordering the Park to the North and East is the city of Pismo Beach, Grover Beach, Nipomo Mesa, and Oceano. Use designations range from industrial and residential lands to those managed for recreation, natural resources, and agriculture.

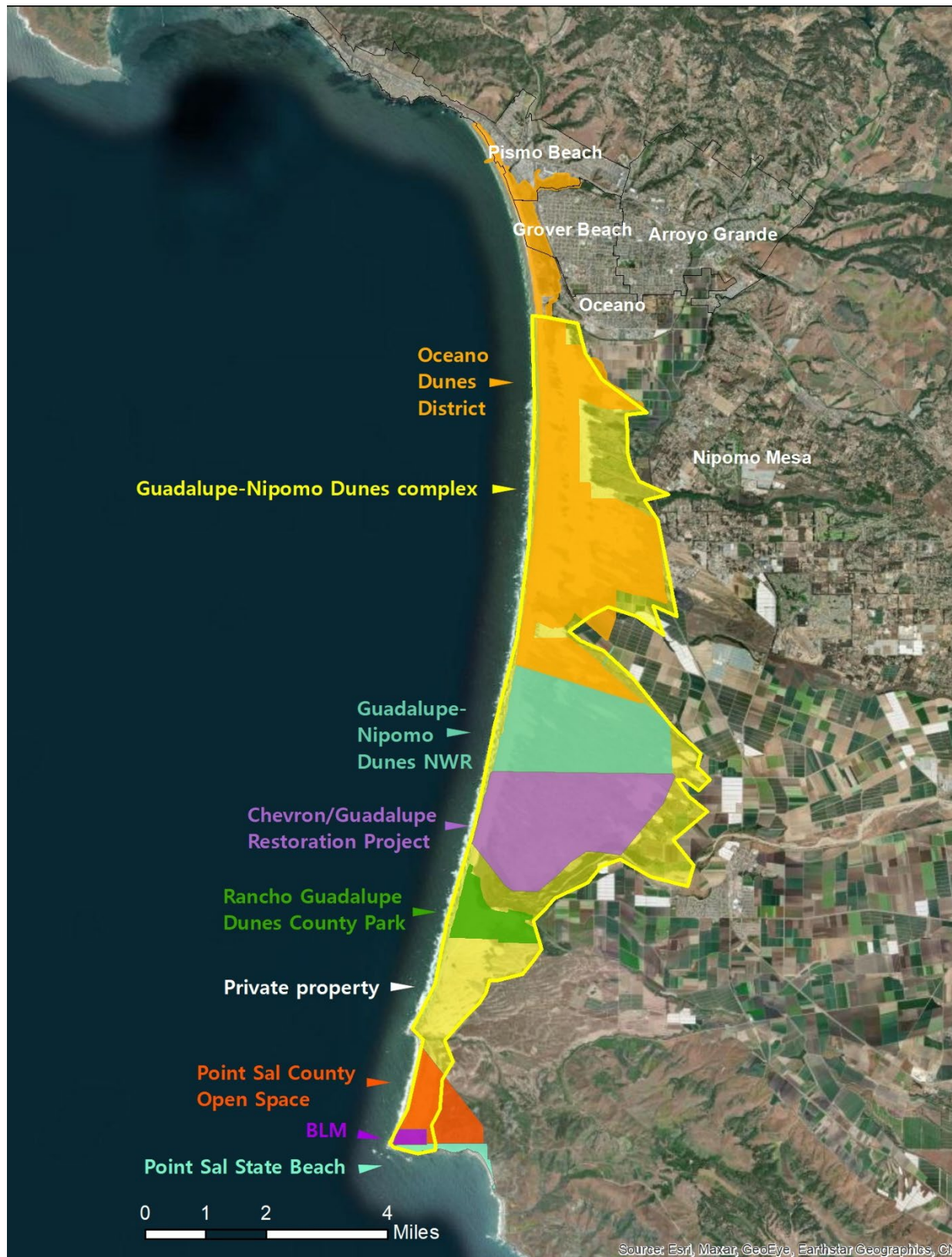


Figure 6. Regional Land Use surrounding Oceano Dunes District

Park Land Use

Together, Pismo State Beach and Oceano Dunes SVRA are visited by almost two million people each year. Visitors come to enjoy wide-ranging pursuits, from OHV recreation and camping to bird watching and horseback riding. To support this high volume and diversity of visitation, the Oceano Dunes District manages an extensive operational program that provides visitor services, including restrooms, camping areas, trails, and interpretive and educational activities; public safety, including law enforcement, first aid, and search and rescue; facilities maintenance and repair; and resource management to protect and enhance native ecosystems and cultural resources. Operations and maintenance activities may be performed by CDPR personnel, contractors, concessionaires, lessees, and/or other non-CDPR entities.

Because of its coastal dune setting, and particularly because of the abundant, ocean-derived sediment source that continually replenishes the dunes, the Oceano Dunes SVRA is unique among the other SVRAs. There are no specific trails in the OHV riding area of the dunes. Recreational features within the unit are limited to sand.

In Oceano Dunes SVRA, camping is allowed throughout the ORA (south of Post 2), including on the beach and in the dunes, and is closely associated with OHV activities. Camping usually extends east to within 100 feet of the primary dunes (typically to the restrooms), although during the windy season, campers can be found farther back behind vegetation islands, especially near Pavilion Hill, BBQ Flats, and Eucalyptus Tree (Figure 7). Camping and parking are not allowed within 100 feet of the Southern Enclosure where the SNPL and CLTE nesting area is. Camping vehicle use at the SVRA frequently reaches daily limits during summer and holiday weekends. In 2021, there were almost 35,000 camping vehicles with approximately 94,000 people camping in the ORA at Oceano Dunes SVRA.

Campers register at the Pier Avenue or Grand Avenue kiosk, plus Oceano Dunes SVRA staff conduct a morning camper tally to further track attendance and ensure all campers are registered. Vault toilets and chemical toilets are provided, and water-delivery and holding-tank pump-out services are available on the beach.

Families often establish boundaries for their camping areas, which also serve as a deterrent to other vehicles from entering the area. To do so, Oceano Dunes SVRA campers mark off campsites with yellow construction tape or other barriers, which can encircle multiple camping vehicles and extend well beyond the perimeter of each vehicle. To ensure access is maintained, Oceano Dunes SVRA staff establishes travel corridors closed to camping within the ORA that allow vehicles to safely move between the shoreline and backdunes.

Oceano Dunes SVRA serves a broad age group of visitors, generally from the local and Central Valley area. The site's ease of access and inexpensive use fees make it a low-cost and accessible option for OHV enthusiasts and those wishing to camp and recreate along the coastline.

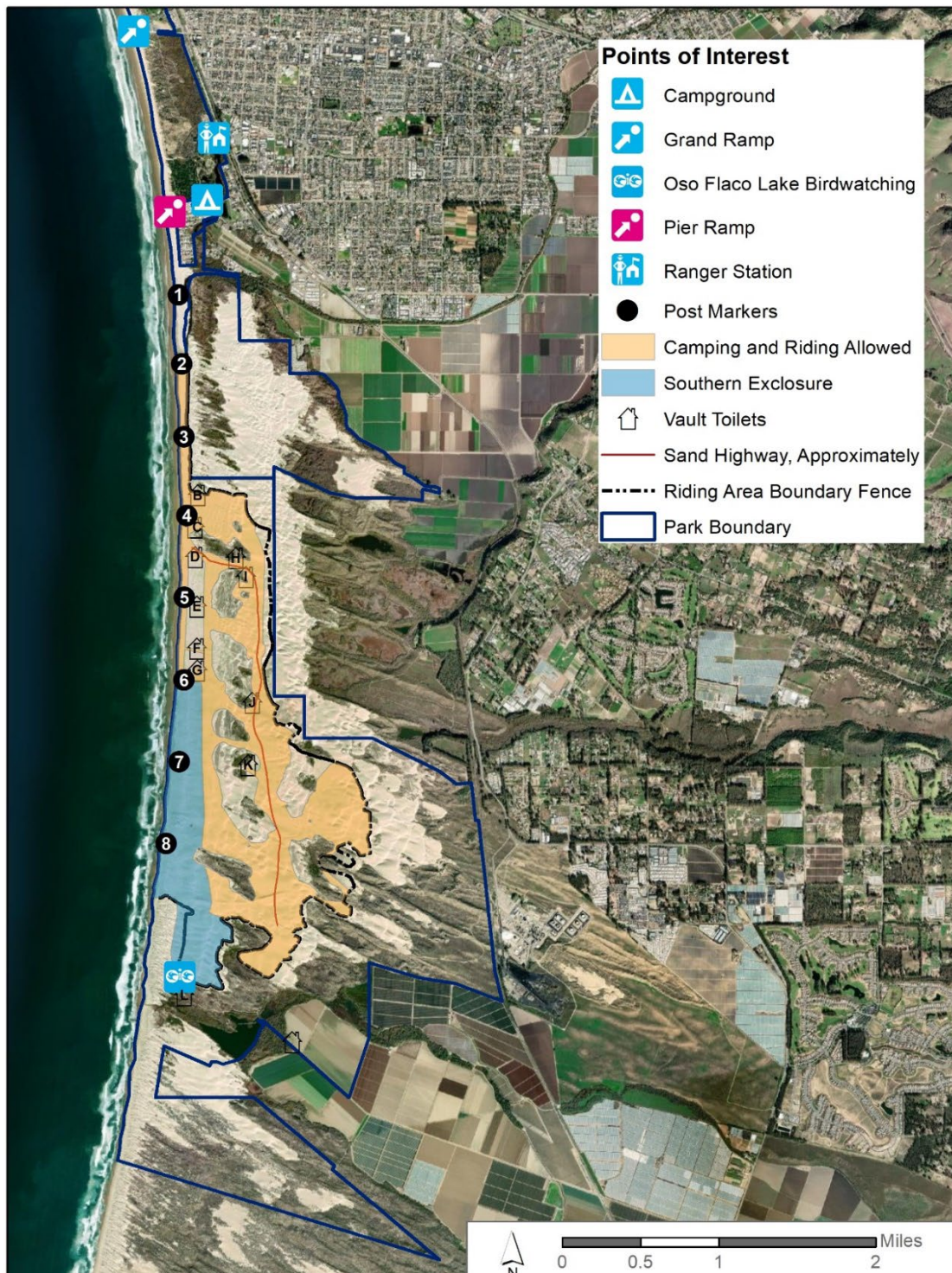


Figure 7. Land Use within Oceano Dunes SVRA

MANAGEMENT UNITS

Management Units (MU) provide a structure for implementing natural resource management activities. They are defined as land areas with unique identifiers that constitute manageable-sized areas for organizing and scheduling management work. Management Units were established at Oceano Dunes SVRA in 2020 and delineated using GIS. Delineation of MUs were conducted based on street legal and off-highway vehicle use type, land leases, watersheds, closed vegetated islands and dust control projects, and seasonal western snowy plover and California least tern closures (Figure 8) and (Table 1). Due to public safety, moving sand, and dust control projects, these acreages are approximate and are subject to change.

Table 1. MUs at Oceano Dunes SVRA (approximate acreage as of May 2022 and February 2024)

Number	MU Name (common name)	Dominant Vegetation Community	Use Type	Approx. Acreage
1	Street-legal Vehicle Area and Open Riding Area (These two management units are combined since they have similar use types)	Sand	Street-legal and OHV Open Riding	894 (includes 59 acres of Street-legal Vehicle Area from Grand Ave to Post 2 within PSB and 835 acres of Open Riding Area within the SVRA)
2	Vegetated Islands	Central Coast Dune Scrub, Coastal Willow/Wax Myrtle Thicket, Central Coast Foredunes, Coastal Dune Swale	Closed	360

Number	MU Name (common name)	Dominant Vegetation Community	Use Type	Approx. Acreage
3	Northern Non-Riding Area	Coastal Strand, Central Coast Foredune, Central Coast Dune Scrub, Coastal Willow/Wax Myrtle Thicket, Coastal Dune Swale, Coastal Dune Riparian Woodland	Closed	1325
4	Southern Non-Riding Area	Coastal Strand, Central Coast Foredune, Central Coast Dune Scrub, Coastal Willow/Wax Myrtle Thicket, Coastal Dune Swale	Closed	630
5	Southern Exclosure	Coastal Strand, Central Coast Foredune	Closed	290
6	Arroyo Grande Creek and Lagoon	Coastal Strand, Central Coast Foredune, Freshwater Creek, Coastal Lagoon, Wetland, Riparian Habitat	Closed, except when it is flowing across sandy beach	29
7	Oso Flaco Watershed	Dune Lake, Freshwater Creek, Coastal Lagoon, Wetland, Riparian Habitat, Coastal Strand	Closed	180
8	Agriculture Land Lease	Agriculture	Closed	118



Figure 8. Management Units

1. Street-legal Vehicle Area and Open Riding Area Management Unit

This MU includes both the Street-legal Vehicle Area of PSB and ORA of Oceano Dunes SVRA. The Street-legal Vehicle Area begins at the Grand Avenue entrance and extends southward to the entrance of Post marker 2 (shown as orange shading in Figure 8). The ORA starts at Post marker 2 and goes south through the SVRA (shown as orange shading with stripes in (Figure 8)). The Street-legal Vehicle Area is open to street-legal vehicles and the ORA is open to street-legal vehicles, OHVs, and camping. The ORA allows open area (non-trail) riding and camping in non-designated spaces. Riding and camping occur in mostly active coastal sand dunes barren of vegetation. Vegetation communities exist in the ORA but they are closed to vehicles and discussed in the Vegetation Islands MU below. The soils in the Street-legal Vehicle Area and Open Riding Area MU are unstabilized and stabilized (or vegetated) sand dunes. Park facilities and infrastructure include vault toilets, trash dumpsters at Post marker 2, and interpretive signage.

2. Vegetated Islands Management Unit

This MU includes pockets of vegetation, which are fenced off and closed to vehicles year-round. In this MU, the vegetation is composed largely of central coastal dune scrub, willow thicket, and coastal dune swale found in hollow pockets in active coastal dunes. There are approximately 16 vegetation islands (mostly in the Street-legal Vehicle Area and Open Riding Area MU), including Moy Mel, Pavilion Hill, 48-Acre Foredune, Worm Valley, Barbecue Flats, Barbecue Flats South, La Grille Hill, Bigfoot, Eucalyptus North, Eucalyptus Tree, Big Mac, Belly Button, Boy Scout Camp, Surprise, 7.5 Reveg, and Pipeline. The vegetation islands range in size from less than an acre to over 56 acres and are closed to pedestrians.

3. Northern Non-Riding Area Management Unit

This MU includes Phillips 66 Leasehold east of the ORA, dust control projects in areas that were formerly ORA, and a section of North Oso Flaco. This MU is outside of the ORA and is closed to public vehicles. Habitat types include: Coastal Strand, Central Coast Foredune, Central Coast Dune Scrub, Coastal Willow/ Wax Myrtle Thicket, Coastal Dune Swale, and Coastal Dune Riparian Woodland.

The Phillips 66 leasehold lies between the ORA and communities east of the Oceano Dunes SVRA. Phillips 66 serves as an eastern land buffer for the SVRA. The District staff manages the leasehold area (e.g., maintains fences and manages resources), as needed. This area can be used for emergency access.

4. Southern Non-Riding Area Management Unit

This MU includes the shoreline and dunes south of the ORA known as South Oso Flaco. This MU is outside of the open riding area and is closed to vehicles. This area (approximately 1.2 miles of shoreline) extends from the Oso Flaco Lake boardwalk to the southern boundary of Oceano Dunes SVRA. Symbolic fencing is used in this area during the western snowy plover breeding season instead of predator fencing to close off the upper beach and dune habitat. The shoreline remains open to the public. The shoreline is narrow in width, and the dunes are typically heavily vegetated, relative to the riding area. Habitat types include: Coastal Strand, Central Coast Foredune, Central Coast Dune Scrub, Coastal Willow/Wax Myrtle Thicket, and Coastal Dune Swale.

5. Southern Exclosure Management Unit

This MU comprises approximately 290 acres within the southern portion of the riding area. This area was permanently closed to the public beginning October 2021. Prior to this, the Southern Exclosure was installed seasonally, with the fencing removed for the winter months from October to February. During the nesting season, to discourage coyotes from entering the exclosure, fencing includes 2-inch by 4-inch no-climb wire fencing, a second layer of wire fencing to extend height to 6 feet, buried 6-8 inches, and posted to form a single contiguous fenced area. The adjoining shoreline is also part of the Southern Exclosure and is symbolically fenced to close it to the public year-round using large posts, rope, and signs during the nesting season. During the winter months outside the nesting season (October through February), the west fencing may need to be removed to avoid being destroyed during storm-driven surf, but the area, including the shoreline, will remain closed to the public using symbolic or wire fence and signs.

Habitat types include: Coastal Strand and Central Coast Foredune. Habitat enhancement activities occur within the Southern Exclosure area to maintain and improve habitat for nesting, resting, and foraging SNPL and CLTE. For more information about habitat enhancement and other management activities associated with this program, see the latest annual nesting report for CLTE and SNPL which highlights those details.

6. Arroyo Grande Creek and Lagoon Management Unit

This MU within PSB is between Marker Posts 1 and 2 and includes Arroyo Grande Creek and Lagoon, which seasonally flows into the Pacific Ocean. The associated lagoon is east of the area between Post 1 and Post 2. The upper creek area and lagoon are closed to vehicle use year-round to protect sensitive aquatic habitat. Pedestrian and equestrian entry is prohibited during the western snowy plover nesting season and permitted during the nonbreeding season. Posts

and signs delineate the closed area during the nonbreeding season; symbolic rope fence is added during the nesting season.

Arroyo Grande Creek can only be crossed using street-legal vehicles (no OHVs). Pursuant to Superintendent's Order 554-005-2024, street-legal vehicles are prohibited from crossing Arroyo Grande Creek in any manner other than by crossing the creek as close to the ocean waterline as possible and parallel to the ocean waterline. Driving upstream or downstream in the creek channel or in any other manner in the creek channel is prohibited. In addition, it is prohibited to cross the creek when posted closed, or water depth is greater than 12 inches as measured closest to the ocean waterline. The 12-inch depth was established by the BMP. The Oceano Dunes District informs visitors of these creek-crossing rules via outreach, including through active contact with visitors. When it rains and the creek becomes a challenge to cross, CDPR rangers specifically patrol the crossing area to keep visitors from crossing. The Grand Avenue and Pier Avenue entrances remain open even when the creek crossing is closed because the public is still allowed on the beach north of Arroyo Grande Creek to Grand Avenue.

Habitat types in this MU include: Coastal Strand, Central Coast Foredune, Freshwater Creek, Coastal Lagoon, Wetland, and Riparian Habitat.

7. Oso Flaco Watershed Management Unit

This MU includes Oso Flaco Lake and Oso Flaco Creek, which seasonally flows into the Pacific Ocean. This MU is open to pedestrian use but closed to OHVs and street-legal vehicles.

Habitat types in this MU include: Dune Lake, Freshwater Creek, Coastal Lagoon, Wetland, Riparian Habitat, and Coastal Strand.

8. Agriculture Land Lease Management Unit

This MU consists of agricultural fields east of the Oso Flaco Watershed MU. Private entities lease this land from CDPR for crop production. This MU is not open to the public. Per lease agreement, the lessee is to adhere applicable water quality regulations.

NATURAL RESOURCE ASSESSMENTS

The resource assessments, sourced from previous HMS monitoring work, include an overview of PRC-required wildlife and native plant inventories, invasive species distribution, and details regarding sensitive resources and wildlife movement, including landscape connectivity.

Soils

The Oceano Dunes SVRA and adjacent lands managed by the District are located at the northwestern end of the Santa Maria River valley in what is known as the Callender dune sheet

(CGS, 2011) (Figure 9). Several phases of dune formation are present in the area, the oldest (25,000 to 80,000 years old) occurring inland on elevated terraces within the Nipomo Mesa, approximately two miles east of the SVRA. The majority of the Oceano Dunes SVRA lies within the youngest (2,000 years to present), most active sequence of beach and dune sands, directly inland from the present shoreline. Aeolian (wind-driven) transport of the sand is ongoing, and the dunes are actively migrating inland. Studies by Griggs and others (2005) estimate 115,000 cubic yards of sand and finer material are blown inland each year along the 55-mile stretch of coastline from Pismo Beach to Point Arguello (CGS, 2011).

The dominant soil at Oceano Dunes SVRA is the aeolian sand that originates with finer sediments in rivers and creeks that drain into the ocean bay that is defined by Point San Luis to the north and Point Sal to the south. Additionally, sand and sediment are delivered to this bay via the southward trending longshore current. Another source of sand and sediment comes from older dunes that formed higher up on the landscape, such as at Nipomo Mesa, east of Oceano Dunes SVRA, when the sea level was much higher than today. Portions of these old dune deposits washed into the bay when the sea level dropped.

The sand dunes of south SLO County form due to three characteristics of this region of California. One, as mentioned above, there is an abundance of sand and finer sediment in the bay offshore from the dunes. Two, strong westerly prevailing winds blow ashore every spring and fall and frequently at other times of the year. And three, the coastline in this region is low-lying and west-facing, nearly perpendicular to the prevailing wind direction. The low shoreline receives the full force of the wind. The sand and finer materials washed up by tides and surf are pushed up from the shore by the wind which starts the process of saltation.

Sand dunes are formed by the process of saltation. Sand grains creep and bounce as they are pushed by the wind, forming small ripples. The sand ripples move downwind and as they do, each sand ripple lays down a thin layer of sorted sand as the ripple rolls over the landscape. These layers build on each other, sand ripple by sand ripple, to create the dunes. As the wind pushes the sand ripples along, there is also a turbulence of bouncing sand grains just above the dune surface. As the grains bounce downwind, they dislodge other grains, including dust particles. The dust is then caught up in the wind as the wind blows over the dunes.

Because of its coastal dune setting, and particularly because of the abundant, ocean-derived sediment source that continually replenishes the dunes, the Oceano Dunes SVRA is unique among the other SVRAs. There are no specific trails in the OHV riding area.

There are processes related to this dune setting, namely the wind-blown transport of sand and finer sediment, which may affect adjacent landscapes and communities. The staff at the SVRA

employ best management practices to minimize potential off-site impact from these processes. Additionally, staff at the SVRA employ practices to protect natural and cultural resources.

When considering this dynamic geological setting, it is important to evaluate the consequences of stabilizing a given dune area or allowing it to continue to move. Oceano Dunes SVRA staff do not interfere with natural processes unless sensitive areas are being impacted, or unless a project is designed as part of a regional collaborative effort to address regional issues. Sensitive areas include culturally sensitive areas, important natural resource areas, wetlands, rare plants, and other rare or protected habitats.

Within the context of this WHPP, soils will be addressed within the Soil Conservation Plan which will provide details of soil management practices within ODD.

Wildlife Inventory

A wildlife inventory of Oceano Dunes SVRA's known and potential wildlife species was developed as part of this WHPP to meet the legislative requirements of PRC §5090.35(c)(1), which calls for OHMVRD to "compile and when determined by the department to be necessary, periodically review and update an inventory of wildlife populations...". Two methods, desktop research and field assessments from previous HMS monitoring work, were used to compile a list of known and potential occurrences of different species populations that could or are known to occur within the SVRA's boundaries. The inventory was generated based on eight 7.5' USGS Quads and includes more than just Oceano Dunes SVRA. The inventory includes Pismo State Beach, Arroyo Grande NE, Tar Spring Ridge, Oceano, Nipomo, Point Sal, Guadalupe, and Santa Maria. This list can be found in Appendix 1: Wildlife Inventory.

Desktop Research

A desktop research assessment was conducted to determine potentially occurring common, rare, sensitive, or listed wildlife and plant species that could be present within the boundaries of the SVRA. This research involved running queries of Oceano Dunes SVRA, Pismo State Beach, and the surrounding areas through regulatory databases and generating lists of potential species occurrences based on known population ranges or previously recorded field observations. The databases consulted for this research include a search of CDFW's California Natural Diversity Database (CNDDDB), USFWS's Information for Planning and Consultation (IPaC), and California Native Plants Society's (CNPS) Rare Plant Inventory. iNaturalist, eBird, and Oceano Dunes SVRA databases were also queried. The desktop assessment for the Wildlife Inventory was completed between May and November 2022. In compiling the list, it was evident that information on invertebrates is lacking. Additional surveys for more common invertebrate species may be done as time and staff allows.

General Biological Field Assessments

Since 1996, Oceano Dunes District staff conducted various biological inventory surveys as part of the HMS program to help them identify, protect, and manage the Oceano Dunes SVRA's existing wildlife and habitat features. The HMS program was originally designed for Oceano Dunes SVRA and was based on biological survey work completed by Kutilek et al. (1991). Standardized protocols were used for monitoring vegetation, mammals, birds, reptiles, and amphibians. The HMS program maintained a species inventory, to recognize the presence of any rare or listed species, and to monitor populations and determine long-term trends in habitat health within the SVRA.

Numerous species of saltwater and freshwater fish, reptiles and amphibians, birds, mammals, and invertebrates depend on the dune ecosystem within the District. CDPR surveys and

incidental sightings at Pismo State Beach and Oceano Dunes SVRA have detected at least 35 species of fish (some have washed ashore from the Pacific Ocean), 19 species of reptiles and amphibians, and 33 species of mammals. Over 304 species of birds live in or migrate through the Guadalupe-Nipomo Dunes Complex (eBird 2022).

HMS surveys and monitoring continue to be conducted at Oceano Dunes District as part of the WHPP for the following taxonomic groups; birds (including western snowy plover and California least tern, terrestrial breeding and wintering birds, and shoreline birds), fish (including tidewater goby and South-Central California Coastal steelhead), large and small mammals (including bats), reptiles, amphibians (including California red-legged frog), wrack dependent invertebrates (talitrids), clams, and vegetation. Most surveys that were previously done under the HMS program will continue under the WHPP program. Some will now have distinct goals and objectives associated with them, discussed in the WHPP Goals and Objectives section. Some surveys will be discussed in the Monitoring Related to Scientific Research and Long-term Trends section.

Any special-status species detected during field assessments and monitoring work will be added to the California Natural Diversity Database.

Monitoring summaries for each taxonomic group are summarized below.

Western Snowy Plover and California Least Tern

Within Oceano Dunes SVRA there is extensive breeding habitat for the state and federally endangered California least tern (CLTE) and the federally threatened Pacific coast population of SNPL. Monitoring for CLTE and SNPL at Oceano Dunes SVRA began in 1991 and 1992, respectively, with the purpose of documenting breeding season nest and chick rearing activity, as well as minimizing disturbance from recreational activities.

Daily monitoring occurs in SNPL and CLTE breeding habitats from March 1 – September 30 to identify threats to these species, to locate nests, and to collect data to estimate population size, survivorship, and reproductive success. During the months of October through February, a minimum of one survey per week is conducted to estimate the population of non-breeding SNPL at the District. In addition, as staff levels allow, daily non-breeding surveys are conducted within the Street-legal Vehicle Area of PSB and ORA of Oceano Dunes SVRA. Monitoring methods and management for the breeding and non-breeding season are detailed in the SNPL and CLTE annual report.

The performance indicators tied to SNPL and CLTE can be found in the Monitoring Program section. Monitoring methods and uncertainties can be found in Appendix 3.

Terrestrial Birds

Terrestrial birds have been monitored using point count surveys at locations throughout the District since 1997. Some point count locations are within PSB due to experimental design principles. Surveys are conducted semiannually in the spring and winter.

OHMVRD contracted with the Institute for Bird Populations (IBP) who used Oceano Dunes SVRA point count data to determine whether bird species densities differed between areas open versus closed to OHV recreation (IBP 2019). In their report, IBP summarized the findings and provided recommendations for bird monitoring that may improve future bird population size estimates at the SVRA (Appendix 4).

Point count surveys will continue to be done as part of Monitoring Related to Scientific Research and Long-term Trends. Bird presence, abundance, and richness will be analyzed contingent on a sufficient sample size per species. Point count surveys will continue to further inform and update the wildlife inventory. The inventory is based on current data documented with the best available methodologies that consider imperfect detection and bias and is representative of the Park's overall avian biodiversity.

Monitoring details are discussed in the Monitoring Program section. Methods are provided in Appendix 4.

Shoreline Birds

Staff monitors shoreline birds and records resident, wintering, and migrating birds that occur along the entire shoreline from the northern PSB boundary to the southern Oceano Dunes SVRA boundary (i.e., 14.7 kilometers or 9.13 miles). Due to experimental design principles, PSB shoreline is included in this survey. Current levels of monitoring appear sufficient for determining trends in shorebird abundance through time and continued systematic data collection is important to ensure data continuity.

OHMVRD contracted with IBP who analyzed the shoreline bird data to determine whether bird species densities significantly differed between areas open versus closed to OHV recreation (IBP 2023). In their report, IBP also provided recommendations for monitoring.

Shoreline bird surveys will continue to be done as part of the Monitoring Related to Scientific Research and Long-term Trends efforts. Surveys are also done to further inform and update the wildlife inventory.

Monitoring details are discussed in the Monitoring Program section. Methods are provided in Appendix 4.

Fish

ODD monitors the status of fishery and native fish assemblage that occupies the habitats within PSB and Oceano Dunes SVRA (specifically for tidewater goby and South-Central California Coast steelhead). The objective of fisheries surveys is primarily to determine presence- lack of presence of individual fish species and to ensure visitors and maintenance activities are not impacting the resources. It is usually possible to gain information about species' relative abundance, general distribution within a water body, and trends over time.

Fisheries surveys have been conducted within Arroyo Grande Creek and Lagoon approximately three to four times per year since 2003 with a report for each survey summarizing results. Arroyo Grande Creek and Lagoon is within Pismo State Beach and seasonally flows into the Pacific Ocean in certain wet years. The creek, when flowing, is crossed by street-legal vehicles accessing the SVRA. Because there is a direct nexus to SVRA activities within this area of PSB, monitoring and management efforts related to fish at Arroyo Grande Creek are discussed and reported on as part of this WHPP.

Fisheries surveys are also conducted at least annually at Oso Flaco Creek within Oceano Dunes SVRA and at least three to four times per year at Pismo Creek Lagoon and Carpenter Creek within PSB due to experimental design principles. Lower portions of Meadow Creek are surveyed at the same time as Arroyo Grande Creek when, in the opinion of the qualified biologist, conditions appear suitable.

The performance indicators tied to tidewater goby can be found in the Monitoring Program section. Monitoring methods and uncertainties can be found in Appendix 3.

Large Mammals

Specific protocols for large mammal monitoring associated with the WHPP program have not been developed at the Oceano Dunes SVRA. However, Oceano Dunes SVRA staff are exploring options to document large mammals in the SVRA, including through the use of wildlife cameras. Currently, large mammals are documented, monitored, and managed through the CLTE and SNPL monitoring program. All incidental sightings of large mammals are documented by Oceano Dunes staff and will be used to update the wildlife inventory.

Small Mammals

Small mammal monitoring has been conducted since 2014 through a contract with Cal Poly State University. Cal Poly Professor Dr. Francis Villablanca helped Oceano Dunes SVRA refine and standardize the District's small mammal study design and has since assisted with yearly monitoring, data analyses, and reporting. Small mammal monitoring is conducted through capture-mark-release-recapture on standardized live-trapping plots within Oceano Dunes

District. The purpose of trapping is to understand small mammal abundance, survivorship, distribution, and habitat use.

Small mammal monitoring will continue to be done as part of Monitoring Related to Scientific Research and Long-term Trends. Future monitoring efforts will involve camera trapping instead of capture-mark-release-recapture. Small mammal surveys are done to further inform and update the wildlife inventory in addition to understanding the effect of restoration, OHV activity, etc.

Monitoring details and a summary of past findings are discussed in the Monitoring Program section. Methods are provided in Appendix 4.

Bats

A bat survey was done at ODD in June 2017 to determine if bats, and in particular, special-status species, were within Oceano Dunes District. Additionally, bat surveys were done to increase the understanding of site use and species diversity. Passive acoustic surveys were conducted by Jeff Alvarez (The Wildlife Project) and Oceano Dunes SVRA Environmental Scientist staff. Eight individual bat species were detected with three species identified as special-status (pallid bat [*Antrozous pallidus*], western red bat [*Lasiurus blossevillii*], and Townsend's big-eared bat [*Corynorhinus townsendii*]) (The Wildlife Project 2017). Detailed results can be found in Appendix 4.

Future surveys for bats will be scheduled as time and staff allows as part of the Monitoring Related to Scientific Research and Long-term Trends efforts. Surveys will also further inform the wildlife inventory. Monitoring details are discussed in the Monitoring Program section. Methods are provided in Appendix 4.

Reptiles and Amphibians

Herptile presence (with the exception of California red-legged frog discussed below) has not been thoroughly studied throughout Oceano Dunes SVRA over the last ten years. Cover board surveys were done in 2012 and were intended to inventory the reptiles and amphibians present in the vegetation island habitat surrounded by the ORA. The sampling effort was laborious and yielded very few incidental sightings. Surveys for reptiles and amphibians may be completed prior to the next 5-year WHPP update as time and staff allow. If a new survey design is carried out prior to the WHPP update, monitoring protocols and results will be summarized in the annual report. All incidental sightings of reptiles and amphibians are documented by Oceano Dunes staff and will be used to update the wildlife inventory.

California Red-Legged Frog

Annual focused field surveys of potential breeding pools and other associated habitats are done to determine where California red-legged frog are likely to be present within Oceano Dunes SVRA and PSB (in areas that have an OHV nexus). Focused surveys began in 2017 and provide the baseline data essential for proper management of CRLF populations. CRLF surveys are completed at various locations once a year, as time and staff allows, over a wide range of months to cover different life stages and behaviors.

The performance indicators tied to California red-legged frog can be found in the Monitoring Program section. Monitoring methods and uncertainties can be found in Appendix 3.

Invertebrates

Invertebrate presence (other than talitrids below) has not been thoroughly studied throughout Oceano Dunes SVRA. Surveys for invertebrates such as bees and other pollinators may be completed prior to the next 5-year WHPP update. If new invertebrate surveys are carried out prior to the update, monitoring protocols and results will be summarized in the annual report. Incidental sightings of invertebrates are documented by Oceano Dunes staff and will be used to update the wildlife inventory. Note: Oceano Dunes SVRA is within the historic range of Crotch's bumble bee (CBB). CDFW recommended in their WHPP public comment letter, that CBB surveys be included as part of invertebrate surveys. As time and staff allows, CBB surveys will be done at Oceano Dunes SVRA using the reference guide: Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species (CDFW 2023).

Talitrids

District staff studies the responses of talitrid invertebrates (commonly called beach hoppers) and diversity in areas where surf cast wrack was added to the shoreline throughout the SNPL breeding season. These invertebrates are part of the prey base for snowy plover chicks, juveniles, and adults. The benefits of wrack addition to the shoreline and inoculation with wrack-associated invertebrates is a possible means to restore invertebrate species and biomass.

Talitrid and wrack collection will continue to be done as time and staff allows as part of the Monitoring Related to Scientific Research and Long-term Trends efforts. Monitoring details and results will be summarized in the annual SNPL/CLTE Nesting Season Report.

Pismo Clams (*Tivela stultorum*)

District staff has been supporting Cal Poly San Luis Obispo's clam monitoring efforts for the past several years. Clam surveys are completed along PSB shoreline to create a long-term data set

about reproduction and the relationship between sediment size and clam abundance. In 2022 Cal Poly started a mark-recapture study to understand the current status of Pismo clams and the reasons that impact their abundance.

Oceano Dunes District will continue to coordinate with Cal Poly, CDFW, and other partners in researching clam biology, threats, and surfacing events as part of the Monitoring Related to Scientific Research and Long-term Trends section and Inventory efforts. Future Pismo clam research and results will be summarized in the annual report.

Native Plant Inventory

Rare Plants

Rare plant surveys for State and Federally listed Endangered and Threatened species are conducted either annually or biennially (every two years) depending on species management priorities. These include annual surveys for Nipomo Mesa lupine (*Lupinus nipomensis*), La Graciosa thistle (*Cirsium scariosum* va. *loncholepis*), beach spectaclepod (*Dithyrea maritima*) and surf thistle (*Cirsium rhotophilum*) and were last completed July of 2022. Biennial surveys are conducted for marsh sandwort (*Arenaria paludicola*) and Gambel's watercress (*Nasturtium gambelii*) and were last completed in August of 2022. Other plants on the California Rare Plant Rank (CNDDB 2022) are typically documented as encountered but may have targeted surveys depending on gaps in distribution mapping on site, rare plant rank, local rarity, and staff availability.

Plant Communities

The native plant community inventory was compiled and mapped using the methods and standards in the CDFW's Vegetation Classification and Mapping Program (VegCAMP). The steps include field surveys and digitizing vegetation community polygons using aerial imagery interpretation and mapping software. As part of the field survey, surveyors identified all observed plant species. Additional information and results can be found in Appendix 1.

Additional Botanical Surveys

Additional surveys have been conducted for specific project needs, research effort and habitat monitoring as well as documentation of plant species as they are encountered by Oceano Dunes staff. These include habitat restoration monitoring by Oceano Dunes staff, monitoring of the Nipomo Mesa Lupine and Coreopsis Hill Dune Protected Areas by Coastal San Luis Obispo Resource Conservation District (CSLRCD 2022), vegetation mapping by MIG|TRA Environmental

Sciences, Inc. (MIG/TRA 2015), and botanical surveys conducted by EcoSystems West Consulting Group (ESW 2004).

VegCAMP and Plant Communities

The distribution of vegetation types is shown in Figure 10. This data is intended to provide a baseline inventory for vegetation communities throughout the District, provide information about wildlife habitat, and inform management decisions regarding conservation, restoration, monitoring needs, invasive species management, etc. Vegetation types are classified in a hierarchical system where more granular types are grouped within the next higher level of the classification, for example, associations are within alliances, which are within groups, and so on. An alliance is a fine-scale classification determined by the dominant species present (for example, Silver dune lupine – mock heather scrub). Groups and macrogroups are a more coarse-scale hierarchical level, often used in mapping for vegetation types such as grasslands that are more difficult to distinguish at finer scales. The vegetation types were mapped at a 1-acre minimum mapping unit for most types, which means that each vegetation polygon was no smaller than 1 acre. Wetland vegetation types are mapped at a quarter acre minimum mapping unit. More information about the vegetation types may be found in the Manual of California Vegetation at vegetation.cnps.org. Field surveys were conducted in 2022, and vegetation polygons were digitized manually using data from the surveys and by interpreting 2020 NAIP aerial imagery. The use of 2020 imagery means that these maps may not reflect all restoration plantings or other changes in vegetation cover since 2020. The following descriptions and observations are based on the 2022 field surveys.

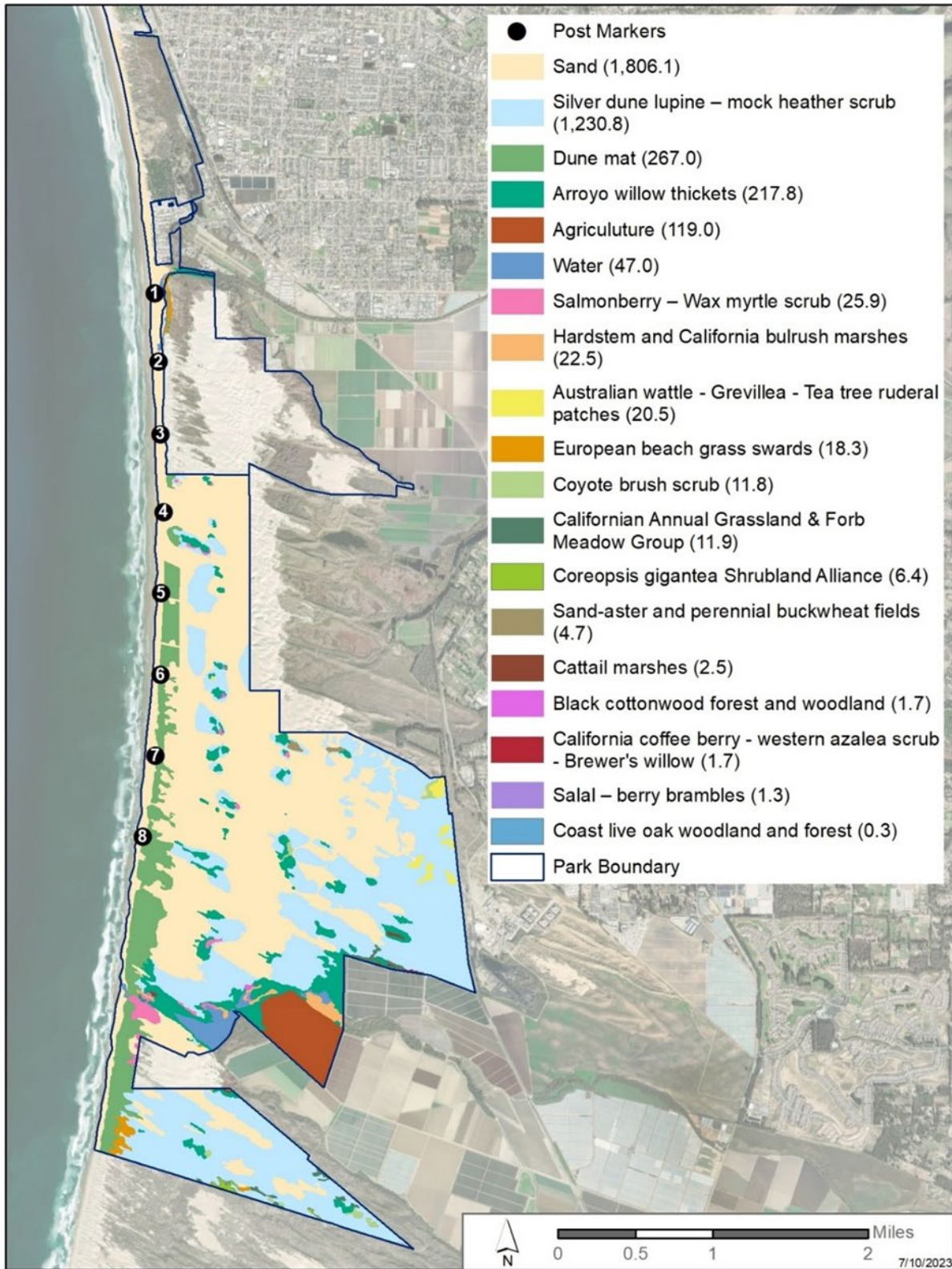


Figure 10 VegCAMP and Plant Communities at Oceano Dunes SVRA

Sand (barren): – 1806.1 acres

Much of the Oceano Dunes SVRA surface is composed of bare sand. Sands originate from rivers and streams, are deposited onto the beach by ocean currents, and shaped by prevailing ocean winds into flat near shore beaches and rolling sand dunes as the wind moves the sand inland. The Open Riding Area is comprised entirely of bare sand with fenced vegetated islands.

Lupinus chamissonis – *Ericameria ericoides* Shrubland Alliance (Silver dune lupine – mock heather scrub): – 1230.8 acres

Silver dune lupine–mock heather scrub is prevalent within the vegetated islands and backdune areas of the Oceano Dunes SVRA. This alliance covers more area and is more widespread than any other alliance within the Park. Each of the two species (i.e., silver dune lupine or mock heather) dominate in different areas, with silver dune lupine more prevalent in areas exposed to sand movement and mock heather more prevalent in stabilized backdune areas. Sometimes the species are co-dominant. Within the Park, other common native shrub and herbaceous species that occur in this alliance include lizard tail (*Eriophyllum staechadifolium*), California croton (*Croton californicus*), sea cliff buckwheat (*Eriogonum parvifolium*), deerweed (*Acmispon glaber*), California sandaster (*Corethrogyne filaginifolia*) and yarrow (*Achillea millefolium*). Within the understory, invasive perennial veldt grass (*Ehrharta calycina*) is abundant in many of the stabilized backdune areas, particularly in areas where it has not been treated with herbicide.

Ambrosia chamissonis - *Abronia maritima* - *Cakile maritima* Association-

Abronia latifolia - *Ambrosia chamissonis* Herbaceous Alliance (Dune mat): – 267.0 acres

Dune mat is the most common community in the foredunes at the Oceano Dunes SVRA. In this alliance, yellow sand verbena (*Abronia latifolia*) and/or beach bur (*Ambrosia chamissonis*) is mixed with other perennial herbs, grasses and low shrubs to form a low canopy. At the Oceano Dunes SVRA, Dune mat is formed by the *Ambrosia chamissonis* – *Abronia maritima* – *Cakile maritima* Association with red sand verbena (*Abronia maritima*, a CRPR 4.2 plant) dominant in most areas and Beach bur and European searocket (*Cakile maritima*) occasionally dominant or co-dominant. Other common species within Dune mat at the Oceano Dunes SVRA include, beach evening primrose (*Camissoniopsis cheiranthifolia* var. *cheiranthifolia*), yellow sand verbena, beach salt bush (*Atriplex leucophylla*), Beach morning glory (*Calystegia soldanella*) and Dunedelion (*Malacothrix incana*, a CRPR 4.3 plant).

Salix lasiolepis Shrubland Alliance (Arroyo willow thickets): – 217.8 acres

Arroyo willow thickets occur in scattered locations in the backdunes of all of the Management Units within the Oceano Dunes SVRA, often adjacent to or surrounded by Silver dune lupine–mock heather scrub and located in low lying swale areas or along the margin of waterways and

wetlands. This alliance can also be found growing up eastern facing dune slopes culminating in “willow ridges” at the crest of vegetated dunes. Within the Oceano Dunes SVRA, arroyo willow thickets often include wax myrtle (*Morella californica*) shrubs and commonly has California blackberry (*Rubus ursinus*) in the understory.

Agriculture: – 119.0 acres

Agricultural fields occur east of the Oso Flaco Watershed MU within the Oceano Dunes SVRA. Private entities lease this land from CDPR for crop production. These areas are closed to the public.

Water: – 47.0 acres

Open water occurs within the Oceano Dunes SVRA at Oso Flaco Lake, Oso Flaco Creek and Arroyo Grande Creek and Lagoon. These areas of open water are surrounded by wetland and riparian vegetation communities including Arroyo willow thickets, Hardstem and California bulrush marshes and Cattail marshes.

Rubus spectabilis – *Morella californica* Shrubland Alliance (Salmonberry – Wax myrtle scrub): – 25.9 acres

Salmonberry – Wax myrtle scrub occurs within low lying wet areas including dune swales within the Vegetated Islands MU, Northern Non-Riding Area MU and Southern Non-Riding Area MU and within the riparian zones in the Oso Flaco Watershed. At the Oceano Dunes SVRA, wax myrtle (*Morella californica*) is dominant in the shrub canopy, exceeding 50 percent relative cover. It prefers soils that are moist or wet and include moderately coarse sandy loams (Sawyer et al. 2009). This alliance often occurs with arroyo willow thicket.

Schoenoplectus (acutus, californicus) Herbaceous Alliance (Hardstem and California bulrush marshes): – 22.5 acres

Hardstem and California bulrush marshes occur at the Oso Flaco Watershed and Arroyo Grande Creek and Lagoon within the Oceano Dunes SVRA. This alliance occurs in wet areas, usually adjacent to or surrounded by arroyo willow thickets, other wetland vegetation or open water. In this alliance, California bulrush is dominant or co-dominant in the herbaceous layer. Associated species include broadfruit bur reed (*Sparganium eurycarpum*) and stinging nettle (*Urtica dioica*).

Acacia spp. - *Grevillea* spp. - *Leptospermum laevigatum* Shrubland Semi-natural Alliance (Australian wattle - Grevillea - Tea tree ruderal patches): – 20.5 acres

Within the Oceano Dunes SVRA, golden wattle (*Acacia longifolia*) is dominant in the shrub and small tree canopy. Golden wattle is a small tree introduced from Australia, has been planted as an ornamental in California and is on the California Invasive Plant Council watchlist (Calflora

2023). Being a prolific seeder, long term control of golden wattle can be difficult (Calflora 2023). This alliance occurs primarily in the backdunes of the Phillips 66 leasehold along the Union Pacific Railroad and within the Bigfoot area of the Vegetated Islands MU. It is usually adjacent to arroyo willow thickets or Silver dune lupine–mock heather scrub.

Ammophila arenaria Herbaceous Semi-Natural Alliance (European beach grass swards): – 18.3 acres

Within the Oceano Dunes SVRA, the largest European beach grass swards occur within the Southern Non-Riding Area MU and Arroyo Grande Creek Watershed. In this alliance, European beach grass is dominant in the herbaceous layer, exceeding 60 percent relative cover (CNPS 2023). European beach grass is highly invasive, and significantly reduces the diversity of plant and wildlife species in native dune systems.

Baccharis pilularis Shrubland Alliance (Coyote brush scrub): – 12.0 acres

Coyote brush scrub occurs in dispersed patches within the low lying backdune areas of the Vegetated Islands, Northern Non-riding Area and Southern Non-Riding Area Mus. Within the Oceano Dunes SVRA, coyote brush scrub often occurs adjacent to Silver dune lupine – mock heather scrub and Arroyo willow thicket. Coyote brush (*Baccharis pilularis*) is dominant to co-dominant in the shrub canopy (CNPS 2023). On site, associated understory species include deerweed, California blackberry (*Rubus ursinus*) and field sedge (*Carex praegracilis*).

Californian Annual Grassland & Forb Meadow Group: – 11.9 acres

This macrogroup represents grasslands with the characteristic presence of annual grasses or forbs, even though non-native species may be significantly high in cover. The polygons are composed of multiple alliances that are patchy and blend such that they cannot be distinguished in aerial imagery but are mapped as one macrogroup. Common species include bromes (*Bromus diandrus*, *B. rubens*), nonnative forbs such as filaree (*Erodium botrys*), native annuals such as miniature lupine (*Lupinus bicolor*) as well as non-native perennials including perennial veldt grass (*Ehrharta calycina*) and false ice plant (*Conicosia pugioniformis*). Within the Oceano Dunes SVRA, these areas occur within the backdunes of the Northern Non-Riding Area and Southern Non-Riding Area MU's.

Coreopsis gigantea Shrubland Alliance (Giant coreopsis scrub): – 6.4 acres

Giant coreopsis scrub occurs in dispersed patches within the stabilized backdunes of the Southern Non-Riding Area. Giant coreopsis is dominant or co-dominant in the shrub canopy in this alliance, exceeding 30 percent relative cover (CNPS 2023). On site, it occurs adjacent to Silver dune lupine–mock heather scrub, European beach grass swards and coast live oak woodland with invasive perennial veldt grass is abundant in the understory.

Corethrogyne filaginifolia – *Eriogonum (elongatum, nudum)* Herbaceous Alliance (Sand-aster and perennial buckwheat fields): – 4.7 acres

Sand-aster and perennial buckwheat fields occur within the stabilized backdunes of the Northern Non-Riding Area MU. On site this alliance is dominated by California sand aster and includes other native shrubs including deerweed and sea cliff buckwheat. It occurs adjacent to silver dune lupine – mock heather scrub and arroyo willow thicket.

Typha (angustifolia, domingensis, latifolia) Herbaceous Alliance (Cattail marshes): – 2.5 acres

Within the Oceano Dunes SVRA, cattail marshes occur in wetlands within the Oso Flaco Watershed, the Northern Non-Riding Area and the Southern Non-Riding Area Mus. This alliance occurs in wet areas, usually adjacent to or surrounded by Arroyo willow thickets, other wetland vegetation or open water. On site, broadleaf cattail (*Typha latifolia*) is dominant or co-dominant in the herbaceous layer. Associated species include California bulrush, broad fruit bur reed and stinging nettle.

Populus trichocarpa Forest & Woodland Alliance (Black cottonwood forest and woodland): – 1.7 acres

Black cottonwood forest and woodland occurs within low lying dune swales associated or adjacent to wetlands within the Vegetated Islands MU, Oso Flaco Watershed and Southern Non-Riding Area MU. In this alliance Black cottonwood is dominant or co-dominant in the tree canopy (CNPS 2023). On site, Black cottonwood forest commonly includes arroyo willow, California wax myrtle and has California blackberry and poison oak (*Toxicodendron diversilobum*) in the understory.

Frangula californica – *Rhododendron occidentale* – *Salix breweri* Shrubland Alliance (California coffee berry – western azalea scrub – Brewer’s willow): – 1.7 acres

Within the Oceano Dunes SVRA, this alliance is dominated by California coffee berry (*Frangula californica*) and occurs within the stabilized backdunes of the Northern Non-Riding Area MU. On site, this alliance is bordered by Silver dune lupine – mock heather scrub and contains poison oak in the understory.

Gaultheria shallon – *Rubus (ursinus)* Shrubland Alliance (Salal – berry brambles): – 1.3 acres

Within the Oceano Dunes SVRA, this alliance is dominated by California blackberry and occurs within the low-lying wetland areas of the Oso Flaco Watershed. Bordering alliances include Arroyo willow thicket, Salmonberry – Wax myrtle scrub and Hardstem and California bulrush marshes.

Quercus agrifolia Forest & Woodland Alliance (Coast live oak woodland and forest): – 0.3 acres

Coast live oak woodland and forest occurs within once small area in the stabilized backdunes of the Southern Non-Riding Area MU near the southern boundary of the Park. Coast live oak is dominant in the tree canopy where it forms a low windswept canopy surrounded by Silver dune lupine – mock heather scrub. Invasive perennial veldt grass is abundant in the understory.

Sensitive Resource Areas

Vegetation communities ranked by CDFW as Sensitive Natural Communities are mapped as Sensitive Resource Areas. During the VegCAMP survey, 9 sensitive natural communities were identified based on the global and state rarity ranking system. According to State rank, Black cottonwood forest and woodland, California coffeeberry – western azalea scrub – Brewer’s willow, Dune mat, Giant coreopsis scrub, Hardstem and California bulrush marshes, Pickleweed mats, Salal – berry brambles (*Rubus ursinus* Association), Salmonberry – Wax myrtle scrub, Silver dune lupine – mock heather scrub are all Sensitive Natural Communities (Figure 11).

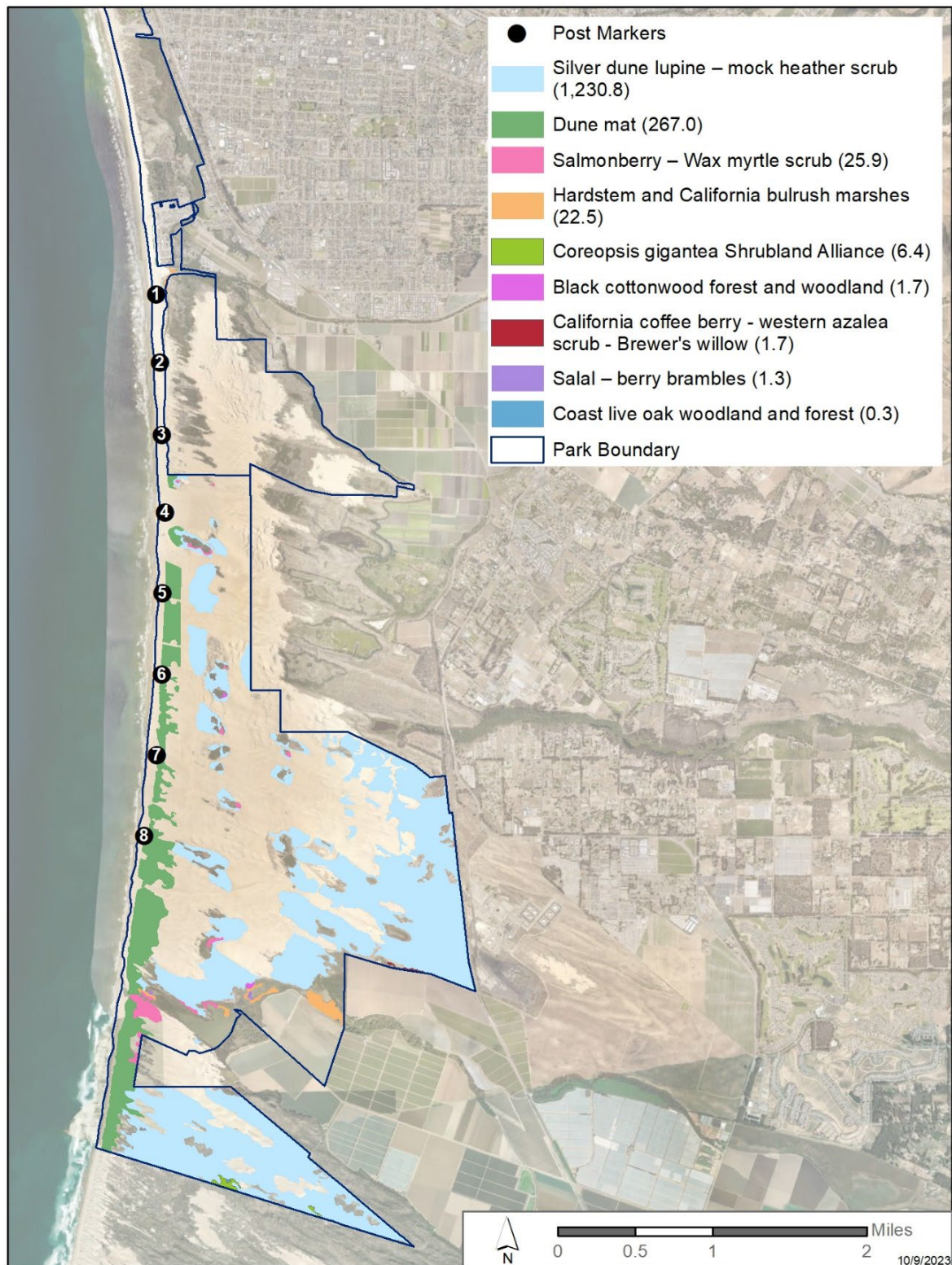


Figure 11 Sensitive Resource Areas at Oceano Dunes SVRA

Rare or Endangered Plant and Animal Species and their Supporting Habitats

Special-status species are those plants and animals that are legally protected or otherwise recognized as vulnerable to habitat loss or population decline by federal, state, or local resource conservation agencies and organizations. Special-status species include:

- Species that are federal or state listed as threatened or endangered
- Species considered as candidates or proposed for federal or state listing as threatened or endangered
- CDFW Species of Special Concern
- Fully protected species per California Fish and Game Code
- Plants considered by the CNPS and CDFW to be rare, threatened or endangered

South-Central California Coastal Steelhead (Federally Threatened)

South-Central California Coastal steelhead (*Oncorhynchus mykiss*) Evolutionary Significant Unit (ESU) includes watersheds from the Pajaro River in the north to (but not including) the Santa Maria River in the south. South of the Big Sur Coast, several major drainages and a number of smaller streams support runs of steelhead, including San Carpoforo, Arroyo de la Cruz, Pico and Little Pico, San Simeon, Santa Rosa, San Luis Obispo, Pismo, and Arroyo Grande Creeks (Titus et al. 2010, Swift et al. 1993).

Steelhead require cool perennial streams of good water quality and moderately complex habitat, with unimpeded access to the ocean during at least some winter and spring months of the year. Steelhead spawn during late winter and early-spring and typically begin their migration from the ocean during the first high flows of the fall or winter and, in most cases, attempt to return to their natal stream. Successful steelhead spawning requires areas of clean gravel with moving water. South-Central California Coast steelhead spawn between January and May (Boughton et al. 2006) in streams with warm dry lower reaches. Their ability to persist in such streams, and the results of genetic studies, indicate that South-Central California Coast steelhead are ecologically, physiologically, and genetically distinct from other *Oncorhynchus mykiss* (Moyle et al 1995).

South-Central California Coast steelhead have been found within the Oceano Dunes SVRA in Arroyo Grande Creek as recently as February 2023. They have also been found in Pismo Creek.

Tidewater Goby (Federally Endangered)

Tidewater goby (*Eucyclogobius newberryi*) are endemic to California, occurring along the coast from San Diego County to Del Norte County. They inhabit shallow coastal lagoons and lower

stream reaches where the water is brackish to fresh. Tidewater goby are absent from areas where the coastline is steep and streams do not form lagoons or estuaries. They prefer water that is slow moving but not stagnant, and typically avoid fast currents or strong wave action. They can survive salinities from 0 to over 50 parts per thousand and temperatures from at least 8-23 Celsius. They prefer water at depths of 9-39 inches with relatively high dissolved oxygen and substrates of sand and mud with abundant vegetation (Moyle et al 1995) but can tolerate very low dissolved oxygen. Very few tidewater gobies have ever been captured in the marine environment (Swift et al. 1989), which suggests this species rarely occurs in the open ocean. Therefore, the tidewater goby occurs within discrete coastal wetlands naturally separated by the presence of sandbars that restrict access to the Pacific Ocean (McCraney et al. 2010). These sandbars generally breach 1-2 times per year during periods of high surf and freshwater input resulting in rapid draining of the estuary (Krauss et al. 2002). Thus, successful migration between lagoon habitats requires coordination of breaching events typically between geographically proximate habitats, and dispersal is passive (Lafferty et al. 1999, Dawson et al. 2001, McCraney et al. 2010). Migration between lagoons is thus thought to be rare (McCraney et al. 2010) or at least infrequent.

A total of about 55 acres of suitable tidewater goby habitat is present within the Oceano Dunes SVRA. This can vary from year to year as hydrologic conditions and shoreline dynamics dictate. Tidewater goby is known to occur in Arroyo Grande Creek and Lagoon within the Oceano Dunes SVRA. Tidewater goby were first observed in Arroyo Grande Creek in February 2005 (Rischbieter 2006) and have been generally thriving there since then despite what have been one or two local extirpation and recolonization events (Rischbieter 2023). In-depth fishery sampling in 2004 was relatively extensive; thus, the species is presumed to have been absent in 2004, and its occurrence in 2005 is assumed to be the result of a recent colonization. There is no known record of their collection here at any previous time during the last century.

Tidewater goby are also well-established within Pismo Creek within PSB. The mouths of both creeks end at coastal lagoons/estuaries typical of small coastal watersheds that form sandbars in low flow summer and fall periods. A lagoon is typically present year-round at Pismo and Arroyo Grande Creeks; however, under certain circumstances, Arroyo Grande Lagoon has been known to dry up completely. In most winters, there is sufficient runoff after large rain events to breach the sandbar formed at the crest of the beach and allow a continuous streamflow into the ocean. Tidewater goby have also been observed in Carpenter Creek, which can connect to the Pismo Creek Lagoon, and in the Oceano (Meadow Creek) Lagoon, which drains into the Arroyo Grande Creek and Lagoon (Rischbieter 2014). The small Carpenter Creek population is an extension of the population in Pismo Creek.

The USFWS has also identified approximately 7.5-10 acres of available, potential (unoccupied) tidewater goby critical habitat in what the USFWS calls the “Oso Flaco Lagoon” (USFWS 2005a). A true lagoon is often not present here but, in some years, it forms behind the beach, hydrologically associated with Oso Flaco Creek. Historically, tidewater goby had not been known to occur in Oso Flaco Creek until the first such collection in March 2017, when two adult tidewater gobies were collected within a short reach extending from the surf zone to where Oso Flaco Creek exits the dunes (D. Rischbieter, pers. comm. 2017a). A few additional positive collections have been made in some intermittent years since then, including 2023, when successive surveys indicated that at least a couple of individuals had apparently persisted in lower Oso Flaco Creek for several months (D. Rischbieter, pers. comm. 2024). Tidewater goby is not known to occur in Oso Flaco Lake. Oso Flaco Lake is dominated by warmwater sport fish, such as largemouth bass and other sunfish, and the creek is typically narrow and confined (Rischbieter, pers. comm. 2011). The creek only rarely impounds to form a true lagoon, and as a result, there is a large freshwater influence with no saltwater prism. While this area appears to be poor long-term habitat for tidewater goby, an eDNA survey was conducted by a U.C. Los Angeles doctoral student Mira Abrecht in February 2024 to investigate whether tidewater goby may occupy the difficult-to-access short reach of stream between Oso Flaco Lake and the beach location where tidewater goby have occasionally been collected. Tidewater goby have been confirmed on-site and adjacent to the Oceano Dunes SVRA in Arroyo Grande Creek, Pismo Creek, and Carpenter Creek as recently as May 2023.

California Red-legged Frog (Federally Threatened)

The California red-legged frog (*Rana draytonii*) is the largest native frog in California (3.3-5.4 inches) and has been found at elevations from sea level to about 5,000 feet, with most observations occurring below 3,500 feet (USFWS 2002). Historically, California red-legged frog was common in coastal habitats from Point Reyes National Seashore, Marin County, California, and inland from the vicinity of Redding, Shasta County, California, southward to northwestern Baja California, Mexico (Hayes and Jennings 1988). California red-legged frog has been extirpated or nearly extirpated from over 70 percent of its former range (Hayes and Jennings 1988, USFWS 1996). This species is still common in the San Francisco Bay area and along the central coast (CNDDB 2016). Monterey, San Luis Obispo, and Santa Barbara counties support the largest extent of occupied habitat (USFWS 2002). The most secure aggregations of California red-legged frog are found in aquatic sites that support substantial riparian and aquatic vegetation and lack non-native predators such as American bullfrogs (*Lithobates catesbeianus*).

Habitat of California red-legged frog is characterized by dense, shrubby riparian vegetation associated with deep (2 feet), still, or slow-moving water (Jennings and Hayes 1994). The shrubby vegetation preferred by California red-legged frog is arroyo willow, cattails, and

bulrushes (*Scirpus* sp.) found in wetland and riparian habitats. Most important to California red-legged frog is a breeding pond, or slow-flowing stream reach or deep pool within a stream with vegetation or other material to which egg masses may be attached. These areas must hold water long enough for tadpoles to complete their metamorphosis into juvenile frogs that can survive outside of water (Jennings and Hayes 1994). California red-legged frog eggs are usually attached to emergent vegetation in lagoons, streams, and a variety of natural and man-made ponds. Water with a salinity of less than 4.5 percent is necessary to ensure the survival of embryonic stages. Juvenile California red-legged frogs seem to favor open, shallow aquatic habitats with dense, submergent vegetation.

California red-legged frogs disperse through uplands, such as grasslands, and typically find cover amongst boulders or rocks and organic debris such as downed trees or logs, industrial debris, and agricultural features such as drains, watering troughs, spring boxes, and abandoned sheds (USFWS 2001a). California red-legged frogs also use small mammal burrows and moist leaf litter for cover (Jennings and Hayes 1994, USFWS 1996). Incised stream channels with portions narrower and deeper than 18 inches may also provide habitat (USFWS 1996).

Within the Oceano Dunes SVRA, California red-legged frogs are currently known to occur in the Oso Flaco Lake area and in Arroyo Grande Creek. Suitable breeding habitat encompasses 220 acres within the SVRA, while upland habitat encompasses 4,777 acres. In 2000, Julie Schneider, Biologist of Levine-Fricke Consultants, was hired by Oceano Dunes SVRA to survey the dune lakes, which are located nearby the SVRA. She found seven California red-legged frogs at Finger Lake and one sub-adult California red-legged frog at Snake Lake (Schneider 2000). California red-legged frogs were observed within the Oceano Dunes SVRA along the northern bank of Arroyo Grande Creek (Terra Verde Environmental Consulting 2012). Oceano Dunes SVRA environmental scientist staff began presence/ lack of presence annual surveys for California red-legged frog in 2017. The surveys follow the USFWS protocol (USFWS 1997). California red-legged frog have been seen consistently at Oso Flaco Lake, Little Oso Flaco Lake and Arroyo Grande Creek and Lagoon since 2017. California red-legged frogs have also been observed during fisheries surveys within Arroyo Grande Creek and during monitoring for a nearby flood control maintenance project (Cleveland 2009, Rischbieter 2009, 2010, 2013).

Poor water quality and the presence of invasive species in the Oceano Dunes SVRA might adversely impact California red-legged frog. Oso Flaco Lake is fed primarily from agricultural discharge. Water quality surveys conducted by the Regional Water Quality Control Board (RWQCB) identified numerous elements in the water column above regulatory limits (RWQCB 2001). In addition, non-native species that are introduced to waterbodies in the SVRA, such as bluegill (*Lepomis macrochirus*), black bass (*Micropterus salmoides*), goldfish (*Carassius auratus*), and crayfish (*Procambarus clarkii*) can adversely impact California red-legged frog. The

aforementioned fish species, and crayfish, are also intermittently present in Arroyo Grande Lagoon (Rischbieter, pers. comm., 2017).

California red-legged frog have been confirmed in Arroyo Grande Creek as recently as May 2022, in Little Oso Flaco Lake as recently as August 2022, and Oso Flaco Lake as recently as September 2022.

Western Snowy Plover (Federally Threatened)

The western snowy plover (*Charadrius nivosus nivosus*) is a resident along the Pacific coast from British Columbia to Mexico and along the Gulf Coast from Texas to the Florida Panhandle. It also breeds locally in the interior from California and Nevada east to Oklahoma and Texas. The Pacific coast population of the SNPL is defined as those individuals that nest adjacent to tidal waters of the Pacific Ocean, and includes all nesting birds on the mainland coast, peninsulas, offshore islands, adjacent bays, estuaries, and coastal rivers (USFWS 2004). The current known breeding range of this population extends from Damon Point, Washington, to Bahia Magdalena, Baja California, Mexico (USFWS 2006b).

Western snowy plovers winter and breed in the same habitats, consisting of mostly sandy, ocean-fronting beaches, dry salt flats, and gravel bars (Page et al. 1995, Colwell et al. 2005, Brindock and Colwell 2011). Many beaches that support SNPL nesting, foraging, and wintering, are bordered to the east by dense stands of European beachgrass (*Ammophila arenaria*), which often form an abrupt boundary that defines unsuitable habitat for SNPL (Patrick and Colwell 2014). Western snowy plovers typically nest, forage, and winter on flat to gently sloping, wide beaches with plentiful food sources and sparse vegetation (Page et al. 1995, Colwell et al. 2005, MacDonald et al. 2010, Muir and Colwell 2010, Brindock and Colwell 2011). Selecting habitats that are open (or wide) and have less vegetative cover can facilitate early detection of predators and reduce predation risk (Muir and Colwell 2010, Brindock and Colwell 2011, Patrick and Colwell 2014). Western snowy plover nests have been found adjacent to small clumps of vegetation or other beach debris that likely provides additional cover making it more difficult for predators to spot (Page et al. 1985, Powell 2001). In addition, snowy plover broods have been observed hiding in vegetation clumps in response to adult alarm calls (Webber et al. 2013). In general, SNPL nests are most often located within 328 feet of water, or at least within sight of it (Stenzel et al. 1981, USFWS 2007b). After the chicks hatch, they tend to move into areas where there is at least some vegetation or beach debris, which provides cover from the heat of the sun, inclement weather, and predators.

Along the Pacific Ocean coastline, SNPL forage in a wide variety of habitat types, from the dry sandy regions of the backdunes, to wet sands, beach-cast kelp, and wrack lines along the lower beaches. They may use freshwater edges such as the mouths of creeks as they cross beaches

and the edges of lagoons. Their diet can vary considerably but is primarily comprised of small marine and terrestrial invertebrates. They also pick insects off vegetation, probe sand, and occasionally take small fish (USFWS 2007b).

The SNPL that occupy the Oceano Dunes SVRA are part of the Pacific coast population and may be comprised of resident breeders that do not migrate, migratory breeders that leave during the winter months (October to February) and return at the onset of the breeding season, and wintering birds that migrate from interior or other coastal breeding sites and arrive in November and remain until February (Warriner et al. 1986). The SNPL regularly breeds at the Oceano Dunes SVRA from March to September. Approximately 290 acres of active riding and camping area are closed during the breeding season for SNPL and CLTE. Beginning in October 2021, this area remained closed during the non-breeding season. Western snowy plover winters in the Oceano Dunes SVRA from October to February. In addition, Oceano Dunes staff implement an intensive management program for SNPL and CLTE which includes, but is not limited to, population monitoring, habitat enhancement, predator management, and education.

There was a minimum of 281 breeding snowy plovers (152 males and 129 females) in 2024, an increase of 21.1% from the previous year. More information can be found in the SNPL/CLTE Nesting Season Report ([CDPR 2024](#)).

California Least Tern (Federally and State Endangered)

The California least tern (*Sternula antillarum browni*) is a seabird that nests in colonies along the Pacific Coast from Baja California to San Francisco Bay, California (Grinnell 1928, Small 1994, Thompson et al. 1997, USFWS 2006a). Nesting also occurs sporadically at inland sites in the San Francisco Bay Delta and Central Valley (USFWS 2009a).

California least terns often nest in habitats similar to those of SNPLs, and there is often an overlap with the two species breeding on the same beach (Powell and Collier 2000). California least tern nesting colonies along the California coast are typically located on broad dune-backed sandy beaches or small sandspits where vegetation is either sparse or altogether absent (Page et al. 1995). Nests may be found from within several feet of the shore to more than a mile inland. Nests are normally located in open areas where aerial and terrestrial predators can be detected at a distance. When threatened, adult CLTEs will leave the nest and aggressively harass an intruder by mobbing, defecating, and vocalizing.

California least terns feed on fish caught by diving into the surface waters of freshwater lakes, lagoons, and oceans. California least terns forage primarily in near shore ocean waters and in shallow estuaries and lagoons (Massey 1988). At colonies where feeding activities have been studied, CLTEs forage mostly within 2 miles of the breeding area and primarily in near shore ocean waters less than 60 feet deep (Atwood and Minsky 1983).

The CLTE regularly breeds at the Oceano Dunes SVRA from April to August. Approximately 290 acres of active riding and camping area are closed during the breeding season for SNPL and CLTE. In addition, Oceano Dunes SVRA staff implement an intensive management program for SNPL and CLTEs which includes, but is not limited to, population monitoring, habitat enhancement, predator management, and education.

There were an estimated 40 least tern breeding pairs in 2024, slightly fewer than the 41-42 breeding pairs in 2023, and similar to the average of 40-43 pairs (range=23-60) in the 18-year period 2005-22. More information can be found in the SNPL/CLTE Nesting Season Report ([CDPR 2024](#)).

Bank Swallow (State Threatened)

The bank swallow (*Riparia riparia*) occurs as a breeding species in California in a hundred or so widely distributed nesting colonies in alluvial soils along rivers, streams, lakes, and ocean coasts. It is a locally common to uncommon breeder in northern and central California. Few colonies, if any, exist in southern California where colonies historically occurred. The major breeding population of bank swallow is confined to the Sacramento and Feather rivers and their major tributaries north of their confluence where an estimated 75 percent of California's breeding population was found in 1987 (Laymon et al. 1988). Other nesting colonies may exist in areas of suitable habitat, but finding colonies is difficult due to the inaccessible nature of many smaller waterways. Nesting colonies are located in vertical banks or bluffs in friable soils, and these colonies can support dozens to thousands of nesting birds. Nesting habitat is particularly prone to erosion.

Little information exists on migration stopovers in North America. The bank swallow tends to use freshwater and estuarine wetlands during migration, using these stopover areas for several days before moving on (Cramp 1988).

Oceano Dunes SVRA is outside the known breeding range for this species and they are not known to breed within the Oceano Dunes SVRA; however, they have been observed foraging at Oso Flaco Lake as recently as 2022 (eBird 2022). Bank swallows typically occur near Oso Flaco Lake in April and May; however, some birds have been observed in September. The bank swallows at the Oceano Dunes SVRA are likely migrating birds.

California Black Rail (State Threatened)

California black rails (*Laterallus jamaicensis coturniculus*) appear to be composed of three clearly distinct metapopulations. The first and most numerous inhabits tidal marshes in the northern San Francisco Bay area, with small occurrences at sites from Bodega Bay to northwest

Baja California. The second, intermediate-sized metapopulation is found in the Central Valley. The third, much smaller metapopulation occurs in the lower Colorado River/Salton Sea.

California black rails inhabit freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays. Most California populations, especially in the southern part of the state are nonmigratory and habitat serves for breeding, foraging, and overwintering. In tidal areas, rails require a dense cover of upland vegetation to provide protection from predators when rails must leave marsh habitats during high tide (Eddleman et al. 1994). Typical associated habitats in freshwater include bulrush (*Scirpus* spp.). California black rails feed on isopods, insects, and other arthropods. California black rails historically occurred at Oso Flaco Lake within the Oceano Dunes SVRA; however, they have not been observed at the SVRA since 1991 (CNDDB 2016). Nesting on-site unconfirmed.

Marbled Murrelet (Federally Threatened / State Endangered)

The breeding range of the marbled murrelet (*Brachyramphus marmoratus*) extends from Bristol Bay, Alaska, south to the Aleutian Archipelago, northeast to Cook Inlet, Kodiak Island, Kenai Peninsula and Prince William Sound, south coastally throughout the Alexander Archipelago of Alaska, and through British Columbia, Washington, Oregon, to northern Monterey Bay in central California. Birds winter throughout the breeding range and also occur in small numbers off southern California.

Marbled murrelets spend the majority of their lives on the ocean but come inland to nest. They generally nest in old-growth forests, characterized by large trees, multiple canopy layers, and moderate to high canopy closure. In California, nests are typically found in coastal redwood (*Sequoia sempervirens*) and Douglas-fir (*Pseudotsuga menziesii*) forests. These forests are located close enough to the marine environment for the birds to fly to and from nest sites. Nests have been found inland from the coast up to a distance of 50 miles in Washington State.

No suitable breeding habitat for marbled murrelet is present in the Oceano Dunes SVRA; however, this species has been observed during CDPR surveys, as well as by recreationists within the SVRA just offshore and in nearshore areas as recently as 2022 (SloCo Birding). No nesting habitat is present on-site.

Western Yellow-billed Cuckoo (Federally Threatened / State Endangered)

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) ranges from southern Canada to Mexico and the West Indies. They winter in Argentina. In California, breeding populations of greater than five pairs of yellow-billed cuckoo are currently limited to the Sacramento River from Red Bluff to Colusa and the South Fork Kern River from Isabella Reservoir to Canebrake Ecological Reserve. They roost and nest in dense riparian habitat with deciduous trees and

shrubs, especially willows. Uncommon to the area, a western yellow-billed cuckoo was found within the Oceano Dunes SVRA at Oso Flaco in 1999 and north of the Oceano Dunes SVRA at Oceano Lagoon in May of 2010 (eBird 2022). Oceano Dunes SVRA is outside the known breeding range for this species.

Southwestern Willow Flycatcher (Federally and State Endangered), Willow Flycatcher (State Endangered)

The southwestern willow flycatcher (*Empidonax traillii extimus*) is a subspecies of the willow flycatcher (*Empidonax traillii*) and is a Federally and State Endangered bird that breeds in dense riparian vegetation near surface water or saturated soils in the American Southwest. They currently breed in a few isolated areas. The largest remaining population in California is on the South Fork Kern River. It winters in Central America south to Columbia (Grinnell and Miller 1944). The southwestern willow flycatcher is a common migrant in coastal California in spring (mid-May to early June) and fall (mid-August to early September) at elevations below (2,000-8,000 feet). Habitat requirements for breeding willow flycatchers include riparian woodland areas, especially dense clumps of willows. Willow flycatchers are less selective about their choice of habitats during migration. During migration, woody plants, especially those growing on damp ground, are frequented as well as willows (Grinnell and Miller 1944).

Oceano Dunes SVRA is outside the known breeding range for this species. The majority of willow flycatchers observed in the Oceano Dunes SVRA occur in May, June, and September but are listed as willow flycatcher (*Empidonax traillii*) on eBird. Note: All three subspecies of willow flycatcher are listed as endangered by CDFW while the USFWS lists only the southwestern willow flycatcher as endangered.

Tricolored Blackbird (State Threatened)

The tricolored blackbird (*Agelaius tricolor*) is a locally common resident in the Central Valley and along coastal California. This species breeds adjacent to freshwater, preferably in emergent wetlands with tall, dense cattails or tules, thickets of willow, blackberry and/or tall herbs, as well as flooded agricultural fields with dense vegetation. Insects are the primary food source. This species is highly colonial and nesting habitat must be large enough to support a minimum of 30 pairs, however, colonies are commonly substantially larger, ranging from 100 to tens of thousands of individuals. Tricolored blackbirds have been observed flying over the Oceano Dunes SVRA, as well as foraging at Oso Flaco Lake as recently as March 2022 (eBird 2022).

Southern Sea Otter (Federally Threatened)

Southern sea otters (*Enhydra lutris nereis*) are found in nearshore marine environments of California from Año Nuevo in San Mateo County to Point Sal in Santa Barbara County. Canopies

of giant kelp and bull kelp provide important rafting and feeding areas. Sea otters eat a variety of marine invertebrates, including abalone, sea urchins, crabs, clams, snails, mussels, scallops, chitons, barnacles, squid, octopus, and starfish (Miller 1974). Southern sea otters are occasionally seen offshore of the Oceano Dunes SVRA.

Other Special Status Wildlife Species

In addition to the 12 federal and/or state threatened or endangered wildlife species, the SVRA provides suitable habitat for a large number of other special-status wildlife species. See Appendix 1 for full listing including species with potential to occur onsite.

Monarch Butterfly (Candidate for Federal Listing)

The monarch butterfly (*Danaus plexippus*) is found across North America in the spring and summer, relying on milkweed (*Asclepias* spp.) for larval development and nectar plants for fuel. Each fall, the last generation of adults migrates to overwintering sites. While the migration pathways of monarchs in the interior west are poorly understood, a portion of western monarchs migrate to coastal California, which hosts hundreds of overwintering sites along a 620-mile stretch from Mendocino County to Baja California, Mexico.

During the spring and summer, an adult monarch spends its 2-5-week lifespan mating and nectaring on flowers. Female monarchs lay eggs on milkweed, which the larvae rely on for energy. Monarchs begin to arrive at overwintering sites along the Pacific coast in September and the first half of October where they form fall aggregations. By November, they have formed more stable aggregations that persist through January or into February. The majority of overwintering sites are located at low elevations (200-300 feet) within 1.5 miles of the Pacific Ocean or San Francisco Bay. Monarchs require specific microclimate conditions at overwintering sites, including dappled sunlight, high humidity, fresh water, and an absence of freezing temperatures or high winds. Suitable microclimate conditions are often found at sites consisting of roost trees, surrounded by a larger grove of windrow trees. The trees most commonly used for roosting are blue gum eucalyptus (*Eucalyptus globulus*), Monterey pine (*Pinus radiata*), and Monterey cypress (*Cupressus macrocarpa*); however, red gum eucalyptus (*Eucalyptus camadulensis*), western sycamore (*Platanus racemosa*), coast redwood (*Sequoia sempervirens*), and coast live oak (*Quercus agrifolia*) are also used. The butterflies cluster in dense groups on branches, leaves, and occasionally, the trunks of trees. Activity during this time is limited to occasional sunning, rehydrating, and nectaring. In February and March, the surviving monarchs breed at the overwintering site before dispersing.

Monarch butterfly is included on the CDFW list of special animals and is currently under review by the U.S. Fish and Wildlife Service for listing under the Endangered Species Act. However, at

this time, the species does not have a special-status designation. Despite this, Oceano Dunes SVRA conducts surveys for overwintering monarchs within suitable habitat nearby the SVRA.

Santa Barbara and San Luis Obispo County represent the core of the monarchs overwintering range in California. No overwintering monarchs are present within the Oceano Dunes SVRA. A population of overwintering monarchs is present in the eucalyptus and Monterey cypress tree grove at PSB just north of the SVRA. PSB contains approximately 11 percent of the overwintering population in California. Oceano Dunes SVRA staff conducts surveys every year within PSB for overwintering monarchs. Overwintering monarchs have been observed at this location every year since at least 1990 when 200,000 monarchs were counted. In the 2021-2022 winter season, 26,185 monarchs were counted between the Pismo Grove and Oceano Campground sites.

Western Spadefoot (State Species of Special Concern, proposed as Federally Threatened)

The western spadefoot (*Spea hammondi*) is nearly endemic to California, and historically ranged from the vicinity of Redding in Shasta County southward to Mesa de San Carlos in northwestern Baja California (Stebbins 2003). Western spadefoot has been extirpated throughout most of the lowlands of southern California (Stebbins 2003) and from many historical locations in the Central Valley (Jennings and Hayes 1994, Fisher and Shaffer 1996).

Western spadefoot occurs primarily in grassland habitats but can also be found in valley-foothill hardwood woodlands. Western spadefoot are almost completely terrestrial and enter water only to breed. They breed from January to May in temporary pools and drainages that form following winter or spring rains. During dry periods western spadefoot construct and occupy burrows that may be up to 3 feet in depth (Ruibal et al. 1969). Individuals may remain in these burrows for 8 to 9 months. The burrows are typically constructed in soils that are relatively sandy and friable as these soils facilitate both digging and water absorption (Ruibal et al. 1969). Western spadefoot forage on a variety of insects, worms, and other invertebrates.

The western spadefoot is often difficult to detect due to extended periods of its life cycle spent underground. Very little is known about spadefoot at the Oceano Dunes SVRA and the few Oceano Dunes SVRA sightings that exist have been incidental. The last possible sighting was by District staff on October 4, 2011 at the Eucalyptus Tree vegetation island, while doing pitfall trapping. Pictures were sent to Dr. Sam Sweet, Herpetology professor at U.C. Santa Barbara, who suspected western spadefoot (S. Little. pers comm. 2024). Three western spadefoot were also heard at Oso Flaco Lake in February and March of 2000 (Schneider 2000). In addition, suitable habitat for western spadefoot is present in wet years. At least forty incidental sightings of western spadefoot have been seen in upland habitat between 2000-2024 at the Guadalupe

Restoration Project, the former oil field that is owned and managed by Chevron Corporation (S. Little. pers comm. 2024).

Blainville's Horned Lizard (State Species of Special Concern)

The Blainville's horned lizard (*Phrynosoma blainvillii*) (previously Coast horned lizard) occurs in the Sierra Nevada foothills from Butte County to Kern County and throughout the central and southern California coast. It occurs in valley-foothill hardwood, conifer and riparian habitats, as well as in pine-cypress, juniper and annual grass habitats. This species inhabits open country, especially sandy areas, washes, floodplains and windblown deposits within a wide range of habitats. Horned lizards forage on the ground in open areas, usually between shrubs and often near ant nests. Horned lizards often bask in the early morning on the ground or on elevated objects such as low boulders or rocks. Predators and extreme heat are avoided by horned lizards by burrowing into loose soil. Periods of inactivity and winter hibernation are spent burrowed into the soil under surface objects such as logs or rocks, in mammal burrows, or in crevices.

The Blainville's horned lizard was documented on-site in 1991 (Burton and Kutilek 1991). In addition, a horned lizard was documented in 2006 along the proposed Little Oso Flaco Lake Access Road alternative (CNDDDB 2016). Since that time, anecdotal records of horned lizard have been reported for various vegetation islands within the Oceano Dunes SVRA. A horned lizard was observed in January 2017 within the Chevron property just south of the Guadalupe-Nipomo Dunes National Wildlife Refuge (NWR) south of the SVRA. They have also been seen within the District as recently as 2022 during rare plant surveys within the Phillips 66 lease property. Appropriate habitat and food resources for horned lizard are present on many of the vegetation islands within the Oceano Dunes SVRA.

Northern California Legless Lizard (State Species of Special Concern)

The Northern California legless lizard (*Anniella pulchra*) is a secretive fossorial lizard that is common in California in suitable habitats in the Coast Ranges from the vicinity of Contra Costa County south to the Mexican border. The legless lizard usually forages at the base of shrubs or other vegetation either on the surface or just below it in leaf litter or sandy soil. Legless lizards eat insect larvae, small adult insects, and spiders (Stebbins 2003). Legless lizards sometimes seek cover under surface objects such as flat boards and rocks where they lie barely covered in loose soil. They are often encountered buried in leaf litter and commonly burrow near the surface through loose soil.

At Oceano Dunes SVRA, the legless lizard was documented on-site in 1991 (Burton and Kutilek 1991). A legless lizard was also documented in 2006 along the proposed Little Oso Flaco Lake Access Road alternative (CNDDDB 2016). In addition, legless lizards have been observed within

the vegetation islands as recently as 2018 in Pipeline Reveg (S. Little. pers comm. 2022). Legless lizards have also been observed nearby the SVRA at Jack Lake and Lettuce Lake. Legless lizards are vulnerable to habitat destruction, including the disturbance of surface soils and the spread of invasive vegetation (Jennings and Hayes 1994). Both soil disturbance and invasive species infestations are being managed at the Oceano Dunes SVRA.

Two-Striped Garter Snake (State Species of Special Concern)

Two-striped garter snakes (*Thamnophis hammondi*) occur from the southeastern slope of the Diablo Range and the Salinas Valley south along the South Coast and Transverse ranges to the Mexican border, and on Santa Catalina Island (Jennings and Hayes 1994). Historically common, it is associated with permanent or semi-permanent bodies of water in a variety of habitats. It is now gone from about 40 percent of its historical range (Jennings and Hayes 1994). This species has been little studied ecologically; much life history information has been extrapolated from other garter snakes.

Two-striped garter snakes are highly aquatic and are found in perennial and intermittent streams, large sandy riverbeds, and ponds. The preferred nocturnal retreats of this active diurnal snake are thought to be holes, especially mammal burrows, crevices, and surface objects (Rathbun et al. 1993). During the day, this garter snake often basks on streamside rocks or on densely vegetated stream banks. When disturbed it usually retreats rapidly to water. In milder areas, mammal burrows and surface objects such as rocks and rotting logs serve as winter refuges.

Two-striped garter snakes were documented within the Oceano Dunes SVRA in 1991 (Burton and Kutilek 1991). Since then, two-striped garter snake has been observed at Oso Flaco Lake. In addition, suitable habitat for two-striped garter snake is present at Oso Flaco Lake and Arroyo Grande Creek. Confirmed as recently as September 2016 at the Chevron Property south of the SVRA.

Southwestern Pond Turtle (State Species of Special Concern, proposed as Federally Threatened)

A semi-aquatic turtle of medium size southwestern pond turtle (SWPT) adults in one long-term study ranged from 109 to 179 mm long in carapace length and weighed approximately 194 to 828 grams (Germano and Riedle 2015). The species may occur from sea level to approximately 2000 meters (6,600 feet) in elevation (Germano 2023). This species is relatively long-lived, with the average lifespan expected to be approximately 25 years, but individuals upwards of 40-55 years of age have been observed (Holland 1994, Bury, et al. 2012).

The southwestern pond turtle (*Actinemys pallida*) was previously lumped into a single species along with the northwestern pond turtle (as *Actinemys marmorata*) and is now recognized as a separate species.

The southwestern pond turtle utilizes a wide variety of permanent and ephemeral aquatic habitats and may spend a significant amount of time in upland terrestrial habitats as well. Southwestern pond turtle aquatic habitats typically include permanent freshwater ponds, lakes, marshes, streams, and rivers. It favors sites with deep pools and with an abundance of basking sites, such as partially submerged logs or rocks, matted emergent vegetation, floating aquatic vegetation or exposed shorelines. Undercut banks, root masses, and boulder piles provide underwater escape cover, especially for small hatchlings and smaller turtles that behave more cryptically and are more susceptible to predation.

Terrestrial habitat requirements are variable throughout the range but must include basking sites and nesting habitat. In most areas, terrestrial overwintering habitat is also required (Reese 1996). While emergent basking sites are preferred because they offer some protection from terrestrial predators and quick escapes to deep water, terrestrial basking sites are also utilized. Terrestrial basking sites include mud banks, rocks, logs, and root wads on the bank, and are never far from water. Nesting occurs terrestrially, usually in open low-slope areas a few feet to over 300 feet from the watercourse. The nest site typically has good exposure to the sun and compact soil (Holland 1994, Reese 1996). Overwintering can be aquatic or terrestrial (Holland 1994). Terrestrial overwintering site characteristics are highly variable, but the microsite usually includes a thick duff layer (Holland 1994).

At Oceano Dunes SVRA, southwestern pond turtle have been seen basking along the shoreline of Oso Flaco Lake. In June 2001, during a visual survey for CRLF, five SWPTs were observed in the lake. In addition, during a survey conducted by the USGS in 1998, three SWPT were observed at Oso Flaco Lake (USGS 1998). Several SWPTs were also observed in Oso Flaco Lake and Arroyo Grande Creek within Oceano Dunes SVRA in 2006, as well as in Jack Lake nearby the SVRA. A SWPT was rescued from fishing line at Oceano Lagoon and sent to an approved rehabilitation clinic in September 2016. In March of 2018, a rider posted on social media that he found a SWPT in the open riding area and moved it out of harm's way. The location of this observation is unknown. Jeff Alvarez from the Wildlife Project (S. Little. pers comm. 2024) reviewed the social media photo and confirmed the species identification. Finally, in June 2018, Resource staff found turtle tracks in the open riding area near post 3.5 and the tracks were heading into Dunes Preserve. Pictures were taken and shown to Dr. Sam Sweet, Herpetology professor at U.C. Santa Barbara, who suspected subadult SWPT (S. Little. pers comm. 2024). Non-native species, including red-eared slider, largemouth bass, and bullfrog have been documented within the HCP area and have the potential to compete with or prey upon the native SWPTs within the SVRA.

American Peregrine Falcon (State Fully Protected)

American peregrine falcons (*Falco peregrinus* ssp. *Anatum*) are distributed worldwide. They occur throughout most of California during migration and winter. Their breeding range in California includes the Channel Islands, the southern and central California coast, the inland north coastal mountains, the Klamath Mountains and Cascade Range, and the Sierra Nevada (Zeiner et al. 1990).

Nesting sites are typically near water on cliffs, banks, dunes, or mounds. They will also occasionally nest; on buildings, in cavities in trees or snags, or in the abandoned nests of other raptors. They feed on other birds up to and including ducks in size, and may also take mammals, insects, and fish. Their primary feeding mode is to attack other birds in flight. They require protected cliffs and ledges for cover (Zeiner et al. 1990). American peregrine falcons have been documented breeding and nesting nearby the Oceano Dunes SVRA in Shell Beach, which is just north of Pismo Beach. American peregrine falcons within the Oceano Dunes SVRA are typically observed from August to December; however, individuals have been observed in April and May (eBird 2022). Within the Oceano Dunes SVRA, American peregrine falcons have been observed in flight and hunting as recently as 2022 (eBird 2022), but they have not been observed nesting.

American White Pelican (State Species of Special Concern)

American white pelicans (*Pelecanus erythrorhynchos*) are year-round residents along the California coast from the San Francisco Bay Area south to the border of Mexico. They are also found in the Central Valley. Breeding primarily occurs from March through July. Breeding mainly occurs in the Klamath Basin. American white pelicans occur on the California coast from Bodega Bay southward and in the Central Valley from July through January. They also occur throughout California during migration. American white pelicans are limited by the availability of remote nesting sites and rich foraging habitats. They nest in colonies, primarily on islands that are subject to minimal disturbance by humans and predators and avoid low-lying areas prone to flooding. American white pelicans typically forage in shallow inland waters, such as open areas in marshes and along lake or river edges. Wintering and non-breeding birds also feed in shallow coastal marine waters. The Oceano Dunes SVRA is outside the known breeding range for American white pelican. However, American white pelicans have been observed foraging year-round within the SVRA, including numerous observations from 1991 to 2022 at Oso Flaco Lake (eBird 2022). Confirmed foraging on-site at Oso Flaco Lake as recently as May 2022. Oceano Dunes SVRA is outside the breeding range for this species.

Black Skimmer (State Species of Special Concern)

The black skimmer (*Rynchops niger*) is currently known to breed in colonies in the Salton Sea, San Diego Bay, Bolsa Chica Ecological Reserve, Upper Newport Bay, Seal Beach NWR, south San

Francisco Bay, Batiquitos Lagoon, and Los Angeles harbor. The species is a year-round resident in coastal Los Angeles, Orange, and San Diego counties, and more recently in Santa Clara County. They winter locally in substantial numbers on the coast of southern California from Santa Barbara to San Diego counties. Small numbers have been observed in San Luis Obispo County, mainly during spring and fall migration. Black skimmers nest on the ground in large areas of bare earth that are sufficiently isolated from terrestrial predators and other disturbances. Colonies most often form on small, constructed islands or on isolated sections of eroded impoundment levees. They winter in flocks and commonly roost on urban beaches well above the high tide line or on mud flats in estuaries. Beach sites that are habitually used by black skimmers are often associated with estuaries or protected harbors and are near the mouths of rivers or other drainage channels. The Oceano Dunes SVRA is outside the known breeding range for black skimmer. Black skimmers have been confirmed on-site at the Pismo Creek mouth as recently as July 2021 (eBird 2022).

Black Swift (State Species of Special Concern)

The black swift (*Cypseloides niger*) occurs in California as a summer resident and migrant from mid-April to mid-October. They winter in South America. Black swifts breed in California along the central coast in San Mateo, Santa Cruz, and Monterey counties, as well as north of Ragged Point in San Luis Obispo County; in the Cascades and Sierra Nevada; and in the San Gabriel, San Bernardino, and San Jacinto Mountains. Breeding black swifts are restricted to very limited habitat behind or beside permanent or semi-permanent waterfalls, on perpendicular cliffs near water, and in sea caves. The Oceano Dunes SVRA is outside the known breeding range for black swift. Confirmed on-site at Oso Flaco Lake as recently as May 2020.

Black Tern (State Species of Special Concern)

The black tern (*Chidonias niger*) nests in two distinct areas of California including the Modoc Plateau region and the mountain valleys of northeastern California, and the lowlands of the Central Valley. It can be found widely in suitable habitat throughout California during migration. Black terns nest semicolonially in favorable, protected areas or marshes. Nests are typically built on floating substrates and are anchored or lodged in emergent vegetation or beds of submerged roots. Black terns typically feed on aquatic insects and fish; therefore, aquatic habitat is important for foraging and stopover sites during migration. The Oceano Dunes SVRA is outside the known breeding range for black tern. However, black terns have been observed foraging within the SVRA typically in and around August. The most recent observation of black tern within the SVRA was documented in August 2020 (eBird 2022).

Brant (State Species of Special Concern)

Brant geese (*Branta bernicla*) do not breed in California; however, they occur throughout the California coast as a spring and fall migrant and winter visitor. This species requires well-protected, shallow marine waters with intertidal eelgrass beds, primarily within bays and estuaries. Brant often feed in areas close to intertidal mudflats, sandbars, or spits. At high tide, brant require sheltered open water or protected beaches for loafing. The Oceano Dunes SVRA is outside the known breeding range for brant. However, brant have been observed within the SVRA throughout the majority of the year. The most recent observation of brants within the SVRA was documented in May 2022 (eBird 2022).

California Brown Pelican (State Fully Protected)

California brown pelicans (*Pelecanus occidentalis californicus*) breed on rocky or low, brushy slopes of undisturbed islands in the Channel Islands and Mexico (Cogswell 1977). After breeding they disperse along the California coastline in estuarine, marine subtidal, and marine pelagic waters. This species usually rests on water or inaccessible rocks (either offshore or on mainland), but also uses mudflats, sandy beaches, wharfs, and jetties. The Oceano Dunes SVRA is outside the known breeding range for California brown pelican. However, it is common to see California brown pelicans foraging throughout the SVRA (eBird 2023). Specifically, brown pelicans have been found roosting on the beach, in Oso Flaco Lake, and flying over and feeding along the shoreline of the Oceano Dunes SVRA.

Golden Eagle (State Fully Protected)

The golden eagle (*Aquila chrysaetos*) occurs in the foothills and mountains throughout California. This species is largely resident in open and semi-open areas from sea level to 11,500 feet in elevation. Occupied habitats include shrublands, grasslands, desert, mixed woodlands, and coniferous forests. This species is usually found in mountainous areas, but it may also nest in wetland, riparian, and estuarine habitats at lower elevations (Kochert et al. 2002). Golden eagles typically build or maintain multiple nests prior to selecting one nest for a given year; however, they do exhibit strict site fidelity, often moving nesting locations between years, and may not nest each year (Peeters and Peeters 2005). Nests are large and typically built on cliff ledges or in large, relatively isolated trees, such as blue gum and possibly larger coast live oak trees. Golden eagles forage over wide areas, most frequently above open canopied shrub or woodland, or grassland habitat, and feed primarily on ground squirrels, rabbits, large birds, and carrion. One golden eagle has been observed flying within the Oceano Dunes SVRA in April 2021 at Oso Flaco Lake (eBird 2022).

Least Bittern (State Species of Special Concern)

The least bittern (*Ixobrychus exilis*) is primarily a summer resident in California and breeds in northeastern California, the central coast, the Central Valley, the southern coast, and the southern deserts. Least bitterns require freshwater and brackish marshes with tall, dense emergent vegetation and clumps of woody plants over deep water for breeding. This species builds nests on platforms of live and dead stalks, usually 6-30 inches above the water in emergent vegetation. They forage from emergent vegetation by taking prey near the surface of the water. Within the Oceano Dunes SVRA, the least bittern has been observed as recently as 2021 at Oso Flaco Lake and has been confirmed to breed as recently as May 2016 and possibly May 2019 at this location (eBird 2022).

Loggerhead Shrike (State Species of Special Concern)

The loggerhead shrike (*Lanius ludovicianus*) is a common resident and winter visitor in lowlands and foothills throughout California. Loggerhead shrikes breed mainly in shrublands or open woodlands with a fair amount of grass cover and areas of bare ground. They require tall shrubs or trees (they also use fences or power lines) for hunting perches, territorial advertisement, and pair maintenance. They require short grasses, forbs, or bare ground for hunting, and large shrubs or trees for nest placement. They also need impaling sites for prey manipulation or storage, which can include sharp, thorny, or multistemmed plants and barbed-wire fences. Loggerhead shrikes often build their nests in thorny vegetation, which may help keep predators away. In the absence of trees or shrubs, they may sometimes nest in brush piles or tumbleweed. Nests are typically 2.5 to 4 feet above the ground (Yosef 1996). Eggs hatch within 17 days and chicks leave the nest within 20 days of hatching. Second broods are common. This species primarily feeds on insects (Yosef 1996). Loggerhead shrikes are resident birds that nest within the Oceano Dunes SVRA. Within the Oceano Dunes SVRA, loggerhead shrikes are known to prey on SNPL and CLTE chicks and may also prey on SNPL adults. As a result, some individuals are removed by a qualified biologist from the SVRA as part of the SNPL and CLTE Predator Management Plan. Confirmed nesting and wintering on-site. Observed on-site as recently as October 2022.

Lucy's Warbler (State Species of Special Concern)

Lucy's warblers (*Oreothylpis luciae*) occur primarily as breeding summer visitors and are restricted to breeding in very limited areas of the Mojave and Colorado deserts in California. They are a rare fall migrant and winter visitor in California. Lucy's warblers almost exclusively require honey mesquite thickets (*Prosopis glandulosa*) for nesting; however, riparian woodland is also used. Nests for this species are typically built in cavities such as behind loose bark, in woodpecker-excavated holes, or occasionally in crevices in banks. In winter, this species typically

occupies riparian or thorn scrub habitats. The Oceano Dunes SVRA is outside the known breeding range for Lucy's warbler. Most observations of Lucy's warbler within the Oceano Dunes SVRA have been documented in September and October (eBird 2022). Lucy's warbler has been observed within the Oceano Dunes SVRA near Oso Flaco Lake as recently as October 2000. It has also been observed just north of the SVRA near Oceano Lagoon as recently as October 2015 and Oso Flaco Lake as recently as September 2017 (eBird 2022).

Northern Harrier (State Species of Special Concern)

The northern harrier (*Circus cyaneus*) occurs throughout California. This species is predominantly found in grassland and wetland communities; however, it uses various habitats. In California, northern harriers have been found in habitats including freshwater marshes; brackish and saltwater marshes; wet meadows; weedy borders of lakes, rivers, and streams; annual and perennial grasslands (including those with vernal pools); weed fields; ungrazed or lightly grazed pastures; some croplands (especially alfalfa, grain, sugar beets, tomatoes, and melons); sagebrush flats; and desert sinks (MacWhirter and Bildstein 1996). Northern harriers are ground nesting birds. The nest is usually placed in a dense clump of vegetation such as willows, grasses, sedges, reeds, or cattails. Eggs hatch within 36 days and chicks leave the nest within 14 days of hatching. Females incubate eggs and brood chicks, while males provide most of the food for the females and nestlings. In the breeding season, northern harriers eat small mammals, reptiles, amphibians, and birds. During winter, northern harriers feed almost exclusively on voles; they also eat mice, shrews, rabbits, and songbirds (MacWhirter and Bildstein 1996). Northern harriers are typically observed in the winter months (i.e., October through February) in the Oceano Dunes SVRA; however, they are a confirmed, but rare breeder at Oso Flaco Lake (Condor Environmental Planning Services 2006). They have often been seen foraging in the Oso Flaco area as recently as May 2022 (eBird 2022). They can be found foraging within the riding area of the SVRA as well. Within the Oceano Dunes SVRA, northern harriers are known to prey on SNPL and CLTE. As a result, some individuals may be removed by a qualified biologist from the SVRA as part of the SNPL and CLTE Predator Management Plan.

Olive-Sided Flycatcher (State Species of Special Concern)

The olive-sided flycatcher (*Contopus cooperi*) is a summer resident and migrant in California. It breeds in areas of conifer forests throughout most of the state and is more widely spread during migration. This species is an uncommon breeder in San Luis Obispo County. They are mostly associated with edges, openings, and natural and human-created clearings in otherwise dense forests. The olive-sided flycatcher breeding habitat primarily consists of late-successional conifer forests with open canopies but may also be found in a variety of species, including willows, oaks, and eucalyptus. For foraging, these flycatchers prefer unobstructed airspace with openings over forest canopies with exposed perches. Olive-sided flycatchers typically occur in

the Oceano Dunes SVRA in May and September (eBird 2022) and are likely a migrant in this area. This species has been observed at Oso Flaco Lake as recently as May 2022 (eBird 2022). No nesting has been documented on-site.

Redhead (State Species of Special Concern)

Redheads (*Aythya americana*) occur year-round in California, although their status varies regionally. Redheads breed in suitable wetland habitats in northeastern California, the Central Valley, the southern coast, and the southern deserts. This species occurs as a winter visitor in suitable wetland habitat throughout much of the state. Redheads usually nest in freshwater emergent wetlands where dense stands of cattails and tules are interspersed with areas of deep, open water. In winter and migration, redheads forage and rest on large, deep bodies of water and may form rafts far from shore. Redheads have been observed within the Oceano Dunes SVRA at Oso Flaco Lake as recently as May 2022 (eBird 2022). Oceano Dunes SVRA is outside the breeding range for this species.

Summer Tanager (State Species of Special Concern)

Summer tanagers (*Piranga rubra*) are restricted to breeding in riparian oases in the southern deserts of California, as well as along the South Fork Kern River in Kern County. Summer tanagers winter in Mexico and South America. Summer tanagers breed primarily in mature riparian woodland with extensive canopy. They forage for large insects as they move through the canopy of tall riparian trees. During the late breeding season, migration, and winter season, summer tanagers also consume fruit. Summer tanagers have been observed north of the Oceano Dunes SVRA near Oceano Lagoon and within the SVRA at Oso Flaco Lake as recently as November 2020 (eBird 2022). However, since this species is not known to breed in the area, it was likely migrating through.

Vaux's Swift (State Species of Special Concern)

Vaux's swifts (*Chaetura vauxi*) occur as migrant and summer residents in California. This species is common in summer and breeding in a narrow coast belt from the Oregon border in Del Norte County south to Santa Cruz County. They also breed in Santa Clara and Monterey counties. Their breeding range in coastal California generally follows the distribution of redwoods. During migration, roosting flocks in coastal counties may number in the hundreds to tens of thousands. Many of these migrants undoubtedly nest north of California. These swifts nest in cavities in a variety of trees and less frequently in artificial structures, particularly chimneys. During the breeding season, Vaux's swift forages in a variety of habitats, especially over water. This species requires trees, snags, chimneys, or smokestacks with large hollows or cavities for nighttime roosting. Vaux's swift has been observed in the Oceano Dunes SVRA at Oso Flaco Lake as recently as May 2021 (eBird 2022).

Western Burrowing Owl (State Species of Special Concern, CESA Candidate)

The western burrowing owl (*Athene cunicularia hypugaea*) occurs throughout the lowlands of California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. It is a ground dwelling owl, typically found nesting in arid prairies, fields, and open areas where vegetation is sparse and low to the ground. It is heavily dependent upon the presence of small mammal burrows (e.g., ground squirrel) in its habitat to provide shelter from predators or inclement weather, as well as to provide a nesting location. Foraging habitat is often present in grassland areas. In California, burrowing owls breed from February 1 to August 31, with some variances by geographic location and climatic conditions. The non-breeding season (i.e., wintering season) for burrowing owl occurs from September 1 to January 31. Burrowing owls prefer short grass grasslands with burrow networks, and frequently with boulder fields or rock outcrops. Burrows are frequently modified by these owls. Constructed burrows are readily occupied by burrowing owls and have been constructed for habitat enhancement and mitigation in several sites in California. The burrowing owl is known to utilize the Oceano Dunes SVRA during migration but does not breed within the SVRA. It was observed at Oso Flaco Lake in 1999, 2012 and as recently November 2020 (eBird 2022). One was seen in the Phillips 66 Leasehold in 2006, near the chemical toilets on the beach in 2005 and 2006, and at Oceano Lagoon in 2010. In addition, burrowing owl tracks were observed at Pavilion Hill in 2016 (R. Chapman, pers. comm 2016). The most recent observation made by Oceano Dunes SVRA field staff was in January 2022 at Cable Fence, near Post 8 and North Oso Flaco. No nesting has been documented on-site.

The California Fish and Game Commission approved western burrowing owl (*Athene cunicularia hypugaea*) as a candidate for potential listing as a protected species under CESA. They published these findings in the California Regulatory Notice Register on October 25, 2024. As a result, burrowing owl receives the same legal protection afforded to an endangered or threatened species (Fish & G. Code, §§ 2074.2 & 2085).

White-tailed Kite (State Fully Protected)

The white-tailed kite (*Elanus leucurus*) is found in lowland areas of California west of the Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border. They are residents of the central coast of California (Peterson 1990). White-tailed kites are residents in a variety of open habitats, including agricultural areas, grasslands, scrub and open chaparral habitats, meadows, and emergent wetlands throughout the lower elevations of California. Nests are constructed mostly of twigs and placed in small to large trees, often at habitat edges or in isolated groves (Dunk 1995). This species preys upon a variety of small mammals and other vertebrates. White-tailed

kites have been observed at the Oceano Dunes SVRA, including at Oso Flaco Lake, as recently as September 2021 (eBird 2022). No nesting has been documented on-site.

Wood Stork (State Species of Special Concern)

Wood storks (*Mycteria americana*) are only known to nest at the southern end of the Salton Sea in California. Coastal occurrences are erratic, and wood storks observed along the Central California coast are likely vagrants. Near the Salton Sea, wood storks forage in shallow bays, marshy backwaters, canals, and drains. Resting and roosting birds use partly submerged trees and shrubs in backwater areas or large snags near the water's edge. Along the coast, wood storks are found mainly in coastal estuaries, but also inland ponds and lakes. The wood stork was observed in 2011 near Oso Flaco Lake within the Oceano Dunes SVRA (T. Edell, pers. comm. 2011). No nesting has been documented on-site.

Yellow-breasted Chat (State Species of Special Concern)

Yellow-breasted chats (*Icteria virens*) range from southern Canada to central Mexico and winter from the southern U.S. to Panama, occurring in California as a migrant and summer resident. This species is widely distributed in California except in much of the Central Valley and parts of the southern coastal slope. Nesting yellow-breasted chats occupy early successional riparian habitat with a well-developed shrub layer and an open canopy. Nesting habitat is usually restricted to the narrow border of streams, creeks, sloughs, and rivers. The yellow-breasted chat was recorded within the Oceano Dunes SVRA in 2000 at the Oso Flaco Maps Station and at Oso Flaco Lake as recently as April 2022 (eBird 2022). Nesting on-site is unconfirmed.

Yellow-headed Blackbird (State Species of Special Concern)

Yellow-headed blackbirds (*Xanthocephalus xanthocephalus*) breed throughout much of California, except the coastal region (other than a small population in the San Francisco Bay and Riverside County) and most of the southern deserts. This species is not known to breed in San Luis Obispo County. This species occurs throughout most of California as a migrant. Yellow-headed blackbirds breed almost exclusively in marshes with tall emergent vegetation. They prefer marshes with deep, open water. Because of the need for deeper water, breeding marshes are often on the edges of water bodies such as lakes, reservoirs, or larger ponds. Yellow-headed blackbirds often forage in marshes and agricultural fields. The yellow-headed blackbird has been observed within the Oceano Dunes SVRA at Oso Flaco Lake as recently as May 2022 (eBird 2022). Nesting on-site is unconfirmed.

Yellow Warbler (State Species of Special Concern)

The yellow warbler (*Setophaga petechia*) primarily occurs as a migrant and summer resident in California. It is a common to locally abundant breeder throughout California except for most of

the Mojave Desert and all of the Colorado Desert. The yellow warbler generally occupies riparian vegetation in close proximity to water along streams and in wet meadows. Throughout their range, they are found in willows and cottonwoods (*Populus* spp.), and in California they are found in numerous other species of riparian shrubs or trees, varying by biogeographic region. Yellow warblers build their nests in the vertical fork of a bush or small tree such as willow or other riparian species. The nest is typically within about 10 feet off the ground but occasionally up to about 40 feet (Lowther et al. 1999). Eggs hatch within 13 days and chicks leave the nest within 12 days of hatching (Lowther et al. 1999). This species primarily feeds on insects. The yellow warbler has been observed in and near the Oceano Dunes SVRA at Arroyo Grande Creek, Jack Lake, Little Oso Flaco Lake, and Oso Flaco Lake as recently as June 2022 (eBird 2022).

American Badger (State Species of Special Concern)

The American badger (*Taxidea taxus*) is an uncommon, permanent resident found throughout most of California. The American badger is a semifossorial mammal in the weasel family (Mustelidae). Macrohabitat for this species includes dry, open forests and woodlands, open scrub, and grasslands. Microhabitat conditions for this species require loose friable soils for burrow creation and foraging potential. Badgers are typically solitary and nocturnal but construct burrows for refuge during daylight hours. Badger burrows are usually elliptical, with only one entrance, and are located in areas with plentiful prey sources. The primary prey for American badgers is composed of ground squirrels and pocket gophers, which badgers typically pursue by digging into their burrows (Grinnell et al. 1937). Alternative prey resources for American badgers include mice, rats, reptiles, amphibians, and bird eggs. Young are born in the spring and independent by the end of summer. Badgers have very large home ranges, depending on available habitat. In British Columbia, where suitable habitats have a patchy distribution, home ranges for females average 50 square km, while for males they can reach up to 500 square km (Blood 2002). Home ranges of individuals often overlap and there is no evidence of defended territories (Blood 2002). However, in general, densities are one badger per square mile in occupied, prime habitat (Long 1983). The American badger was documented within the Oceano Dunes SVRA in 1991 (Burton and Kutilek 1991) and has been observed in the vegetation islands and the Phillips 66 Leasehold in 2006 (Condor Consulting 2006). Inactive badger dens have also been observed throughout the Oceano Dunes SVRA. The Dunes Lakes property east of the District has seen one or two badger dens each year (L. Roddick. pers comm. 2019).

Pallid Bat (State Species of Special Concern)

Pallid bats (*Antrozous pallidus*) are distributed from southern British Columbia and Montana to central Mexico, and east to Texas, Oklahoma, and Kansas. This species occurs throughout California except in the high Sierra from Shasta to Kern counties and the northwest coast. Pallid

bat occurs in a number of habitats ranging from rocky arid deserts to grasslands, and into higher-elevation coniferous forests. Pallid bats are most abundant in the arid Sonoran life zones below 6,000 feet but have been found up to 10,000 feet in the Sierra Nevada. They often roost in colonies of between 20 and several hundred individuals. Roosts are typically in cliffs, rock crevices, tree hollows, mines, caves, and various structures, such as vacant and occupied buildings, bridges, and bird boxes. Tree roosting has been documented in large conifer snags (e.g., ponderosa pine [*Pinus ponderosa*]), inside basal hollows of giant sequoias (*Sequoiadendron giganteum*), and within bole cavities in oak trees. They have also been reported roosting in stacks of burlap sacks and stone piles. Pallid bats are primarily insectivorous, feeding on large prey that is taken on the ground, or sometimes in flight (Zeiner et al. 1990). Prey items include arthropods such as scorpions, ground crickets, and cicadas (Zeiner et al. 1990). Pallid bats were detected during passive acoustic surveys at Oceano Lagoon nearby the SVRA in June 2017. No acoustic surveys have been done since then.

Townsend's Big-eared Bat (State Species of Special Concern)

Townsend's big-eared bats (*Corynorhinus townsendii*) are found throughout California, except in the highest elevations of the Sierra Nevada. This species is a colonial species. Habitat associations for this species include the inland deserts; cool, moist coastal redwood forests; oak woodlands; and lower to mid-elevation mixed coniferous-deciduous forests. This species prefers open surfaces of caves or cave-like structures, such as mine adits and shafts, but has also been reported in such structures as buildings, bridges, and water diversion tunnels that offer a cave-like environment. Townsend's big-eared bats forage in edge habitats along streams and areas adjacent to and within a variety of wooded habitats. This species forms maternity colonies between March and June and these colonies typically begin to disperse in August. Townsend's big-eared bat males are typically solitary during the maternity season. This species is extremely sensitive to disturbance of roosting sites and a single visit may result in abandonment of the roost. Townsend's big-eared bats were detected during passive acoustic surveys at Oceano Lagoon nearby the SVRA in June 2017. No acoustic surveys have been done since then.

Western Red Bat (State Species of Special Concern)

Western red bats (*Lasiurus blossevillei*) are locally common in some areas of California. They occur from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade Crest and deserts. Their winter range includes the western lowlands and coastal regions south of the San Francisco Bay. Western red bats roost in forests and woodlands from sea level up through mixed conifer forests. They feed over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands. This species breeding season begins in August and September when bats mate; births occur from late May through early July. Western red bats

were detected during passive acoustic surveys at Oceano Lagoon nearby the SVRA in June 2017. No acoustic surveys have been done since then.

Special Status Plants

Surveys at the Oceano Dunes SVRA have documented habitat for, or the presence of, six federal or state designated threatened or endangered plant species (Table 2). The following section summarizes the habitat requirements and known occurrences of these species at the SVRA and adjoining properties.

Table 2. Federal and State Designated Plant Species at Oceano Dunes SVRA

Species	Status	Occurrence
Beach spectaclepod (<i>Dithyrea maritima</i>)	CT/CRPR 1B.1	Confirmed on-site.
Gambel's watercress (<i>Nasturtium gambelii</i>)	FE/CT/CRPR 1B.1	Confirmed on-site.
La Graciosa thistle (<i>Cirsium scariosum</i> var. <i>Loncholepis</i>)	FE/CE/CRPR 1B.1	Confirmed on-site.
Marsh sandwort (<i>Arenaria paludicola</i>)	FE/CE/CRPR 1B.1	Confirmed on-site.
Nipomo Mesa lupine (<i>Lupinus nipomensis</i>)	FE/CE/CRPR 1B.1	Confirmed on-site.
Surf thistle (<i>Cirsium rhothophilum</i>)	CT/CRPR 1B.2	Confirmed on-site.
Listing Designations: FE: Federal Endangered FT: Federal Threatened CE: State Endangered CT: State Threatened California Rare Plant Rank (CRPR): CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere. CRPR 2: Plants rare, threatened, or endangered in California but common elsewhere. CRPR 3: More information about this plant needed (Review List). CRPR 4: Limited distribution (Watch List). CRPR Threat Code extensions and their meanings: .1 – Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat) .2 – Fairly endangered in California (20-80% occurrences threatened) .3 – Not very endangered in California (<20% of occurrences threatened or no current threats known).		

Beach spectaclepod (State Threatened /CRPR 1B.1)

Beach spectaclepod (*Dithyrea maritima*) is a low growing, whitish-flowered perennial herb in the mustard family (Brassicaceae). It is found in small transverse foredunes within approximately 160-1000 feet from the surf (CDFW 2004). Beach spectaclepod is usually found in areas of fragile dunes where the sand is relatively unstable. Historically occurring as far south as Los Angeles County and possibly Baja California Norte, Mexico, this species currently occurs in the dunes of San Luis Obispo and Santa Barbara counties and on San Nicholas and San Miguel Islands (CDFW 2004). Several populations are found on Chevron's property, previously owned by Unocal, in the Guadalupe Dunes just north of the Santa Maria River (CDFW 2004; CNDDDB 2022).

At Oceano Dunes SVRA, beach spectaclepod occurs within the foredune area just north and south of Oso Flaco Lake and is protected and surveyed annually. Beach spectaclepod surveys were most recently conducted in February 2022.

Gambel's watercress (Federally Endangered/State Endangered/CRPR 1B.1)

Gambel's watercress (*Nasturtium gambelii*) is an herbaceous perennial in the mustard family (Brassicaceae). This species characteristically roots from the stem, which bears scattered compound leaves and dense clusters of white flowers. Gambel's watercress is found in freshwater or brackish marsh habitats at the margins of lakes and along slow-flowing streams. It grows in or just above the water level and requires a permanent source of water. Historically, Gambel's watercress occurred in interior wetland areas of Orange, San Bernardino, and Los Angeles counties, as well as coastal wetland areas of San Luis Obispo and Santa Barbara counties (CNPS 2022). At the time of listing in 1993, there were three known populations of Gambel's watercress, all within San Luis Obispo County in or near the Oceano Dunes SVRA. These locations included Black Lake Canyon, Oso Flaco Lake, and Little Oso Flaco Lake (USFWS 2022). Currently, only two occurrences are considered extant, including one at Vandenberg Space Force Base and one at Oso Flaco Lake within the Oceano Dunes SVRA (USFWS 2022). However, hybridization was confirmed using samples collected at Oso Flaco Lake as recently as 2010 (Le et al. 2020; USFWS 2022).

In July 2020, State Parks staff surveyed all historically recorded locations for Gambel's watercress within Oceano Dunes SVRA and only one individual was found which was located near the Oso Flaco Lake boardwalk where samples were collected in 2010 for genetic testing. This individual was confirmed to be present and in flower by State Parks staff during surveys in May 2022. Pure Gambel's watercress is currently known from one remaining wild population that was discovered in 1998 on Vandenberg Airforce Base in Santa Barbara County and one population that was introduced in 2008 within the Guadalupe-Nipomo Dunes NWR where a combination of 600 marsh sandwort and Gambel's watercress plants were planted at eight sites.

However, the plants have not fully established at the refuge, and the USFWS does not consider it to be a viable population (USFWS 2011a). It has been determined that the Vandenberg population shows no evidence of genetic hybridization with common watercress (Le et al. 2020).

La Graciosa thistle (Federally Endangered/State Endangered/CRPR 1B.1)

La Graciosa thistle (*Cirsium scariosum* var. *loncholepis*) is a bushy biennial or short-lived, perennial herb with large, smooth to slightly hairy leaves and clustered heads of white flowers. It is a spreading, mound-like or erect plant in the sunflower family (Asteraceae) that is well armored with spines on the leaves and flower heads. This species is known from coastal San Luis Obispo and Santa Barbara counties from Pismo Beach south to Los Alamos (CNPS 2022).

In general, La Graciosa thistle is associated with backdune and coastal wetlands on the margins of dune swales, dune lakes, marshes, estuaries, coastal meadows, seeps, springs, intermittent streams, creeks, and rivers (USFWS 2009c). This species thrives on sandy soils and is pollinated by hummingbirds and insects (USFWS 2000, 2009c). The variety and abundance of pollinators indicate that this species is a generalist (i.e., utilizes a wide variety of pollinators). The distribution of individual plants within populations is often an elongated pattern that is consistent with seed dispersal caused by the prevailing coastal winds (USFWS 2001b). It is often growing in a mat of low-growing herbaceous plants including rushes, sedge, salt grass, Bermuda grass (*Cynodon dactylon*), clover (*Trifolium wormskioldii*), yerba mansa (*Anemopsis californica*), silverweed (*Potentilla anserina*), and birdfoot trefoil (*Lotus corniculatus*) (USFWS 2001b). Threats include but are not limited to habitat loss, commercial development, hydraulic alterations, groundwater extraction, invasive species and herbivory (USFWS 2019a).

USFWS revised its designation of critical habitat for La Graciosa thistle in 2009 to include 24,103 acres of habitat in San Luis Obispo and Santa Barbara counties (USFWS 2011b). This critical habitat is divided into six units. The Callender-Guadalupe Dunes unit is the second largest unit (9,696 acres) and includes the Oceano Dunes District. This unit extends along 8.5 miles of coast from Arroyo Grande Creek south to the Santa Maria River.

At the time of the most recent USFWS 5-year review (USFWS 2019a) La Graciosa thistle was considered to have five extant occurrences, including one occurrence in the southern Callendar Dunes, three in the Guadalupe Dunes, and one at the Santa Maria River. One of the occurrences within the Guadalupe Dunes is located within the Oceano Dunes SVRA Southern Non-Riding Area MU at Surprise Lake. This occurrence has been in decline due to receding wetland surface water resulting in loss of suitable habitat. This appears to be the last of five previously extant occurrences located within Oceano Dunes SVRA (USFWS 2019a and CNDDB

2022). Rare plant surveys conducted in June 2022 confirmed the presence of La Graciosa thistle at Surprise Lake.

Marsh sandwort (Federally Endangered/State Endangered/CRPR 1B.1)

Marsh sandwort (*Arenaria paludicola*) is a perennial herb with spindly stems, small lanceolate leaves and tiny white flowers that grows in coastal freshwater marshes. The species requires perennial hydrology, typically occurs within floating mats of hydrophytic vegetation and is often structurally supported by surrounding plants (USFWS 2020a). Associated species include Cusick's sedge (*Carex cusickii*), water parsley (*Oenanthe sarmentosa*), bur reed (*Sparganium eurycarpum*), cattail (*Typha latifolia*), bog bulrush (*Scirpus microcarpus*) and California bulrush (*Schoenoplectus californicus*). (USFWS 2020a). The species was historically known from Washington State to Mexico but is currently known to be extant from only one confirmed native/wild population within the Oceano Dunes SVRA at Oso Flaco Lake, one introduced occurrence in Morro Bay at the Sweet Springs Nature Preserve (USFWS 2020a) and one occurrence within Black Lake Canyon which could not be determined to be wild or introduced as introductions have happened within the proximity of the occurrence (CNDDDB 2022; K. Scarazzo, pers. comm., 2022).

Within the Oceano Dunes SVRA, the species occurs within two stands of floating Cusick's sedge, both on the northeastern arm of the Oso Flaco Lake. Marsh sandwort was observed as recently as August 2022 by Oceano Dunes SVRA staff during rare plant surveys in both stands.

Nipomo Mesa lupine (Federally Endangered/State Endangered/CRPR 1B.1)

Nipomo Mesa lupine (*Lupinus nipomensis*) is a low-growing, lavender-flowered, annual herb in the pea family (Fabaceae). Nipomo Mesa lupine requires fine-grained, sandy soils of open sites or sparsely vegetated, stabilized dune communities close to the coast. Flowers are presumably capable of self-pollination but may require insect visitation to maximize seed production. Seed germination and maximum plant size are apparently enhanced by activities of pocket gophers (Walters and Walters 1988), which also present a threat of herbivory (USFWS 2000, 2009b). Nipomo Mesa lupine is restricted to dry sandy flats of stabilized coastal dunes that lie west of Nipomo Mesa in San Luis Obispo County (USFWS 2009b). Associated species include perennial species as California croton (*Croton californicus*), mock heather, coastal buckwheat (*Eriogonum parvifolium*), dune ragwort, and perennial veldt grass (a non-native, invasive species).

At the time of the last USFWS 5-year review (USFWS 2019b), only one Nipomo Mesa lupine population was known to be extant divided into three occurrences. The extent of the geographic range for the species consists of approximately 5.2 square kilometers (two square miles) (USFWS 2019b). The majority of habitat for the species is privately owned, mostly by Phillips 66, with smaller portions owned by Pacific Gas and Electric Company and other private

landowners. A portion of the habitat also occurs within a California Department of Transportation right-of way (USFWS 2019b). In Oceano Dunes SVRA and vicinity, Nipomo Mesa lupine has only been observed in the eastern part of the Phillips 66 Leasehold which is land that Oceano Dunes SVRA manages as part of the SVRA. It has been documented in the Phillips 66 Leasehold in annual surveys conducted by the Land Conservancy of San Luis Obispo County and State Parks staff as recently as June 2022.

Surf thistle (State Threatened/CRPR 1B.1)

Surf thistle (*Cirsium rhotophilum*) is a low-growing, short-lived perennial in the sunflower family (Asteraceae) with white flowers in dense heads. Flowering occurs between April and June. It is characterized by large rosettes of spiny, white-woolly, deeply lobed and undulating leaves. The deep roots and white-woolly herbage are adaptations to the physical stresses of the dune habitat, such as high light intensity, sand movement and abrasion, and limited water (California Department of Fish and Game [CDFG] 2005). Surf thistle occurs only in the narrow strip of coastal habitat between stabilized dunes and windblown beach between 9-200 feet in elevation (CDFG 2005).

This species of Surf thistle is endemic to the dunes of the central California coast, from the Nipomo Dunes of southern San Luis Obispo County to Point Conception in Santa Barbara County, including populations within Pismo State Beach and Oceano Dunes SVRA. It grows in coastal foredunes on the slopes of transverse ridges in areas of active sand accumulation. At the southern extreme of its range, it is found in sand at the bases or tops of cliffs (CDFG 2005).

Within the Oceano Dunes SVRA, surf thistle occurs south of the Oso Flaco Creek estuary in the foredunes of the Southern Non-Riding Area MU. Surf thistle was observed as recently as February 2022 during annual surveys. In addition, surf thistle has been observed in the north Oso Flaco area during previous surveys conducted by CDPR (CDPR 2008)

Other Sensitive Species

In addition to the six federal and/or state threatened or endangered plant species known to occur at Oceano Dunes SVRA, the SVRA provides suitable habitat for large numbers of other special-status plant species (Table 3). The following section summarizes the habitat requirements and known occurrences of these species at the SVRA and adjoining properties.

Table 3. Other Special Status Plant Species at Oceano Dunes SVRA

Species	Status	Occurrence
Blochman's ragwort (<i>Senecio blochmaniae</i>)	CRPR 4.2	Confirmed on-site.
Blochman's leafy daisy (<i>Erigeron blochmaniae</i>)	CRPR 1B.2	Confirmed on-site.
Blushing layia (<i>Layia erubescens</i>)	CRPR 1B.2	Confirmed on-site.
California saw-grass (<i>Cladium californicum</i>)	CRPR 2B.2	Suitable habitat on-site. Confirmed nearby in Black Lake Canyon
California spineflower (<i>Mucronea californica</i>)	CRPR 4.2	Confirmed on-site.
Coastal goosefoot (<i>Chenopodium littoreum</i>)	CRPR 1B.2	Confirmed on-site.
Coast woolly-heads (<i>Nemacaulis denudata</i> var. <i>denudata</i>)	CRPR 1B.2	Confirmed on-site
Crisp monardella (<i>Monardella undulata</i> ssp. <i>Crispa</i>)	CRPR 1B.2	Confirmed on-site.
Douglas's spineflower (<i>Chorizanthe douglasii</i>)	CRPR 4.3	Confirmed on-site.
Dune larkspur (<i>Delphinium parryi</i> ssp. <i>Blochmaniae</i>)	CRPR 1B.2	Confirmed on-site.
Dunedelion (<i>Malacothrix incana</i>)	CRPR 4.3	Confirmed on-site.
Fuzzy prickly phlox (<i>Linanthus californicus</i>)	CRPR 4.2	Confirmed on-site.
Hickman's popcorn flower (<i>Plagiobothrys chorisianus</i> var. <i>hickmanii</i>)	CRPR 4.2	Confirmed on-site.
Kellogg's horkelia (<i>Horkelia cuneata</i> var. <i>sericea</i>)	CRPR 1B.1	Confirmed on-site.
Mesa horkelia (<i>Horkelia cuneata</i> var. <i>Puberula</i>)	CRPR 1B.1	Confirmed on site from one record in 1973. Identification in question.
Monterey Coast paintbrush (<i>Castilleja latifolia</i>)	CRPR 4.3	Confirmed on-site.

Species	Status	Occurrence
Nuttall's milkvetch (<i>Astragalus nuttallii</i> var. <i>nuttallii</i>)	CRPR 4.2	Confirmed on-site.
Paniculate tarplant (<i>Deinandra paniculata</i>)	CRPR 4.2	Confirmed on-site.
Red sand verbena (<i>Abronia maritima</i>)	CRPR 4.2	Confirmed on-site.
Sand almond (<i>Prunus fasciculata</i> var. <i>punctata</i>)	CRPR 4.3	Confirmed on-site.
Sand mesa manzanita (<i>Arctostaphylos rudis</i>)	CRPR 1B.2	Suitable habitat on site. Confirmed on site from observation. Determined to be extirpated in 2010.
San Luis Obispo monardella (<i>Monardella undulata</i> ssp. <i>Undulata</i>)	CRPR 1B.2	Confirmed on-site.
Short-lobed broomrape (<i>Orobanche parishii</i> ssp. <i>Brachyloba</i>)	CRPR 4.2	Potential habitat on-site.
Southwestern spiny rush (<i>Juncus acutus</i> ssp. <i>Leopoldii</i>)	CRPR 4.2	Confirmed on-site.
Suffrutescent wallflower (<i>Erysimum suffrutescens</i>)	CRPR 4.2	Confirmed on-site.
Listing Designations: California Rare Plant Rank (CRPR): CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere. CRPR 2: Plants rare, threatened, or endangered in Calif. But common elsewhere. CRPR 3: More information about this plant needed (Review List). CRPR 4: Limited distribution (Watch List). CRPR Threat Code extensions and their meanings: .1 – Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat) .2 – Fairly endangered in California (20-80% occurrences threatened) .3 – Not very endangered in California (<20% of occurrences threatened or no current threats known).		

Blochman's Ragwort (California Rare Plant Rank 4.2)

Blochman's ragwort (*Senecio blochmaniae*) is a perennial herb in the sunflower family (Asteraceae) that blooms from May through October. It occurs on coastal dunes from sea level to 330 feet. It is endemic to Santa Barbara and San Luis Obispo counties and is threatened within its range by non-native plants, development, and vehicles (CNPS 2022). Blochman's ragwort is locally common and widespread in the Oceano Dunes SVRA.

Blochman's Leafy Daisy (California Rare Plant Rank 1B.2)

Blochman's leafy daisy (*Erigeron blochmaniae*) is a perennial rhizomatous herb that blooms from June through August. It is in the sunflower family (Asteraceae) and has light purple flowers. It occurs on coastal dunes and in coastal scrub from 10-150 feet. It is endemic to Santa Barbara and San Luis Obispo counties and is threatened by development, non-native plants, and vehicles (CNPS 2022). Blochman's leafy daisy is locally common and widespread in the Oceano Dunes SVRA.

Blushing layia (California Rare Plant Rank 1B.2)

Blushing layia (*Layia erubescens*) is an annual herb that blooms from February through June. It is in the sunflower family (Asteraceae) and has white flowers. It occurs on coastal dunes and in coastal scrub from 30-820 feet. It is endemic to Santa Barbara and San Luis Obispo counties. Blushing layia is only found within the southeastern sections of the Phillips 66 Leasehold where it occurs in high numbers.

California Saw-Grass (California Rare Plant Rank 2B.2)

California saw-grass (*Cladium californicum*) is a perennial rhizomatous herb in the Cyperus family (Cyperaceae) that blooms from June through September. It occurs in freshwater or alkaline meadows, seeps, marshes, or swamps from 195-5,250 feet. It is known from fewer than 20 occurrences and is threatened by land use management conflicts, especially at Vandenberg Air Force Base (CNPS 2022). California saw-grass has not been found in the Oceano Dunes SVRA in recent years; however, it was documented in the CNDDDB as occurring near Black Lake Canyon in the early 1990's (CNDDDB 2022).

California Spineflower (California Rare Plant Rank 4.2)

California spineflower (*Mucronea californica*) is an annual herb in the buckwheat family (Polygonaceae) that blooms from March through August. It occurs in chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland from sea level to 4,600 feet. It is endemic to California and is threatened by aggregate mining, vehicles, flood control modification, urbanization, water percolation projects, and possibly by non-native plants (CNPS 2022). California spineflower is locally common and widespread within low lying areas in the Oceano Dunes SVRA.

Coastal Goosefoot (California Rare Plant Rank 1B.2)

Coastal goosefoot (*Chenopodium littoreum*) is an annual herb in the goosefoot family (Chenopodiaceae) that blooms from April through August. It occurs on sand dunes from 30-100 feet. It is endemic to Los Angeles, Santa Barbara, and San Luis Obispo counties and is known

from fewer than 20 occurrences. It is possibly threatened by recreational activities, vehicles, and non-native plants (CNPS 2022). Coastal goosefoot has been observed from incidental sightings throughout the southern part of the Phillips 66 Leasehold and near the southern boundary of Oceano Dunes SVRA at Surprise Lake.

Coast Woolly-Heads (California Rare Plant Rank 1B.2)

Coast woolly-head (*Nemacaulis denudata* var. *denudata*) is an annual herb that blooms from April through September. It is in the buckwheat family (Polygonaceae). It occurs in coastal dune habitat from sea level to 330 feet. It is threatened by coastal development, foot traffic, and non-native plants (CNPS 2022). Coast woolly-heads have been documented from incidental sightings within the dunes north of Oso Flaco Lake.

Crisp Monardella (California Rare Plant Rank 1B.2)

Crisp monardella is a perennial rhizomatous herb that blooms from April through August. It has purple flowers and is in the mint family (Lamiaceae). It occurs in coastal dunes and sandy scrub from 30-400 feet. It is endemic to Santa Barbara and San Luis Obispo counties and is threatened by vehicles (CNPS 2022). Crisp monardella is locally common and widespread in the Oceano Dunes SVRA and is commonly observed in sparsely vegetated areas with active dunes and along the sandy margins of stabilized plant communities.

Douglas' Spine Flower (California Rare Plant Rank 4.3)

Douglas' spine flower (*Chorizanthe douglasii*) is an annual herb in the buckwheat family (Polygonaceae) that blooms from April through July. It occurs in chaparral, cismontane woodland, coastal scrub and lower montane coniferous forest on sandy or gravelly soils from 180-5,250 feet. It is endemic to Monterey, San Benito, and San Luis Obispo counties (CNPS 2022). Douglas' spineflower has been previously documented at the Pavilion Hill vegetation island during an Oceano Dunes District survey (CDPR 2012).

Dunedelion (California Rare Plant Rank 4.3)

Dunedelion is a perennial herb in the sunflower family (Asteraceae) that blooms from January through October. It is endemic to California (CNPS 2022). It occurs on coastal dunes and in coastal scrub from 10-115 feet. In the Oceano Dunes SVRA, dunedelion is locally common and widespread within foredune areas of SVRA.

Dune Larkspur (California Rare Plant Rank 1B.2)

Dune larkspur (*Delphinium parryi* ssp. *Blochmaniae*) is a perennial herb in the buttercup family (Ranunculaceae) that has purple and white or blue and white flowers and blooms from April through June. It occurs in maritime chaparral and on coastal dunes from sea level to 650 feet. It

is endemic to California and is threatened by development (CNPS 2022). Dune larkspur has been regularly documented from incidental sightings within the Phillips 66 leasehold property and Coreopsis Hill.

Fuzzy Prickly Phlox (California Rare Plant Rank 4.3)

Fuzzy prickly phlox (*Linanthus californicus* ssp. *Tomentosus*) is a perennial deciduous shrub in the phlox family (Polemoniaceae) that blooms from March through August. It is endemic to Santa Barbara and San Luis Obispo counties (CNPS 2022). It occurs on coastal dunes from 3-100 feet. In the Oceano Dunes SVRA, fuzzy prickly phlox is locally common in the Phillips 66 Leasehold and stabilized dunes south of Oso Flaco Lake.

Hickman's Popcorn Flower (California Rare Plant Rank 4.2)

Hickman's popcorn flower (*Plagiobothrys chorisianus* var. *hickmanii*) is an annual herb in the borage family (Boraginaceae) that blooms from April through June. It is endemic to California (CNPS 2022). It occurs in closed-cone coniferous forest, chaparral, coastal scrub, marshes and swamps, and vernal pools from 50-280 feet. Hickman's popcorn flower has been documented in four vegetation islands within the Oceano Dunes SVRA, in the Phillips 66 Leasehold, and near Maidenform (CDPR 2012).

Kellogg's Horkelia (California Rare Plant Rank 4.2)

Kellogg's horkelia (*Horkelia cuneata* var. *sericea*) is a perennial herb that blooms from April through September. It has white flowers and is in the rose family (Rosaceae). It occurs in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub on sandy or gravelly openings from 30-650 feet. It is endemic to California and is possibly threatened by coastal development (CNPS 2022). Kellogg's horkelia has been documented in the Pismo Dunes Natural Preserve in Pismo State Beach and in the Phillips 66 Leasehold during Oceano Dunes District surveys (CDPR 2012). It was also documented in the Phillips 66 Leasehold by the CNDDDB with the most recent observation in 1998 (CNDDDB 2022). Wedge leaved horkelia (*Horkelia cuneata* var. *cuneata*) is common and widespread within stabilized low-lying areas at Oceano Dunes SVRA and intermediates between varieties have been documented within the same area making it difficult to determine the extent of the Kellogg's horkelia at Oceano Dunes SVRA (CNDDDB 2022).

Mesa Horkelia (California Rare Plant Rank 1B.2)

Mesa horkelia (*Horkelia cuneata* var. *puberula*) is a perennial herb in the rose family (Rosaceae) that blooms from February through September. It is endemic to California and many historical occurrences are extirpated (CNPS 2022). It occurs on sandy or gravelly soils in maritime chaparral, cismontane woodland, and coastal scrub habitat, from 230-2,660 feet. Mesa horkelia

has been documented by the CNDDDB within the Oceano Dunes SVRA at Oso Flaco Lake from one collection in 1973 (CNDDDB 2022). However, this identification is in question as the species was listed as common but has not been observed since. This occurrence is potentially misidentified wedge leaf horkelia (*Horkelia cuneata* var. *cuneata*) which is very common throughout the Oceano Dunes SVRA.

Monterey Coast Paintbrush (California Rare Plant Rank 4.3)

Monterey Coast paintbrush (*Castilleja latifolia* ssp. *latifolia*) is an annual herb in the broomrape family (Orobanchaceae) that blooms from March through May. It is endemic to California and is threatened by development and grazing (CNPS 2022). It occurs in meadows and seeps and in valley and foothill grasslands, sometimes on serpentine soils, from 30-1,300 feet. Monterey Coast paintbrush has been documented throughout the Oceano Dunes SVRA.

Nuttall's Milkvetch (California Rare Plant Rank 4.2)

Nuttall's milkvetch (*Astragalus nuttallii* var. *nuttallii*) is a perennial herb in the pea family (Fabaceae) that blooms from January through November. It is endemic to California and is possibly threatened by foot traffic (CNPS 2022). It occurs in coastal bluff scrub and coastal dunes from 10-400 feet. At the Oceano Dunes SVRA, the species is locally common in stabilized low lying dune slack areas throughout the District.

Paniculate Tarplant (California Rare Plant Rank 4.2)

Paniculate tarplant (*Deinandra paniculata*) is an annual herb in the sunflower family (Asteraceae) that blooms from April through November. It occurs in coastal scrub, valley and foothill grassland, and vernal pools, usually on vernal mesic and sometimes on sandy sites, from 80-3,080 feet. It is threatened by development and potentially by road widening. Some historical occurrences have been extirpated by urbanization (CNPS 2022). In the Oceano Dunes SVRA, paniculate tarplant has been documented in the southern part of the Phillips 66 Leasehold.

Red Sand Verbena (California Rare Plant Rank 4.2)

Red sand verbena is a perennial herb in the four o'clock family (Nyctaginaceae) that blooms from February through November. It occurs on coastal dunes from 0-330 feet. It occurs (CNPS 2022). However, red sand verbena is locally common within the foredunes throughout the Oceano Dunes SVRA.

Sand Almond (California Rare Plant Rank 4.3)

Sand almond (*Prunus fasciculata* var. *punctata*) is a perennial deciduous shrub in the rose family (Rosaceae) that blooms from March through April. It is endemic to Santa Barbara and San Luis

Obispo counties (CNPS 2022). It occurs in maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub on sandy soils from 50-650 feet. In the Oceano Dunes SVRA, sand almond is locally common within stabilized dunes of the Phillips 66 Leasehold.

San Luis Obispo Monardella (California Rare Plant Rank 1B.2)

San Luis Obispo monardella (*Monardella undulata* ssp. *Undulata*) is a perennial rhizomatus herb that blooms from May through September. It has purple flowers and is in the mint family (Lamiaceae). It is endemic to Santa Barbara and San Luis Obispo counties and is threatened by coastal development, vehicles, and potentially non-native plants (CNPS 2022). It occurs in coastal dunes and sandy coastal scrub from 30-650 feet. Within the Oceano Dunes SVRA, the species occurs within the Phillips 66 leasehold near Jack Lake and within the stabilized back-dunes of the Southern Non-Riding Area MU.

Sand Mesa Manzanita (California Rare Plant Rank 1B.2)

Sand mesa manzanita (*Arctostaphylos rudis*) is a perennial evergreen shrub in the heath family (Ericaceae) that blooms from November through February. It occurs in maritime chaparral and coastal scrub on sandy soils from 80-1,050 feet. It is endemic to San Luis Obispo and Santa Barbara counties and is threatened by agriculture, road construction, road maintenance, and oil extraction. It has been severely reduced on Nipomo Mesa (CNPS 2022). A sand mesa manzanita sighting of one individual plant was reported by CDPR staff in the early 2000's within the Phillips 66 leasehold in the Oceano Dunes SVRA but the sighting was determined to be extirpated as of 2010 from unknown causes. The closest CNDDDB record to the study area is approximately 1.5 miles east at Nipomo Mesa (CNDDDB 2016).

Short-Lobed Broomrape (California Rare Plant Rank 4.2)

Short-lobed broomrape (*Orobanche parishii* ssp. *Brachyloba*) is a perennial, parasitic herb in the broom-race family (Orobanchaceae) that blooms from April through October. It occurs in coastal bluff scrub, coastal dunes and coastal scrub from 10-1,000 feet. Within Oceano Dunes SVRA it was documented in south Oso Flaco from one record in 1967 (CNDDDB 2022).

Southwestern Spiny Rush (California Rare Plant Rank 4.2)

Southwestern spiny rush (*Juncus acutus* ssp. *Leopoldii*) is a perennial rhizomatous herb in the rush family (Juncaceae) that blooms from March through June. It occurs in coastal dunes (mesic), meadows and alkaline seeps, and in coastal salt marshes and swamps from 10-3,000 feet. It is threatened by urbanization and flood control projects (CNPS 2022). Southwestern spiny rush has been documented nearby the Oceano Dunes SVRA in the Pismo Dunes Natural Preserve and within the SVRA at the Eucalyptus Tree vegetation island.

Suffrutescent Wallflower (California Rare Plant Rank 4.2)

Suffrutescent wallflower is a perennial herb in the mustard family (Brassicaceae) that blooms from January through July. It is endemic to the southern California coast and is threatened by coastal development, vehicles, and non-native plants (CNPS 2022). It occurs in coastal bluff scrub, maritime chaparral, coastal dunes, and coastal scrub from sea level to 500 feet. Suffrutescent wallflower is locally common and widespread in the Oceano Dunes SVRA.

Non-native Invasive Species

Oceano Dunes SVRA has many non-native animal species (Appendix 1). American bullfrog (*Lithobates catesbeianus*) has been documented at some water features throughout the District including Oceano Lagoon, Meadow Creek, Carpenter Creek, and Pismo Lake and Creek. District staff have also seen red-eared slider (*Trachemys scripta*) nesting near the Nature Center, European Starling, Brown-headed Cowbird, mosquitofish (*Gambusia affinis*), bass (*Micropterus* spp.), sunfish (*Lepomis* spp.), crayfish (*Procambarus clarkii*), and feral pigs (*Sus scrofa*) throughout the District.

Oceano Dunes SVRA also has many non-native plants (Appendix 1). During the 2022 VegCAMP survey, non-native plant cover was estimated either during the field surveys, gathered from past surveys, or inferred from context if there was no field data. Since not all of the District has been quantitatively surveyed for exotic cover, the survey data has been broken into qualitative categories as follows:

- High – Over 50% of the polygon is covered with non-native plants; percent cover is determined using absolute cover.
- Moderate – Between 25% and 50% of the polygon is covered with non-native plants.
- Minimal – Between 5% and 25% of the polygon is covered non-native plants.

Figure 12 shows the best available distribution of non-native plant cover within the Oceano Dunes SVRA with 113.7 acres of maximum cover, 127.9 acres of moderate cover, and 609.1 acres of minimal cover.

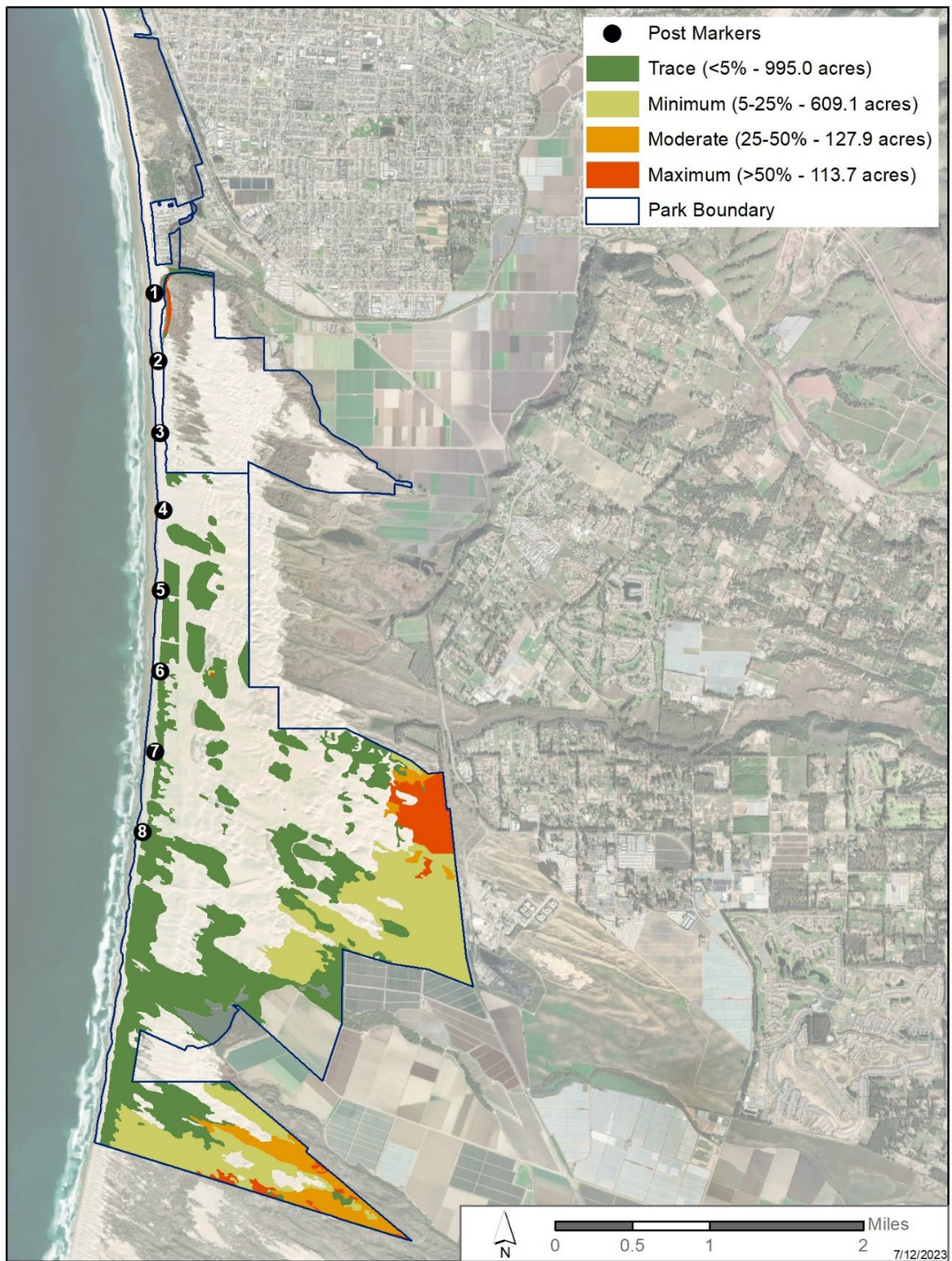


Figure 12. Non-native Plant Cover throughout the Oceano Dunes SVRA

Invasive species can physically compete with and exclude native species from the landscape and can be very difficult to control. At Oceano Dunes SVRA, perennial veldt grass is a particularly aggressive invasive that has altered the native dune habitats. As a prolific seeder, it spreads quickly filling in the naturally open sandy spaces that seasonally would be occupied by native annual forbs. As the perennial veldt grass plants grow and mature, they will eventually displace native shrubs. Perennial veldt grass is prevalent within the stabilized backdunes of the Northern Non-Riding Area and Southern Non-Riding Area MU's where it exceeds 50 percent cover in some areas. Perennial veldt grass is given a high priority for removal where it occurs in and around occupied habitat for Endangered Nipomo Mesa lupine and within the Vegetated Islands. Another aggressive invasive within the Oceano dunes SVRA is European beach grass which is prevalent in the foredunes along Arroyo Grande Creek, the foredunes and backdunes of the southern Non-Riding Area and along the Union Pacific Railroad boundary of the Northern Non-Riding Area. Considerable progress has been made over the past twenty years in controlling European beach grass within the foredunes and western most backdunes of the Southern Non-Riding Area. Controlling re-sprouting within these past treatment areas is a high priority. Other common non-native species found throughout the vegetated areas of the Oceano Dunes SVRA include ice plant (*Carpobrotus chilensis* and *C. edulis*), European sea rocket, false ice plant, golden wattle, Cape ivy (*Delairea odorata*) and red brome. The Oceano Dunes SVRA uses principles of Early Detection and Rapid Response (EDRR) to identify and address invasive plant species within the Park (CDPR 2020).

Sensitive Aquatic Habitats

Figure 13 shows all currently known sensitive aquatic resources within the District boundary, based upon the California Aquatic Resources Inventory (CARI). These may support special status aquatic plant and animal species or be under the jurisdiction of another agency such as the Army Corp of Engineers or CDFW for project-related activities. There are 3.4 miles of Fluvial Natural Drainage Features and 0.4 miles of Fluvial Unnatural Drainage Features (3.8 miles total drainage features). A sum of 751 acres of aquatic habitats are comprised of: 297.5 acres of Marine Intertidal: Beach, Dune, and Rocky Shore, 36.4 acres of Lacustrine: Lake, Reservoir and associated vegetation, 395.7 acres of Depressional: Pond and associated vegetation, 14.4 acres of Estuarine Subtidal: Subtidal Water, 4.6 acres of Estuarine Intertidal: Tidal Flat and Marsh Panne, and 2.3 acres of Estuarine Intertidal Vegetated: Tidal Marsh.



Figure 13. Sensitive Aquatic Resources in Oceano Dunes District (SFEI, 2017)

Wildlife Movement

Habitat corridors facilitate wildlife migration and movement within landscapes and are essential to the viability and persistence of many wildlife populations. Wildlife movement includes migration, inter-population movement, and small travel pathways (i.e., daily movement corridors within an animal's territory). While small travel pathways usually facilitate movement for daily home range activities, such as foraging or escape from predators, they also connect outlying populations and the main corridor, permitting an increase in gene flow among populations. These linkages among habitats can extend for miles and occur on a large scale throughout California.

A variety of species move within and through Oceano Dunes SVRA. Wildlife may move along stream corridors or between habitat patches within scrub or willow woodlands. CDFW provides the Biogeographic Information and Observation System data sets which include Essential Connectivity Areas. Of these, only 412.6 acres of Natural Small Areas – California Essential Habitat Connectivity fall within and on the District boundary (Figure 14).



Figure 14. Wildlife Movement and Habitat Connectivity to the Surrounding Area of Oceano Dunes District (Gogol-Prokurat, 2018)

Wildlife Movement continued

The 22,000-acre Guadalupe-Nipomo Dunes complex (GNDC), of which ODD is a part of, provides important habitats for a wide variety coastal species. In 1974, the US Secretary of the Interior designated the GNDC as a National Natural Landmark for containing the largest, relatively undisturbed coastal dune tract in California and exhibiting one of the highest rates of endemism of any dunes in North America (The Land Conservancy of San Luis Obispo County, 2018).

In 2014, a GNDC task force began a conservation planning effort to identify which areas in the GNDC would be the focus for protection. A conservation strategy (termed Dune Protected Areas (DPA)) was developed which identified a network of high priority conservation areas designed to preserve and promote native biodiversity; maximize resiliency to a changing climate; maintain ecological processes that promote the dynamic nature of the dunes; preserve and promote wetland and upland habitat quality and connectivity (The Land Conservancy of San Luis Obispo County, 2018). The DPA Network is based loosely on the “Green Infrastructure Network” concept used in urban environments to protect natural habitats and wildlife pathways. It is an interconnected system of protected natural areas that conserve ecosystem functions while providing benefits for wildlife (Benedict et al., 2002). Each DPA consists of core areas and hubs, which are connected by linkages. Connectivity throughout the GNDC is important for migratory pathways, facilitating gene flow and strengthening adaptability to rapid and severe changes in climate (The Land Conservancy of San Luis Obispo County, 2018). Linkages between the DPAs was especially important for small mammals, reptiles and invertebrates as they use a variety of specific habitats for food sources, breeding grounds and protection as they move through the ecosystem (The Land Conservancy of San Luis Obispo County, 2018).

This conservation planning effort resulted in a DPA Restoration Plan, Work Plan, and Monitoring Plan prepared by the Land Conservancy of San Luis Obispo County.

Adaptive Management Relating to Climate Change

The earth’s climate is changing rapidly due to anthropogenic factors that result in increased greenhouse gas emissions, primarily carbon dioxide. The effects of climate change include long-term shifts in temperature and precipitation and increase the frequency and magnitude of extreme weather events. Strategies to respond to climate change include mitigation and adaptation actions. Mitigation actions target the reduction of greenhouse gas emissions or their removal from the atmosphere. Adaptation actions target reducing the specific impacts caused by climate change on the landscape.

For vegetation and wildlife to successfully adapt, organisms require healthy, connected landscapes that allow shifts in behavior, distribution, and – on a longer timeframe – evolutionary processes to operate unimpeded (Chambers et al. 2019, Seavy et al. 2009). For

organisms to respond to the rapid rate of climate change on an evolutionary level, they require a landscape that supports their biology and population dynamics (Bonnet et al. 2022).

The most important climate adaptation strategy for natural resource land managers is the recovery and protection of healthy, connected ecosystems (Seavy et al. 2009). Healthy ecosystems are more resilient to the short-term and long-term effects of climate change (Gunderson 2000; Scheffer et al. 2001). Ecosystems with high ecological connectivity (e.g., connectivity within a habitat type, between different ecotones, upstream/downstream through elevation gradients, horizontally on to floodplains) allow movement and resource exchange across the landscape.

The WHPP addresses climate adaptation for species and ecosystems through removing stressors and restoring ecosystem connectivity, structure, and function. This will allow natural resources to more easily adapt to primary (e.g., changes in temperature, precipitation) and secondary (e.g., stream hydrology, fire) effects of climate change. The adaptive management approach of this WHPP provides the opportunity to understand the response of natural resources to changes in environmental conditions from climate change as well as changes in response to management through mitigation and adaption actions.

Given the increased frequency of sea level rise-associated impacts to coastal resources at state parks, an interdisciplinary State Parks working group was convened in 2018 to develop a comprehensive Sea Level Rise Adaptation Strategy that addresses the needs of the department. The Strategy was completed and approved in late 2020 and can be found on the Sea Level page of California State Park's website.

STATE AND REGIONAL CONSERVATION PLANNING

PRC Section 5090.32(g) requires that WHPPs be developed considering statutorily required state and regional conservation objectives (CDPR 2021). As a result, the below referenced State and Regional Conservation Objectives were reviewed and considered while developing the Oceano Dunes WHPP objectives (Table 4). These state and regional conservation objectives are only for reference purposes for developing the WHPP and are not necessarily subject to complying with all of the referenced plans. This consideration has led to well-defined WHPP objectives that will ensure that the SVRA is managed in a manner compatible with the values expressed by the surrounding community. Note- at the time of writing this document, there were no relevant regional conservation plans for Oceano Dunes District to draw from.

Table 4. Summary of Plans, their Geographical Relationship to the Park, and whether the WHPP Contributes to Conservation Objectives

Plan Name	State or Regional Plan	Geographical Overlap with the Park	Contains Relevant Target Resources	Contributes to Conservation Objectives
State Wildlife Action Plan	State	X	X	X
California Water Resilience Portfolio	State	X	-	X
California Biodiversity Initiative	State	X	X	X
Safeguarding California Plan	State	X	-	X

State Wildlife Action Plan (SWAP)

This plan, developed by the CDFW in 2015, in concert with several partners statewide, provides a blueprint for conserving wildlife and their habitats in the context of a growing human population and a changing climate. The plan complies with the federal State and Tribal Wildlife Grants (STWG) Program requirements. One of the priority goals of the Plan is to maintain and improve ecological conditions vital for sustaining ecosystems in California by, in part, improving ecosystem connectivity and community structure. The 2022 WHPP supports SWAP goals by maintaining and improving wildlife habitat over time within the SVRA.

The SWAP has divided the state of California into seven provinces and developed regional conservation strategies for each. Oceano Dunes SVRA is located within the Bay Delta and Central Coast Province. Oceano Dunes SVRA falls within the Central California Coast Conservation Unit, targeting coastal sage scrub, coastal dune scrub, and coastal lagoon habitats and their associated focal species. This WHPP aligns with the SWAP's conservation goals by incorporating a long-term goal of direct management of these vegetation community types and the protection and improvement of wetland and riparian habitats.

Note: CDFW conducted a comprehensive review and update of the SWAP. The draft SWAP was made available for public comment in March 2025. The 2025 SWAP will be reviewed and considered during the 5-year WHPP update.

California Water Resilience Portfolio

In 2020, in response to Executive Order N-10-19, the California Natural Resource Agency, collaborating with the California Environmental Protection Agency (CalEPA) and the California

Department of Food and Agriculture, developed the California Water Resilience Portfolio. This portfolio was designed out of the necessity for California to improve its capacity to prepare for water disruptions, withstand and recover from prolonged droughts, and adapt to future climate-related water resource conditions. The portfolio takes a diversified approach with multiple strategies, which local and regional entities can use to build resilience and motivate progress and collaboration. The portfolio identifies four separate broadly defined goals/actions: 1) maintain and diversify water supplies; 2) protect and enhance natural systems; 3) build connections, and 4) be prepared.

While this document focuses on large-scale natural and artificial water storage and conveyance systems and infrastructure (e.g., groundwater basins, rivers, reservoirs, aqueducts, etc.), it still has significance to Oceano Dunes SVRA. By actively conserving and improving wetland and riparian habitats, protecting aquatic resources and wildlife, and working towards reducing sedimentation and other potential foreign matter from entering waterways, this WHPP is actively complementing and contributing to the goals/actions outlined by this portfolio.

California Biodiversity Initiative

Started by former California Governor Brown and launched by Governor Newsome in 2018, the goal of the California Biodiversity Initiative is to secure the future of California's biodiversity by integrating biodiversity protection into the state's environmental and economic goals and efforts. Led by the California Natural Resources Agency, the initiative identifies broad, long-term goals, as well as short-term and long-term steps that recover, protect, maintain, and secure all habitats, species, and ecosystems present throughout the state. It specifically identifies the need to establish the current baseline information and assessments of habitat health to better understand the status of the State's current biodiversity and health of habitat features. Additionally, it identifies that conservation and management goals should incorporate biodiversity protections and discusses methods, such as managing invasive species populations and restoring and protecting lands and waters, that can help meet biodiversity goals.

The Oceano Dunes SVRA WHPP aligns with the conservation objectives outlined in the California Biodiversity Initiative by better understanding biodiversity and managing resources based on adaptive management strategies informed by monitoring and research at Oceano Dunes SVRA. The prioritization of the WHPP is to conserve and improve existing habitat. While this directive may not directly create identifiable or direct biodiversity goals, successful implementation of a WHPP that conserves and improves habitat will still indirectly lead to improved biodiversity within Oceano Dunes SVRA. Additionally, species and taxonomic monitoring identified as part of the adaptive management will lead to increased understanding of the District's biodiversity and associated habitat values.

2018 Safeguarding California Plan

Developed by the California Natural Resources Agency, the updated 2018 Safeguarding California Plan's purpose is to lay out guidelines for how agencies can incorporate strategies necessary to address climate change into their future planning efforts. The 2018 update included a chapter specific to California State Parks, chapter PC-5, and the following recommendations to incorporate climate change in all California State Parks and conservancy planning and decision-making. The plan identifies the step to prioritize conservation, protection, and restoration of natural resources in climate change adaptation projects and planning to ensure sustainable recreational opportunities for the public. Oceano Dunes SVRA WHPP aligns with this plan by conserving and improving habitat.

One of the primary goals and objectives specific to the Oceano Dunes SVRA WHPP is to conserve and improve the identified habitats through specific management actions directed by research and monitoring. In addition to conserving and improving habitat, the WHPP provides Oceano Dunes SVRA management with information and recommendations necessary to maintain sustainable public recreation opportunities.

WHPP GOALS AND OBJECTIVES

Setting goals and objectives clarifies the outcomes to be achieved by implementing annual management activities to protect and maintain habitat health and restoration targets to achieve "habitat improvement" as required by law (CDPR 2021). In addition, well-crafted goals and objectives can identify targeted resource conditions while allowing for flexibility to apply innovative techniques to achieve desired conditions. This section describes the goals and objectives developed for Oceano Dunes SVRA.

WHPP GOALS AS DEFINED BY THE PUBLIC RESOURCE CODE

The 2017 update to California Public Resources Code (PRC) pertaining to off-highway motor vehicle recreation provides the goals for this WHPP (CDPR 2021). Specifically, PRC §5090.35 (c) (1) calls for the Division to "...prepare a wildlife habitat protection plan that conserves and improves wildlife habitats for each state vehicular recreation area." Further, PRC §5090.10 defines "Conservation" and "conserve" as "...activities, practices, and programs that protect and sustain soils, plants, wildlife, habitats, and cultural resources". PRC §5090.11 defines "restoration" and "restore" to mean "upon closure of the unit or any portion thereof, the restoration of land to the contours, the plant communities, and the plant covers comparable to those on surrounding lands or at least those that existed prior to off-highway motor vehicle use."

Given the language provided by the PRC, the fundamental habitat goals of the WHPP are to provide for (CDPR 2021):

- the conservation or long-term protection of soils, plants, wildlife, and habitats.
- the improvement or increase in the quality or extent (hereafter, “restoration”) of soils, plants, wildlife, and habitats.

WHPP OBJECTIVES

The objectives for this WHPP are tiered directly from the two goals identified in the section above. While the goals are broader and over-arching, objectives must be more defined and identify specific aspects needed to meet the goals of the overarching resource to allow for program flexibility. To further assist with the development of objectives and ensure that every aspect of the goals are met, the goals have been divided into four resources categories identified by the PRC: Soils, Vegetation, Wildlife, and Habitat. This section will identify objectives for each resource category that work towards WHPP Goals.

It should be noted that while these four resource categories are determined and delineated by the language present in the PRC, due to their interrelated nature there is considerable overlap in the monitoring, management actions, and objectives designed to conserve and improve them. The actions identified in this WHPP will often inform, conserve, and improve conditions for not just one but multiple resource categories ([Figure 15](#)).

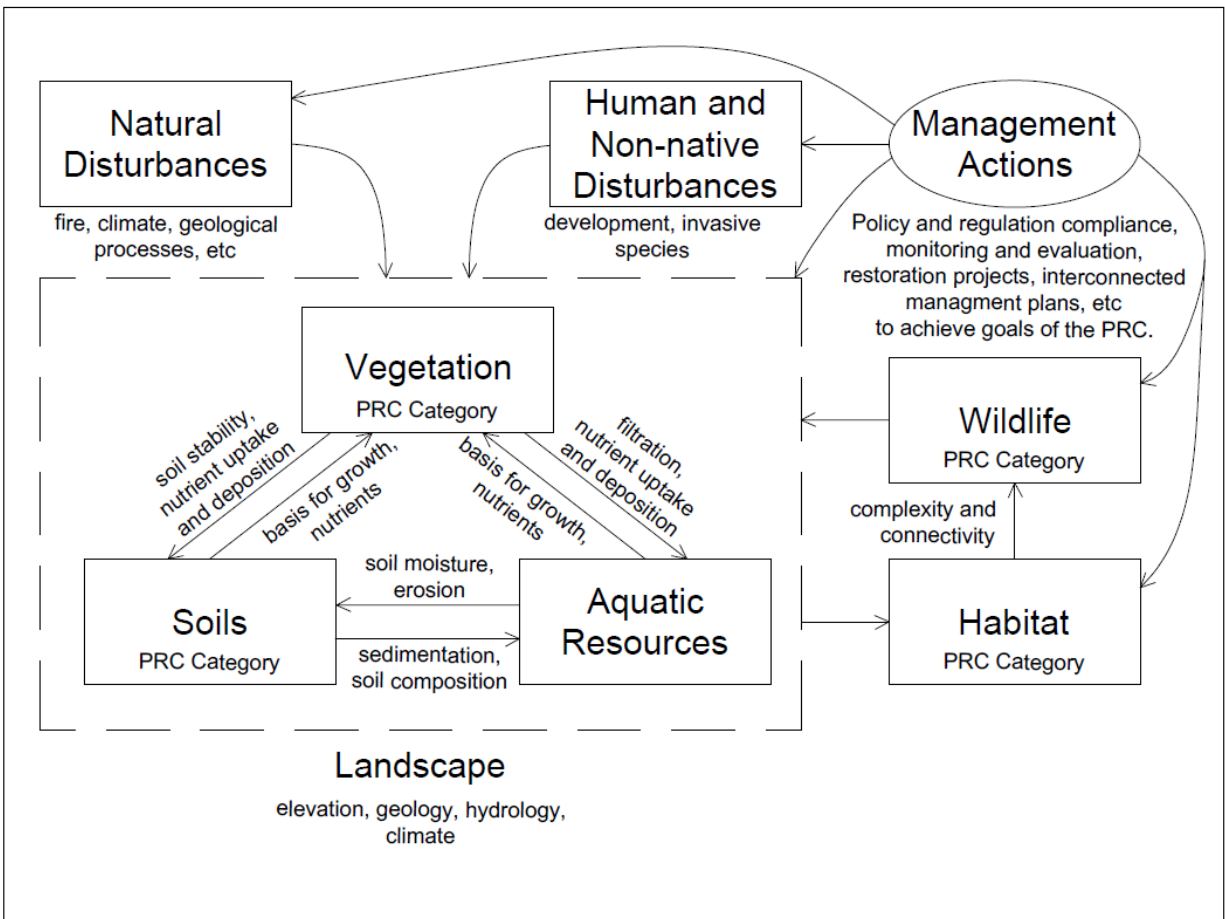


Figure 15. Conceptual Model Demonstrating the Interwoven Nature of Soils, Plants, Wildlife, and Habitat within the Ecosystem and the Reflective Interconnected Nature of the PRC Goals, WHPP Objectives, and Management Actions

The objectives assigned under each goal follow S.M.A.R.T. format principles and inherently conform to the best available science and adaptive management (CDPR 2021). S.M.A.R.T. refers to objectives that are “specific,” “measurable,” “achievable/attainable,” “realistic,” and “timely.” Many of the S.M.A.R.T. Targets referenced below are subject to state and federal permits and oversight from regulatory agencies. Some of the activities may be limited because of those restrictions.

Conservation and Long-term Protection Objectives

“Conservation and long-term protection” in PRC section 5090.35(c)(1) is achieved through setting resource objectives that target the protection and maintenance of the extent and condition of the existing soils, plants, wildlife, and habitats within the SVRA. The objectives below allow for the conservation of the resource categories provided for in the PRC.

A summary of the WHPP goals and objectives listed below can be found in Table 5. The table also outlines each goal's management actions and monitoring program, as described in Appendix 2 and 3. Note: There may be factors outside of the Park's control that limit the ability of staff to achieve an objective(s). Those factors are listed in the Constraints section below.

Resource Category (Conservation): Vegetation/ Habitat/ Soils (Objective 1)

Objective—1— Conserve State and Federally listed plant species through 2029.

S.M.A.R.T. Target(s):

Objective 1 Target 1(**O1T1**): Prevent perennial veldt grass cover from exceeding 25% within Nipomo mesa lupine occupied habitat and 5% within adjacent suitable habitat for Nipomo Mesa lupine within the Northern Non-Riding Area MU.

O1T2: Over a 3-year moving average, maintain or exceed 1,250 square meters of occupied habitat of surf thistle and 200 square meters of occupied habitat of beach spectaclepod.

O1T3: Over a 3-year moving average, maintain or exceed 26 reproducing individuals of Nipomo Mesa lupine annually.

Resource Category (Conservation): Wildlife (Objectives 2-5)

Objective 2 – Conserve western snowy plover (SNPL) populations through 2029.

S.M.A.R.T. Target(s):

O2T1: Maintain or exceed 155 SNPL breeding adults over a moving average 3-year window.

O2T2: Maintain or exceed a moving average of 1.0 SNPL fledglings per male over a 3-year window.

Objective 3 – Conserve California least tern (CLTE) populations through 2029.

S.M.A.R.T. Target(s):

O3T1: Maintain or exceed 30 CLTE breeding adult pairs over a moving average 3-year window.

O3T2: Maintain or exceed a moving average of 0.8 CLTE fledglings per breeding pair over a 3-year window.

Objective 4 – Maintain presence of known populations of tidewater goby (TWG) through 2029.

S.M.A.R.T. Target(s):

O4T1: Maintain presence of TWG within Arroyo Grande Creek and Lagoon MU by minimizing potential impacts to TWG individuals and fisheries habitat through implementing the management actions described in Table 5.

Objective 5 – Maintain presence of known populations of California red-legged frog (CRLF) through 2029.

S.M.A.R.T. Target(s):

O5T1: Maintain presence of CRLF within Arroyo Grande Creek and Lagoon MU and Oso Flaco Watershed MU by minimizing potential impacts to CRLF and riparian habitat through implementing the management actions described in Table 5.

Resource Category (Conservation): Vegetation/ Soils (Objective 6)

Objective 6 – Conserve native California plant communities through 2029.

S.M.A.R.T. Target(s):

O6T1: Continue to conserve 1,102 acres of native vegetation communities within Vegetated Islands MU and Northern Non-Riding Area MU through management actions described in Table 5.

Restoration and Improvement Objectives

The PRC requirement of “restoration” is achieved by setting objectives that target improving degraded conditions or provide for re-establishment of soils, plants, wildlife, and habitats within a SVRA. The objectives below allow for the ecological improvement of the resource categories provided for in the PRC.

A summary of the WHPP goals and objectives listed below can be found in Table 5. The table also outlines each goal’s management actions and monitoring program, as described in Appendix 2 and 3.

Resource Category (Improvement): Vegetation/ Wildlife/ Habitats/ Soils (Objectives 7-8)

Objective–7– Improve habitat quality through reducing invasive plant species cover through 2029.

S.M.A.R.T. Target(s):

O7T1: Prevent exotic plant species, specifically perennial veldt grass, ice plant and European beach grass from exceeding 1% cover within the Vegetated Island MU.

O7T2: Prevent live European beachgrass from exceeding 1% cover in the 118 acres of foredune habitat within the Southern Non-Riding Area.

Objective–8– Improve habitat for migratory and nesting birds, small mammals, and native vegetation through 2029.

S.M.A.R.T. Target(s):

O8T1: Install a minimum of 50 acres of native planting projects within the Vegetation Islands MU, Northern Non-Riding Area MU, or areas previously closed to OHV activities.

Table 5. Summary of Oceano Dunes SVRA WHPP Goals and Objectives and their Associated Management Actions and Monitoring Programs

Goal	Resource Category from PRC 5090.10	S.M.A.R.T. Objectives	Management Actions	Monitoring
Conserve	Vegetation Habitat Soils	Objective 1: Conserve State and Federally listed plant species through 2029.	-Maintain fencing around existing State and Federally listed vegetation as needed. -Conduct manual and chemical removal of invasive species. -Cage individual listed plants to prevent herbivory. -Conduct out-planting of listed species.	-Invasive Plant Cover Assessment adjacent to special-status species every two years. -Special-status plant surveys and mapping annually. -Conduct required monitoring and implement best management practices to ensure compliance with project permits, management plans, state and federal laws and regulations.
Conserve	Wildlife	Objective 2: Conserve western snowy plover (SNPL) populations through 2029.	-Conduct management activities outlined in the Nesting Season Management Plan (Appendix 5). Actions include: closures and fencing, informational signage and enforcement, habitat enhancement, predator management.	-Conduct monitoring actions outlined in the Nesting Season Management Plan (Appendix 5).
Conserve	Wildlife	Objective 3: Conserve California least tern (CLTE) populations through 2029.	-Conduct management actions outlined in the Nesting Season Management Plan (Appendix 5). Actions include: closures and fencing, informational signage and enforcement, habitat enhancement, predator management.	-Conduct monitoring actions outlined in the Nesting Season Management Plan (Appendix 5).
Conserve	Wildlife	Objective 4: Maintain presence of known populations of tidewater goby (TWG) through 2029.	-Protect tidewater goby habitat in Arroyo Grande Creek and Lagoon MU by enforcing Superintendent's order dealing with creek crossing guidelines. -Close pooled habitats and monitor creek conditions to make sure existing fencing is preventing public access into suitable TWG habitat. - Coordinate with willing landowners and water agencies within Arroyo Grande Creek and Lagoon MU to minimize upstream water quality/quantity effects. -Control non-native predators such as bullfrogs, largemouth bass, crayfish etc. within Arroyo Grande Creek and Lagoon MU. -Mechanical or hand removal of non-native plants found within Arroyo Grande Creek and Lagoon MU.	-Conduct surveys for tidewater goby in compliance with USFWS 10 (a)(1)(A) permit.

Goal	Resource Category from PRC 5090.10	S.M.A.R.T. Objectives	Management Actions	Monitoring
Conserve	Wildlife	Objective 5: Maintain presence of known populations of California red-legged frog (CRLF) through 2029.	-Protect California red-legged frog habitat in Arroyo Grande Creek and Lagoon MU by enforcing creek crossing guidelines. - Coordinate with willing landowners and water agencies to identify and avoid water quality and quantity effects within Arroyo Grande Creek and Lagoon MU. - Remove non-native predators such as bullfrogs, largemouth bass, crayfish etc. -Mechanical or hand removal of non-native plants found within Arroyo Grande Creek and Lagoon MU.	-Conduct annual California red-legged frog surveys.
Conserve	Vegetation Soils	Objective 6: Conserve native California plant communities through 2029.	-Install and maintain existing fencing around native plant communities as needed. These strategies are not designed to eliminate or curtail motorized access.	-Visual fence line inspections once per week or as needed.
Improve	Vegetation Wildlife Habitats Soils	Objective 7: Improve habitat quality through reducing invasive plant species cover through 2029.	-Conduct chemical removal of perennial veldt grass and European beachgrass. -Conduct manual removal of perennial veldt grass.	-Map distribution of veldt grass and European beachgrass every 5 years within Vegetated Island MU. -Early detection and rapid response.
Improve	Vegetation Wildlife Habitats Soils	Objective 8: Improve habitat for migratory and nesting birds, small mammals, and native vegetation through 2029.	-Conduct native plant community restoration plantings annually. -Install and maintain existing fencing around native plant communities as needed. These strategies are not designed to eliminate or curtail motorized access.	-Conduct mapping of new Restoration Areas. -Conduct VegCAMP survey of restored areas every 5-years. -Conduct plant species inventory of restored areas at least two years after installation. -Conduct surveys for terrestrial birds and small mammals as part of scientific research and long-term trend monitoring efforts.

MANAGEMENT ACTIONS

Management actions are responses that can be taken to improve habitat, reduce impacts to habitat, respond to triggers, and attempt to reach success criteria, all to move toward habitat goals and objectives (CDPR 2020i). These actions are informed by the District’s resource objectives, success criteria, and monitoring results. For more detail on all the management actions described in the following Table 6 and for additional reasonably feasible actions not listed here, see Appendix 2.

Table 6. Summary of Management Actions and Potential Scheduling over the Next Five Years

Management Action Category	Management Action	Associated WHPP Objective	Year	Timing	Location (Management Unit)	Additional Information
Ongoing Natural Resource and Maintenance Activities	Prevent unauthorized vehicle incursion by installing new fence and signage and maintaining existing fence and signage as needed to protect native vegetation communities and sensitive and special status species and habitats.	1, 2, 3, 4, 5, 6, 8	Through 2029	Annual	Street-legal Vehicle Area and Open Riding Area MU, Vegetated Islands MU, Northern Non-Riding Area MU, Southern Enclosure, Arroyo Grande Creek and Lagoon MU	-
Ongoing Natural Resource and Maintenance Activities	Conduct manual and/or chemical removal of invasive plant species.	1, 4, 5, 7	Through 2029	Annual	Vegetated Islands MU, Northern Non-Riding Area MU, and Southern Non-Riding Area MU	-

Management Action Category	Management Action	Associated WHPP Objective	Year	Timing	Location (Management Unit)	Additional Information
Ongoing Natural Resource and Maintenance Activities	Continue annual ecological restoration program with a focus on native plant communities including local seed collection, plant propagation, and field installation.	8	Through 2029	Annual	Vegetation Islands MU, Open Riding Area MU, and Northern Non-Riding Area MU	Conduct supplemental planting and seeding within restoration areas where planting may not have established.
Ongoing Natural Resource and Maintenance Activities	Cage individual listed plants to prevent herbivory when appropriate and authorized within applicable permits. Conduct out-planting of listed species when authorized within applicable permits.	1	Through 2029	Annual	Northern Non-Riding Area MU	-

Management Action Category	Management Action	Associated WHPP Objective	Year	Timing	Location (Management Unit)	Additional Information
Ongoing Natural Resource and Maintenance Activities	Minimize upstream water quality/quantity effects and suitable habitat by facilitating cooperative management efforts with willing landowners and water agencies.	4, 5	Through 2029	Annual	Arroyo Grande Creek and Lagoon MU, Oso Flaco Watershed MU	-
Ongoing Natural Resource and Maintenance Activities	Address threats of non-native predators.	2, 3, 4, 5	Through 2029	Annual	Park Wide	-
Policy and Regulation Compliance	Conduct required monitoring and implement best management practices to ensure compliance with project permits, management plans, state and federal laws and regulations.	1, 2, 3, 4, 5	Through 2029	Annual	Park Wide	-

MONITORING PROGRAM

Monitoring programs provide a periodic evaluation of the condition of resources and inform adaptive management within Oceano Dunes SVRA. The Natural Resource Assessment section is the initial assessment within a monitoring program. The discussion below includes current and future planned monitoring at Oceano Dunes SVRA. Performance indicators demonstrate progress and achievements of the objectives outlined in the Goals and Objectives section and evaluate the effects of management actions outlined in the Management Actions section and summarized in Table 5 and Table 6. Details on the monitoring methodology can be found in Appendix 3.

Table 7. A Summary of Monitoring Activities at Oceano Dunes SVRA (ODSVRA)

PRC Category	Monitoring Activity	Frequency (Starting year is 2022)	Objectives being Monitored	Protocol Used
Vegetation	VegCAMP surveys	Every Five years	1, 8	CDFW VegCAMP Protocol
Vegetation	Invasive Plant Surveys (adjacent to special-status species)	Every Two years	1	CDPR EDRR Handbook
Vegetation	Special-Status Plant Surveys	Annual	1	ODSVRA Rare Plant Survey Methods and monitoring in compliance with CDFW 2081 (a) permit
Vegetation	Invasive Plant Surveys (within Vegetated Island MU)	Every Five Years	7	CDPR EDRR Handbook
Vegetation Wildlife Soils	Habitat Closure Fence Monitoring	Weekly	1, 2, 3, 4, 5, 6, 8	ODSVRA Fence Monitoring and Maintenance Protocol
Vegetation Soils	Restoration Project Plant Survival Monitoring	As needed	8	ODSVRA Restoration Project Monitoring Protocol

PRC Category	Monitoring Activity	Frequency (Starting year is 2022)	Objectives being Monitored	Protocol Used
Vegetation Soils	Restoration Project Cover Assessment	Every Five Years	8	CDFW VegCAMP Protocol
Wildlife	Western Snowy Plover and California Least Tern Monitoring	Annual	2, 3	Monitoring in compliance with associated USFWS and CDFW permits. Protocol found in SNPL and CLTE annual report and Nesting Season Management Plan.
Wildlife	Tidewater Goby Monitoring	Quarterly	4	Monitoring in compliance with USFWS protocol and associated USFWS 10 (a)(1)(A) permit.
Wildlife	California Red- Legged Frog	Annual	5	Monitoring in compliance with USFWS protocol and associated USFWS 10 (a)(1)(A) permit if handling.
Wildlife	Terrestrial birds and small mammals	Annual	8	Conduct point count surveys for terrestrial birds and camera trap surveys for small mammals. Monitoring methods are discussed in the Scientific Research and Long-Term Trend Monitoring section.

MONITORING RELATED TO VEGETATION, HABITAT, AND SOILS

Below is a brief discussion of the monitoring activities, performance indicators, management actions, and target parameters that determine the success of Objectives 1, 6, 7, and 8 related to conserving and improving vegetation and habitats within the District. Results of monitoring and potential adaptive management decisions will be included in the Annual Report.

Rare Plant Habitat Monitoring (O1T1, O1T2, O1T3)

O1T1: Prevent perennial veldt grass cover from exceeding 25% within Nipomo Mesa lupine occupied habitat and 5% within adjacent suitable habitat for Nipomo Mesa lupine within the Northern Non-Riding Area MU.

Displacement and habitat loss from perennial veldt grass is a primary threat to Nipomo Mesa lupine (USFWS 2020b Draft Recovery Plan). Because herbicide application is not currently permitted within occupied habitat, the target cover within occupied habitat is higher than the target cover adjacent to occupied habitat where herbicide application is permitted. Perennial veldt grass cover is determined from on-the-ground visual surveys at least once every two years within Nipomo Mesa lupine occupied habitat (refer to Appendix 3 for survey protocol). The goal of monitoring is to track changes in perennial veldt grass cover over time. This monitoring informs management by allowing for prioritization of invasive control activities to areas of highest potential displacement of Nipomo Mesa lupine.

This cover assessment monitoring will directly measure the success of the management actions in meeting the objective. Additional monitoring methods and uncertainties are discussed in Appendix 3.

Metric

Percent veldt grass cover.

Baseline

All baseline surveys were conducted in July 2022. Occupied Nipomo Mesa lupine habitat showed 1-5% cover class for two subpopulations, >5-10% cover class for one subpopulation and >10-25% cover class for the remaining three subpopulations. For adjacent suitable habitat, baseline surveys showed two subpopulations within the <1% cover class and the remaining four subpopulations within the 1-5% cover class (Figure 16).

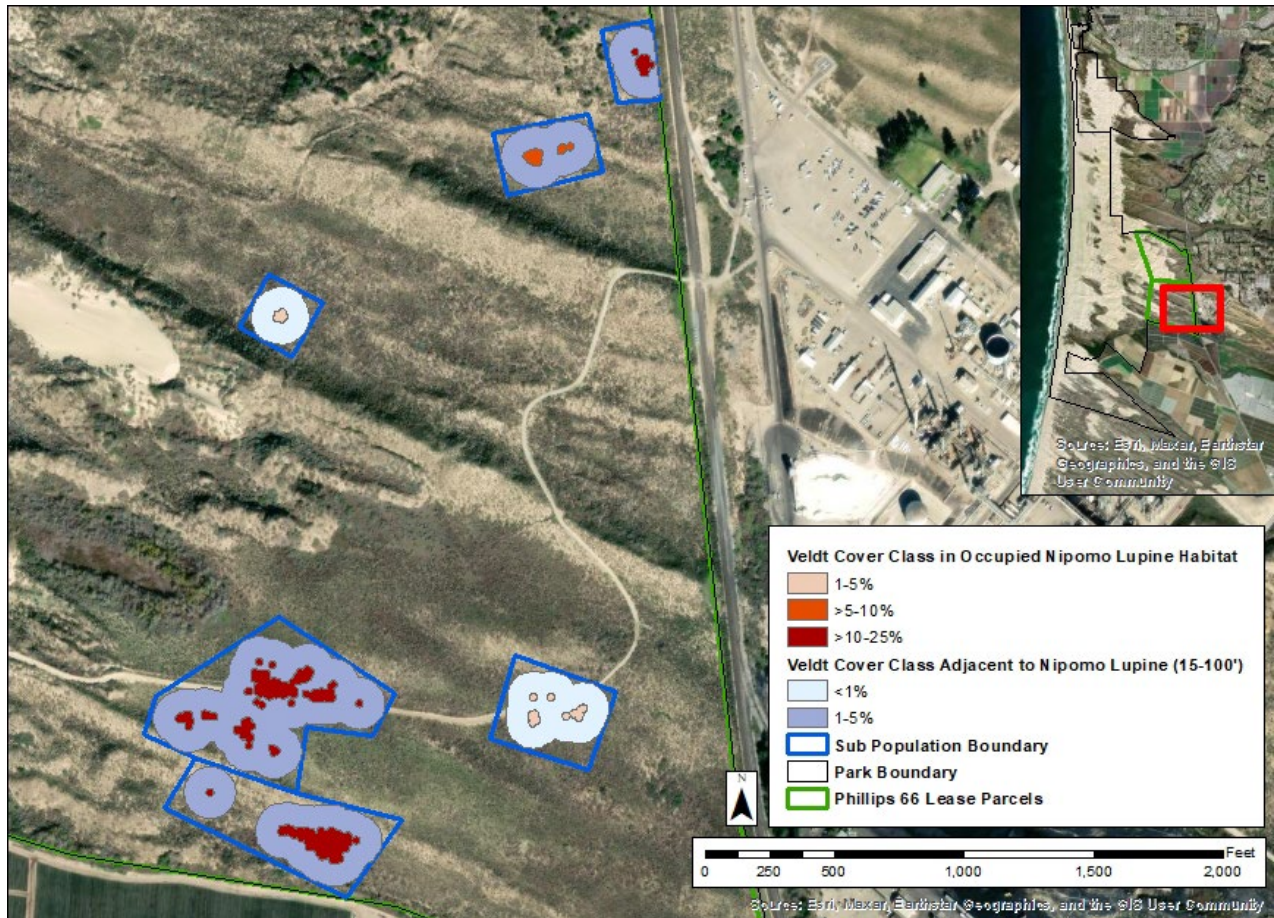


Figure 16. Map of Veldt Cover Classes within and Adjacent to Nipomo Mesa Lupine Occupied Habitat on the Phillips 66 Leasehold property.

O1T2: Over a 3-year moving average, maintain or exceed 1250 square meters of occupied habitat of surf thistle and 200 square meters of occupied habitat of beach spectaclepod.

Monitoring consists of mapping the area of habitat occupied by surf thistle and beach spectaclepod annually to determine changes in the population over time (refer to Appendix 3 for survey protocol). The goal of monitoring is to track the expansion or retraction of these populations to inform where management actions are needed including invasive species control or out-planting activities. The monitoring will directly measure whether the objective is being met by documenting the total area of occupied habitat for both species. To allow for expected variability in plant cover from year to year, the total area for the target is smaller than the area for the baseline for both species.

Metric

Square meters of occupied habitat.

Baseline

The baseline is 1,504 square meters of occupied habitat for surf thistle and 247 square meters of occupied habitat for beach spectaclepod. The baseline was determined in 2023 (Figure 17).

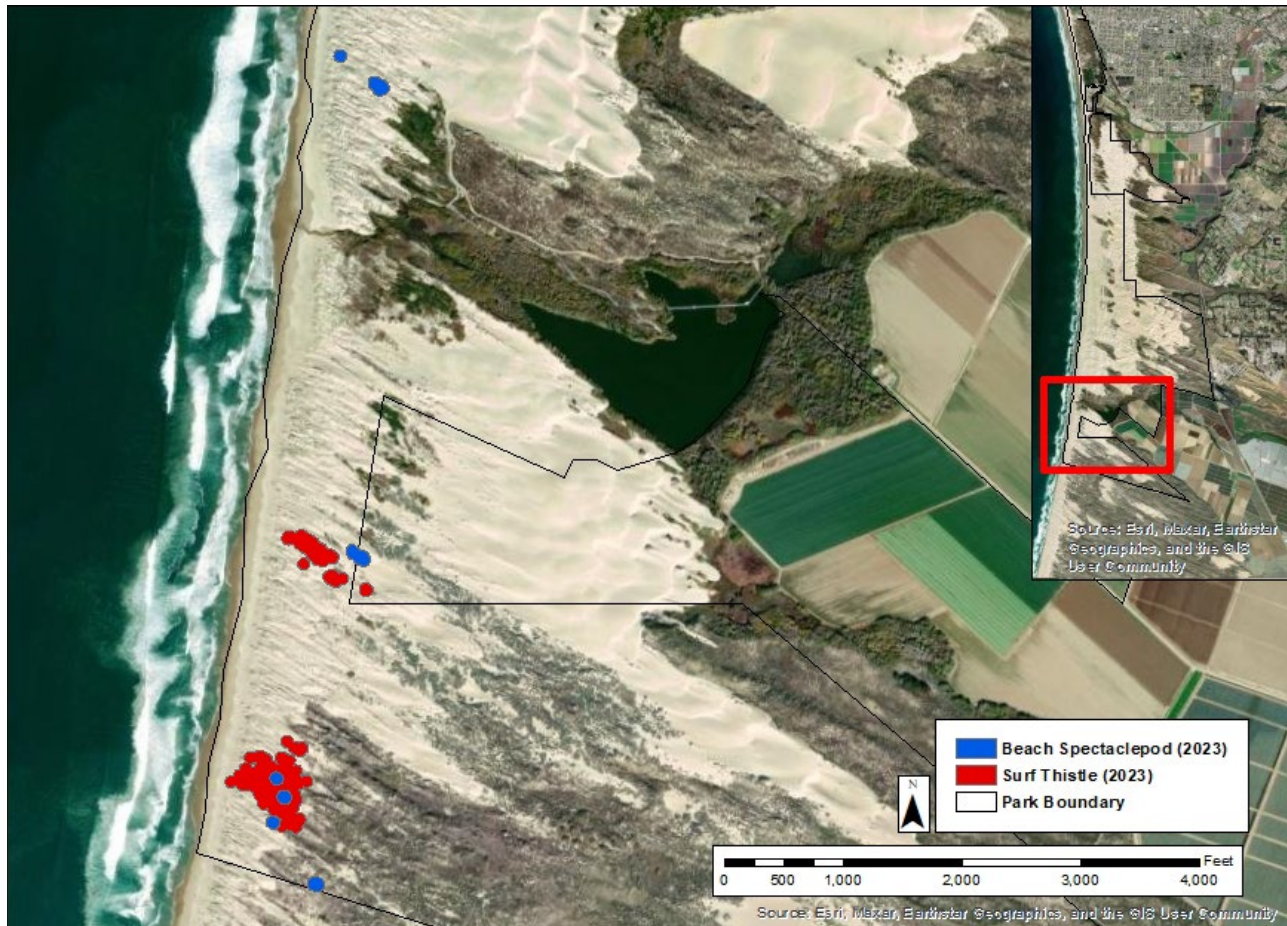


Figure 17. Map of Surf Thistle and Beach Spectaclepod Occupied Habitat

O1T3: Over a 3-year moving average, maintain or exceed 26 reproductive individuals of Nipomo Mesa lupine annually.

Monitoring consists of annual surveys that include counting, documenting reproductive success, and mapping the point locations of Nipomo Mesa lupine individuals within Oceano Dunes SVRA (refer to Appendix 3 for survey protocol). The goal of monitoring is to document the size and reproductive success of the population over time. This

monitoring informs where management actions are needed and where they have been successful, specifically invasive species control and out-planting activities, by documenting locations where population growth or decline is occurring. The monitoring will directly measure whether the objective is being met by documenting the total population size and reproductive population size annually.

Metric

Number of reproducing individuals.

Baseline

The baseline is 26 reproducing individuals of Nipomo Mesa lupine annually (Figure 18).

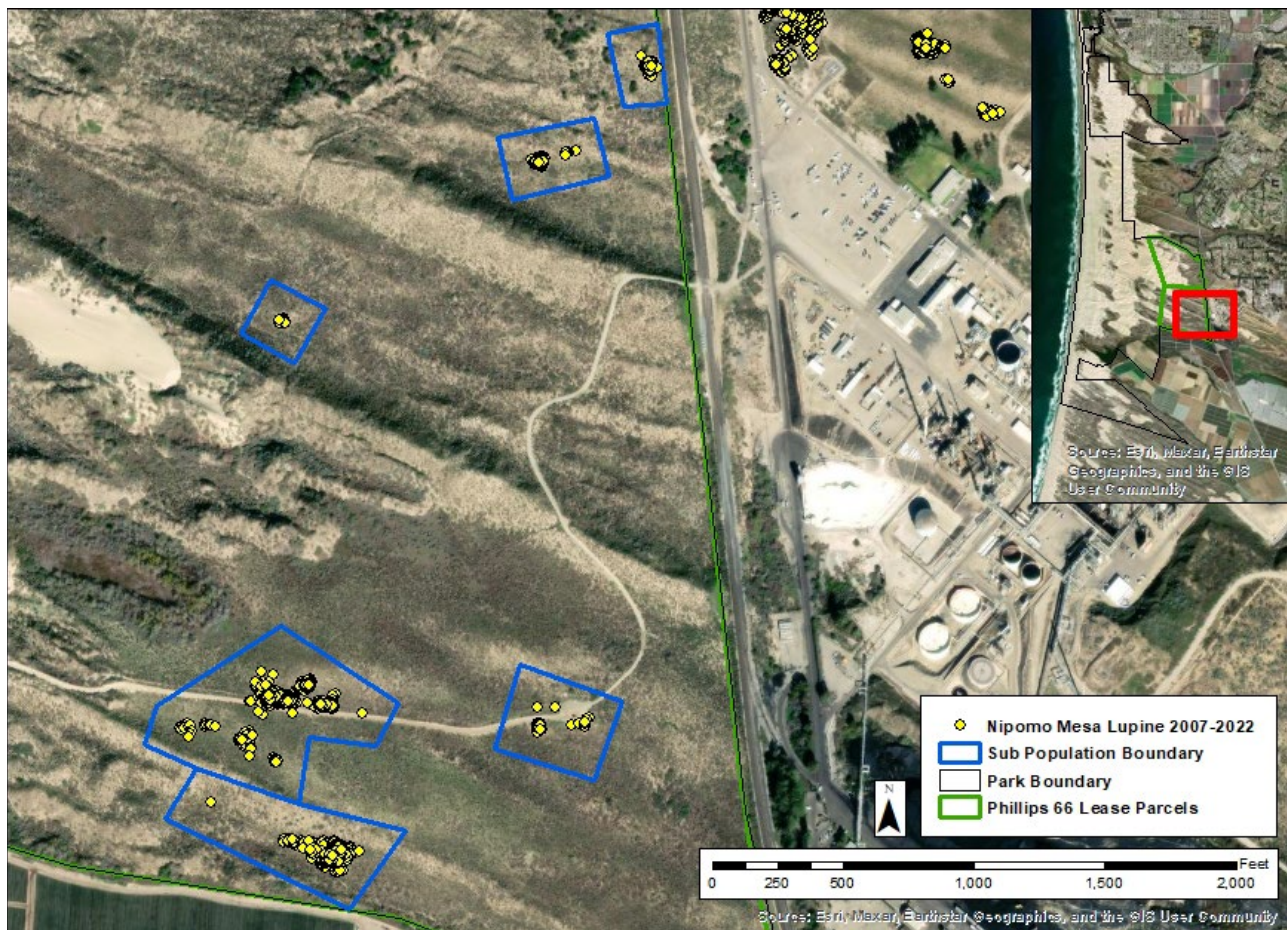


Figure 18. Map of Nipomo Mesa Lupine Population within Oceano Dunes SVRA

Native Plant Community Monitoring (O6T1, O7T1, O7T2, O8T1)

O7T1: Prevent exotic plant species, specifically perennial veldt grass, ice plant and European beach grass from exceeding 1% cover within the Vegetated Islands MU.

Monitoring consists of on-the-ground mapping of invasive plant species within the Vegetated Islands MU, specifically, perennial veldt grass, ice plant, and European beach grass, at least once every two years. The goal of monitoring is to document the change of invasive species cover over time. This informs management by directing invasive control activities to the locations where invasives are posing the greatest threat to native habitat. This cover assessment monitoring will directly measure the success of the management actions in meeting the objective. Additional monitoring methods and uncertainties are discussed in Appendix 3.

Metric

Vegetative foliar percent cover of target species including perennial veldt grass, ice plant, and European beach grass.

Baseline

Baseline surveys were conducted in 2022 and showed <1 % cover of each target species in each of the vegetated islands within the Vegetated Islands MU.

O7T2: Prevent live European beachgrass from exceeding 1% cover in the 118 acres of foredune habitat within the Southern Non-Riding Area MU.

Monitoring consists of on-the-ground mapping of invasive plant species, specifically, live European beach grass (does not include cover of dead beach grass thatch) within the foredune habitat of the Southern Non-Riding Area MU, at least once every two years. The goal of monitoring is to document the change of invasive species cover over time. This informs management by directing invasive control activities to the locations where invasives are posing the greatest threat to native habitat and sensitive plant species. This cover assessment monitoring will directly measure the success of the management actions in meeting the objective.

Metric

Live European beach grass vegetative percent cover.

Baseline

Baseline was <1% cover within foredune habitat of Southern Non-Riding Area. Calculated average cover during baseline surveys in 2022 was 0.52% (Figure 19).

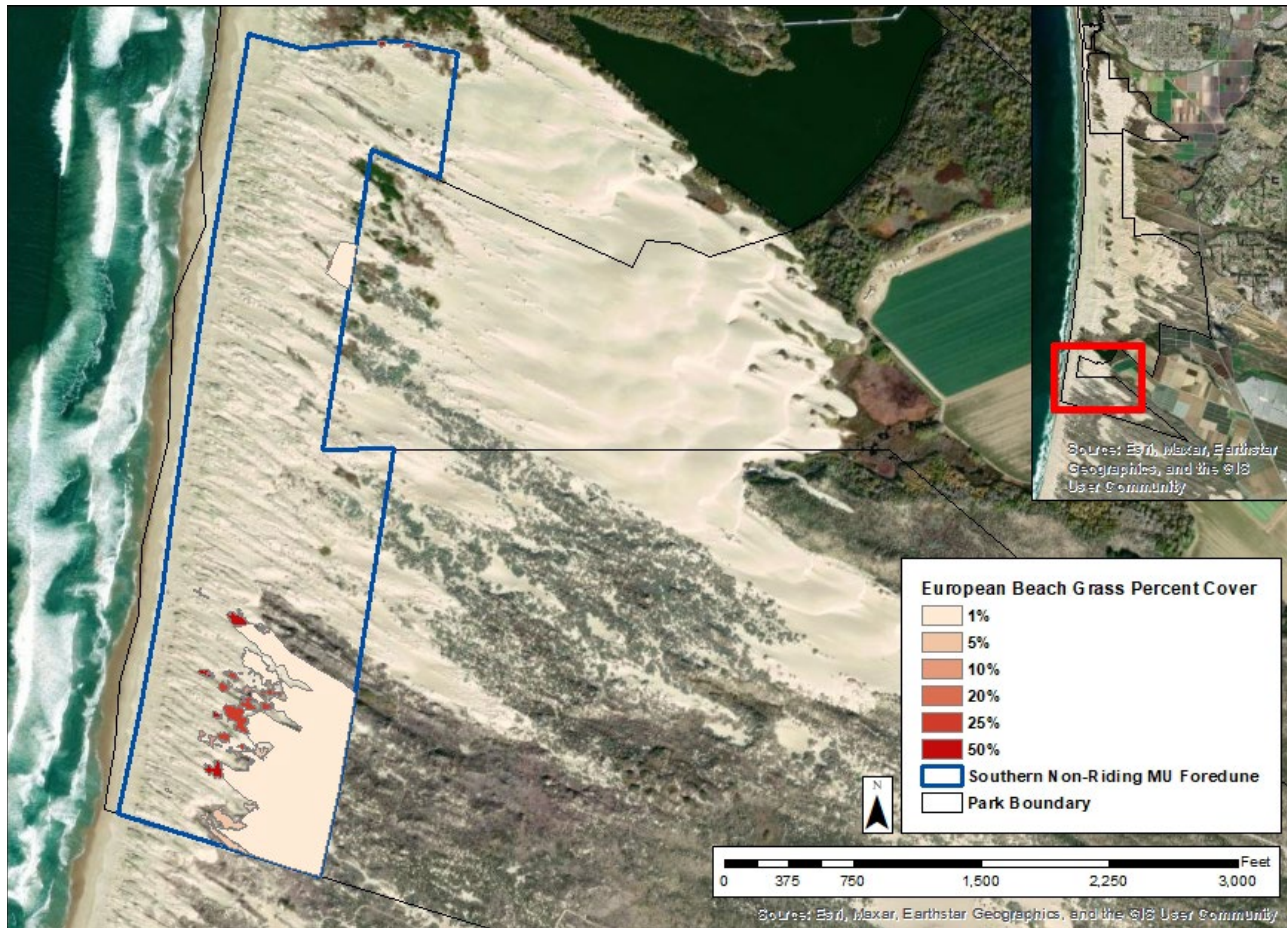


Figure 19. Map of Foredune Habitat within the Southern Non-Riding Area

O6T1: Continue to conserve 1,102 acres of native vegetation communities within Vegetated Islands MU and Northern Non-Riding Area MU through management actions described in Table 5.

Native vegetation is primarily conserved through maintenance of vehicle closure fencing that prevents vehicles from disturbing all native vegetation communities within Oceano Dunes SVRA. Monitoring consists of weekly fence checks and repairs which are both documented on smartphones using the Survey 123 application. The goal of monitoring is to promptly document any down fence, buried fence or other fence issued in order to prevent vehicle incursions into native vegetation communities. This informs management by immediately directing issues to Oceano Dunes SVRA staff so they quickly repair the fence. This monitoring will directly log and measure the success of the management actions in meeting the objective.

Metric

Acres of coastal dune vegetation communities within areas closed to riding.

Baseline

Baseline is 1,102 acres of native vegetation communities within the Vegetated Islands MU and Northern Non-Riding Area MU as of 2020.

O8T1: Install a minimum of 50 acres of native planting projects within the Vegetation Islands MU, Northern Non-Riding Area MU, or areas previously closed to OHV activities.

Monitoring consists of mapping persisting native vegetation within restoration project areas using the VegCAMP habitat mapping method and is conducted every 5 years. The goal of monitoring is to document the success of restoration projects and the overall change in native vegetation communities over time. This informs management by directing future restoration efforts to the locations with the greatest need. In addition, ground surveys of each project area are conducted at least two years after project completion to compile an inventory of plant species that persist within the restored areas. The monitoring will directly measure the success of the management actions in meeting the objective.

Metric

Acres of native California plant communities.

Baseline

The baseline is 1,126 acres of vegetation within the Vegetation Islands MU, Open Riding Area MU and Northern Non-Riding Areas in 2022. This includes 846 acres of Silver dune lupine – mock heather scrub, 127 acres of Arroyo willow thickets, 107 acres of Dune mat, and 46 acres of other vegetation types.

MONITORING RELATED TO WILDLIFE

Below is a discussion of the monitoring activities, management actions, and target parameters that determine the success of Objectives 2, 3, 4, 5 related to conserving and improving wildlife populations within the District. Results of monitoring and potential adaptive management decisions will be included in the Annual Report.

Western Snowy Plover (SNPL) and California Least Tern (CLTE) Monitoring (O2T1, O2T2, O3T1, O3T2)

Within Oceano Dunes SVRA, there is extensive breeding habitat for the state and federally endangered CLTE and the federally threatened Pacific coast population of SNPL (Figure 20). Monitoring CLTE and SNPL at Oceano Dunes SVRA began in 1991 and 1992, respectively, with the purpose of documenting breeding season nest and chick rearing activity, as well as minimizing disturbance from recreational activities. Currently, daily monitoring occurs from March 1 to September 30.

The SNPL and CLTE monitoring program informs decisions on management actions including the ability to adapt and improve protections for the species. The monitoring also directly measures the success of the program in meeting the objectives. Monitoring methods and uncertainties for SNPL and CLTE are discussed in Appendix 3. The latest SNPL and CLTE annual report can be found [online](#) on the Oceano Dunes SVRA Shorebird Program's Document Library webpage (CDPR 2022). The Nesting Season Management Plan can be found in Appendix 5.



Figure 20. SNPL and CLTE Nest Locations at Oceano Dunes SVRA in 2022

O2T1: Maintain or exceed 155 SNPL breeding adults over a moving average 3-year window.

Metric

Total calculated yearly number of SNPL breeding adults and the 3-year moving average.

Baseline

Baseline is a minimum average of 154 SNPL breeding adults (range 32-226) for the 21-year period 2002-22 (Table 8). The highest 3-year average was 213 breeding adults from 2014-16, but the number of breeding adults have been lower in recent years. Targets are based on the 21-year average since the breeding numbers vary from year to year.

Table 8. Number of SNPL Breeding Adults for the 21-year Period 2002-22

Year	Min. no. breeding adults
2002	32
2003	84
2004	121
2005	116
2006	107
2007	79
2008	95
2009	114
2010	137
2011	160
2012	190
2013	163
2014	226
2015	205
2016	209
2017	183
2018	201

Year	Min. no. breeding adults
2019	214
2020	190
2021	195
2022	206
Average for 21-year period 2002-22	154

O2T2: Maintain or exceed a moving average of 1.0 SNPL fledglings per male over a 3-year window.

Metric

Total calculated yearly number of SNPL fledglings per male and the 3-year moving average.

Baseline

Baseline is an average of 1.43 fledglings per male (range 0.29 to 2.45) for 21-year period 2002-22 (Table 9) and an average of 1.22 fledglings per male for the 3-year period 2020-22.

Table 9. Number of SNPL Breeding Males, Fledglings, and Chicks Fledging per Breeding Male for the Period 2002-22

Year	Min. no. breeding males	No. fledglings	No. fledglings per breeding male
2002	18	35	1.94
2003	52	107	2.06
2004	67	66	0.99
2005	65	82	1.26
2006	58	17	0.29
2007	47	66	1.40
2008	54	72	1.33

Year	Min. no. breeding males	No. fledglings	No. fledglings per breeding male
2009	66	81	1.23
2010	78	107	1.37
2011	94	152	1.62
2012	105	96	0.91
2013	92	187	2.03
2014	120	196	1.63
2015	113	277	2.45
2016	110	157	1.43
2017	93	174	1.87
2018	115	200	1.74
2019	120	108	0.90
2020	110	117	1.06
2021	107	119	1.11
2022	119	179	1.50
Average for 21-year period 2002-22	86	124	1.43
Average for 3-year period 2020-22	112	138	1.22

O3T1: Maintain or exceed 30 CLTE breeding adult pairs over a moving average 3-year window.

Metric

Total calculated yearly number of CLTE breeding adult pairs and the 3-year moving average.

Baseline

Baseline is a minimum of 23 CLTE breeding adult pairs in 2010. From 2006-22, the 3-year average ranged from low 27-28 breeding pairs in 2009-11 to a high of 46-50 breeding adult pairs in 2013-15 (Table 10). Targets for CLTE breeding pairs take into consideration

that the population at Oceano Dunes SVRA is variable and numbers have been lower in recent years.

Table 10. Number of CLTE Breeding Pairs from 2006-22

Year	Estimated no. breeding pairs
2006	31-35
2007	54-60
2008	55-56
2009	25-26
2010	23
2011	33-34
2012	41-44
2013	48-53
2014	47-48
2015	44-49
2016	47-48
2017	42-47
2018	30-33
2019	31-33
2020	35-42
2021	50-52
2022	43-44

O3T2: Maintain or exceed a moving average of 0.8 CLTE fledglings per breeding pair over a 3-year window.

Metric

Total calculated yearly number of CLTE fledglings per pair and the 3-year moving average.

Baseline

Baseline is a minimum of 0.15 fledglings per breeding pair in 2017 and a minimum 3-year average of 0.79-0.86 fledglings per pair in 2017-19.

Table 11. Number of CLTE Breeding Pairs, Fledglings, and Fledglings per Pair from 2016-22

Year	Estimated no. breeding pairs	No. fledglings	Estimated no. fledglings per pair
2006	31-35	36	1.03-1.16
2007	54-60	70	1.17-1.30
2008	55-56	71	1.27-1.29
2009	25-26	33	1.27-1.32
2010	23	29	1.26-1.26
2011	33-34	50	1.47-1.52
2012	41-44	42	0.95-1.02
2013	48-53	56	1.06-1.17
2014	47-48	58	1.21-1.23
2015	44-49	69	1.41-1.57
2016	47-48	59	1.23-1.26
2017	42-47	7	0.15-0.17
2018	30-33	35	1.06-1.17
2019	31-33	38	1.15-1.23
2020	35-42	38	0.90-1.09
2021	50-52	48	0.92-0.96
2022	43-44	37	0.84-0.86

Tidewater Goby Monitoring

O4T1: Maintain presence of TWG within Arroyo Grande Creek and Lagoon MU by minimizing potential impacts to TWG individuals and fisheries habitat through implementing the management actions described in Table 5.

ODD has monitored the status of fishery and native fish assemblage that occupies the habitats within Arroyo Grande Creek and Lagoon since 2003. Qualitative sampling of tidewater goby and all fish (including South-Central California Coast Steelhead) in this area is conducted to gather information about various species' use of the habitats, determine presence-lack of presence of individual fish species, evaluate whether any park activities may be impacting the fishery or aquatic habitat, and document the impacts of habitat disturbance caused by upstream water management activities. It is usually also possible to gain information about species' relative abundance, general distribution within a water body, and trends over time. Timing of the surveys is

scheduled to coincide with seasonal fishery presence, seasonal and episodic hydrologic (stream course) changes, and other factors that may influence the interaction between park visitors and aquatic resources.

The monitoring information obtained from these surveys informs management decisions regarding conservation and protection of habitat. Additional monitoring methods and uncertainties are discussed in Appendix 3.

Metric

Presence of tidewater goby.

Baseline

Tidewater goby are present within Arroyo Grande Creek and Lagoon MU. They were first observed within this MU in March 2005 (Rischbieter 2005).

California Red-Legged Frog (CLRF) Monitoring

O5T1: Maintain presence of CRLF within Arroyo Grande Creek and Lagoon MU and Oso Flaco Watershed MU by minimizing potential impacts to CRLF and riparian habitat through implementing the management actions described in Table 5.

Focused field surveys of potential breeding pools and other associated habitat are done to determine where California red-legged frog are likely to be present within Arroyo Grande Creek and Lagoon MU and Oso Flaco Watershed MU. Multiple day and night surveys will be conducted during the breeding season (October 1 to June 30) and the non-breeding season (July 1 to September 30) as time and staff allows. The main purpose of day surveys during the breeding season is to look for larvae, metamorphs, and egg masses, while the main purpose of day surveys during the non-breeding season is to look for metamorphosing sub-adults and non-breeding adults. The main purpose of night surveys is to identify and locate adult and metamorphosed frogs.

The monitoring information obtained from these surveys informs management decisions regarding conservation and protection of habitat. Additional monitoring methods and uncertainties are discussed in Appendix 3.

Metric

Presence of CRLF.

Baseline

CRLF are present within Arroyo Grande Creek and Lagoon MU and Oso Flaco Watershed MU. Protocol level surveys carried out by Park's staff in 2017 detected CRLF within both MU's. Annual surveys have been done since 2017.

MONITORING RELATED TO SCIENTIFIC RESEARCH AND LONG-TERM TRENDS

The following scientific research and long-term trend monitoring efforts are either tied to previous HMS monitoring or are largely exploratory. This monitoring work assists District staff in understanding and managing natural resources and helps to keep species inventories current (PRC 5090.351) (1)). These efforts may also be used to help guide future WHPP goals and objectives.

Terrestrial Birds

Terrestrial bird point counts are performed biannually, with multiple surveys occurring during both the spring (May-June) and winter (November-December). In 1997, 18 permanent monitoring plots were established for conducting terrestrial bird surveys. In 2011, ODD contracted with Cal Poly Professor Dr. Francis Villablanca to update the methodology, since the previous surveys suffered from many flaws.

Sampling points are in areas open and closed to OHV users. Point counts are conducted to provide a means for monitoring the stability of bird populations over longer periods of time and to verify breeding and wintering adults. These surveys may indicate impacts (if any exist) that may be associated with OHV activity. Additionally, these surveys may reveal avian population responses to positive impacts associated with increasing habitat quality from revegetation and weed management efforts in the SVRA (See Objective 8). Analysis may include annual estimates of bird densities in OHV use and non-use areas to determine trends in population size.

Point count surveys will continue annually consistent with the methods outlined in Appendix 4. Results will be summarized in the WHPP annual report.

Since western burrowing owl is a CESA candidate, activities implemented as part of this plan shall be conducted to avoid impacts to burrowing owl or their known dens. Additionally, any monitoring and management actions that are developed that conserve or improve overwintering habitat for burrowing owl, will be summarized in the WHPP annual report and included in future WHPP revisions. Currently, staff report all incidental sightings of burrowing owl.

Shoreline Birds

The Oceano Dunes SVRA falls within the Pacific flyway migration route and provides a stopover site for numerous migrating birds that require food and resources along the shoreline. Shoreline bird surveys have occurred since 2012 and cover the entire shoreline from the northern PSB boundary to the southern Oceano Dunes SVRA boundary (i.e., 14.7 kilometers or 9.13 miles). Because of experimental design principles, two treatment areas and three control areas were selected based on vehicle use areas. Shoreline bird surveys record resident, wintering, and migrating birds. Trends in species abundance and distribution will be analyzed.

Shoreline bird surveys will continue annually consistent with the methods outlined in Appendix 4. Results will be summarized in the WHPP annual report.

Small Mammals

Cal Poly San Luis Obispo and ODD have been collaborating to study small mammal population dynamics at Oceano Dunes SVRA as part of the WHPP (previously HMS) program. This previous work has studied small mammal population dynamics (Villablanca 2017), monitoring methodologies (Hopkins et al. 2024), and occurrence (Hopkins et al. (a) *in prep.*), both with regards to detection sensitivity, user feasibility, and workload sustainability.

From 2014 to 2022, small mammal monitoring was conducted through mark-recapture on standardized live-trapping plots within Oceano Dunes District. Due to experimental design principles, locations within PSB were surveyed. Small mammal plots were placed in contiguous habitats, or on vegetation islands in the ORA. Each plot was placed so it sampled the two predominant plant alliances in the District equally: fifty-percent willow/wax myrtle and fifty-percent lupine/mock heather. Additionally, some plots sampled ORA immediately following closure of select areas to OHVs, and prior to plant restoration. All study plots were repeatedly sampled, though some time series were longer than others. The purpose of capture-mark-release-recapture was to understand native small mammal abundance, distribution, and habitat use. The data and analyses informed 1) use of the ORAs by small mammals, 2) effect of ORA closure and plant restoration on small mammal abundance and diversity, 3) multi-year, species and plot specific, survivorship and population size dynamics, and 4) dispersal propensity by species.

Work to date has shown that small mammal populations occur throughout the Oceano Dunes SVRA and habitat characteristics (OHV activity, fragmentation, and restoration improvements can influence their populations (Hopkins et al. (a) *in prep.*) (See Objective 8). As these factors change over time it is important for management to have the ability to continue monitoring small mammal populations to understand the effect of these changes. Cal Poly has made important advances that facilitate this monitoring by developing lower effort methodology to

monitor small mammals and powerful but expedient analyses that can be conducted for inference (Hopkins et al. 2024). However, additional work is needed to ensure Oceano Dunes SVRA can continue these advanced strategies in the long term. This collaborative work between Cal Poly San Luis Obispo and ODD will be pursued from June 2023 to July 2024, and potentially beyond this timeframe (see Appendix 4).

Using June 2023 to July 2024 as a transition year, Cal Poly personnel will help train and assist District staff to continue their small mammal monitoring into the future. The goal is to make small mammal monitoring and analysis as sustainable and practical to staff as possible. Staff will become proficient at monitoring small mammals independently to derive inferences on species occurrence over time and effects of changes due to management actions.

Small mammal surveys will continue consistent with the methods outlined in Appendix 4. Results and any updates to methodology will be summarized in the WHPP annual report.

Bats

ODD contains water sources and foraging habitats that bats can utilize. Monitoring will help detect the presence or lack of presence of species and the frequency detected. Data will be used to assess the viability of this monitoring as an indicator of habitat health or the need for new management actions. It will also serve as an opportunity to expand the SVRA's wildlife inventory. Acoustic monitoring of bats will be performed at ODD once every 3-5 years or as time and staff allows consistent with the methods outlined in Appendix 4. Results will be summarized in the WHPP annual report.

Reptiles and Amphibians

As time and staff allows, District staff will work on protocols for monitoring and analyses to better determine herpetofauna species abundance, diversity, and distribution in the SVRA. Since southwestern pond turtle and western spadefoot are federally proposed as threatened, any monitoring and management actions that are developed that conserve and improve their habitat, will be summarized in the WHPP annual report and included in future WHPP revisions. Currently, staff report all incidental sightings of these two species.

Targeted surveys for Blainville's horned lizard, Northern California legless lizard, and other sensitive species may also be pursued. Monitoring protocols and results will be summarized in the WHPP annual report.

Talitrids

District staff studies the responses of talitrid invertebrates (commonly called beach hoppers) and diversity in areas where surf cast wrack was added to the shoreline throughout the SNPL

breeding season. These invertebrates are part of the prey base for snowy plover chicks, juveniles, and adults. The benefits of wrack addition to the shoreline and inoculation with wrack-associated invertebrates is a possible means to restore invertebrate species and biomass.

Talitrid and wrack collection will continue to be done as time and staff allows. Research and results will be summarized in the annual SNPL/CLTE Nesting Season Report.

Clams

Clamming for Pismo clams was a historic pastime at Oceano Dunes SVRA and PSB beginning in the early 1900s and continued to be popular into the 1970s until Pismo clams seemed to disappear. A combination of factors caused the Pismo clam population to plummet, such as overfishing, loss of habitat, and an increase in the sea otter population.

Within the past few years, the Pismo clam population appears to be increasing and in 2022 legal size clams (>4.50") were found by staff and visitors; the last time a legal sized clam was found at PSB was in 1993 (Greene, 2021).

Clam sand formation events started occurring in 2021. CDFW invertebrate biologists explained that sand formations occur when clams suck in water to breathe and feed and then expel water and sand out of their siphon. This behavior creates little mounds of sand on the surface and is most commonly seen during low tides. This was a concern because it had not been previously noted and this left the clams in shallower sand and at greater risk from recreational activities and gull predation.

Clam surfacing events have also been occurring since 2021. Surfacing events occur when an abundance of clams are found stranded on the surface of the sand. District staff are monitoring to make sure public access can continue on the beach while protecting these iconic species. It is unclear why clams are stranding themselves but ODD is working with Cal Poly biologists and CDFW to determine the cause. Possible reasons for stranding may include parasites, oxygen depletion, food shortage, and paralytic shellfish poisoning created by algae blooms.

Staff have been recording formation and surfacing events and locations of legal-size clams in a database. District staff also put out interpretive signage alerting vehicles to drive on dry sand, away from vulnerable clams.

ODD has been supporting Cal Poly San Luis Obispo's clam monitoring efforts for the past several years. Clam surveys are completed along Pismo State Beach to create a long-term data set about reproduction and the relationship between sediment size and clam abundance. In 2022,

Cal Poly started a mark-recapture study to understand the current status of Pismo clams and the factors that impact their abundance.

Oceano Dunes District will continue to coordinate with Cal Poly, CDFW staff, and other partners in researching clam biology, threats, and surfacing events. Future Pismo clam research and results will be summarized in the annual report.

Grunion

California grunion (*Leuresthes tenuis*) utilize the beach during certain portions of their lifecycle. Grunion typically leave the water at night to spawn on beaches over a 3–4-night cycle. Spawning coincides with a receding tide after a full and new moon from March through August. The peak months are April to June. Grunion have been documented to run within Oceano Dunes SVRA, though the status of specific runs have not been assessed. Grunion studies may be done in the future if staff time and other resources allow. In addition, grunion are mentioned in the BMP so there may be opportunities to partner with CDFW on future studies. Future grunion research and results will be summarized in the annual report.

Other Rare Plant Surveys/ Botanical Inventories

Other rare plants and invasive plants are documented and mapped as they are incidentally encountered. The information provided through these surveys works in tandem with VegCAMP survey data to inform native and invasive species locations and compositions. The results of these surveys will also inform management decisions related to the SVRA's vegetation communities, listed species, and habitat protection.

EVALUATE AND ADAPT

After evaluating the year's management actions and monitoring programs, the District may need to respond by adjusting the next year's WHPP program as part of the adaptive management process. This section outlines the adaptive management decision process, chain of command, and the required Annual Report.

ADAPTIVE MANAGEMENT DECISIONS

Many adaptive management decisions are relatively straightforward changes to resource management activities or treatments approved and undertaken by District staff. Others may require operational changes which require management involvement. Thus, the approval process of decisions that grow out of adaptive management processes will engage a slightly different chain of command depending on the situation.

Standard Chain of Command

The standard chain of command for decisions and approval at Oceano Dune SVRA is depicted in [Figure 21](#) based on the Department Operations Manual Section 202. With resource-related issues, including decisions involving the WHPP, the District Resources Manager, OHMVR Division, and the Natural Resources Division may have an increased role in the decision-making process dependent on the scope of the issue.

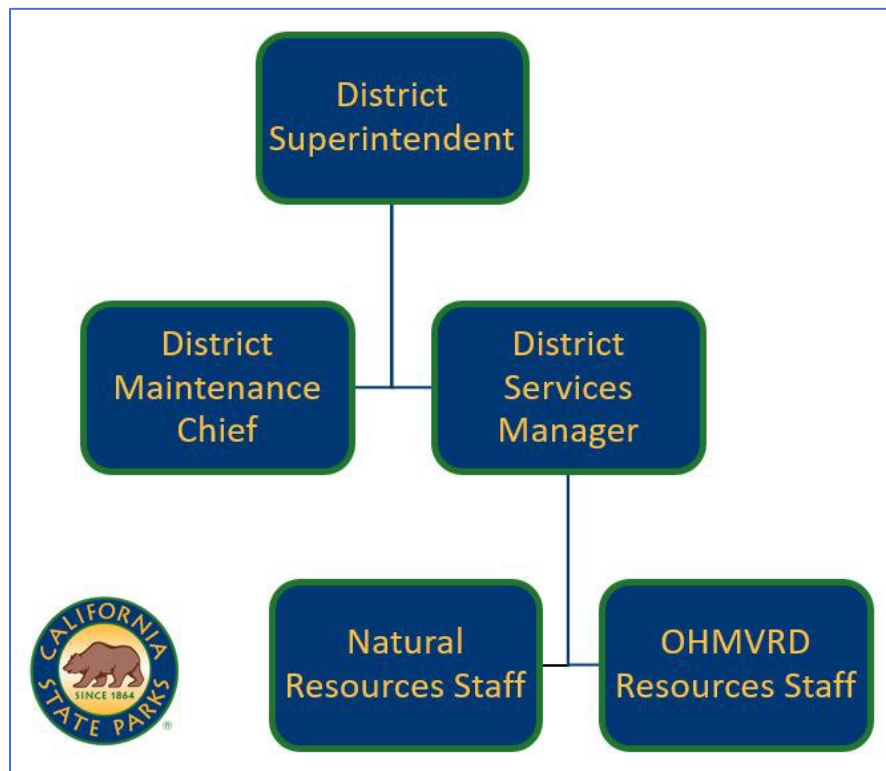


Figure 21. Oceano Dunes District Chain of Command

Natural Resources & OHMVRD Staff: ODD Resources staff in collaboration with OHMVRD staff are responsible for conducting and implementing the monitoring and management actions identified in the WHPP. They are also responsible for drafting the District’s various resources reports, including WHPPs and WHPP annual reports.

District Natural Resources Manager: The ODD Resources Manager is responsible for overseeing the natural resource programs and is the supervisor for natural resource staff. This person ensures the administration of the WHPP is completed at the SVRA. This position reports directly to the District Superintendent.

District Maintenance Chief: The ODD Maintenance Chief is responsible for overseeing the maintenance department. They oversee and assign crews to maintain the various infrastructure

(fencing, etc.) and delegate staff to assist with ODD restoration projects. This position reports directly to the District Superintendent.

District Superintendent: The District Superintendent is the ultimate District-level authority through departmental delegation and is the District point-of-contact for the Department's Executive Staff. The District Superintendent determines where responsibility for projects, programs, mandates, issues, or processes will be assigned within the District.

ANNUAL WHPP REPORT

The Oceano Dunes SVRA Annual WHPP Report will summarize the natural resources program, including adaptive management decisions, project implementation, and monitoring results.

The Report, at minimum, will include:

- The resources, goals, and objectives.
- An analysis and review of monitoring results.
- The management triggers.
- All management decisions implemented and a review of their level of success and ability to inform management decisions.
- Plans, goals, and objectives for monitoring and management for the coming year.

Report Review Process

WHPP Annual Reports will be reviewed at many different levels within State Parks' Chain of Command. These levels include District, Division, and Department. After iterative review at the District level, WHPP Annual Reports will be sent to OHMVRD and NRD technical team staff for review to determine if the goals and objectives established by the Park's WHPP are being met.

WHPP Annual Reports will be submitted annually to OHMVRD and NRD headquarters staff. Report generation and review will be completed annually, with final reports submitted to OHMVRD and NRD by March 31st, following the year in which the annual report applies.

CONSTRAINTS

Constraints are factors that may limit the ability of resources staff to achieve management objectives to conserve and improve habitat. While the WHPP is designed to consider constraints, planning for every possibility is impossible. Below is a discussion of the specific

constraints identified by resources staff, limiting the implementation and achievability of the objectives outlined in the WHPP.

Stochastic events are unpredictable events which may impact the land or draw resources which would otherwise be directed towards management. Possible natural stochastic events could include: earthquake, flooding, sea level rise, or wildfire.

The variability in annual weather cycles may restrict the ability to complete certain goals or objectives that depend on specific temporal and climatic conditions. Drought and unusually dry winters can create issues in the programs' identified monitoring and lead to gaps or pauses in the adaptive management cycle/process. Greenhouse operation, planting at restoration sites, and non-native invasive plant management are examples of projects that are dependent on annual weather cycles.

Staff are required to implement every aspect of Oceano Dunes SVRA's WHPP. In the past, management and staffing levels have been inconsistent. To avoid this, if current dedicated Oceano Dunes SVRA resource staff find themselves unavailable to do all the work described in the WHPP, they will reach out to OHMVRD and NRD for additional staff assistance and expertise. If neither agency is available or able to assist, then Oceano Dunes SVRA will look to OHMVRD's support contracts and agreements for assistance.

Project priorities, new legal mandates, and funding availability may delay accomplishing projects identified in the WHPP. The Annual Report will discuss any constraints that inhibit specific goals and objects in the estimated timeframe.

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APPENDICES

APPENDIX 1: WILDLIFE AND PLANT INVENTORY

Table 12. Wildlife Inventory. Updated between May and November 2022 except more recent dates were added only for steelhead and tidewater goby. List generated based on eight 7.5’ USGS Quads Pismo Beach, Arroyo Grande NE, Tar Spring Ridge, Oceano, Nipomo, Point Sal, Guadalupe and Santa Maria

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Fishes	<i>Gila orcuttii</i>	Arroyo Chub	None	None	G2, S2, AFS_VU- Vulnerable CDFW_SSC- Species of Special Concern IUCN_VU- Vulnerable USFS_S- Sensitive	Native to streams from Malibu Creek to San Luis Rey River basin. Introduced into streams in Santa Clara, Ventura, Santa Ynez, Mojave and San Diego river basins.	None	No	n/a	CNDDB
Fishes	<i>Myliobatis californica</i>	Bat Ray	None	None	IUCN Least Concern	"Found in muddy or sandy sloughs, estuaries and bays, kelp beds and rocky-bottomed shoreline in the eastern Pacific Ocean, between the Oregon coast and the Gulf of California."	Low	Yes	Found dead in Arroyo Grande Creek Lagoon November 2023.	iNaturalist, Incidental Reports, Quarterly Reports
Fishes	<i>Ameiurus melas</i>	Black Bullhead	None	None	Non-native	"Black bullheads are found throughout the central United States, often in stagnant or slow-moving waters with soft bottoms."	High	Yes	Observed in Carpenter Creek in November 2020. Also seen in Oceano Lagoon and one dead specimen in Pismo Lake. (D. Rischbieter)	iNaturalist, Quarterly Reports

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Fishes	<i>Pomoxis nigromaculatus</i>	Black Crappie	None	None	Non-native	“Lakes, reservoirs, borrow pits, and navigation pools in large rivers. They prefer areas with little or no current, clear water, and abundant cover such as submerged timber or aquatic vegetation, as well as sand or mud bottoms like those found in lakes, ponds, streams, and sloughs.”	High	Yes	Observed in Carpenter Creek in February 2022.	iNaturalist, Quarterly Reports
Fishes	<i>Lepomis macrochirus</i>	Bluegill	None	None	Non-native	“Hide around and inside old tree stumps in swamps and other underwater structures (e.g., snags), and can live in either deep or very shallow water. Bluegills also like to find shelter among aquatic plants and in the shade of trees along banks and will often move from one cover to another depending on the time of day or season.”	High	Yes	Observed in Oso Flaco Creek in February 2022.	iNaturalist, Quarterly Reports
Fishes	<i>Ameiurus nebulosus</i>	Brown Bullhead	None	None	Non-native	“The brown bullhead thrives in a variety of habitats, including lakes, ponds, and slow-moving streams with low oxygen or muddy conditions.”	Moderate	Yes	Collected in Pismo Lake 2010.	iNaturalist, Incidental Reports
Fishes	<i>Leuresthes tenuis</i>	California Grunion	None	None	Native	"Native to the Pacific coast of North America from Monterey Bay in California to Baja California. This species grows to 19 cm (7 in) in total length and is of minor importance to local fisheries, particularly during grunion runs in which the fish beach themselves to lay their eggs and are easily taken."	High	Yes	Historically observed on the shoreline.	iNaturalist, Incidental Reports

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Fishes	<i>Lavinia symmetricus</i>	California Roach	None	None	IUCN Least Concern	"California roaches seem to be resilient fishes that take advantage of the intermittent waters of central California under conditions too difficult for other fishes. As the springtime streams dry up in summer, roaches accumulate in large number in pools, which may be alkaline, hot (up to 95 °F), and low in oxygen. They also seem to cope well with sewage-polluted waters."	High	Yes	Observed during surveys in Arroyo Grande Creek Lagoon in March 2008.	WHPP 2017, Quarterly Reports, iNaturalist
Fishes	<i>Oncorhynchus tshawytscha</i>	Chinook Salmon	None	None	Variable Status Dependent on Population	"Chinook are anadromous fish native to the North Pacific Ocean and the river systems of western North America, ranging from California to Alaska..."	Low	Yes	Adult, anadromous – moribund – specimen of ocean origin found dead on shoreline in 2017.	iNaturalist, Incidental Reports
Fishes	<i>Cyprinus carpio</i>	Common Carp	None	None	Non-native	"Although tolerant of most conditions, common carp prefer large bodies of slow or standing water and soft, vegetative sediments."	High	Yes	Observed in Arroyo Grande Creek Lagoon in October 2016.	WHPP 2017, Quarterly Reports, iNaturalist
Fishes	<i>Mola mola</i>	Common Mola	None	None	IUCN Vulnerable	"It is native to tropical and temperate waters around the world."	Low	Yes	Found dead on shoreline in 2017.	iNaturalist, Incidental Reports
Fishes	<i>Notemigonus crysoleucas</i>	Golden Shiner	None	None	Non-native	"Golden shiners prefer quiet waters and are therefore found in lakes, ponds, sloughs, and ditches. They are sometimes found in the quietest parts of rivers. They like weedy areas. They are fairly tolerant of pollution, turbidity, and low oxygen content."	High	Yes	Observed in Carpenter Creek in November 2020. Also captured in Arroyo Grande Creek.	iNaturalist, Quarterly Reports

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Fishes	<i>Lepomis cyanellus</i>	Green Sunfish	None	None	Non-native	“The species prefers areas in sluggish backwaters, lakes, and ponds with gravel, sand, or bedrock bottoms. They also can be found in very muddy waters and are able to tolerate poor water conditions.”	High	Yes	Observed during surveys in Carpenter Creek Lagoon in June 2020. Observed during surveys in Arroyo Grande Creek Lagoon in July 2018.	WHPP 2017, Quarterly Reports, iNaturalist
Fishes	<i>Carassius auratus</i>	Goldfish	None	None	Non-native	“Goldfish released into the wild have become an invasive pest in parts of North America.”	Moderate	Yes	Collected (dead) in Pismo Lake 2010. Found on shoreline (dead) after 2017 flood.	Incidental Reports, iNaturalist
Fishes	<i>Lavinia exilicauda</i>	Hitch	None	None	IUCN Least Concern	“Found in lakes, sloughs, and slow-moving sections of rivers and streams.”	High	Yes	Observed in Oso Flaco Lake and Creek as well as Arroyo Grande Creek. February 2022.	iNaturalist, Quarterly Reports
Fishes	<i>Atherinopsis californiensis</i>	Jack Silverside (Jacksmelt)	None	None	IUCN Least Concern	"The adults occur in inshore areas, such as bays."	Moderate	Yes	Arroyo Grande Lagoon 2023 (suspected).	iNaturalist, Incidental Reports, Quarterly Reports
Fishes	<i>Micropterus salmoides</i>	Largemouth Bass	None	None	Non-native	Largemouth bass inhabit clear, vegetated lakes, ponds, swamps, and the backwaters of pools, creeks and rivers. (USFWS)	High	Yes	Observed in Oceano Lagoon in April 2022. Observed in Arroyo Grande Creek Lagoon in July 2016. Observed in Oso Flaco Creek.	iNaturalist, Quarterly Reports
Fishes	<i>Engraulis mordax</i>	Northern Anchovy	None	None	Native	"...found in marine waters..."	Moderate	Yes	Incidentally observed (dead) on shoreline.	iNaturalist, Incidental Reports

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Fishes	<i>Clupea pallasii</i>	Pacific Herring	None	None	Native	"The distribution is widely along the California coast from Baja California north to Alaska and the Bering Sea... Pacific herring spawn in variable seasons, but often in the early part of the year in intertidal and sub-tidal environments, commonly on eelgrass, seaweed or other submerged vegetation..."	Moderate	Yes	Observed in Pismo Creek.	iNaturalist, Incidental Reports
Fishes	<i>Leptocottus armatus</i>	Pacific Staghorn Sculpin	None	None	IUCN Least Concern	"Found in shallow coastal waters along the Pacific coast from Alaska to Baja California."	High	Yes	Observed in Pismo Creek Lagoon in April 2022. Observed in Arroyo Grande Creek Lagoon in June 2022.	iNaturalist, Quarterly Reports
Fishes	<i>Cottus asper</i>	Prickly Sculpin	None	None	IUCN Least Concern	"It is native to the river drainages of the Pacific Slope of North America from Seward, Alaska south to the Ventura River of Southern California."	High	Yes	Observed in Arroyo Grande Creek Lagoon in February 2021.	iNaturalist, Quarterly Reports
Fishes	<i>Catostomus occidentalis</i>	Sacramento Sucker	None	None	IUCN Least Concern	"They inhabit a diverse range of habitats from headwater streams to deep lakes to estuaries." Sacramento Sucker are arguably not native to this location, but it is a California native species and this occurrence is noteworthy as this is the southernmost known reproducing population. (D. Rischbieter)	High	Yes	Observed during surveys in Arroyo Grande Creek Lagoon in July 2019. The Arroyo Grande Creek population is the southernmost known reproducing population.	WHPP 2017, Quarterly Reports
Fishes	<i>Morone saxatilis</i>	Striped Bass	None	None	Non-native	"Introduced from Atlantic Coast, occasionally caught in surf fishery in Pacific waters from northern Baja to B.C."	Moderate	Yes	Observed in angler's bucket by D. Rischbieter February 2024 in Oso Flaco.	D. Rischbieter, pers. com.

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Fishes	<i>Mugil cephalus</i>	Striped Mullet	None	None	IUCN Least Concern	“Mainly diurnal coastal species that often enters estuaries and rivers. It usually schools over sand or mud bottoms, feeding on zooplankton. The adult fish normally feed on algae in fresh water. The species is euryhaline, meaning that the fish can acclimate to different levels of salinity.” Reproduction in freshwater is very uncommon but evidence suggests it occurs in Oso Flaco Lake. (D. Rischbieter)	High	Yes	Confirmed in Arroyo Grande Creek Lagoon during surveys in September 2022. Also caught in Carpenter Creek, Pismo Creek, and Oso Flaco Creek and Lake.	iNaturalist, Quarterly Reports
Fishes	<i>Cymatogaster aggregata</i>	Shiner Perch	None	None	IUCN Least Concern	“A common surfperch found in estuaries, lagoons, and coastal streams along the Pacific coast from Alaska to Baja California.”	High	Yes	Observed during surveys in Arroyo Grande Creek Lagoon in May 2014. Common in beach surf sport fishery (D. Rischbieter).	WHPP 2017, Quarterly Reports, iNaturalist
Fishes	<i>Micropterus dolomieu</i>	Smallmouth Bass	None	None	Non-native	“Found in clearer water than the largemouth, especially streams, rivers, and the rocky areas and stumps and also sandy bottoms of lakes and reservoirs.”	Moderate	Yes	Observed during surveys in Oso Flaco Creek Lagoon in October 2021.	iNaturalist, Quarterly Reports
Fishes	<i>Rhinichthys osculus</i>	Speckled Dace	None	None	IUCN Least Concern	“It is found in temperate freshwater in North America, from Sonora, Mexico to British Columbia, Canada.”	Low	Yes	Observed during surveys in Arroyo Grande Creek Lagoon in April 2007.	WHPP 2017, Quarterly Reports, iNaturalist
Fishes	<i>Platichthys stellatus</i>	Starry Flounder	None	None	IUCN Least Concern	“Starry flounders are inshore fish, ranging up estuaries well into the freshwater zone, to the first riffles, with young found as much as 120 km inland. In marine environments, they occur as deep as 375 m.”	High	Yes	Observed in Arroyo Grande Creek Lagoon in February 2021.	iNaturalist, Quarterly Reports

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Fishes	<i>Oncorhynchus mykiss irideus</i>	Steelhead - South-Central California Coast DPS	Threatened	None	G5T2Q, S2, AFS_TH-Threatened	Federal listing refers to runs in coastal basins from the Pajaro River south to, but not including the Santa Maria River.	High	Yes	Confirmed on-site and adjacent to the Oceano Dunes SVRA in Arroyo Grande Creek as recently as February 2023.	CNDDDB, WHPP 2017
Fishes	<i>Gasterosteus aculeatus</i>	Threespine Stickleback	None	None	IUCN Least Concern	"The three-spined stickleback is found only in the Northern Hemisphere, where it usually inhabits coastal waters or freshwater bodies. It can live in either fresh, brackish, or salt water. It prefers slow-flowing water with areas of emerging vegetation. It can be found in ditches, ponds, lakes, backwaters, quiet rivers, sheltered bays, marshes, and harbors."	High	Yes	Confirmed in Arroyo Grande Creek Lagoon during surveys in September 2022. Confirmed in Carpenter Creek during surveys in June 2022. Also in Oso Flaco Creek and Pismo Creek.	iNaturalist, Quarterly Reports
Fishes	<i>Platyrrhinoidis triseriata</i>	Thornback Guitarfish	None	None	IUCN Least Concern	"This species ranges from Tomales Bay to the Gulf of California, generally in inshore waters no deeper than 6 m (20 ft). It can be found on or buried in sand or mud, or in and near kelp beds."	Low	Yes	Found dead on shoreline February 2022.	iNaturalist, Incidental Reports
Fishes	<i>Eucyclogobius newberryi</i>	Tidewater Goby	Endangered	None	G3, S3, AFS_EN-Endangered IUCN_VU-Vulnerable	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River.	High	Yes	Confirmed in Arroyo Grande Creek, Pismo Creek, and Carpenter Creek as recently as May 2023.	IPaC, CNDDDB, WHPP 2017

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Fishes	<i>Atherinops affinis</i>	Topsmelt	None	None	IUCN Least Concern	“The topsmelt silverside is a pelagic schooling fish which occurs in a wide variety of habitats at different times of the year. It is a common species in estuaries but it has also been recorded along the oceanic shoreline and in kelp forests, off sandy beaches, and sometimes in offshore waters.”	High	Yes	Confirmed in Arroyo Grande Creek Lagoon during surveys in September 2022. Common in Pismo Creek.	iNaturalist, Quarterly Reports
Fishes	<i>Gambusia affinis</i>	Western Mosquitofish	None	None	Non-native	“They are found most abundantly in shallow water protected from larger fish.”	High	Yes	Confirmed in Arroyo Grande Creek Lagoon during surveys in September 2022. Confirmed in Carpenter Creek during surveys in June 2022.	iNaturalist, Quarterly Reports
Fishes	<i>Pomoxis annularis</i>	White Crappie	None	None	Non-native	“White crappies are native to the Great Lakes, Hudson Bay, and the Mississippi River basins expanding from New York and southern Ontario westward to South Dakota and southward to Texas. White crappies can be found in large rivers, reservoirs, and lakes.”	Moderate	Yes	Collected in Pismo Lake 2010.	iNaturalist, Incidental Reports
Amphibians	<i>Lithobates catesbeianus</i>	American Bullfrog	None	None	Non-native	“It typically inhabits large permanent water bodies such as swamps, ponds, and lakes. Bullfrogs can also be found in man-made habitats such as pools, koi ponds, canals, ditches and culverts.”	High	Yes	Observed and common in Oceano Lagoon in July 2022. Also common in Pismo Lake.	iNaturalist, WHPP 2017
Amphibians	<i>Aneides lugubris</i>	Arboreal Salamander	None	None	IUCN Least Concern	“This species is an excellent climber and difficult to capture. It is nocturnal, spending daylight hours and dry periods in the cavities of oak trees, often with many other individuals of its species.”	Low	No	Observed in Guadalupe Nipomo Dunes National Wildlife Refuge in July 2021.	iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Amphibians	<i>Pseudacris hypochondriaca</i>	Baja California Treefrog	None	None	IUCN Least Concern	“The species ranges from the West Coast of the United States from Baja California through southern California. Individuals live from sea level to more than 10,000 feet in many types of habitats, reproducing in aquatic settings.” California distribution of <i>Pseudacris (Hyla) regilla</i> , Pacific Treefrog, was split into 3 species: <i>Pseudacris hypochondriaca</i> (Baja California Treefrog), <i>Pseudacris regilla</i> (Northern Pacific Treefrog), and <i>Pseudacris sierra</i> (Sierran Treefrog). Note- Oceano Dunes District is just barely beyond the northern range of Baja California Treefrog. It’s possible these observations are <i>Pseudacris sierra</i> .	Low	Yes	Observed near Oso Flaco Lake in August 2021. Observed in Meadow Creek in July 2021.	iNaturalist
Amphibians	<i>Batrachoseps nigriventris</i>	Black-bellied Slender Salamander	None	None	IUCN Least Concern	“This salamander prefers California chaparral and woodlands habitats of Coast live oak - <i>Quercus agrifolia</i> and California sycamore - <i>Platanus racemosa</i> .”	Low	Yes	Observed in the north end of Pismo State Beach in May 2012.	iNaturalist, WHPP 2017
Amphibians	<i>Taricha torosa torosa</i>	California Newt	None	None	G4, S4, CDFW_SSC-Species of Special Concern, IUCN Least Concern	“California newts reside in the coastal counties of California and in the southern Sierra Nevada and occupy a diverse array of habitats found near the small ponds and creeks where they breed, including woodlands and chaparral.” Coastal drainages from Mendocino County to San Diego County.	Low	No	Formerly Coast Range Newt	iNaturalist, WHPP 2017, CNDDDB

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Amphibians	<i>Rana draytonii</i>	California Red-Legged Frog	Threatened	None	G2G3, S2S3, CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	High	Yes	Confirmed in Arroyo Grande Creek as recently as May 2022. Confirmed in Little Oso Flaco Lake as recently as August 2022 and Oso Flaco Lake as recently as September 2022.	IPaC, CNDDDB, WHPP 2017
Amphibians	<i>Ambystoma californiense</i>	California Tiger Salamander - Central California DPS	Threatened	Threatened	G2G3, S3, CDFW_WL-Watch List IUCN_VU-Vulnerable	Lives in vacant or mammal-occupied burrows throughout most of the year; in grassland, savanna, or open woodland habitats.	Low	No	n/a	IPaC, CNDDDB
Amphibians	<i>Anaxyrus boreas halophilus</i>	California Toad	None	None	IUCN Least Concern	“The habitats for the California toad range from woodland, grassland, and meadows in forest areas to backyards and parks in the suburbs. It breeds in lakes, creeks, ponds, reservoirs, slowly flowing streams, and canals.” CA toad is subspecies of Western Toad.	High	Yes	Observed in Acacia Island in the Riding Area in May 2019. Potential habitat present on-site.	HMS dB incidental sightings, WHPP 2017, iNaturalist
Amphibians	<i>Rana boylei</i>	Foothill Yellow-Legged Frog	None	Endangered	G3, S3, BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Southern Coast Ranges from Monterey Bay south through San Gabriel Mountains; west of the Salinas River in Monterey Co, south through Transverse Ranges, and east through San Gabriel Mountains. Historically may have ranged to Baja California.	Low	No	n/a	CNDDDB

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Amphibians	<i>Ensatina eschscholtzii</i>	Monterey Ensatina	None	None	IUCN Least Concern	“Typical habitat includes coniferous forest, deciduous forest, oak woodland, coastal sage scrub, and chaparral (Stebbins 1954) in thermally buffered mesic microclimates, such as under logs, bark, moss, leaf litter, and talus (Corn and Bury 1991), or in animal burrows (Storer 1925).”	Low	No	n/a	iNaturalist, WHPP 2017
Amphibians	<i>Pseudacris sierra</i>	Sierran Treefrog	None	None	IUCN Least Concern Listed in Quarterly Reports as Pacific Treefrog.	“It has a range from the West Coast of the United States from Central California inland through Idaho. They can live at sea level, but also up to more than 10,000 feet utilizing forest trees, ponds, grasslands, farmlands, meadows, and lakes as habitats. These frogs, alike other, reproduce in aquatic settings.” California distribution of <i>Pseudacris (Hyla) regilla</i> , Pacific Treefrog, was split into 3 species: <i>Pseudacris hypochondriaca</i> (Baja California Treefrog), <i>Pseudacris regilla</i> (Northern Pacific Treefrog), and <i>Pseudacris sierra</i> (Sierran Treefrog). Note- Oceano Dunes District is right at the southern tip of the range for <i>Pseudacris sierra</i> and barely meets the northern range of <i>Pseudacris hypochondriaca</i> .	High	Yes	1 tadpole observed in Pismo Lagoon in June 2022. 3 tadpoles observed in Carpenter Creek Lagoon in April 2020. Observed during surveys in Arroyo Grande Creek Lagoon in June 2020.	iNaturalist, WHPP 2017, Quarterly Reports

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Amphibians	<i>Spea hammondi</i>	Western Spadefoot	Federally proposed as threatened	CSSC	G2G3, S3, BLM_S-Sensitive CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands.	Moderate	Yes	Suspected sighting at Eucalyptus Tree in 2011. Potential habitat present on-site.	WHPP 2017, CNDDDB
Reptiles	<i>Gambelia sila</i>	Blunt-nosed Leopard Lizard	Endangered	Endangered	G1, S1, CDFW_FP-Fully Protected IUCN_EN-Endangered	Resident of sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief.	Low	No	n/a	IPaC, CNDDDB
Reptiles	<i>Elgaria multicarinata</i>	California Alligator Lizard	None	None	IUCN Least Concern	“Lives in a variety of habitats including grasslands, chaparral, forests, and even urban areas.[3][4] In dry climates, it is likely to be found in moist areas or near streams.”	High	Yes	Confirmed in a vegetated island in the ORA under a coverboard during focused surveys in June 2018. Observed near Oceano Lagoon in June 2022. Observed near Maintenance Yard in May 2019. Observed near Oso Flaco Lake in January 2018.	iNaturalist, WHPP 2017, HMS dB incidental sightings
Reptiles	<i>Lampropeltis getula californiae</i>	California Kingsnake	None	None	IUCN Least Concern	“This species lives in a wide variety of habitats, including woodland chaparral, grassland, deserts, marshes, and even suburban areas.”	Moderate	Yes	A carcass was found by District staff on the shoreline in the ORA in August 2018 (photo evidence).	iNaturalist, WHPP 2017
Reptiles	<i>Hypsiglena ochrorhyncha nuchalata</i>	California Nightsnake	None	None	IUCN Least Concern	“They prefer semiarid habitats with rocky soils.”	Low	No	n/a	iNaturalist, WHPP 2017

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Reptiles	<i>Aspidoscelis tigris munda</i>	California Whiptail	None	None	IUCN Least Concern	“It lives in a wide variety of habitats, including deserts and semiarid shrubland, usually in areas with sparse vegetation; it also may be found in woodland, open dry forest, and riparian growth. It lives in burrows.”	Low	No	n/a	iNaturalist, WHPP 2017
Reptiles	<i>Phrynosoma blainvillii</i>	Blainville’s Horned Lizard (previously Coast Horned Lizard)	None	None	G3G4, S3S4, BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes.	Moderate	Yes	Confirmed on-site in 2022. Potential habitat present on-site.	CNDDDB, WHPP 2017
Reptiles	<i>Thamnophis elegans terrestris</i>	Coast Garter Snake	None	None	IUCN Least Concern In dB as Western Terrestrial Garter Snake	“Occurs in a wide variety of habitats, including grasslands, woodlands, and coniferous forests, from sea level up to 3,962 m (12,999 ft). It is primarily terrestrial, although populations in the Great Basin and Rocky Mountains are semi-aquatic.”	Moderate	Yes	Observed near Oso Flaco Lake in May 2021. In Maintenance Yard in May 2019. In Maidenform near the Riding Area in June 2019.	WHPP 2017, HMS dB incidental sightings, iNaturalist
Reptiles	<i>Sceloporus occidentalis bocourtii</i>	Coast Range Fence Lizard	None	None	IUCN Least Concern	“It is found in grassland, broken chaparral, sagebrush, woodland, coniferous forest, and farmland, and occupies elevations from sea level to 10,800 ft.”	High	Yes	Observed frequently near Oso Flaco Lake. Confirmed in a vegetated island in the ORA under a coverboard during focused surveys in March 2018.	iNaturalist, WHPP 2017, HMS dB incidental sightings

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Reptiles	<i>Thamnophis atratus zaxanthus</i>	Diablo Range Garter Snake	None	None	IUCN Least Concern	“It can most commonly be found on the edges of bushlands, woodlands, grasslands, and forests near ponds, marshes, streams and lakes.”	Low	No	n/a	iNaturalist, WHPP 2017
Reptiles	<i>Pituophis catenifer</i>	Gopher Snake	None	None	IUCN Least Concern	“Gopher snakes are rarely seen above 2,000 feet (610 meters) and are most commonly seen adjacent to farms in semi-arid brushy areas.”	Moderate	Yes	Observed near Maintenance Yard in May 2018.	iNaturalist, WHPP 2017
Reptiles	<i>Diadophis punctatus vandenburgii</i>	Monterey Ring-necked Snake	None	None	IUCN Least Concern	“Ring-necked snakes occur in a wide variety of habitats. Preference seems to be determined by areas with abundant cover and denning locations. Northern and western subspecies are found within open woodlands near rocky hillsides, or in wetter environments with abundant cover or woody debris. Southern subspecies exist primarily within riparian and wet environments, especially in more arid habitats.”	Low	Yes	Observed in Phillips 66 Leasehold in July 2018.	iNaturalist, WHPP 2017
Reptiles	<i>Anniella pulchra</i>	Northern California Legless Lizard	None	None	G3, S3, CDFW_SSC-Species of Special Concern USFS_S-Sensitive	Sandy or loose loamy soils under sparse vegetation. Found in Chaparral, coastal dunes, and coastal scrub habitat.	High	Yes	(Seems to include both silvery and black legless lizards)	CNDDDB, WHPP 2017, iNaturalist
Reptiles	<i>Crotalus oreganus</i>	Northern Pacific Rattlesnake	None	None	IUCN Least Concern	Inhabits rocky hillsides, talus slopes and outcrops, rocky stream courses, rocky areas in grasslands, mixed woodlands, montane forests, pinyon juniper, sagebrush. (californiaherps.com)	Moderate	Yes	In a vegetated island near the Riding Area in August 2019 (photo evidence from District staff). Seen at Phillips 66.	iNaturalist, WHPP 2017

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Reptiles	<i>Trachemys scripta elegans</i>	Red-Eared Slider	None	None	Non-native	“They live in areas of calm water, where they are able to leave the water easily by climbing onto rocks or tree trunks so they can warm up in the sun. They also require abundant aquatic plants, as these are the adults' main food, although they are omnivores. Turtles in the wild always remain close to water unless they are searching for a new habitat or when females leave the water to lay their eggs.”	High	Yes	Common in Oceano Lagoon and Oso Flaco Lake.	iNaturalist
Reptiles	<i>Trachemys scripta scripta</i>	Yellow-bellied slider	None	None	Non-native	“Semiaquatic turtle belonging to the family Emydidae. It is native to the southeastern United States, specifically from Florida to southeastern Virginia, and is the most common turtle species in its range. It is found in a wide variety of habitats, including slow-moving rivers, floodplain swamps, marshes, seasonal wetlands, and permanent ponds.”	High	Yes	Confirmed in May 2025 in Oceano Lagoon.	iNaturalist
Reptiles	<i>Plestiodon skiltonianus</i>	Skilton's Skink	None	None	IUCN Least Concern	“Commonest in early successional stages or open areas within habitats in which it occurs. Heavy brush and densely forested areas are generally avoided. The western skink seems to prefer a somewhat moist environment, although it can also be found on dry hillsides. Frequents grassland, broken chaparral, pinon-juniper and juniper-sage woodland, and open pine-oak and pine forests. The soil of its nest chambers is invariably moist. Standing water is apparently not required.”	Low	No	n/a	iNaturalist, WHPP 2017

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Reptiles	<i>Thamnophis hammondi</i>	Two-striped Garter Snake	None	None	G4, S3S4, BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 ft elevation.	High	Yes	Confirmed as recently as September 2016 at the Chevron Property south of the SVRA. Observed on-site at Oso Flaco Lake in the past and potential habitat present on-site.	WHPP 2017, CNDDDB
Reptiles	<i>Thamnophis sirtalis fitchi</i>	Valley Garter Snake	None	None	IUCN Least Concern	“The habitat of the common garter snake ranges from forests, fields, and prairies to streams, wetlands, meadows, marshes, and ponds, and it is often found near water.”	Low	No	n/a	iNaturalist, WHPP 2017
Reptiles	<i>Actinemys pallida</i>	Southwestern Pond Turtle	Federally proposed as threatened	CSSC	G3G4, S3, BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	High	Yes	Confirmed on-site at Oso Flaco Lake and Arroyo Grande Creek in 2006. One was rescued from fishing line at Oceano Lagoon, in September 2016. In March of 2018, a rider posted on social media that he found a southwestern pond turtle in the open riding area and moved it out of harm’s way.	CNDDDB, WHPP 2017

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Reptiles	<i>Uta stansburiana elegans</i>	Western Side-blotched Lizard	None	None	IUCN Least Concern	Prefers open rocky areas with scattered vegetation, including the edges of sandy washes. Utilizes a wide variety of habitats, including hardpan, sandy, rocky, and loamy areas grown with chaparral, scattered trees, grass, shrubs, and cactus. (californiaherps.com)	Low	No	n/a	iNaturalist, WHPP 2017
Reptiles	<i>Eumeces skiltonianus</i>	Western Skink	None	None	IUCN Least Concern	“It is widespread in northern California but primarily restricted to the coast in central and southern California. Found in a variety of habitats, this lizard is most common in early successional stages or open areas of late successional stages.”	Low	No	n/a	iNaturalist, WHPP 2017
Reptiles	<i>Coluber constrictor mormon</i>	Western Yellow-bellied Racer	None	None	IUCN Least Concern	Prefers open areas with sunny exposure - meadows, grassland, sagebrush flats, brushy chaparral, woodlands, riparian areas such as pond edges, and forest openings. Found in arid and moist habitats, but not usually found in deserts or high mountains. (californiaherps.com)	Low	No	n/a	iNaturalist, WHPP 2017
Mammals	<i>Taxidea taxus</i>	American Badger	None	None	G5, S3, CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Moderate	Yes	Confirmed on-site as recently as 2006. Nearby in 2019.	CNDDDB, WHPP 2017
Mammals	<i>Ursus americanus</i>	American Black Bear	None	None	IUCN Least Concern	“They are often found in areas with relatively inaccessible terrain, thick understory vegetation and large quantities of edible material (especially masts).”	Low	Yes	Small bear tracks observed (with pictures) by staff in 2012, 2015, and 2016 in the ORA.	iNaturalist, WHPP 2017, District databases

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Mammals	<i>Eptesicus fuscus</i>	Big Brown Bat	None	None	IUCN Least Concern	“It is adaptable to many habitats and is considered a generalist species.”	Moderate	Yes	Detected at Pismo Lake, Visitor Center Lagoon, Little Oso Flaco Lake in 2017	iNaturalist, WHPP 2017 Wildlife Project 2017
Mammals	<i>Neotoma macrotis</i>	Big-eared Woodrat	None	None	IUCN Least Concern	“The big-eared woodrat inhabits the southern portion of what was formerly the range of the dusky-footed woodrat, with the latter woodrat species inhabiting the northern portion the range. Specifically, big-eared woodrats' can be found along the west coast of North America from just south of Monterey Bay to Baja California. Their habitat consists of coastal chaparral, sage scrub, and densely wooded areas, with preferences for regions populated by coast live oak and with extensive understory plant coverage.”	High	Yes	Resident in vegetated islands within the ORA and in vegetated boundary.	iNaturalist, WHPP 2017, District databases
Mammals	<i>Rattus rattus</i>	Black Rat	None	None	Non-native	“Black rats adapt to a wide range of habitats. In the wild, black rats live in cliffs, rocks, the ground, and trees. They are great climbers and prefer to live in palms and trees, such as pine trees. Black rats are also found around fences, ponds, riverbanks, streams, and reservoirs.”	Moderate	Yes	Captured during small mammal mark/recapture studies in the Dunes Preserve from March – September 2015.	iNaturalist, WHPP 2017, District databases

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Mammals	<i>Odocoileus hemionus columbianus</i>	Black-tailed Deer	None	None	IUCN Least Concern	“These two subspecies thrive on the edge of the forest, as the dark forest lacks the underbrush and grasslands the deer prefer as food, and completely open areas lack the hiding spots and cover they prefer for harsh weather. One of the plants that black-tailed deer browse is western poison oak, despite its irritant content.”	Moderate	Yes	Observed in Phillips 66 Leasehold in November 2011. Observed in Oso Flaco Lake in May 2022.	iNaturalist, WHPP 2017, District databases
Mammals	<i>Lepus californicus</i>	Black-tailed Jackrabbit	None	None	IUCN Least Concern	“Black-tailed jackrabbits occupy mixed shrub-grassland terrains.”	Moderate	Yes	Observed near Oceano Campground in December 2021.	iNaturalist, WHPP 2017
Mammals	<i>Lynx rufus</i>	Bobcat	None	None	IUCN Least Concern	“It is an adaptable predator inhabiting wooded areas, semidesert, urban edge, forest edge, and swampland environments.”	Moderate	Yes	Staff regularly detects tracks in the ORA, most recently in July 2022.	iNaturalist, WHPP 2017, District databases
Mammals	<i>Tadarida brasiliensis</i>	Mexican Free-tailed Bat	None	None	IUCN Least Concern	“Mexican free-tailed bats roost primarily in caves. However, they also roost in buildings of any type as long as they have access to openings and dark recesses in ceilings or walls.”	Moderate	Yes	Confirmed in Pismo Lagoon, Oceano Lagoon, Oso Flaco Lake, and Little Oso Flaco Lake in June 2017.	iNaturalist, WHPP 2017, Wildlife Project 2017
Mammals	<i>Sylvilagus bachmani</i>	Brush Rabbit	Endangered	Endangered	IUCN Least Concern	“Brush rabbits most commonly live in chaparral vegetation but are also found in oak and conifer habitats. In the San Francisco Bay Area, the brush rabbit was found to concentrate its activities at the edge of brush and exhibits much less use of grassy areas.”	Moderate	Yes	Observed near Oceano Campground in October 2022. Observed near Oso Flaco Lake in June 2022. Observed during surveys in vegetated islands within the ORA in December 2017.	iNaturalist, WHPP 2017, District databases

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Mammals	<i>Peromyscus californicus</i>	California Mouse	None	None	IUCN Least Concern	Peromyscus californicus is generally restricted to dense chaparral and broad-sclerophyll woodland (Meritt 1974). The limiting factor for its small geographic range may be the need for naturally occurring burrow holes of the proper size for these larger animals (Grinnell and Orr 1934), as they are poor natural burrowers. (animaldiversity.org)	High	Yes	Resident in all vegetated islands within the ORA and in vegetated boundary.	iNaturalist, WHPP 2017, District databases
Mammals	<i>Microtus californicus</i>	California Meadow Mouse	None	None	IUCN Least Concern	“The California vole is found from El Rosario in Baja California in the south, through much of California and as far as Eugene, Oregon in the north. It is, however, absent from most of the deserts of southeastern California and from the extreme northeastern and northwestern corners of the state. It inhabits a range of different grassland habitats, from wet coastal marshland to dry uplands and savannah.”	High	Yes	Resident in all vegetated islands within the ORA and in vegetated boundary.	iNaturalist, WHPP 2017, District databases
Mammals	<i>Chaetodipus californicus</i>	California Pocket Mouse	None	None	IUCN Least Concern	“It is found in habitats, such as California chaparral and woodlands, in Southern California throughout the Southern Sierra Nevada, Southern California Coast Ranges, and the Transverse Ranges; and in Southern California and northern Baja California in the Peninsular Ranges.”	High	Yes	Resident in all vegetated islands within the ORA and in vegetated boundary.	iNaturalist, WHPP 2017, District databases
Mammals	<i>Zalophus californianus</i>	California Sea Lion	None	None	IUCN Least Concern	“They mainly haul-out on sandy or rocky beaches, but they also frequent manmade environments such as marinas and wharves.”	High	Yes	Staff often rescues individuals showing signs of starvation or domoic acid poisoning.	iNaturalist, WHPP 2017, District databases

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Mammals	<i>Canis latrans</i>	Coyote	None	None	IUCN Least Concern	“Prior to the near extermination of wolves and cougars, the coyote was most numerous in grasslands inhabited by bison, pronghorn, elk, and other deer, doing particularly well in short-grass areas with prairie dogs, though it was just as much at home in semiarid areas with sagebrush and jackrabbits or in deserts inhabited by cactus, kangaroo rats, and rattlesnakes.”	High	Yes	Tracks seen daily throughout the ORA. Sometimes seen near campgrounds.	iNaturalist, WHPP 2017, District databases
Mammals	<i>Sylvilagus auduboni</i>	Desert Cottontail	None	None	IUCN Least Concern	“It is particularly associated with the dry near-desert grasslands of the American southwest, though it is also found in less arid habitats such as pinyon-juniper forest.[9] It is also frequently found in the riparian zones in arid regions.”	Low	Yes	Observed near Oso Flaco Lake in June 2021.	iNaturalist, WHPP 2017
Mammals	<i>Dipodomys ingens</i>	Giant Kangaroo Rat	Endangered	Endangered	G1G2, S1S2, IUCN_EN-Endangered	Annual grasslands on the western side of the San Joaquin Valley, marginal habitat in alkali scrub.	Low	No	n/a	IPaC, CNDDDB
Mammals	<i>Urocyon cinereoargenteus</i>	Grey Fox	None	None	IUCN Least Concern	“The species occurs throughout most rocky, wooded, brushy regions of the southern half of North America from southern Canada (Manitoba through southeastern Quebec) to the northern part of South America (Venezuela and Colombia), excluding the mountains of northwestern United States.”	Moderate	Yes	Tracks occasionally throughout park, last observed in May 2020.	iNaturalist, WHPP 2017, District databases

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Mammals	<i>Dipodomys heermanni</i>	Heermann's Kangaroo Rat	None	None	IUCN Least Concern	"The range is limited as well, extending north to south from Lake Tahoe to Point Conception in Santa Barbara County, and east to west from the Sierra Nevada mountain range to the Pacific Ocean. They can be found in a range of habitats, however they do not surpass the altitude of 910 m (3,000 ft)."	High	Yes	Resident in all vegetated islands within the ORA and in vegetated boundary.	iNaturalist, WHPP 2017, District databases
Mammals	<i>Neogale frenata</i>	Long-tailed Weasel	None	None	IUCN Least Concern	Found in a wide variety of habitats, usually near water. Favored habitats include brushland and open woodlands, field edges, riparian grasslands, swamps, and marshes (Sheffield, in Wilson and Ruff 1999). Dens are in abandoned burrow made by other mammal, rock crevice, brushpile, stump hollow, or space among tree roots; one individual may use multiple dens. Tolerant of close proximity to humans. (natureserve.org)	Moderate	Yes	Observed near North Beach Campground in June 2020. Resident of District's greenhouse in April 2019. Observed near Oceano Campground in June 2017.	iNaturalist, WHPP 2017, District databases
Mammals	<i>Puma concolor</i>	Mountain Lion	None	None	IUCN Least Concern	"It is an adaptable, generalist species, occurring in most American habitat types."	Moderate	Yes	Tracks observed sometimes in ORA, last seen in March 2020. Live female seen near Oso Flaco Lake in August 2018.	iNaturalist, WHPP 2017, District databases
Mammals	<i>Ondatra zibethicus</i>	Muskrat	None	None	IUCN Least Concern	"The muskrat is found in wetlands over a wide range of climates and habitats."	Moderate	Yes	Observed in Oso Flaco Lake in October 2022. Observed in Oceano Lagoon in June 2021.	iNaturalist, WHPP 2017, District databases

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Mammals	<i>Peromyscus maniculatus</i>	North American Deer Mouse	None	None	IUCN Least Concern	“The woodland variety of P. maniculatus is an adept climber, and prefers tree cover meters above the ground, while the prairie form prefers to move from burrow to burrow in open areas, avoiding floral cover.”	High	Yes	Resident in all vegetated islands within the ORA and in vegetated boundary.	iNaturalist, WHPP 2017, District databases
Mammals	<i>Antrozous pallidus</i>	Pallid Bat	None	None	G4, S3, BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	Moderate	Yes	Confirmed nearby the Oceano Dunes SVRA at Oceano Lagoon in June 2017.	WHPP 2017, CNDDDB Wildlife Project 2017
Mammals	<i>Procyon lotor</i>	Raccoon	None	None	IUCN Least Concern	“The original habitats of the raccoon are deciduous and mixed forests, but due to their adaptability, they have extended their range to mountainous areas, coastal marshes, and urban areas, where some homeowners consider them to be pests.”	High	Yes	Resident in vegetated islands within the ORA and in vegetated boundary.	iNaturalist, WHPP 2017, District databases

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Mammals	<i>Vulpes vulpes</i>	Red Fox	None	None	Non-Native	“The red fox is a wide-ranging species. Its range covers nearly 70 million km2 (27 million sq mi) including as far north as the Arctic Circle. It occurs all across Europe, in Africa north of the Sahara Desert, throughout Asia apart from extreme Southeast Asia, and across North America apart from most of the southwestern United States and Mexico.”	Moderate	Yes	Tracks occasionally throughout District, last observed in April 2021.	iNaturalist, WHPP 2017, District databases
Mammals	<i>Enhydra lutris nereis</i>	Southern Sea Otter	Threatened	None	G4T2, S2, CDFW_FP-Fully Protected, IUCN_EN-Endangered, MMC_SSC-Species of Special Concern	Nearshore marine environments from about Ano Nuevo, San Mateo Co. to Point Sal, Santa Barbara Co.	Moderate	Yes	Confirmed offshore at the Oceano Dunes SVRA.	IPaC, WHPP 2017
Mammals	<i>Mephitis mephitis</i>	Striped Skunk	None	None	IUCN Least Concern	“The striped skunk inhabits a wide variety of habitats, particularly mixed woodlands, brushy corners and open fields interspersed with wooded ravines and rocky outcrops. Some populations, particularly in northwestern Illinois, prefer cultivated areas over uncultivated ones.”	Moderate	Yes	Tracks occasionally throughout District, last observed in April 2014.	iNaturalist, WHPP 2017, District databases

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Mammals	<i>Corynorhinus townsendii</i>	Townsend's Big-eared Bat	None	None	G4, S2, BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	Throughout California in a wide variety of habitats. Most common in mesic sites.	High	Yes	Confirmed nearby the Oceano Dunes SVRA at Oceano Lagoon in June 2017.	CNDDDB, WHPP 2017 Wildlife Project 2017
Mammals	<i>Sorex trowbridgii</i>	Trowbridge's Shrew	None	None	IUCN Least Concern	“Trowbridge's shrew resides in forested areas where the ground may be littered with debris for cover. They are found in both dry and moist forests, as well as in swampy woodlands. They are less likely to be found near streams. In the southern reaches of their range, they may be found in chaparral.”	High	Yes	Resident in vegetated islands within the ORA and in vegetated boundary.	iNaturalist, WHPP 2017, District databases
Mammals	<i>Didelphis virginiana</i>	Virginia Opossum	None	None	Non-Native	“Opossums are familiar to many North Americans as they frequently inhabit settled areas near food sources like trash cans, pet food, compost piles, gardens or housemice.”	High	Yes	Tracks seen often throughout the ORA. Sometimes seen near campgrounds.	iNaturalist, WHPP 2017, District databases
Mammals	<i>Reithrodontomys megalotis</i>	Western Harvest Mouse	None	None	IUCN Least Concern	Reithrodontomys megalotis is found in a variety of open areas, including grasslands, prairies, meadows, and marshes. It also inhabits more arid areas such as deserts, sand dunes, and shrublands. (animaldiversity.org)	High	Yes	Resident in vegetated islands within the ORA and in vegetated boundary.	iNaturalist, WHPP 2017, District databases

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Mammals	<i>Lasiurus blossevillii</i>	Western Red Bat	None	None	G4, S3, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_H-High Priority	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests.	Moderate	Yes	Confirmed nearby the Oceano Dunes SVRA at Oceano Lagoon in June 2017.	WHPP 2017, CNDDDB Wildlife Project 2017
Mammals	<i>Myotis yumanensis</i>	Yuma Myotis	None	None	BLM:S IUCN:LC	“It is found in a variety of western lowland habitats, from arid thorn scrub to coniferous forest, but always close to standing water such as lakes and ponds.”	Moderate	Yes	Confirmed in Pismo Lagoon, Oceano Lagoon, Oso Flaco Lake, and Little Oso Flaco Lake in June 2017.	iNaturalist, WHPP 2017, Wildlife Project 2017
Arachnids	<i>Neomolgus littoralis</i>	Red Velvet Mite	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Crustaceans	<i>Megalorche stia benedicti</i>	Beach Hopper	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Crustaceans	<i>Aloniscus perconvexus</i>	Commando Isopod	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Crustaceans	<i>Megalorche stia californiana</i>	Long-horned Beach Hopper	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Crustaceans	<i>Emerita analoga</i>	Pacific Mole Crab	None	None	None	The species is common on the beaches of California...The sand crab lives under the surface of the sand, moving up and down the beach according to the state of the tide.	High	Yes	Common in intertidal zone.	Pismo Clam, Enhanced Status Report 2020, iNaturalist

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Crustaceans	<i>Megalorchestia columbiana</i>	Pale Beach Hopper	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Crustaceans	<i>Procambarus clarkii</i>	Red Swamp Crayfish	None	None	Non-Native	" <i>P. clarkii</i> is most commonly found in warm freshwater bodies such as slow-flowing rivers, marshes, reservoirs, irrigation systems and rice paddies."	Low	Yes	Observed in Meadow Creek during surveys in July 2021. Observed in Carpenter Creek Lagoon in June 2020.	Quarterly Reports, iNaturalist
Crustaceans	<i>Blepharipoda occidentalis</i>	Spiny Mole Crab	None	None	None	It lives on sandy beaches up to 30 metres (98 ft) under water, and feeds on the remains of other sand crabs that live in the area.	High	Yes	Observed in June 2022 and common in intertidal zone.	Pismo Clam, Enhanced Status Report 2020, iNaturalist
Crustaceans	<i>Branchinecta lynchi</i>	Vernal Pool Fairy Shrimp	Threatened	None	G3, S3, IUCN_VU-Vulnerable	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools.	Low	No	There is final critical habitat for this species. Location does not overlap the critical habitat.	IPaC, CNDDDB
Crustaceans	<i>Excirolana chiltoni</i>	Water-line Isopod	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Mollusks	<i>Donax gouldii</i>	Bean Clam	None	None	None	The Bean clam is found from Pismo Beach, California, to Arroyo del Conejo, Baja California Sur. It inhabits exposed sandy shores from the mid-intertidal zone to waters up to 30 meters deep.	High	Yes	Common in intertidal zone.	Pismo Clam, Enhanced Status Report 2020, iNaturalist

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Mollusks	<i>Macoma nasuta</i>	Bent Nose Macoma	None	None	None	<i>Macoma nasuta</i> , commonly known as the bent-nosed clam, is a species of bivalve found along the Pacific Ocean coast of North America. It is about 6 cm (2.4 in) long. It is often found buried in sands of 10–20 cm (3.9–7.9 in) in depth. Common in intertidal and subtidal (50 m) zones; Prefers mud to muddy sand substrates situated in quiet waters and can burrow up to 40 cm beneath the surface sediment.	Moderate	No	Sightings on iNaturalist in Pismo Beach intertidal zone, most recently from April 2021.	Pismo Clam, Enhanced Status Report 2020, iNaturalist
Mollusks	<i>Siliqua patula</i>	Pacific Razor Clam	None	None	None	Pacific razor clams can be found along the Pacific West Coast of North America from the eastern Aleutian Islands, Alaska, to Pismo Beach, California. They inhabit sandy beaches in the intertidal zone down to a maximum water depth of about 9 m (30 ft).	High	Yes	Empty shells commonly wash up onto shoreline.	Pismo Clam, Enhanced Status Report 2020, iNaturalist
Mollusks	<i>Tivela stultorum</i>	Pismo Clam	None	None	None	Pismo clams inhabit the intertidal zone on flat and exposed beaches with high wave action up to 80 feet (ft) (24 meter (m)) but are rarely found in waters deeper than 40 ft (12 m). Most Pismo clams are found in shallow sand from 2 to 12 inches (in) (18 to 31 centimeter (cm)), or at a depth of roughly equal to the length of its own shell. (marinespecies.wildlife.ca.gov/pismo-clam)	High	Yes	Common in the intertidal zone. Populations appear to be increasing and maturing over time.	Pismo Clam, Enhanced Status Report 2020

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Mollusks	<i>Tryonia imitator</i>	Mimic Tryonia (=California brackishwater snail)	None	None	G2, S2, IUCN_DD-Data Deficient	Found only in permanently submerged areas in a variety of sediment types; able to withstand a wide range of salinities.	Low	No	n/a	CNDDDB
Insects	<i>Akephorus marinus</i>	Akephorus marinus	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Aleochara littoralis</i>	Aleochara littoralis	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Aleochara pacifica</i>	Aleochara pacifica	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Aleochara sulcicollis</i>	Aleochara sulcicollis	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Bledius fenyesei</i>	Bledius fenyesei	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Cafius canescens</i>	Cafius canescens	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Cafius luteipennis</i>	Cafius luteipennis	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Cafius seminitens</i>	Cafius seminitens	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Cercyon fimbriatus</i>	Cercyon fimbriatus	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Euspilotus scissus</i>	Clown Beetle	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Insects	<i>Hypocaccus gaudens</i>	Clown Beetle	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Neopachylopus sulcifrons</i>	Clown Beetle	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Coelopa vanduzeei</i>	Coelopa vanduzeei	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Emphyastes fucicola</i>	Emphyastes fucicola	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Fucellia costalis</i>	Fucellia costalis	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Coelus globosus</i>	Globose Dune Beetle	None	None	G1G2, S1S2, IUCN_VU-Vulnerable	Inhabitant of coastal sand dune habitat; erratically distributed from Ten Mile Creek in Mendocino County south to Ensenada, Mexico.	Moderate	No	n/a	CNDDDB
Insects	<i>Fucellia ruftibia</i>	Kelp Fly	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Leptociera johnsoni</i>	Leptociera johnsoni	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Danaus plexippus</i>	Monarch Butterfly	Candidate	None	G4T2T3, S2S3, USFS_S-Sensitive	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico.	High	Yes	Overwintering population at Pismo State Beach Overwintering Grove.	IPaC, CNDDDB
Insects	<i>Icaricia icarioides moroensis</i>	Morro Bay Blue Butterfly	None	None	G5T2, S2	Inhabits stabilized dunes and adjacent areas of coastal San Luis Obispo and NW Santa Barbara counties.	Moderate	Yes	Observed near the ORA in July 2021.	iNaturalist, CNDDDB

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Insects	<i>Neopachylopus aeneipunctatus</i>	Neopachylopus aeneipunctatus	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Bombus caliginosus</i>	Obscure Bumble Bee	None	None	G4?, S1S2, IUCN_VU-Vulnerable	Coastal areas from Santa Barbara County to north to Washington state.	Moderate	No	n/a	CNDDDB
Insects	<i>Areniscythrish brachypteris</i>	Oso Flaco Flightless Moth	None	None	G1, S2	Open, coastal sand dune slopes in San Luis Obispo County.	High	Yes	Observed near Oso Flaco Lake in September 2022.	CNDDDB, iNaturalist
Insects	<i>Chlosyne leanira elegans</i>	Oso Flaco Patch Butterfly	None	None	G4G5T1T2, S1S2	Sand dune habitat around Oso Flaco Lake, San Luis Obispo County.	High	Yes	Caterpillars observed in South Oso Flaco in April 2018 (photos taken).	CNDDDB, District databases
Insects	<i>Ablautus schlingeri</i>	Oso Flaco Robber Fly	None	None	G1, S1	Sand dunes.	High	Yes	Observed near Oso Flaco Lake in July 2020.	iNaturalist, CNDDDB
Insects	<i>Phalaria rotunda</i>	Phalaria rotunda	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Phycocotes testaceus</i>	Phycocotes testaceus	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Phyconomous marinus</i>	Phyconomous marinus	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Thinopinus pictus</i>	Pictured Rove Beetle	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8
Insects	<i>Pontomalota californica</i>	Pontomalota californica	None	None	None	Surf-cast kelp (wrack).	High	Yes	Confirmed in wrack samples collected in 2007 & 2008.	Wrack Study 2007-8

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Insects	<i>Cicindela hirticollis grvida</i>	Sandy Beach Tiger Beetle	None	None	G5T2, S2	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico.	Moderate	Yes	Observed nearby in August 2021.	CNDDDB
Insects	<i>Atractelmis wawona</i>	Wawona Riffle Beetle	None	None	G3, S1S2	Aquatic; found in riffles of rapid, small to medium clear mountain streams; 2000-5000 ft elev.	Low	No	n/a	CNDDDB
Insects	<i>Bombus occidentalis</i>	Western Bumble Bee	None	Candidate	G2G3, S1, USFS_S-Sensitive	Once common and widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	Low	No	n/a	CNDDDB
Insects	<i>Lichnanthe albipilosa</i>	White Sand Bear Scarab Beetle	None	None	G1, S1	Inhabits coastal sand dunes of San Luis Obispo County, in the vicinity of Dune Lakes.	Moderate	No	Observed nearby in July 2019.	CNDDDB
Annelids	<i>Nereis latescens</i>	Neried Worm	None	None	None	Intertidal zone.	Moderate	Yes	Staff encountered this in the intertidal zone within the last five years.	Pismo Clam, Enhanced Status Report 2020
Birds	<i>Melanerpes formicivorus</i>	Acorn Woodpecker	None	None	IUCN Least Concern	“The acorn woodpecker's habitat is forested areas with oaks in the coastal areas and foothills of Oregon, California, and the southwestern United States, south through Central America to Colombia.”	Low	Yes	Observed near Oso Flaco Lake in August 2020.	eBird, iNaturalist
Birds	<i>Selasphorus sasin</i>	Allen's Hummingbird	BCC Rangewide	None	IUCN Least Concern	“Allen's hummingbird is common only in the brushy woods, gardens, and meadows of coastal California from Santa Barbara north, and southern coastal Oregon.”	Moderate	Yes	Confirmed on-site at Oso Flaco Lake and north of the Oceano Dunes SVRA at Oceano Lagoon as recently as June 2022. Nesting on-site unconfirmed.	IPaC, WHPP 2017, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Recurvirostra americana</i>	American Avocet	None	None	IUCN Least Concern	“The avocet's wintering grounds are mainly coastal. Along the Atlantic Ocean, they are found in North and South Carolina, Georgia and Florida. There are also wintering grounds along the Gulf of Mexico in Florida, Texas, and Mexico, and along the Pacific Ocean in California and Mexico.”	Low	Yes	Confirmed on-site at Arroyo Grande Creek Lagoon in November 2011, at Oso Flaco Lake in September 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Botaurus lentiginosus</i>	American Bittern	None	None	IUCN Least Concern	“It is an aquatic bird and frequents bogs, marshes and the thickly-vegetated verges of shallow-water lakes and ponds, both with fresh and brackish or saline water. It sometimes feeds out in the open in wet meadows and pastures.”	Low	Yes	Confirmed on-site at Oso Flaco Lake in November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Fulica americana</i>	American Coot	None	None	IUCN Least Concern	“American coots are found near water reed-ringed lakes and ponds, open marshes, and sluggish rivers. They prefer freshwater environments but may temporarily live in saltwater environments during the winter months.”	High	Yes	Confirmed on-site at Arroyo Grande Creek Lagoon and Oso Flaco Lake as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Corvus brachyrhynchos</i>	American Crow	None	None	IUCN Least Concern	“Virtually all types of country from wilderness, farmland, parks, open woodland to towns and major cities are inhabited; it is absent only from tundra habitat, where it is replaced by the common raven.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Spinus tristis</i>	American Goldfinch	None	None	IUCN Least Concern	“The American goldfinch prefers open country where weeds thrive, such as fields, meadows, flood plains, as well as roadsides, orchards, and gardens. It may also be found in open deciduous and riparian woodlands and areas of secondary growth.”	High	Yes	Confirmed on-site as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Falco sparverius</i>	American Kestrel	None	None	IUCN Least Concern	“American kestrels are found in a wide variety of habitats, including grasslands, meadows, deserts and other open to semi-open regions. They can also be found in both urban and suburban areas. A kestrel's habitat must include perches, open space for hunting, and cavities for nesting (whether natural or man-made).”	High	Yes	Confirmed on-site as recently as May 2022.	HMS dB, iNaturalist
Birds	<i>Falco peregrinus anatum</i>	American Peregrine Falcon	None	None	G4T4, S3S4, CDF_S-Sensitive, CDFW_FP-Fully Protected, USFWS_BCC-Birds of Conservation Concern	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures.	High	Yes	Confirmed on-site as recently as 2022. Nesting on-site unconfirmed.	WHPP 2017, CNDDDB

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Anthus rubescens</i>	American Pipit	None	None	IUCN Least Concern	During spring and fall migration, pipits select the most similar open habitats, including agricultural fields (in stubble or plowed), turf farms, sports complexes with open grassy areas, beaches, mudflats, dry river or lake beds, and the shores of lakes and rivers. Wintering pipits likewise use open areas, generally places free of deep snow or ice. (allaboutbirds.org)	High	Yes	Common on-site Districtwide.	HMS dB, eBird
Birds	<i>Setophaga ruticilla</i>	American Redstart	None	None	IUCN Least Concern	“During the breeding season, the redstart inhabits open-canopy, mostly deciduous forests, second growth, and forest edges. It is insectivorous, often sharing its foraging habitats with other warblers, and is found feeding in the mid to lower regions of a tree or shrub. A wide range of habitats are occupied during migration, including many shrubby areas.”	Low	Yes	Confirmed in Oceano Campground in January 2001, near Oso Flaco Lake in October 2015.	HMS dB, eBird, iNaturalist
Birds	<i>Turdus migratorius</i>	American Robin	None	None	IUCN Least Concern	“The American robin's breeding habitat is woodland and more open farmland and urban areas. It becomes less common as a breeder in the southernmost part of the Deep South of the United States, and there prefers large shade trees on lawns. Its winter habitat is similar but includes more open areas.”	High	Yes	Confirmed near Oso Flaco Lake as recently as July 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Pelecanus erythrorhynchos</i>	American White Pelican	None	None	G4, S1S2, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Colonial nester on large interior lakes.	High	Yes	Confirmed foraging on-site at Oso Flaco Lake as recently as May 2022. Oceano Dunes SVRA is outside the breeding range for this species.	WHPP 2017, CNDDDB
Birds	<i>Mareca americana</i>	American Wigeon	None	None	IUCN Least Concern	During the breeding season American Wigeons use wetlands, ponds, lakes, marshes, and rivers, but females nest on dry ground in nearby grasslands and fields. Outside of the breeding season, they forage and rest in wetlands, rivers, lakes, impoundments, estuaries, bays, flooded fields, and tidal flats that typically have plentiful vegetation both above and below the water surface. In urban and suburban areas, they also frequent parks, pastures, and golf courses to graze on grass. (allaboutbirds.org)	Moderate	Yes	Confirmed on the shoreline February 2010 and at Oso Flaco Lake November 2022.	HMS dB, eBird
Birds	<i>Calypte anna</i>	Anna's Hummingbird	None	None	IUCN Least Concern	Anna's Hummingbirds are common in urban and suburban settings as well as wilder places such as chaparral, coastal scrub, oak savannahs, and open woodland. They are notably common around eucalyptus trees, even though eucalyptus was only introduced to the West Coast in the mid-nineteenth century. (allaboutbirds.com)	High	Yes	Common on-site Districtwide.	HMS dB, eBird

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Myiarchus cinerascens</i>	Ash-throated Flycatcher	None	None	IUCN Least Concern	“It breeds in desert scrub, riparian forest, brushy pastures and open woodland from the western United States to central Mexico. It is a short-distance migrant, retreating from most of the U.S. and northern and central Mexico, spending the winter from southern Mexico to Honduras. This bird is also prone to wander, with single birds often seen outside its normal breeding range as far away as the east coast of North America.”	Moderate	Yes	Confirmed site-wide, last seen May 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Calidris bairdii</i>	Baird's Sandpiper	None	None	IUCN Least Concern	Migrants stop over in a wide variety of habitats, often near freshwater wetlands. These include the edges of lakes and rivers, wet farm fields, pastures, shortgrass prairies, drying lake beds, and rice fields. (allaboutbirds.org)	Low	Yes	Observed near Oso Flaco Lake in August 2016.	eBird
Birds	<i>Haliaeetus leucocephalus</i>	Bald Eagle	Non-BCC Vulnerable	Endangered	G5, S3, BLM_S-Sensitive, CDF_S-Sensitive, CDFW_FP-Fully Protected IUCN_LC-Least Concern, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water.	Low	Yes	Observed near Oso Flaco Lake in October 2022.	IPaC, CNDDDB, eBird

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Patagioenas fasciata</i>	Band-tailed Pigeon	None	None	IUCN Least Concern	On the Pacific coast, they live between sea level and 1,000 feet of elevation, in temperate rainforests of coniferous trees such as Sitka spruce, red cedar, western hemlock, Douglas-fir, and red alder. Their foraging habitat includes fruiting shrubs such as cascara, elderberry, Pacific madrone, cherry, and huckleberry. (allaboutbirds.org)	Low	Yes	Observed in Oso Flaco Lake in March 2022.	eBird
Birds	<i>Riparia riparia</i>	Bank Swallow	None	Threatened	G5, S2, BLM_S-Sensitive IUCN_LC-Least Concern	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Low	Yes	Confirmed on-site foraging near Oso Flaco Lake as recently as 2022. Oceano Dunes SVRA is outside the known breeding range for this species.	WHPP 2017, CNDDDB
Birds	<i>Tyto alba</i>	Barn Owl	None	None	IUCN Least Concern	“The barn owl is a bird of open country, such as farmland or grassland with some interspersed woodland, usually at altitudes below 2,000 meters (6,600 ft).”	Moderate	Yes	Seen in revegetated dune scrub in November 2014, near Oso Flaco Lake in November 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Hirundo rustica</i>	Barn Swallow	None	None	IUCN Least Concern	“The preferred habitat of the barn swallow is open country with low vegetation, such as pasture, meadows and farmland, preferably with nearby water. This swallow avoids heavily wooded or precipitous areas and densely built-up locations. The presence of accessible open structures such as barns, stables, or culverts to provide nesting sites, and exposed locations such as wires, roof ridges or bare branches for perching, are also important in the bird's selection of its breeding range.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Setophaga castanea</i>	Bay-breasted Warbler	None	None	IUCN Least Concern	“Bay-breasted Warblers breed mostly in mature boreal forests of spruce and fir, less frequently in other coniferous trees such as hemlock or pine, or in mixed forests with birch or maple.”	Low	Yes	Observed near Oso Flaco Lake in October 2017.	eBird, iNaturalist
Birds	<i>Passerculus sandwichensis beldingi</i>	Belding's Savannah Sparrow	BCC-BCR	None	This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Salt marshes. Nests on the ground in natural depression or scrape, primarily in pickleweed (SALICORNIA VIRGINICA) habitat at the higher levels of the marsh, above the reach of the highest spring tides (California DF&G 1990). (natureserve.org)	Low	No	n/a	IPaC

Group										
Birds	<i>Vireo bellii</i>	Bell's Vireo	None	Endangered	IUCN Least Concern	“Unlike during the breeding season, they are not limited in winter to willow-dominated riparian areas but occupy a variety of habitats including mesquite scrub within arroyos, palm groves, and hedgerows bordering agricultural and residential areas.”	Low	Yes	Observed near Oso Flaco Lake in August 2019.	eBird, iNaturalist
Birds	<i>Megaceryle alcyon</i>	Belted Kingfisher	None	None	IUCN Least Concern	“The only kingfisher in the majority of its range, the belted kingfisher's breeding habitat is near inland bodies of waters or coasts across most of North America, within Canada, Alaska and the United States.”	High	Yes	Confirmed in Oso Flaco Lake in November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Thryomanes bewickii</i>	Bewick’s Wren	None	None	IUCN Least Concern	“The preferred habitat of the Bewick's wren is that of arid open woodlands and brush-filled areas such as hillsides and uplands but will reside in humid areas locally (Subtropical and Temperate zones). They are more common than house wrens in drier habitats, such as those found in the Southwest. In California, Bewick's wrens inhabit a shrubland area called chaparral.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist

Group		Common								
Birds	<i>Haematopus bachmani</i>	Black Oystercatcher	BCC Rangewide	None	IUCN Least Concern	Black Oystercatchers spend their entire lives in view of the Pacific Ocean or adjacent bays, in rocky marine habitats that provide both nesting and foraging areas. They feed in open mudflats in many areas as well. On occasion they forage on earthworms in open, grassy sites (such as golf courses) adjacent to the ocean. During strong storms, Black Oystercatchers often seek shelter in bays and harbors, away from usual feeding and nesting locations. (allaboutbirds.org)	Low	Yes	Observed in Oso Flaco Lake in September 2013.	IPaC, eBird
Birds	<i>Sayornis nigricans</i>	Black Phoebe	None	None	IUCN Least Concern	“It is always found near water and is often found at coastal cliffs, river/lake banks, or even park fountains. Habitats must also include a supply of mud for nest building, and the birds' specialized nesting requirements probably cause their somewhat irregular range.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Melanitta americana</i>	Black Scoter	Non-BCC Vulnerable	None	IUCN Near Threatened	“It winters farther south in temperate zones, on the coasts of the northern USA and Canada, on the Pacific coast south to the San Francisco Bay region and on the Atlantic and Gulf of Mexico coasts, and in Asia as far south as China.”	Low	Yes	Confirmed in Oso Flaco Lake in March 2015.	IPaC, eBird, iNaturalist

Group										
Birds	<i>Rynchops niger</i>	Black Skimmer	BCC Rangewide	None	G5, S2, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, NABCI_YWL-Yellow Watch List, USFWS_BCC-Birds of Conservation Concern	Nests on gravel bars, low islets, and sandy beaches, in unvegetated sites. Nesting colonies usually less than 200 pairs.	Moderate	Yes	Confirmed on-site at the Pismo Creek mouth as recently as July 2021. Oceano Dunes SVRA is outside the breeding range for this species.	IPaC, WHPP 2017, CNDDDB
Birds	<i>Cypseloides niger</i>	Black Swift	BCC Rangewide	None	G4, S2, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, NABCI_YWL-Yellow Watch List, USFWS_BCC-Birds of Conservation Concern	Coastal belt of Santa Cruz and Monterey counties; central and southern Sierra Nevada; San Bernardino and San Jacinto mountains.	Low	Yes	Confirmed on-site at Oso Flaco Lake as recently as May 2022. Oceano Dunes SVRA is outside the breeding range for this species.	IPaC, WHPP 2017, CNDDDB, eBird

Group										
Birds	<i>Chlidonias niger</i>	Black Tern	BCC Rangewide	None	G4G5, S2, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Freshwater lakes, ponds, marshes and flooded ag fields. At coastal lagoons and estuaries during migration.	Low	Yes	Confirmed on-site as recently as August 2020. Oceano Dunes SVRA is outside the breeding range for this species.	IPaC, WHPP 2017, CNDDB
Birds	<i>Arenaria melanocephala</i>	Black Turnstone	BCC Rangewide	None	IUCN Least Concern	“It winters on rocky shores along the Pacific coast of North America from southern Alaska southwards as far as north-west Mexico where it occurs in Baja California and Sonora with a single record from Nayarit.”	Moderate	Yes	Confirmed on-site in South Oso Flaco as recently as April 2020. Oceano Dunes SVRA is outside the breeding range for this species.	IPaC, eBird, iNaturalist
Birds	<i>Setophaga fusca</i>	Blackburnian Warbler	None	None	IUCN Least Concern	On the coast, Blackburnians are sometimes seen foraging near the ground in shrubs, if no taller habitat is available. Spring migrants may also be found in many sorts of habitat, especially if they have just descended from nocturnal migration and have not yet oriented to their surroundings. (allaboutbirds.org)	Low	Yes	Confirmed near Oso Flaco Lake in October 2021.	eBird
Birds	<i>Setophaga striata</i>	Blackpoll Warbler	None	None	IUCN Near Threatened	“In the southern portion of their breeding range, blackpoll warblers can be found on the higher elevations of mountains in woodland or brushy areas. They also spend their summers on the wooded coastal islands of Maine and the Maritime Provinces. Farther north they have been reported throughout the boreal coniferous forest. Blackpolls breed nearer to the tundra than any other warbler.”	Low	Yes	Observed near Oso Flaco Lake in October 2015.	eBird, iNaturalist

Group		Common				General Habitat (Quoted habitats from				
Birds	<i>Mniotilta varia</i>	Black-and-white Warbler	None	None	IUCN Least Concern	“During migration, this species prefers forest to other land cover types and is frequently found in riparian areas. In its wintering habitat, it can be found in a variety of land cover types, from mangroves to wet, dry, and cloud forest. It occupies both successional and mature forest. It has also been noted to winter in shade coffee plantations and gardens.”	Low	Yes	Seen near Oceano Campground lagoon once in January 2000, near Oso Flaco Lake in February 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Pluvialis squatarola</i>	Black-bellied Plover	None	None	IUCN Least Concern	“They forage for food on beaches and tidal flats, usually by sight.”	High	Yes	Confirmed regularly along the shoreline.	HMS dB, eBird, iNaturalist
Birds	<i>Poecile atricapillus</i>	Black-capped Chickadee	None	None	IUCN Least Concern	Chickadees are found in deciduous and mixed forests, open woods, parks, willow thickets, cottonwood groves, and disturbed areas. (allaboutbirds.org)	Low	Yes	Confirmed in Dunes Preserve as recently as June 2020.	HMS dB, eBird
Birds	<i>Archilochus alexandri</i>	Black-chinned Hummingbird	None	None	IUCN Least Concern	“Black-chinned hummingbirds are found in most of the western United States, reaching north into Canada in Alberta and British Columbia, east to Oklahoma, and as far south as Mexico. They can be found in mountains, woodlands, orchards, meadows, and chaparral habitats. Their breeding habitat is open, semiarid areas, usually near water in the western United States, northern Mexico, and southern British Columbia.”	Low	Yes	Observed at Oso Flaco Lake in July 2016.	eBird, iNaturalist
Birds	<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	None	None	IUCN Least Concern	“The breeding habitat is fresh and salt-water wetlands throughout much of the world.”	High	Yes	Confirmed nesting in Oceano Campground.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Pheucticus melanocephalus</i>	Black-headed Grosbeak	None	None	IUCN Least Concern	“The black-headed grosbeak prefers to live in deciduous and mixed wooded areas. It likes to be in areas with large trees and thick bushes, such as patches of broadleaved trees and shrubs within conifer forests, including streamside corridors, river bottoms, lakeshores, wetlands, and suburban areas.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Phoebastria nigripes</i>	Black-footed Albatross	BCC Rangewide	None	IUCN Near Threatened	“Their range at sea varies during the seasons (straying farther from the breeding islands when the chicks are older or they don't have chicks) but they make use of great areas of the North Pacific, feeding from Alaska to California and Japan; however they do prefer the northeastern Pacific Ocean.”	Low	No	Found washed up on beach once in June 2000.	IPaC, iNaturalist
Birds	<i>Rissa tridactyla</i>	Black-legged Kittiwake	Non-BCC Vulnerable	None	IUCN Vulnerable	“The black-legged kittiwake is a coastal bird of the arctic to subarctic regions of the world. It can be found all across the northern coasts of the Atlantic, from Canada to Greenland as well as on the Pacific side from Alaska to the coast of Siberia.”	Low	No	n/a	IPaC, iNaturalist
Birds	<i>Himantopus mexicanus</i>	Black-necked Stilt	None	None	IUCN Least Concern	“The black-necked stilt is found in estuarine, lacustrine, salt pond and emergent wetland habitats; it is generally a lowland bird but in Central America has been found up to 8,200 ft (2,500 m) ASL and commonly seen in llanos habitat in northern South America.”	Low	Yes	Confirmed at Arroyo Grande Creek mouth in August 2000, Oso Flaco Lake in October 2019.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Setophaga caerulescens</i>	Black-throated Blue Warbler	None	None	IUCN Least Concern	“The black-throated blue warbler is a migratory species. It breeds in temperate mature deciduous forests or mixed coniferous-deciduous forest with a thick understory. The species is often found in hilly and mountainous regions in the northeastern United States and southeastern Canada.”	Low	Yes	Observed near Oso Flaco Lake in October 2015.	eBird, iNaturalist
Birds	<i>Setophaga nigrescens</i>	Black-throated Gray Warbler	None	None	IUCN Least Concern	“The black-throated gray warbler breeds in open coniferous and mixed forest with a brushy understory, in dry open oak forests, and in chaparral and other scrubland. It is particularly associated with pinyon pines, junipers, and oaks. It migrates to the south late in the fall, returning north in mid-spring. While migrating, it forages in any woodland or scrub it passes through. In its wintering grounds, it occurs in dry woodland and tall scrub.”	Low	Yes	Confirmed in Dunes Preserve and vegetated islands as recently as April 2014, near Oso Flaco Lake in November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Puffinus opisthomelas</i>	Black-vented Shearwater	BCC Rangewide	None	IUCN Near Threatened	“This species is pelagic, occurring in the Pacific Ocean and the Gulf of California. It comes closer to land than most other shearwaters, so it can sometimes be seen from shore.”	Low	Yes	Confirmed near Oso Flaco Lake in September 2016.	IPaC, eBird, iNaturalist
Birds	<i>Passerina caerulea</i>	Blue Grosbeak	None	None	IUCN Least Concern	“This species is found in partly open habitat with scattered trees, riparian woodland, scrub, thickets, cultivated lands, woodland edges, overgrown fields, or hedgerows.”	Low	Yes	Observed near Oso Flaco Lake in May 2021.	eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Polioptila caerulea</i>	Blue-gray Gnatcatcher	None	None	IUCN Least Concern	“The blue-gray gnatcatcher's breeding habitat includes open deciduous woods and shrublands in southern Ontario, the eastern and southwestern United States, and Mexico.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Spatula discors</i>	Blue-winged Teal	None	None	IUCN Least Concern	“Blue-winged teal inhabit shoreline more often than open water and prefer calm water or sluggish currents to fast water. They inhabit inland marshes, lakes, ponds, pools, and shallow streams with dense emergent vegetation. In coastal areas, breeding occurs in salt-marsh meadows with adjoining ponds or creeks.”	Moderate	Yes	Confirmed as Oso Flaco Lake and Arroyo Grande Creek as recently as October 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Dolichonyx oryzivorus</i>	Bobolink	None	None	UCN Least Concern	“The bobolink breeds in the summer in United States and Canada, with most of the summer range in the northern U.S. Bobolinks winter in southern South America, primarily Paraguay, Argentina, and Bolivia. Bobolinks often migrate in flocks, feeding on cultivated grains and rice, which leads to them being considered a pest by farmers in some areas.”	Low	Yes	Observed near Oso Flaco Lake in May 2014.	eBird, iNaturalist
Birds	<i>Chroicocephalus philadelphia</i>	Bonaparte’s Gull	None	None	IUCN Least Concern	“It winters along the coasts of North America, and in the Great Lakes.”	High	Yes	Confirmed regularly on the shoreline.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Urile penicillatus</i>	Brandt's Cormorant	None	None	IUCN Least Concern	"Brandt's cormorants live on the Pacific coast of North America, in habitats such as bays, estuaries, and lagoons. This species nests on the ground or on rocky outcroppings. Año Nuevo Island is an important seabird breeding colony in the Monterey Bay National Marine Sanctuary, hosting Brandt's cormorants among other species of seabirds."	High	Yes	Confirmed on the shoreline and Oso Flaco Lake; last seen July 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Branta bernicla</i>	Brant	None	None	G5, S2?, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Requires well-protected, shallow marine waters with intertidal eel-grass beds, primarily within bays and estuaries. At high tide they need sheltered open water or protected beaches for loafing.	High	Yes	Confirmed on-site as recently as May 2022. Oceano Dunes SVRA is outside the breeding range for this species.	WHPP 2017, CNDDDB
Birds	<i>Euphagus cyanocephalus</i>	Brewer's Blackbird	None	None	IUCN Least Concern	"Their breeding habitat is open and semi-open areas, often near water, across central and western North America. They are also very common in parking lots, and easily acclimate to the presence of people. These birds are often permanent residents in the west."	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Spizella breweri</i>	Brewer's Sparrow	None	None	IUCN Least Concern	"Found in brushy areas, especially with sagebrush, in southern parts of western Canada and in the western United States."	Low	Yes	Observed near Oso Flaco Lake in September 2013.	eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Certhia americana</i>	Brown Creeper	None	None	IUCN Least Concern	“Brown creepers prefer mature, moist, coniferous forests or mixed coniferous/deciduous forests. They are found in drier forests as well, including Engelman Spruce and larch forest in eastern Washington. They generally avoid the rainforest of the outer coast. While they generally nest in hardwoods, conifers are preferred for foraging.”	Low	Yes	Confirmed once in Oceano Campground in December 2000, near Oso Flaco Lake in March 2016.	HMS dB, eBird, iNaturalist
Birds	<i>Pelecanus occidentalis</i>	Brown Pelican	Non-BCC Vulnerable	None	G4T3T4, S3, BLM_S-Sensitive, CDFW_FP-Fully Protected, USFS_S-Sensitive	Colonial nester on coastal islands just outside the surf line.	High	Yes	Confirmed on-site as recently as May 2022. Oceano Dunes SVRA is outside the breeding range for this species.	IPaC, WHPP 2017, CNDDb
Birds	<i>Molothrus ater</i>	Brown-headed Cowbird	None	None	IUCN Least Concern	“The species lives in open or semi open country, and often travels in flocks, sometimes mixed with red-winged blackbirds (particularly in spring) and bobolinks (particularly in fall), as well as common grackles or European starlings. These birds forage on the ground, often following grazing animals such as horses and cattle to catch insects stirred up by the larger animals. They mainly eat seeds and insects.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Bucephala albeola</i>	Bufflehead	None	None	IUCN Least Concern	“They are migratory and most of them winter in protected coastal waters, or open inland waters, on the east and west coasts of North America and the southern United States.”	High	Yes	Confirmed in Oso Flaco Lake, Oceano Lagoon, and shoreline; last seen November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Icterus bullockii</i>	Bullock's Oriole	BCC - BCR	None	This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	“Like other members of the Icteridae, Bullock's orioles prefer habitat edges. They especially prefer riparian corridors, open deciduous woodland, and scrub forest. Observations during the breeding season indicate that members of this species prefer areas with an abundance of cottonwood, pecan, and (if near water) willow. In dry areas, this species prefers salt cedar and mesquite. In California, eucalyptus trees are used as major sources of nectar.”	High	Yes	Common on-site Districtwide.	IPaC, HMS dB, iNaturalist
Birds	<i>Athene cunicularia hypugaea</i>	Western Burrowing Owl	None	Candidate	G4, S3, BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation.	Moderate	Yes	Confirmed wintering on-site near Oso Flaco Lake as recently as January 2022. In addition, tracks were observed at Pavilion Hill in 2016. Confirmed in a burrow at Grand Avenue as recently as February 2019. No nesting documented on-site.	CNDDb, WHPP 2017

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Psaltiriparus minimus</i>	Bushtit	None	None	IUCN Least Concern	“The American bushtit inhabits mixed open woodlands, often containing oaks and a scrubby chaparral understory; it also inhabits parks and gardens. It is a year-round resident of the western United States and highland parts of Mexico, ranging from Vancouver through the Great Basin and the lowlands and foothills of California to southern Mexico and Guatemala.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Branta hutchinsii</i>	Cackling Goose	None	None	IUCN Least Concern	“Like most geese, it is naturally migratory, the wintering range being most of the U.S., and locally in western Canada and northern Mexico.”	Moderate	Yes	Confirmed in Oso Flaco Lake as recently as November 2022.	eBird, iNaturalist
Birds	<i>Laterallus jamaicensis coturniculus</i>	California Black Rail	None	Threatened	G3G4T1, S1, BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays.	Low	Yes	Occurred historically at Oso Flaco Lake; however, last observed in 1991. Nesting on-site unconfirmed.	CNDDDB, WHPP 2017

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Rallus obsoletus</i>	Ridgway's Rail			None	Long considered by many ornithologists as a subspecies of the Clapper Rail (<i>Rallus crepitans</i>), phylogenetic analyses have revealed that Ridgway's Rail (<i>R. obsoletus</i>) is more closely related to the Aztec Rail (<i>R. tenuirostris</i>) of central Mexico. Ridgway's rails occur almost exclusively in tidal and freshwater wetlands along the Pacific Coast from northern California (San Francisco Bay area) and Baja California south to central Mexico (Colima). Ridgway's Rail typically feeds on crustaceans, but take a variety of other invertebrate prey, fish and other small vertebrates, and seeds.	Low	No	n/a	Cornell Lab
Birds	<i>Gymnogyps californianus</i>	California Condor	Endangered	Endangered	G1, S1, CDF_S-Sensitive, CDFW_FP-Fully Protected, IUCN_CR-Critically Endangered, NABCI_RWL-Red Watch List	Require vast expanses of open savannah, grasslands, and foothill chaparral in mountain ranges of moderate altitude.	Low	No	n/a	IPaC, CNDDDB
Birds	<i>Larus californicus</i>	California Gull	None	None	IUCN Least Concern	"They are migratory, most moving to the Pacific coast in winter. It is only then that this bird is regularly found in western California."	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Sternula antillarum browni</i>	California Least Tern	Endangered	Endangered	G4T2T3Q, S2, CDFW_FP-Fully Protected NABCI_RWL-Red Watch List	Nests along the coast from San Francisco Bay south to northern Baja California.	High	Yes	Confirmed regularly nesting on-site.	IPaC, CNDDDB
Birds	<i>Aphelocoma californica</i>	California Scrub-jay	None	None	IUCN Least Concern	“True to its name, the California scrub jay inhabits areas of low scrub, preferring pinon-juniper forests, oak woods, and edges of mixed evergreen forests. It also inhabits suburban gardens.”	High	Yes	Observed near Oso Flaco Lake in November 2022.	eBird, iNaturalist
Birds	<i>Toxostoma redivivum</i>	California Thrasher	BCC Rangewide	None	IUCN Least Concern	“The California thrasher is a year-round resident of both slopes of the California Coast Ranges and the western slope of the Sierra Nevada. It is only rarely found in the Central Valley between them. Its primary habitat is chaparral. It also inhabits sagebrush, juniper bushland, and riparian and oak woodlands with a dense understory. It is sometimes found in suburban parks and yards that have dense cover.”	High	Yes	Common on-site Districtwide. No nesting observed on-site.	IPaC, eBird, iNaturalist
Birds	<i>Melospiza crissalis</i>	California Towhee	None	None	IUCN Least Concern	“This bird's natural habitat is California's brush, chaparral, open woodlands, and along streams adjacent to desert slopes. It has widely adapted to parks and gardens and is found throughout Baja California, as well. They can be found along the North Pacific coastline from Southern Oregon, USA to Baja California, Mexico.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Callipepla californica</i>	California Quail	None	None	IUCN Least Concern	“They are year-round residents. Although this bird coexists well at the edges of urban areas, it is declining in some areas as human populations increase. These birds forage on the ground, often scratching at the soil. They can sometimes be seen feeding at the sides of roads. Their diet consists mainly of seeds and leaves, but they also eat some berries and insects; for example, Toyon berries are a common food source.”	High	Yes	Confirmed regularly site-wide.	HMS dB, eBird, iNaturalist
Birds	<i>Branta canadensis</i>	Canada Goose	None	None	IUCN Least Concern	“This species is native to North America. It breeds in Canada and the northern United States in a wide range of habitats. Canada geese are mainly present as migrants from further north during the winter.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Cardellina canadensis</i>	Canada Warbler	None	None	IUCN Least Concern	“In the United States the range extends from northern Minnesota to northern Pennsylvania, east to Long Island, New York. It also nests in the high Appalachians as far south as Georgia. In winter the Canada warbler's range extends from Guyana to northwestern Bolivia around the northern and western side of the Andean crest. In both summer and winter seasons the Canada warbler inhabits moist thickets.”	Low	Yes	Observed at Oso Flaco Lake in November 2012.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Aythya valisineria</i>	Canvasback	None	None	IUCN Least Concern	“The canvasback migrates through the Mississippi Flyway to wintering grounds in the mid-Atlantic United States and the Lower Mississippi Alluvial Valley (LMAV), or the Pacific Flyway to wintering grounds along the coast of California. Brackish estuarine bays and marshes with abundant submergent vegetation and invertebrates are ideal wintering habitat for canvasbacks.”	High	Yes	Confirmed at Oso Flaco Lake as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Hydroprogne caspia</i>	Caspian Tern	None	None	IUCN Least Concern	“Their breeding habitat is large lakes and ocean coasts in North America. North American birds migrate to southern coasts, the West Indies and northernmost South America.”	High	Yes	Confirmed regularly on the shoreline.	HMS dB, eBird, iNaturalist
Birds	<i>Tyrannus vociferans</i>	Cassin’s Kingbird	None	None	IUCN Least Concern	“In the summer, these birds can be found in California and from Montana to Utah, along the eastern Rocky Mountains. Their habitat includes rangelands and savannas. These birds migrate to their winter quarters between Southern California and northern Central America.”	High	Yes	Confirmed on vegetated islands as recently as May 2021, Oso Flaco Lake in November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Vireo cassinii</i>	Cassin’s Vireo	None	None	IUCN Least Concern	“It prefers open woodlands of the western mountains and foothills. It is usually found in the middle to lower portions of the forest canopy, where it slowly and deliberately forages for insects among the foliage.”	Moderate	Yes	Confirmed in Oceano Campground in October 2000, near Oso Flaco Lake in October 2021.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Bubulcus ibis</i>	Cattle Egret	None	None	IUCN Least Concern	“Although the cattle egret sometimes feeds in shallow water, unlike most herons, it is typically found in fields and dry grassy habitats, reflecting its greater dietary reliance on terrestrial insects rather than aquatic prey.”	Low	Yes	Observed near Oso Flaco Lake in April 2014.	eBird, iNaturalist
Birds	<i>Bombycilla cedrorum</i>	Cedar Waxwing	None	None	IUCN Least Concern	“Preferred habitat consists of trees at the edge of wooded areas, or forests, especially those that provide access to berry sources as well as water. They are frequently seen in fruiting trees.”	High	Yes	Confirmed on-site Districtwide; last observed April 2020.	HMS dB, eBird, iNaturalist
Birds	<i>Poecile rufescens</i>	Chestnut-backed Chickadee	None	None	IUCN Least Concern	“It is found in the Pacific Northwest of the United States and western Canada, from southern Alaska to southwestern California. It is a permanent resident within its range, with some seasonal movements as feeding flocks move short distances in search of food.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Setophaga pensylvanica</i>	Chestnut-sided Warbler	None	None	IUCN Least Concern	“The chestnut-sided warbler has benefited from the clearing of mature forests. They make use of the abundant second growth habitats.”	Moderate	Yes	Confirmed at Oceano Campground in September 2000, near Oso Flaco Lake in October 2021.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Spizella passerina</i>	Chipping Sparrow	None	None	IUCN Least Concern	“In the winter, chipping sparrows are gregarious and form flocks, sometimes associating with other bird species. They mostly forage on the ground for seeds and other food items, as well as clambering on plants and trees, feeding on buds and small arthropods. In the west of their range they breed mainly in coniferous forests, but in the east, they choose woodland, farmland, parks and gardens.”	Low	Yes	Observed near Oso Flaco Lake in October 2013.	eBird, iNaturalist
Birds	<i>Spatula cyanoptera</i>	Cinnamon Teal	None	None	IUCN Least Concern	“Their breeding habitat is marshes and ponds in western United States and extreme southwestern Canada and are rare visitors to the east coast of the United States.”	Moderate	Yes	Confirmed at Arroyo Grande Creek and at Oso Flaco Lake as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Aechmophorus clarkii</i>	Clark's Grebe	BCC Rangewide	None	IUCN Least Concern	“Being waterbirds, they require bodies of water that offer the necessary food and shelter that they need to thrive—usually lakes or suitable wetlands—that are also in proximity to suitable tree cover that they can use for nesting.”	High	Yes	Confirmed on-site along shoreline when rescue is necessary. No nesting occurs on-site.	IPaC, eBird, iNaturalist
Birds	<i>Spizella pallida</i>	Clay-colored Sparrow	None	None	IUCN Least Concern	“Their breeding habitat is shrubby open areas and jack pine woods across central Canada and central northern United States east to the Great Lakes and is expanding further eastward. The nest is an open cup on the ground or low in a shrub. These birds migrate in flocks to southern Texas and Mexico.”	Low	Yes	Observed near Oso Flaco Lake in October 2017.	eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	None	None	IUCN Least Concern	“The cliff swallow's breeding range includes large areas across Canada and the United States of America, excluding some Southern and Northern areas. The majority of nesting colonies are situated in close proximity to fields, ponds and other ecosystems that would hold a large variety of flying insect populations to sustain their energy requirements during the breeding season.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Gallinula galeata</i>	Common Gallinule	None	None	IUCN Least Concern	“This is a common breeding bird in marsh environments and well-vegetated lakes.”	Low	Yes	Confirmed at Oso Flaco Lake as recently as October 2017.	HMS dB, eBird, iNaturalist
Birds	<i>Bucephala clangula</i>	Common Goldeneye	None	None	IUCN Least Concern	“They are migratory and most winter in protected coastal waters or open inland waters at more temperate latitudes.”	Moderate	Yes	Confirmed at Pismo Creek mouth in January 2000, at Oso Flaco Lake as recently as January 2021.	HMS dB, eBird, iNaturalist
Birds	<i>Gavia immer</i>	Common Loon	Non-BCC Vulnerable	None	G5, S1, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Nesting locations at certain large lakes and reservoirs in interior of state, primarily in northeastern plateau region.	High	Yes	Confirmed on-site along shoreline when rescue is necessary. No nesting occurs on-site.	IPaC, CNDDDB
Birds	<i>Mergus merganser</i>	Common Merganser	None	None	IUCN Least Concern	“The common merganser (North American) or goosander (Eurasian) (<i>Mergus merganser</i>) is a large seaduck of rivers and lakes in forested areas of Europe, Asia, and North America. The common merganser eats mainly fish. It nests in holes in trees.”	Moderate	Yes	Confirmed on shoreline once in June 2005, at Oso Flaco Lake as recently as April 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Uria aalge</i>	Common Murre	Non-BCC Vulnerable	None	None	“The breeding habitat is islands, rocky shores, cliffs and sea stacks. Common murre rest on the water in the winter and this may have consequences for their metabolism.”	High	Yes	Confirmed on-site along shoreline when rescue is necessary. No nesting occurs on-site.	IPaC, iNaturalist
Birds	<i>Corvus corax</i>	Common Raven	None	None	IUCN Least Concern	“Most common ravens prefer wooded areas with large expanses of open land nearby, or coastal regions for their nesting sites and feeding grounds. In some areas of dense human population, such as California in the United States, they take advantage of a plentiful food supply and have seen a surge in their numbers. On coasts, individuals of this species are often evenly distributed and prefer to build their nest sites along sea cliffs. Common ravens are often located in coastal regions because these areas provide easy access to water and a variety of food sources. Also, coastal regions have stable weather patterns without extreme cold or hot temperatures.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Sterna hirundo</i>	Common Tern	None	None	IUCN Least Concern	“In North America, the common tern breeds along the Atlantic coast from Labrador to North Carolina, and inland throughout much of Canada east of the Rocky Mountains. Outside the breeding season, all that is needed in terms of habitat is access to fishing areas, and somewhere to land. In addition to natural beaches and rocks, boats, buoys and piers are often used both as perches and as night-time roosts.”	Low	Yes	Encountered on shoreline periodically; last seen January 2016, seen near Oso Flaco Lake in August 2016.	HMS dB, eBird, iNaturalist
Birds	<i>Geothlypis trichas sinuosa</i>	Common Yellowthroat	BCC - BCR	None	G5T3, S3, CDFW_SSC- Species of Special Concern, USFWS_BCC- Birds of Conservation Concern	Resident of the San Francisco Bay region, in fresh and salt water marshes.	High	Yes	This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA (possibly only sensitive in San Francisco area?). Confirmed on-site at Oso Flaco Lake as recently as November 2022. No nesting documented on-site.	IPaC, CNDDDB, HMS dB, eBird
Birds	<i>Accipiter cooperii</i>	Cooper’s Hawk	None	None	IUCN Least Concern	“The Cooper's hawk tend to occur in various types of temperate deciduous forest and mixed forest. They are also adaptable in all seasons to forested mountainous regions, especially foothills.”	High	Yes	Confirmed Districtwide as recently as June 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Calypte costae</i>	Costa's Hummingbird	None	None	IUCN Least Concern	“Costa's hummingbird is fairly common in the arid brushy deserts and any nearby gardens of the Southwestern United States and the Baja California Peninsula of Mexico.”	Low	Yes	Observed near Oso Flaco Lake in April 2018.	eBird, iNaturalist
Birds	<i>Junco hyemalis</i>	Dark-eyed Junco	None	None	IUCN Least Concern	“The dark-eyed junco's breeding habitat is coniferous or mixed forest areas throughout North America.”	High	Yes	Confirmed site-wide as recently as September 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Phalacrocorax auritus</i>	Double-crested Cormorant	Non-BCC Vulnerable	None	G5, S4, CDFW_WL-Watch List IUCN_LC-Least Concern	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state.	High	Yes	Common on-site at Oso Flaco Lake. No nesting documented on-site.	IPaC, CNDDDB
Birds	<i>Dryobates pubescens</i>	Downy Woodpecker	None	None	IUCN Least Concern	“Downy woodpeckers primarily live in forested areas throughout the United States and Canada, with the exception of deserts in the southwest and the northern tundra. The bird nests in tree cavities and feeds primarily on insects, although it supplements its diet with seeds and berries.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Calidris alpina</i>	Dunlin	None	None	IUCN Least Concern	“The dunlin is highly gregarious in winter, sometimes forming large flocks on coastal mudflats or sandy beaches. Large numbers can often be seen swirling in synchronized flight on stop-overs during migration or on their winter habitat.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Podiceps nigricollis</i>	Eared Grebe	None	None	IUCN Least Concern	“This species breeds in vegetated areas of freshwater lakes across Europe, Asia, Africa, northern South America and the southwest and western United States.”	High	Yes	Confirmed site-wide as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Thalasseus elegans</i>	Elegant Tern	None	None	IUCN Near Threatened	“It breeds on the Pacific coasts of the southern United States and Mexico and winters south to Peru, Ecuador and Chile. This species breeds in very dense colonies on coasts and islands, including Isla Rasa and Montague Island (Mexico), and exceptionally inland on suitable large freshwater lakes close to the coast.”	Moderate	Yes	Confirmed on shoreline as recently as April 2019.	HMS dB, eBird, iNaturalist
Birds	<i>Streptopelia decaocto</i>	Eurasian Collared-dove	None	None	Non-native	“Carrying capacities appear to be highest in areas with higher temperatures and intermediate levels of development, such as suburban areas and some agricultural areas.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Mareca penelope</i>	Eurasian Wigeon	None	None	IUCN Least Concern	“The Eurasian wigeon is a bird of open wetlands, such as wet grassland or marshes with some taller vegetation, and usually feeds by dabbling for plant food or grazing, which it does very readily.”	Moderate	Yes	Confirmed at Oso Flaco Lake as recently as November 2022.	eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Sturnus vulgaris</i>	European Starling	None	None	Non-native	“Common starlings prefer urban or suburban areas where artificial structures and trees provide adequate nesting and roosting sites. Reedbeds are also favored for roosting and the birds commonly feed in grassy areas such as farmland, grazing pastures, playing fields, golf courses and airfields where short grass makes foraging easy. They occasionally inhabit open forests and woodlands and are sometimes found in shrubby areas such as Australian heathland. Common starlings rarely inhabit dense, wet forests (i.e. rainforests or wet sclerophyll forests) but are found in coastal areas, where they nest and roost on cliffs and forage amongst seaweed. Their ability to adapt to a large variety of habitats has allowed them to disperse and establish themselves in diverse locations around the world resulting in a habitat range from coastal wetlands to alpine forests, from sea cliffs to mountain ranges 1,900 m (6,200 ft) above sea level.”	High	Yes	Confirmed in Phillips 66 Leasehold and Pipeline Revegetation Area as recently as November 2016, near Oso Flaco Lake in November 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Buteo regalis</i>	Ferruginous Hawk	None	None	IUCN Least Concern	“The preferred habitat for ferruginous hawks are the arid and semiarid grassland regions of North America. The countryside is open, level, or rolling prairies; foothills or middle elevation plateaus largely devoid of trees; and cultivated shelterbelts or riparian corridors. Rock outcrops, shallow canyons, and gullies may characterize some habitats. These hawks avoid high elevations, forest interiors, narrow canyons, and cliff areas.”	Moderate	Yes	Observed near Oso Flaco Lake in December 2021.	eBird, iNaturalist
Birds	<i>Sterna forsteri</i>	Forster’s Tern	None	None	IUCN Least Concern	“Forster's tern is a marsh dwelling species. It can be found either in freshwater, brackish or saltwater. It is often found over shallow open water deep in the marsh. Main habitats are marshes, estuaries, islands, salt marshes and marshy areas surrounding lakes and streams.”	High	Yes	Confirmed on shoreline as recently as April 2019, near Oso Flaco Lake in May 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Passerella iliaca</i>	Fox Sparrow	None	None	IUCN Least Concern	Fox Sparrows breed in thickets and chaparral across northern North America and south along the western mountains. (allaboutbirds.org)	High	Yes	Confirmed Districtwide as recently as November 2022.	HMS dB, eBird
Birds	<i>Leucophaeus pipixcan</i>	Franklin's Gull	None	None	IUCN Least Concern	“It breeds in central provinces of Canada and adjacent states of the northern United States. It is a migratory bird, wintering in Argentina, the Caribbean, Chile, and Peru.”	Low	Yes	Observed near Oso Flaco Lake in April 2015.	eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Mareca strepera</i>	Gadwall	None	None	IUCN Least Concern	“This dabbling duck is strongly migratory, and winters farther south than its breeding range, from coastal Alaska, south into Central America, and east into Idaho, Kansas, Ohio, Virginia, and then south all the way into Central America.”	High	Yes	Confirmed Districtwide as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Larus hyperboreus</i>	Glaucous Gull	None	None	IUCN Least Concern	“This gull is migratory, wintering from in the North Atlantic and North Pacific Oceans as far south as the British Isles and northernmost states of the United States, also on the Great Lakes. A few birds sometimes reach the southern USA and northern Mexico.”	Low	Yes	Observed near Oso Flaco Lake in March 1991.	eBird, iNaturalist
Birds	<i>Larus glaucescens</i>	Glaucous-winged Gull	None	None	IUCN Least Concern	“During winter, they can be found along the coast of California, Oregon, Baja California, Baja California Sur, and Sonora.”	High	Yes	Common on shoreline.	HMS dB, eBird, iNaturalist
Birds	<i>Aquila chrysaetos</i>	Golden Eagle	Non-BCC Vulnerable	None	G5, S3, BLM_S-Sensitive, CDF_S-Sensitive, CDFW_FP-Fully Protected, CDFW_WL-Watch List, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Rolling foothills, mountain areas, sage-juniper flats, and desert.	Moderate	Yes	Confirmed on-site at Oso Flaco Lake in April 2021. No nesting occurs on-site.	IPaC, WHPP 2017, CNDDB

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Regulus satrapa</i>	Golden-crowned Kinglet	None	None	IUCN Least Concern	“The golden-crowned kinglet is a widespread migratory bird throughout North America. Its breeding habitat is coniferous forests across Canada, the northeastern and western United States, Mexico and Central America. It migrates to the United States in the non-breeding season. Some birds are permanent residents in coastal regions and in the southern parts of their range.”	Moderate	Yes	Confirmed at Oso Flaco Lake and Oceano Lagoon as recently as February 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Zonotrichia atricapilla</i>	Golden-crowned Sparrow	None	None	IUCN Least Concern	“The golden-crowned sparrow is common along the western edge of North America. It is a migratory species, breeding from north-central Alaska and central Yukon south to the northwestern corner of the US state of Washington, and wintering from southern coastal Alaska to northern Baja California. In the winter, it is generally found in brushy areas, (particularly chaparral), usually in dense shrubs.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Empidonax wrightii</i>	Gray Flycatcher	None	None	IUCN Least Concern	“Breeding habitat can be shrubland, open woodland, or forest with bare understory. Although it is typically dominated by sagebrush (<i>Artemisia</i> species), common associations include bitterbrush (<i>Purshia</i> species), rabbitbrush (<i>Chrysothamnus</i> species, <i>Ericameria nauseosus</i>), mountain-mahogany (<i>Cercocarpus ledifolius</i>), juniper (<i>Juniperus</i> species), pinyon pine (<i>Pinus</i> species), and ponderosa pine (<i>Pinus ponderosa</i>). During migration habitat is generally similar to breeding habitat, but riparian areas are often used. Thus, migrants may be found in willow (<i>Salix</i> species), oak (<i>Quercus</i> species), or mesquite (<i>Prosopis</i> species).”	Low	Yes	Observed near Oso Flaco Lake in March 2006.	eBird, iNaturalist
Birds	<i>Ardea herodias</i>	Great Blue Heron	None	None	IUCN Least Concern	“The great blue heron can adapt to almost any wetland habitat in its range. It may be found in numbers in fresh and saltwater marshes, mangrove swamps, flooded meadows, lake edges, or shorelines. It is quite adaptable and may be seen in heavily developed areas as long as they hold bodies of fish-bearing water.”	High	Yes	Confirmed Districtwide as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Ardea alba</i>	Great Egret	None	None	IUCN Least Concern	“The great egret is generally a very successful species with a large and expanding range, occurring worldwide in temperate and tropical habitats. It is ubiquitous across the Sun Belt of the United States and in the Neotropics.”	High	Yes	Confirmed on shoreline as recently as October 2021, near Oso Flaco Lake in November 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Bubo virginianus</i>	Great Horned Owl	None	None	IUCN Least Concern	“The great horned owl is among the world's most adaptable owls or even bird species in terms of habitat. The great horned owl can take up residence in trees that border all manner of deciduous, coniferous, and mixed forests, tropical rainforests, pampas, prairie, mountainous areas, deserts, subarctic tundra, rocky coasts, mangrove swamp forests, and some urban areas.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Quiscalus mexicanus</i>	Great-tailed Grackle	None	None	IUCN Least Concern	“Their habitat for foraging is on the ground in clear areas such as pastures, wetlands and mangroves, and chaparral. The grackles' range has expanded with agricultural and urban settings.”	Moderate	Yes	Observed on shoreline once in March 2003, near Oso Flaco Lake in May 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Aythya marila</i>	Greater Scaup	None	None	IUCN Least Concern	“They winter along the Pacific and Atlantic coasts of North America, the coasts of northwest Europe, the Caspian Sea, the Black Sea, the coast of Japan, Yellow Sea and East China Sea. During the winter months, they are found in coastal bays, estuaries, and sometimes inland lakes, such as the lakes of Central Europe and the Great Lakes.”	Moderate	Yes	Confirmed once at Oceano Campground in February 2001 and in Oso Flaco Lake in October 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Anser albifrons</i>	Greater White-fronted Goose	None	None	IUCN Least Concern	“The Pacific birds migrate south down the Pacific coast, staging primarily in the Klamath Basin of southern Oregon and northern California and wintering, eventually, in California's Central Valley.”	Moderate	Yes	Confirmed at Pismo Creek mouth as recently as April 2000 and Oso Flaco Lake October 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Tringa melanoleuca</i>	Greater Yellowlegs	None	None	IUCN Least Concern	“Their breeding habitat is bogs and marshes in the boreal forest region of Canada and Alaska. They migrate to the Atlantic and Pacific coasts of the United States, the Caribbean, and south to South America.”	High	Yes	Confirmed Districtwide as recently as October 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Butorides virescens</i>	Green Heron	None	None	IUCN Least Concern	“The habitat of the green heron is small wetlands in low-lying areas.”	High	Yes	Confirmed at Oso Flaco Lake and Oceano Campground as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Anas crecca</i>	Green-winged Teal	None	None	IUCN Least Concern	“Vagrants have been seen in inland Zaire, Malaysia, on Greenland, and on the Marianas, Palau and Yap in Micronesia;[20] they are regularly recorded on the North American coasts south to California and South Carolina.”	Moderate	Yes	Confirmed at Oso Flaco Lake as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Empidonax hammondi</i>	Hammond's Flycatcher	None	None	IUCN Least Concern	“Their preferred breeding habitats are mature coniferous and mixed forests. They are typically found in dense fir forests, conifer and aspen forests and dogwood. Their habitats on wintering grounds are similar to the ones used as breeding grounds.”	Low	Yes	Confirmed in Phillips 66 Leasehold once in April 2014, observed near Oso Flaco Lake in May 2015.	HMS dB, eBird, iNaturalist
Birds	<i>Dryobates villosus</i>	Hairy Woodpecker	None	None	IUCN Least Concern	“The hairy woodpecker inhabits mature deciduous forests in the Bahamas, Canada, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Saint Pierre and Miquelon, and the United States. It is a vagrant to Puerto Rico and the Turks and Caicos Islands.”	High	Yes	Confirmed Districtwide as recently as October 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Pterodroma sandwichensis</i>	Hawaiian Petrel	Endangered	None	IUCN Endangered	“The Hawaiian petrel was formerly found on all the main Hawaiian Islands except Ni‘ihau, but today it is mostly restricted to Haleakalā crater on Maui; smaller populations exist on Mauna Loa on the island of Hawai‘i, Waimea Canyon on the island of Kaua‘i, Lāna‘ihale on Lāna‘i, and possibly Moloka‘i.”	Low	No	n/a	IPaC, eBird, iNaturalist
Birds	<i>Larus heermanni</i>	Heermann's Gull	None	None	IUCN Near Threatened	“Resident in the United States, Mexico and extreme southwestern British Columbia, nearly all nesting on Isla Rasa in the Gulf of California. They are usually found near shores or well out to sea, very rarely inland.”	High	Yes	Common on shoreline.	HMS dB, eBird, iNaturalist
Birds	<i>Catharus guttatus</i>	Hermit Thrush	None	None	IUCN Least Concern	“Hermit thrushes breed in coniferous or mixed woods across Canada, southern Alaska, and the northeastern and western United States. While most hermit thrushes migrate to wintering grounds in the southern United States and south to Central America, some remain in northern coastal US states and southern Ontario. They usually breed in forests, but will sometimes winter in parks and wooded suburban neighborhoods.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Setophaga occidentalis</i>	Hermit Warbler	None	None	IUCN Least Concern	“Hermit warblers are common, but incredibly shy, birds that dwell in open coniferous forests. They are also found in wetter habitats for nesting, and in various mountain habitats.”	Moderate	Yes	Confirmed Districtwide as recently as May 2019, near Oso Flaco Lake in November 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Larus argentatus</i>	Herring Gull	None	None	IUCN Least Concern	It occurs in a variety of habitats including coasts, lakes, rivers, parking lots and garbage dumps. (Wikipedia.org)	Moderate	Yes	Confirmed on shoreline as recently as October 2019, near Oso Flaco Lake in December 2019.	HMS dB, eBird
Birds	<i>Lophodytes cucullatus</i>	Hooded Merganser	None	None	IUCN Least Concern	“For preference the hooded merganser lives on small bodies of water such as ponds and small estuaries where there is ample emergent aquatic vegetation, but it also inhabits larger wetlands, impoundments, flooded timber, and rivers. They prefer fresh water but do occur on brackish water bodies as well.”	Moderate	Yes	Confirmed at Oso Flaco Lake as recently as January 2022.	eBird, iNaturalist
Birds	<i>Icterus cucullatus</i>	Hooded Oriole	None	None	IUCN Least Concern	“Their breeding habitat is open areas with trees, especially palms, across the Southwestern United States and northern Mexico. These birds migrate in flocks south to Mexico's southwestern coast; they are permanent residents in Baja California Sur, the Mexican east coast, and Belize. Some may over-winter near feeders. They can also be found in Southern California neighborhoods but are rare in the winter.”	Moderate	Yes	Confirmed at Pismo Lake once in June 2011, observed near Oso Flaco Lake in July 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Podiceps auritus</i>	Horned Grebe	None	None	IUCN Vulnerable	“Its wintering range is also primarily coastal from southern Alaska down to the northern Gulf of California. During migration, they will stop along lakes, rivers and marshes. Following migration, they winter in marine environments of estuaries and bays or inland on large lakes.”	High	Yes	Confirmed in Oso Flaco Lake and on shoreline as recently as January 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Eremophila alpestris</i>	Horned Lark	None	None	IUCN Least Concern	“In North America, where there are no other larks to compete with, it is also found on farmland, on prairies, in deserts, on golf courses and airports.”	High	Yes	Confirmed Districtwide as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Haemorhous mexicanus</i>	House Finch	None	None	IUCN Least Concern	“These birds are mainly permanent residents throughout their range; some northern and eastern birds migrate south. Their breeding habitat is urban and suburban areas across North America, as well as various semi-open areas in the west.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Passer domesticus</i>	House Sparrow	None	None	Non-native	“The house sparrow is closely associated with human habitation and cultivation.”	High	Yes	Observed near Oso Flaco Lake in July 2022.	eBird, iNaturalist
Birds	<i>Troglodytes aedon</i>	House Wren	None	None	IUCN Least Concern	“It occurs in most suburban areas in its range and it is the single most common wren.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Vireo huttoni</i>	Hutton's Vireo	None	None	IUCN Least Concern	Through its large and fragmented range, Hutton’s Vireo favors sizable (> 50-acre) coniferous, oak, and mixed forests, but in some areas it also inhabits stream corridors and chaparral. Its habitats range from seaside forests to montane forests above 11,800 feet in elevation, from British Columbia to Guatemala. In California, they use redwood, fir, incense cedar, Pacific madrone, cypress, tanoak, Monterey pine, Bishop pine, ponderosa pine, and gray pine. In the southwestern U.S., Mexico, and Guatemala, Hutton’s live in pine, fir, pine-oak, and pine-oak-juniper forests. (allaboutbirds.org)	High	Yes	Common on-site Districtwide.	HMS dB, eBird

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Larus glaucoides</i>	Iceland Gull	None	None	IUCN Least Concern	“The Iceland gull (<i>Larus glaucoides</i>) is a medium-sized gull that breeds in the Arctic regions of Canada and Greenland, but not in Iceland (as its name suggests), where it is only seen during winter. It is migratory, wintering from in the North Atlantic as far south as the British Isles and northernmost states of the eastern United States, as well as in the interior of North America as far west as the western Great Lakes. They forage while flying, picking up food at or just below the water's surface, and they also feed while walking or swimming.”	Low	Yes	Observed near Oso Flaco Lake in January 2013.	eBird, iNaturalist
Birds	<i>Charadrius vociferus</i>	Killdeer	None	None	IUCN Least Concern	“The killdeer uses beach habitats and coastal wetlands and fields during the nonbreeding season. It forages almost exclusively in these fields, especially those with short vegetation and with cattle (which likely shorten the vegetation) and standing water.”	High	Yes	Confirmed on-site Districtwide. Nesting on-site confirmed.	HMS dB, eBird, iNaturalist
Birds	<i>Calcarius lapponicus</i>	Lapland Longspur	None	None	IUCN Least Concern	“It breeds across Arctic Europe and the Palearctic and in Canada and the northernmost United States. It is migratory, wintering in the Russian steppes, the southern United States, Northern Scandinavian arctic areas and down to coastal Southern Sweden, Denmark and Great Britain.”	Low	Yes	Observed near Oso Flaco Lake in November 2014.	eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Chondestes grammacus</i>	Lark Sparrow	None	None	IUCN Least Concern	“It breeds in southern Canada, much of the United States, and northern Mexico. It is much less common in the east, where its range is contracting. The populations in Mexico and adjacent states of the United States are resident, but other birds are migratory, wintering in the southern United States, Mexico and south to Guatemala.”	Moderate	Yes	Confirmed in Pipeline Revegetation Area once in May 2003, near Oso Flaco Lake in November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Passerina amoena</i>	Lazuli Bunting	None	None	IUCN Least Concern	“Lazuli buntings breed mostly west of the 100th meridian from southern Canada to northern Texas, central New Mexico and Arizona, and southern California. On the Pacific coast their breeding range extends south to extreme northwestern Baja California. They migrate to southeastern Arizona and Mexico. Their habitat is brushy areas and sometimes weedy pastures, generally well-watered, and sometimes in towns.”	Moderate	Yes	Confirmed in Dunes Preserve once in May 2017, near Oso Flaco Lake in April 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Spinus lawrencei</i>	Lawrence's Goldfinch	BCC Rangewide	None	G3G4, S4, IUCN_LC-Least Concern, NABCI_YWL-Yellow Watch List, USFWS_BCC-Birds of Conservation Concern	Nests in open oak or other arid woodland and chaparral, near water. Nearby herbaceous habitats used for feeding.	High	Yes	Confirmed Districtwide as recently as May 2022.	IPaC, CNDDDB, eBird

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Vireo bellii pusillus</i>	Least Bell's Vireo	Endangered	Endangered	G5T2, S2, IUCN_NT-Near Threatened, NABCI_YWL-Yellow Watch List	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft.	Low	No	n/a	IPaC, CNDDDB
Birds	<i>Ixobrychus exilis</i>	Least Bittern	None	None	G4G5, S2, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Colonial nester in marshlands and borders of ponds and reservoirs which provide ample cover.	High	Yes	Confirmed on-site at Oso Flaco Lake as recently as September 2021. Nesting confirmed on-site.	WHPP 2017, CNDDDB
Birds	<i>Calidris minutilla</i>	Least Sandpiper	None	None	IUCN Least Concern	“Their breeding habitat is the northern North American continent on tundra or in bogs. They migrate in flocks to the southern United States, Mexico, Central America, the Caribbean, and northern South America. They occur as very rare vagrants in western Europe.”	High	Yes	Confirmed on shoreline as recently November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Spinus psaltria</i>	Lesser Goldfinch	None	None	IUCN Least Concern	“It utilizes almost any habitat with trees or shrubs except for dense forest, and is common and conspicuous in many areas, often coming near houses.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Aythya affinis</i>	Lesser Scaup	None	None	IUCN Least Concern	“Their breeding habitat is inland lakes and marsh ponds in tundra from Alaska through western Canada to western Montana; few breed east of James Bay and the Great Lakes. Notable breeding concentrations, with more than half a million birds at the height of the season, can be found in Alaska, in the woodlands of the McKenzie River valley and on the Old Crow Flats. These birds migrate south (mostly via the Central and Mississippi Flyways) when the young are fledged and return early spring, usually arriving on the breeding ground in May.”	Moderate	Yes	Confirmed at Oso Flaco Lake in November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Tringa flavipes</i>	Lesser Yellowlegs	None	None	IUCN Least Concern	“They migrate to the Gulf coast of the United States, the Caribbean, and south to South America. This species is a regular vagrant to western Europe; in Great Britain about five birds arrive each year, mostly between August and October, with the occasional individual overwintering. Their breeding habitat is clearings near ponds in the boreal forest region from Alaska to Quebec.”	Moderate	Yes	Observed near Oso Flaco Lake in September 2022.	eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Melospiza lincolnii</i>	Lincoln's Sparrow	None	None	IUCN Least Concern	“Their breeding habitat is subalpine and montane zones across Canada, Alaska, and the northeastern and western United States, although they are less common in the eastern parts of their range. They are found mainly in wet thickets, shrubby bogs, and moss-dominated habitats. Their wintering range extends from the southern United States down to Mexico and northern Central America; they are passage migrants over much of the United States, except in the west.”	Moderate	Yes	Confirmed in Phillips 66 Leasehold and near Oso Flaco Lake as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Hydrocoloeus minutus</i>	Little Gull	None	None	IUCN Least Concern	“The little gull (<i>Hydrocoloeus minutus</i> or <i>Larus minutus</i>), is a small gull that breeds in northern Europe and across the Palearctic. It is migratory, wintering on coasts in western Europe, the Mediterranean and (in small numbers) the northeast United States.”	Low	Yes	Observed near Oso Flaco Lake in April 1992.	eBird, iNaturalist
Birds	<i>Lanius ludovicianus</i>	Loggerhead Shrike	None	None	G4, S4, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes.	High	Yes	Confirmed nesting and wintering on-site. Observed on-site as recently as October 2022.	WHPP 2017, CNDDDB

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Numenius americanus</i>	Long-billed Curlew	None	None	IUCN Least Concern	“The species breeds in central and western North America, migrating southward and coastward for the winter. Long-billed curlews often feed in flocks. Using the long bill, an individual probes the mud or other substrate for suitable food. The usual food consists of crabs and various other small invertebrates.”	High	Yes	Confirmed on shoreline as recently as October 2021, near Oso Flaco Lake in October 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Limnodromus scolopaceus</i>	Long-billed Dowitcher	None	None	IUCN Least Concern	“In North America, the Long-billed dowitcher breeds mainly throughout western and northern Alaska. Along the Pacific coast however, it winters in various locations from south-western British Columbia to Baja California, also moving inland to Arizona, New Mexico, Texas, and south to Mexico. In the winter, this bird can be found in a much larger variety of habitats ranging from mudflats, flooded wetlands, wet meadows and fields to various lakes and marshes preferring water less than three inches deep.”	Moderate	Yes	Confirmed at Oso Flaco Creek Mouth in October 2020, near Oso Flaco Lake in November 2022.	Per Daniel Johnson photos, eBird, iNaturalist
Birds	<i>Clangula hyemalis</i>	Long-tailed Duck	Non-BCC Vulnerable	None	IUCN Vulnerable	“Breeds in the tundra and taiga regions of the arctic and winters along the northern coastlines of the Atlantic and Pacific Oceans. Their breeding habitat is in tundra pools and marshes, but also along sea coasts and in large mountain lakes.”	Low	Yes	Confirmed offshore at the Oceano Dunes SVRA as recently as March 2022.	IPaC, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Leiothlypis luciae</i>	Lucy's Warbler	None	None	G5, S2S3, BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Primarily along lower Colorado River Valley and the washes and arroyos emptying into it, with occasional occurrences throughout the Sonoran and Mojave deserts.	Low	Yes	Confirmed on-site as recently as September 2017. Oceano Dunes SVRA is outside the breeding range for this species.	WHPP 2017, CNDDDB, eBird
Birds	<i>Geothlypis tolmiei</i>	MacGillivray's Warbler	None	None	IUCN Least Concern	MacGillivray's Warbler, like its close relative the Mourning Warbler, breeds in disturbed areas of second growth within coniferous and mixed forests. In Canada and the United States, species of spruce, pine, fir, Douglas-fir, cedar, redwood, hemlock, birch, aspen, poplar, cottonwood, and maple are key trees in the vicinity of many breeding areas. (allaboutbirds.org)	Low	Yes	Confirmed in Oceano Campground in October 2000, near Oso Flaco Lake in September 2020.	HMS dB, eBird

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Setophaga magnolia</i>	Magnolia Warbler	None	None	IUCN Least Concern	“The magnolia warbler is found in the northern parts of some Midwestern states and the very northeastern parts of the US, with states such as Minnesota and Wisconsin comprising its southernmost boundaries. In migration it passes through the eastern part of the United States as far west as Oklahoma and Kansas. During migration season, the magnolia warbler can be found in various types of woodlands.”	Low	Yes	Confirmed at Oceano Lagoon and Campground in March 2000, near Oso Flaco Lake in October 2021.	HMS dB, eBird, iNaturalist
Birds	<i>Anas platyrhynchos</i>	Mallard	None	None	IUCN Least Concern	“The mallard is widely distributed across the Northern and Southern Hemispheres. It is found in both fresh- and salt-water wetlands, including parks, small ponds, rivers, lakes and estuaries, as well as shallow inlets and open sea within sight of the coastline.”	High	Yes	Confirmed on Districtwide as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Limosa fedoa</i>	Marbled Godwit	BCC Rangewide	None	IUCN Least Concern	“Marbled godwits breed in three distinct areas with their own unique route. The vast majority occur in mid-continental North America, followed by eastern Canada and the Alaska Peninsula, USA. In addition, the largest winter ranges are the Atlantic, Pacific and Gulf coasts of the US and Mexico. Godwits breeding in the western USA and Canada follow a route through the Utah stopover site, with a final arrival in the winter sites of Mexico and the Caribbean.”	High	Yes	Common on shoreline.	IPaC, HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Brachyrampus marmoratus</i>	Marbled Murrelet	Threatened	Endangered	G3, S2, CDF_S-Sensitive, IUCN_EN-Endangered, NABCI_RWL-Red Watch List	Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz.	Low	Yes	Confirmed on-site as recently as 2022. No nesting habitat present on-site.	IPaC, WHPP 2017, CNDDb
Birds	<i>Cistothorus palustris</i>	Marsh Wren	None	None	IUCN Least Concern	“This little bird is native to Canada, Mexico, and the United States. Their breeding habitat is marshes with tall vegetation such as cattails across North America. In the western United States, some birds are permanent residents.”	High	Yes	Confirmed near Oso Flaco Lake as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Falco columbarius</i>	Merlin	None	None	IUCN Least Concern	“In North America, the merlin breeds in the northern Holarctic; some migrate to subtropical and northern tropical regions in winter. In recent decades merlin populations in North America have been significantly increasing, with some merlins becoming so well adapted to city life that they forgo migration.”	Moderate	Yes	Confirmed in vegetated islands as recently as December 2021, near Oso Flaco Lake in November 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Sialia currucoides</i>	Mountain Bluebird	None	None	IUCN Least Concern	“Their breeding habitat is open country across western North America, including mountainous areas, as far north as Alaska. Although mountain bluebirds can be found in some states year-round, their range is expansive — they generally migrate south to Mexico in the winter and north into western Canada and even Alaska in the summer. Depending on the time of year, they may be ubiquitous in mountain environments like grasslands or landscapes of sagebrush, where trees and shrubs are fairly spread out.”	Low	Yes	Observed near Oso Flaco Lake in February 1990.	eBird, iNaturalist
Birds	<i>Charadrius montanus</i>	Mountain Plover	BCC Rangewide	None	G3, S2S3, BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms.	Moderate	Yes	Confirmed on shoreline as recently as October 2021.	IPaC, CNDDDB, HMS dB

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Zenaida macroura</i>	Mourning Dove	None	None	IUCN Least Concern	“The mourning dove occupies a wide variety of open and semi-open habitats, such as urban areas, farms, prairie, grassland, and lightly wooded areas. It avoids swamps and thick forest.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Leiothlypis ruficapilla</i>	Nashville Warbler	None	None	IUCN Least Concern	“Nashville warblers breed in two distinct areas, one in Canada and the northeastern United States, and another in the western United States. The northeastern part of its range extends from Côte-Nord and Cape Breton Island in eastern Canada to central Alberta. They migrate to southernmost Texas and California, mid-Mexico, and the northernmost parts of Central America (Guatemala and El Salvador) in winter. In their breeding range, they prefer open mixed woods and bog habitats.”	Low	Yes	Confirmed in Oceano Campground as recently as August 2014, near Oso Flaco Lake in October 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Ammospiza nelsoni</i>	Nelson’s Sparrow	None	None	IUCN Least Concern	“Their breeding habitat is marshes on the Atlantic coast of Canada and Maine, central Canada, (the Canadian Prairies region and a coastal strip on the south of Hudson Bay), and the north central United States. These birds migrate to the southeastern coasts of the United States. They forage on the ground or in marsh vegetation, sometimes probing in mud and eat mainly insects, aquatic invertebrates and seeds.”	Low	Yes	Observed near Oso Flaco Lake in October 2013.	eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Colaptes auratus</i>	Northern Flicker	None	None	IUCN Least Concern	“Northern flickers may be observed in open habitats near trees, including woodlands, edges, yards, and parks. In the western United States, one can find them in mountain forests all the way up to the tree line. Northern flickers generally nest in holes in trees like other woodpeckers.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Circus hudsonius</i>	Northern Harrier	None	None	G5, S3, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Coastal salt and freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas.	High	Yes	Confirmed nesting and wintering on-site as recently as May 2022.	WHPP 2017, CNDDDB
Birds	<i>Mimus polyglottos</i>	Northern Mockingbird	None	None	IUCN Least Concern	“The mockingbird's habitat varies by location, but it prefers open areas with sparse vegetation.”	High	Yes	Observed near Oso Flaco Lake in August 2022.	eBird, iNaturalist
Birds	<i>Setophaga americana</i>	Northern Parula	None	None	IUCN Least Concern	“Outside of the breeding season, the northern parula becomes more of a habitat generalist and may be found in a wide variety of habitats during migration and winter. These habitats may include: pastures; moist, dry or wet forests; and agricultural fields or plantations.”	Low	Yes	Confirmed at Oceano Campground in September 2000, near Oso Flaco Lake in September 2017.	HMS dB, eBird, iNaturalist
Birds	<i>Anas acuta</i>	Northern Pintail	None	None	IUCN Least Concern	“The northern pintail's breeding habitat is open unwooded wetlands, such as wet grassland, lakesides or tundra. In winter, it will utilize a wider range of open habitats, such as sheltered estuaries, brackish marshes and coastal lagoons.”	Moderate	Yes	Confirmed at Oso Flaco Lake in November 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Glaucidium gnoma</i>	Northern Pygmy-owl	None	None	IUCN Least Concern	“The mountain pygmy owl resides in tropical and subtropical forests of oak, pine and evergreens; located in mountainous terrain at elevations from 1,500 to 3,500 m. Although, forests primarily composed of Ponderosa pines are preferential, as the reduced forest understory facilitates their hunting behaviors. The species is distributed from southern Arizona and New Mexico to Oaxaca in southern Mexico.”	Low	Yes	Observed near Oso Flaco Lake in November 2017.	eBird, iNaturalist
Birds	<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow	None	None	IUCN Least Concern	“The populations in the US and Canada have been found to winter in the southernmost US and further south. While this is true, the populations in Mexico and further south seem to be non-migratory, although local post-breeding movements do occur.”	Moderate	Yes	Confirmed in vegetated islands as recently as June 2019, near Oso Flaco Lake in September 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Spatula clypeata</i>	Northern Shoveler	None	None	IUCN Least Concern	“This is a bird of open wetlands, such as wet grassland or marshes with some emergent vegetation. It breeds in wide areas across Eurasia, western North America and the Great Lakes region of the United States.”	High	Yes	Confirmed in Oso Flaco Lake as recently as November 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Picoides nuttallii</i>	Nuttall's Woodpecker	BCC - BCR	None	IUCN Least Concern	“Nuttall's are a non-migratory species with a geographic range confined to northern California extending south towards the northwest region of Baja California, Mexico. Their preferred habitat is arid to mesic woodlands. In particular, these woodpeckers prefer oak woodlands, although they also occur in riparian sites and chaparral in the most southern parts of its range because of the decrease in oak abundance.”	High	Yes	Common on-site Districtwide.	IPaC, HMS dB, eBird, iNaturalist
Birds	<i>Baeolophus inornatus</i>	Oak Titmouse	BCC Rangewide	None	IUCN Least Concern	“This species lives year-round on the Pacific slope, resident from southern Oregon south through California west of the Sierra Nevada to Baja California, but its range surrounds the central San Joaquin Valley. It prefers open woodlands of warm, dry oak and oak-pine at low to mid-elevations but can also be found in forests as long as adequate oak trees are present.”	Moderate	Yes	Confirmed at Oceano Campground as recently as August 2014, near Oso Flaco Lake in November 2022.	IPaC, HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Contopus cooperi</i>	Olive-sided Flycatcher	BCC Rangewide	None	G4, S3, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened, NABCI_YWL-Yellow Watch List, USFWS_BCC-Birds of Conservation Concern	Nesting habitats are mixed conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir and lodgepole pine.	Moderate	Yes	Confirmed on-site as recently as May 2022. No nesting habitat present on-site.	IPaC, WHPP 2017, CNDDb
Birds	<i>Leiothlypis celata</i>	Orange-crowned Warbler	None	None	IUCN Least Concern	“Their breeding habitat is open shrubby areas across Canada, Alaska and the western United States. These birds migrate in the winter to the southern United States and south to Central America. Although they are quite common in the western United States, they are uncommon in the east.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Pandion haliaetus</i>	Osprey	None	None	IUCN Least Concern	“The osprey tolerates a wide variety of habitats, nesting in any location near a body of water providing an adequate food supply. It is found on all continents except Antarctica, although in South America it occurs only as a non-breeding migrant.”	High	Yes	Common on-site Districtwide over shoreline and creeks.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Gavia pacifica</i>	Pacific Loon	None	None	IUCN Least Concern	“The Pacific loon breeds on tundra lakes, and winters in the open ocean or other large bodies of water. It breeds primarily in northern Canada and eastern Siberia, and winters along the Pacific coast of North America.”	Low	Yes	Observed near Oso Flaco Lake in April 2021.	eBird, iNaturalist
Birds	<i>Troglodytes pacificus</i>	Pacific Wren	None	None	IUCN Least Concern	“It breeds along the Pacific coast from Alaska to California and inland as far as Wyoming and the Black Hills of South Dakota. It migrates through and winters across the western half of the United States and Canada. The Pacific wren nests mostly in coniferous forests, especially those of spruce and fir, where it is often identified by its long and exuberant song.”	Moderate	Yes	Confirmed at Oceano Campground in January 2001, near Oso Flaco Lake in November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Empidonax difficilis</i>	Pacific-slope Flycatcher	None	None	IUCN Least Concern	“The Pacific-slope flycatcher inhabits either coniferous or deciduous forests. In its range it enters mixed woods, Douglas fir forests, redwood forests, and many other wooded environments including riparian woodlands.”	High	Yes	Confirmed on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Setophaga palmarum</i>	Palm Warbler	None	None	IUCN Least Concern	“Palm warblers breed in open coniferous bogs and edge east of the Continental Divide, across Canada and the northeastern United States. These birds migrate to the southeastern United States, the Yucatán Peninsula, islands of the Caribbean, and eastern Nicaragua south to Panama to winter.”	Low	Yes	Observed near Oso Flaco Lake in November 2016.	eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Stercorarius parasiticus</i>	Parasitic Jaeger	None	None	IUCN Least Concern	“The parasitic jaeger is a migrant, wintering at sea in the tropics and southern oceans. While much of the migration is over sea, overland Spring migration occurs in the Canning River Valley, Alaska, and overland fall migration occurs from northern Russia to the Persian Gulf among Eurasian populations, and over the Great Lakes (particularly Lake Ontario) among American populations.”	Low	Yes	Observed near Oso Flaco Lake in February 2014.	eBird, iNaturalist
Birds	<i>Calidris melanotos</i>	Pectoral Sandpiper	None	None	IUCN Least Concern	“It is a very long-distance migrant, and about half of the species breeds in the boggy tundra of northeast Asia, the rest nesting in a range from Alaska to central Canada. The American and most of the Asian birds winter in South America, but some Asian breeders winter in southern and Australia and New Zealand. On migration and in winter, the pectoral sandpiper is typically found in freshwater habitats.”	Low	Yes	Confirmed near Oso Flaco Lake in September 2020.	eBird, iNaturalist
Birds	<i>Urile pelagicus</i>	Pelagic Cormorant	None	None	IUCN Least Concern	“This seabird lives along the coasts of the northern Pacific; during winter it can also be found in the open ocean.”	Low	Yes	Observed near Oso Flaco Lake in August 2022.	eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Phainopepla nitens</i>	Phainopepla	None	None	IUCN Least Concern	“The phainopepla ranges as far north as central California with the San Joaquin Valley and southern Utah, and south to central Mexico, the interior Mexican Plateau region; the southern edge of the plateau, the transverse mountains is its non-breeding home. It is found in hot areas, including desert oases, and is readily seen in the deserts of Arizona, southern Nevada, and southern California; also the Baja Peninsula, both Baja California-(north), and Baja California Sur where they are the only breeding resident birds.”	Low	Yes	Observed near Oso Flaco Lake in July 2021.	eBird, iNaturalist
Birds	<i>Vireo philadelphicus</i>	Philadelphia Vireo	None	None	IUCN Least Concern	“Their breeding habitat is the edges of deciduous and mixed woods across Canada. These birds migrate to Mexico and Central America.”	Low	Yes	Confirmed at Oso Flaco Lake in June 2000.	HMS dB, eBird, iNaturalist
Birds	<i>Podilymbus podiceps</i>	Pied-billed Grebe	None	None	IUCN Least Concern	“Pied-billed grebes are found in freshwater wetlands with emergent vegetation, such as cattails.[17] They are occasionally found in salt water.”	High	Yes	Confirmed at Oso Flaco Lake as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Cephus columba</i>	Pigeon Guillemot	None	None	IUCN Least Concern	“In the winter it forages along rocky coasts, often in sheltered coves. Sandy-bottomed water is avoided, presumably because this does not provide the right habitat to feed in.”	Low	Yes	Observed near Oso Flaco Lake in August 2014.	eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Spinus pinus</i>	Pine Siskin	None	None	IUCN Least Concern	“Their breeding range spreads across almost the entirety of Canada, Alaska and, to a more variable degree, across the western mountains and northern parts of the United States. As their name indicates, the species occurs mostly as a breeder in open conifer forests. While they favor feeding in open forest canopies where cone seeds are abundant, they'll forage in habitats as diverse as deciduous forests and thickets, meadows, grasslands, weedy fields, roadsides, chaparral, and backyard gardens and lawns.”	Moderate	Yes	Confirmed at Oso Flaco Lake in January 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Puffinus creatopus</i>	Pink-footed Shearwater	BCC Rangewide	None	IUCN Vulnerable	“This species is pelagic, occurring in the Pacific Ocean. It predominantly nests on offshore islands off Chile, i.e. Mocha Island. It is a transequatorial migrant, moving toward subarctic waters of the Pacific after raising its young. It is fairly common well off the West Coast of the United States during the country's warmer months.”	Low	No	n/a	IPaC, eBird, iNaturalist
Birds	<i>Stercorarius pomarinus</i>	Pomarine Jaeger	Non-BCC Vulnerable	None	IUCN Least Concern	“This species breeds in the far north of Eurasia and North America. It is a migrant, wintering at sea in the tropical oceans.”	Low	No	n/a	IPaC, eBird, iNaturalist
Birds	<i>Haemorhous purpureus</i>	Purple Finch	None	None	IUCN Least Concern	“Their breeding habitat is coniferous and mixed forest in Canada and the northeastern United States, as well as various wooded areas along the U.S. Pacific coast.”	Moderate	Yes	Confirmed near Oso Flaco Lake as recently as November 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Progne subis</i>	Purple Martin	None	None	IUCN Least Concern	“Purple martins' breeding range is throughout temperate North America. Their breeding habitat is open areas across eastern North America, and also some locations on the west coast from British Columbia to Mexico.”	Low	Yes	Observed near Oso Flaco Lake in June 2021.	eBird, iNaturalist
Birds	<i>Falco mexicanus</i>	Prairie Falcon	None	None	G5, S4, CDFW_WL-Watch List IUCN_LC-Least Concern	Inhabits dry, open terrain, either level or hilly.	Low	Yes	Observed at Oso Flaco Lake in October 2022.	CNDDDB, eBird
Birds	<i>Setophaga discolor</i>	Prairie Warbler	None	None	IUCN Least Concern	“These birds are permanent residents in the southern parts of their range. Other birds migrate to north-eastern Mexico and islands in the Caribbean.”	Low	Yes	Observed near Oso Flaco Lake in November 2011.	eBird, iNaturalist
Birds	<i>Protonotaria citrea</i>	Prothonotary Warbler	None	None	IUCN Least Concern	“The prothonotary warbler mostly breeds in hardwood swamps in extreme southeastern Ontario and the eastern United States. It is a rare vagrant to parts of the western United States, most notably California.”	Low	Yes	Confirmed at Oceano Campground in October 2021.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Calidris canutus</i>	Red Knot	None	None	IUCN Near Threatened	“In the breeding season, the red knot has a circumpolar distribution in the high Arctic, then migrates to coasts around the world from 50° N to 58° S. Their diet varies according to season; arthropods and larvae are the preferred food items at the breeding grounds, while various hard-shelled molluscs are consumed at other feeding sites at other times. North American breeders migrate to coastal areas in Europe and South America, while the Eurasian populations winter in Africa, Papua New Guinea, Australia, and New Zealand.”	Low	Yes	Confirmed on shoreline as recently as April 2020.	HMS dB, eBird, iNaturalist
Birds	<i>Phalaropus fulicarius</i>	Red Phalarope	Non-BCC Vulnerable	None	IUCN Least Concern	“This phalarope breeds in the Arctic regions of North America and Eurasia. It is migratory, and, unusually for a wader, migrating mainly on oceanic routes and wintering at sea on tropical oceans.”	Low	Yes	Observed near Oso Flaco Lake in May 2019.	IPaC, eBird, iNaturalist
Birds	<i>Mergus serrator</i>	Red-breasted Merganser	Non-BCC Vulnerable	None	IUCN Least Concern	“Its breeding habitat is freshwater lakes and rivers across northern North America, Greenland, Europe, and the Palearctic. It nests in sheltered locations on the ground near water. It is migratory and many northern breeders winter in coastal waters further south.”	Moderate	Yes	Confirmed on the shoreline as recently as May 2017, at Oso Flaco Lake as recently as December 2021.	IPaC, HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Sitta canadensis</i>	Red-breasted Nuthatch	None	None	IUCN Least Concern	“Though it is primarily a full-time resident of northern and subalpine conifer forests, the red-breasted nuthatch regularly migrates irruptively, with both the number migrating and the wintering locations varying from year to year.”	Moderate	Yes	Confirmed in Oceano Campground as recently as January 2001, near Oso Flaco Lake in February 2021.	HMS dB, eBird, iNaturalist
Birds	<i>Sphyrapicus ruber</i>	Red-breasted Sapsucker	None	None	IUCN Least Concern	“Red-breasted sapsuckers breed from southeast Alaska and British Columbia south through the Pacific Coast Ranges of western Washington and Oregon and northern California. The breeding habitat is usually forest that includes pine, hemlock, Douglas-fir, fir, and spruce, though they are known to use other woodland habitats.”	Low	Yes	Observed near Oso Flaco Lake in December 2020.	eBird, iNaturalist
Birds	<i>Vireo olivaceus</i>	Red-eyed Vireo	None	None	IUCN Least Concern	“The red-eyed vireo is a visitor to some western states, especially California.”	Low	Yes	Confirmed in Oceano Campground in September 2000.	HMS dB, eBird, iNaturalist
Birds	<i>Podiceps grisegena</i>	Red-necked Grebe	None	None	IUCN Least Concern	“The red-necked grebe shows a preference for waters in forested areas or, further north, in shrub tundra, and favors sites with abundant emergent vegetation, such as reedbeds. All populations are migratory and winter mainly at sea, usually in estuaries and bays, but often well offshore where fish are within diving reach near shallow banks or islands.”	Low	Yes	Observed in Oso Flaco Lake in February 2017.	eBird, iNaturalist
Birds	<i>Phalaropus lobatus</i>	Red-necked Phalarope	Non-BCC Vulnerable	None	IUCN Least Concern	“This phalarope breeds in the Arctic regions of North America and Eurasia. It is migratory, and, unusually for a wader, winters at sea on tropical oceans.”	Low	Yes	Confirmed on the shoreline as recently as April 2020, near Oso Flaco Lake in October 2022.	IPaC, HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Buteo lineatus</i>	Red-shouldered Hawk	None	None	IUCN Least Concern	“Red-shouldered hawks are forest raptors. In the east, they live in bottomland hardwood stands, flooded deciduous swamps, and upland mixed deciduous–conifer forests. They tend to live in stands with an open subcanopy, which makes hunting easier. They are not exclusively birds of deep forest, though; one can find red-shouldered hawks in some suburban areas where houses or other buildings are mixed into woodlands. In the west, they live in riparian and oak woodlands, and also in eucalyptus groves and some residential areas.”	High	Yes	Confirmed near Oso Flaco Lake as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Buteo jamaicensis</i>	Red-tailed Hawk	None	None	IUCN Least Concern	“Generally it favors varied habitats with open woodland, woodland edge and open terrain.”	High	Yes	Common on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Gavia stellata</i>	Red-throated Loon	Non-BCC Vulnerable	None	IUCN Least Concern	“The red-throated loon breeds primarily in the Arctic regions of northern Eurasia and North America. In North America, it winters regularly along both coasts.”	Moderate	Yes	Observed near Oso Flaco Lake in February 2022.	IPaC, eBird, iNaturalist
Birds	<i>Anthus cervinus</i>	Red-throated Pipit	None	None	IUCN Least Concern	“Breeds in the far north of Europe and the Palearctic, with a foothold in northern Alaska. It is a long-distance migrant, moving in winter to Africa, South and East Asia and the West Coast United States.”	Low	Yes	Observed near Oso Flaco Lake in October 2021.	eBird, iNaturalist
Birds	<i>Agelaius phoeniceus</i>	Red-winged Blackbird	None	None	IUCN Least Concern	“The red-winged blackbird inhabits open grassy areas. It generally prefers wetlands, and inhabits both freshwater and saltwater marshes, particularly if cattail is present.”	High	Yes	Confirmed on-site Districtwide.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Egretta rufescens</i>	Reddish Egret	None	None	IUCN Near Threatened	“A resident breeder in Central America, The Bahamas, the Caribbean, the Gulf Coast of the United States (primarily Texas), and Mexico. The egret is known for its unusual foraging behavior compared to other herons as well as its association with mud flats, its habitat of choice.”	Low	Yes	Observed near Oso Flaco Lake in September 2016.	eBird, iNaturalist
Birds	<i>Aythya americana</i>	Redhead	None	None	G5, S3S4, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	“Small, semi-permanent wetlands in non-forested country where the water is deep enough to provide dense emergent vegetation is considered ideal breeding habitat for redheads. When wintering, redheads switch to large areas of water near the coast that are protected from wave action but can also be found in reservoirs, lakes, playa wetlands, freshwater river deltas, coastal marshes, estuaries and bays.”	Moderate	Yes	Confirmed on-site at Oso Flaco Lake as recently as May 2022. Oceano Dunes SVRA is outside the breeding range for this species.	WHPP 2017, CNDDDB, HMS dB, iNaturalist
Birds	<i>Larus delawarensis</i>	Ring-billed Gull	Non-BCC Vulnerable	None	IUCN Least Concern	“The ring-billed gulls' breeding habitat is near lakes, rivers, or the coast in Canada and the northern United States. They are migratory and most move south to the Gulf of Mexico and the Atlantic and Pacific coasts of North America, and the Great Lakes.”	High	Yes	Confirmed regularly on the shoreline.	IPaC, HMS dB, eBird, iNaturalist
Birds	<i>Aythya collaris</i>	Ring-necked Duck	None	None	IUCN Least Concern	“Their breeding habitat is wooded lakes or ponds in the northern United States and Canada. Found in freshwater ponds and lakes.”	Moderate	Yes	Confirmed in Oso Flaco Lake as recently as November 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Columba livia</i>	Rock Pigeon	None	None	Non-native	“Habitats include various open and semi-open environments. Cliffs and rock ledges are used for roosting and breeding in the wild.”	High	Yes	Confirmed near Oso Flaco Lake as recently as February 2022. Found regularly near Pismo Pier.	eBird, iNaturalist
Birds	<i>Salpinctes obsoletus</i>	Rock Wren	None	None	IUCN Least Concern	“These birds are permanent residents in the south of their range, but northern populations migrate to warmer areas from the central United States and southwest Canada southwards. They are occasional vagrants in the eastern United States. During the breeding season, they move to dry, rocky locations, including canyons, from southwestern Canada south to Costa Rica to build cup nests in a crevice or cavity, usually among rocks.”	Low	Yes	Observed near Oso Flaco Lake in July 2018.	eBird, iNaturalist
Birds	<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	None	None	IUCN Least Concern	“The rose-breasted grosbeak's breeding habitat is open deciduous woods across most of Canada and the northeastern United States. In particular, the northern birds migrate south through the United States east of the Rocky Mountains, to winter from central-southern Mexico through Central America and the Caribbean to Peru and Venezuela.”	Low	Yes	Observed near Oso Flaco Lake in June 2015.	eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Anser rossii</i>	Ross's Goose	None	None	IUCN Least Concern	“Landscape in the central Arctic is dominated by flat plains with some rock outcrops and drumlins, wet meadows, and marshy tundra. Vegetation includes patches of dwarf birch, willow, grasses, sedges, and low-growing vascular plants including crowberry, lapland rosebay, and lousewort.”	Low	Yes	Confirmed near Oso Flaco Lake December 2013.	HMS dB, eBird, iNaturalist
Birds	<i>Thalasseus maximus</i>	Royal Tern	Non-BCC Vulnerable	None	IUCN Least Concern	“The royal tern is found on both coasts of the Americas. The western population nests from California to Mexico and winters from California south to Peru.”	Moderate	Yes	Confirmed on shoreline as recently as April 2020.	IPaC, HMS dB, iNaturalist
Birds	<i>Corthylio calendula</i>	Ruby-crowned Kinglet	None	None	IUCN Least Concern	“Their breeding habitat is coniferous forests across Canada, Alaska, northern New England and the western United States. These birds migrate to the southern United States and Mexico. Some birds are permanent residents in the west.”	High	Yes	Confirmed regularly Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Oxyura jamaicensis</i>	Ruddy Duck	None	None	IUCN Least Concern	“Their breeding habitat is marshy lakes and ponds. They nest in dense marsh vegetation near water. They are migratory and winter in coastal bays and unfrozen lakes and ponds.”	High	Yes	Confirmed on shoreline and in Oso Flaco Lake as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Arenaria interpres</i>	Ruddy Turnstone	None	None	IUCN Least Concern	“The ruddy turnstone breeds in northern latitudes, usually no more than a few kilometres from the sea. In the Americas, the species winters on coastlines from Washington and Massachusetts southwards to the southern tip of South America.”	Low	Yes	Confirmed on shoreline as recently as January 2013, at Oso Flaco Lake in October 2014.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Selasphorus rufus</i>	Rufous Hummingbird	None	None	IUCN Near Threatened	“Western rufous hummingbirds migrate through the Rocky Mountains and nearby lowlands during May to September to take advantage of the wildflower season. They may stay in one local region for the entire summer, in which case the migrants, like breeding birds, often aggressively take over and defend feeding locations.”	Moderate	Yes	Confirmed in vegetated islands as recently as May 2012, at Oso Flaco Lake in April 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Aimophila ruficeps</i>	Rufous-crowned Sparrow	None	None	IUCN Least Concern	“This bird is found in the southwestern United States and Mexico from sea level up to 9,800 feet (3,000 m), though it tends to be found between 3,000 and 6,000 feet (910 and 1,830 m). This sparrow is found in open oak woodlands and dry uplands with grassy vegetation and bushes. It is often found near rocky outcroppings. The species is also known from coastal scrublands and chaparral areas. The rufous-crowned sparrow thrives in open areas cleared by burning.”	Low	Yes	Confirmed in Pipeline Revegetation Area October 2008.	HMS dB, eBird, iNaturalist
Birds	<i>Xema sabini</i>	Sabine's Gull	None	None	IUCN Least Concern	“It breeds in the Arctic and has a circumpolar distribution through northernmost North America and Eurasia. It migrates south in autumn; most of the population winters at sea in the Pacific off western South America in the cold waters of the Humboldt Current.”	Low	Yes	Observed on shoreline in September 2014.	HMS dB, eBird, iNaturalist

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Birds	<i>Oreoscoptes montanus</i>	Sage Thrasher	None	None	IUCN Least Concern	“As its name suggests, this bird breeds in western North America, from southern Canada to northern Arizona and New Mexico. Its breeding habitat is in areas with dense stands of sagebrush and rarely in other shrubby areas. In winter, these birds migrate to the southernmost United States and Mexico, including the Baja Peninsula, north and south.”	Low	Yes	Observed near Oso Flaco Lake in November 2019.	eBird, iNaturalist
Birds	<i>Calidris alba</i>	Sanderling	None	None	IUCN Least Concern	“It is a circumpolar Arctic breeder, and is a long-distance migrant, wintering south to South America, South Europe, Africa, and Australia. It is highly gregarious in winter, sometimes forming large flocks on coastal mudflats or sandy beaches.”	High	Yes	Confirmed regularly on the shoreline.	HMS dB, eBird, iNaturalist
Birds	<i>Sayornis saya</i>	Say's Phoebe	None	None	IUCN Least Concern	“They are found year-round from western Colorado, southwest to southern California, east to the western panhandle of Texas and south through western Mexico. These birds prefer dry, desolate, arid landscapes. They can be found on farmland, savanna and open woodlands, usually near water. They tend to be early migrants to the western U.S.”	High	Yes	Confirmed on-site Districtwide.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Passerculus sandwichensis</i>	Savannah Sparrow	None	None	IUCN Least Concern	“This passerine bird breeds in Alaska, Canada, northern, central and Pacific coastal United States, Mexico and Guatemala. The Pacific and Mexican breeders are resident, but other populations are migratory, wintering from the southern United States across Central America and the Caribbean to northern South America.”	Moderate	Yes	Confirmed on-site Districtwide as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Lonchura punctulata</i>	Scaly-breasted Munia	None	None	Non-native	“This species is found in tropical plains and grasslands.”	Moderate	Yes	Observed near Oso Flaco Lake in November 2022.	eBird, iNaturalist
Birds	<i>Piranga olivacea</i>	Scarlet Tanager	None	None	IUCN Least Concern	“Their breeding habitat is large stretches of deciduous forest, especially with oaks, across eastern North America. In winter, scarlet tanagers occur in the montane forest of the Andean foothills. Scarlet tanagers migrate to northwestern South America, passing through Central America around April, and again around October.”	Low	Yes	Observed near Oso Flaco Lake in October 2022.	eBird, iNaturalist
Birds	<i>Synthliboramphus scrippsi</i>	Scripps's Murrelet	None	Threatened	This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	“It breeds on islands in the Channel Islands of California, the largest colonies being on the Coronado Islands and on Santa Barbara Island, and also several islands off Baja California, including Isla Guadalupe. After the breeding season it disperses north at sea, usually to offshore waters, as far as British Columbia.”	Low	No	n/a	IPaC, eBird, iNaturalist

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Birds	<i>Icterus parisorum</i>	Scott's Oriole	None	None	IUCN Least Concern	“It is primarily found in the Southwestern United States and south to Baja California Sur and central Mexico. It is very common from Sacramento and south in California.”	Low	Yes	Confirmed near Oso Flaco Lake in April 2013.	HMS dB, eBird, iNaturalist
Birds	<i>Charadrius semipalmatus</i>	Semipalmated Plover	None	None	IUCN Least Concern	“Their breeding habitat is open ground on beaches or flats across northern Canada and Alaska. They are migratory and winter in coastal areas of the southern United States, the Caribbean and much of South America.”	High	Yes	Confirmed regularly on the shoreline.	HMS dB, eBird, iNaturalist
Birds	<i>Calidris pusilla</i>	Semipalmated Sandpiper	None	None	IUCN Near Threatened	“Their breeding habitat is the southern tundra in Canada and Alaska near water. These birds forage on mudflats, picking up food by sight and feel (bill).”	Low	Yes	Confirmed on shoreline as recently as April 2010.	HMS dB, eBird, iNaturalist
Birds	<i>Accipiter striatus</i>	Sharp-shinned Hawk	None	None	G5, S4, CDFW_WL-Watch List IUCN_LC-Least Concern	Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers riparian areas.	Moderate	Yes	Observed near Oso Flaco Lake in October 2022.	CNDDb, eBird
Birds	<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	None	None	IUCN Vulnerable	“It breeds in the boggy tundra of northeast Asia and is strongly migratory, wintering in southeast Asia and Australasia. It occurs as a rare autumn migrant to North America, but in western Europe only as a very rare vagrant. There is a single documented record from South America.”	Low	Yes	Observed on shoreline in September 2001.	HMS dB, eBird, iNaturalist

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Birds	<i>Limnodromus griseus</i>	Short-billed Dowitcher	BCC Rangewide	None	IUCN Least Concern	“The breeding habitat of the short-billed dowitcher includes bogs, tidal marshes, mudflats or forest clearings south of the tree line in northern North America. The birds migrate to the southern United States and as far south as Brazil. This bird is more likely to be seen near ocean coasts during migration than the long-billed dowitcher.”	Moderate	Yes	Confirmed on shoreline as recently as April 2020, near Oso Flaco Lake in August 2022.	IPaC, HMS dB, eBird, iNaturalist
Birds	<i>Larus brachyrhynchus</i>	Short-billed Gull	None	None	IUCN Least Concern	“The short-billed gull breeds in colonies along coastal areas and inland wetlands, mainly in Alaska and Northwest Canada. Most birds winter along the Pacific coast down to the Sacramento Valley, and less frequently to Baja California, the Northern Rockies and Ontario.”	Low	Yes	Observed near Oso Flaco Lake in January 2019. Confirmed on shoreline as recently as January 2018 (formerly Mew Gull).	HMS dB, eBird, iNaturalist
Birds	<i>Phoebastria (=Diomedea) albatrus</i>	Short-tailed Albatross	Endangered	None	G1, S1, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, NABCI_RWL-Red Watch List	“Short-tailed albatrosses now nest on four islands, with the majority of birds nesting on Tori-shima, and almost all of the rest on Minami-kojima in the Senkaku Islands. During non-breeding season they range across the North Pacific, with the males and juveniles gathering in the Bering Sea, and the females feeding off the coast of Japan and eastern Russia. They can also be found as far east as California.”	Low	No	n/a	IPaC, CNDDDB, eBird, iNaturalist

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Birds	<i>Anser caerulescens</i>	Snow Goose	None	None	IUCN Least Concern	“Snow geese breed north of the timberline in Greenland, Canada, Alaska, and the northeastern tip of Siberia, and spend winters in warm parts of North America from southwestern British Columbia through parts of the United States to Mexico.”	Moderate	Yes	Confirmed near Oso Flaco Lake in October 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Egretta thula</i>	Snowy Egret	None	None	IUCN Least Concern	“The snowy egret is native to North, Central and South America. It is present all year round in South America, ranging as far south as Chile and Argentina. It also occurs throughout the year in the West Indies, Florida and coastal regions of North and Central America. Elsewhere, in the southern part of the United States, it is migratory, breeding in California, Nevada, Utah, Colorado, Arizona, New Mexico, Texas, Louisiana and Mississippi. It is found in wetlands of many types; marshes, riverbanks, lakesides, pools, salt marshes and estuaries. It is not found at high altitudes nor generally on the coast.”	High	Yes	Confirmed regularly on the shoreline.	HMS dB, eBird, iNaturalist
Birds	<i>Tringa solitaria</i>	Solitary Sandpiper	None	None	IUCN Least Concern	“It breeds in woodlands across Alaska and Canada. It is a migratory bird, wintering in Central and South America, especially in the Amazon River basin, and the Caribbean.”	Low	Yes	Observed near Oso Flaco Lake in August 2020.	eBird, iNaturalist
Birds	<i>Melospiza melodia</i>	Song Sparrow	None	None	IUCN Least Concern	“Though a habitat generalist, the song sparrow favors brushland and marshes, including salt marshes across most of Canada and the United States.”	High	Yes	Confirmed on-site Districtwide.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Ardenna grisea</i>	Sooty Shearwater	None	None	IUCN Near Threatened	“Sooty shearwaters breed on small islands in the south Pacific and south Atlantic Oceans. They are spectacular long-distance migrants, following a circular route, traveling north up the western side of the Pacific and Atlantic Oceans at the end of the nesting season in March–May, reaching subarctic waters in June–July, where they cross from west to east, then return south down the eastern side of the oceans in September–October, reaching to the breeding colonies in November.”	Moderate	Yes	Observed near Oso Flaco Lake in August 2022.	eBird, iNaturalist
Birds	<i>Porzana carolina</i>	Sora	None	None	IUCN Least Concern	“In a few areas of the western United States, including central California and areas of Arizona and New Mexico, soras may occur year-round. Although soras occur in marshes of all sizes, they may occur at higher densities in intermediate-sized marshes.”	High	Yes	Confirmed regularly near Oso Flaco Lake.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	Endangered	Endangered	G5T2, S1, NABCI_RWL-Red Watch List	The southwestern willow flycatcher is a subspecies of the willow flycatcher (<i>Empidonax traillii</i>) and is a Federally and State Endangered bird that breeds in dense riparian vegetation near surface water or saturated soils. Oceano Dunes SVRA is outside the known breeding range for this species. Note: All three subspecies of willow flycatcher are listed as endangered by CDFW while the USFWS lists only the southwestern willow flycatcher as endangered.	Low	unknown	Confirmed on-site at Oso Flaco Lake and just north of the Oceano Dunes SVRA at Oceano Lagoon as recently as 2022. The majority of willow flycatchers observed in the Oceano Dunes SVRA occur in May, June, and September but are listed as willow flycatcher (<i>Empidonax traillii</i>) on eBird. Unknown if this subspecies overwinters in the District.	IPaC, CNDDDB
Birds	<i>Actitis macularius</i>	Spotted Sandpiper	None	None	IUCN Least Concern	“Their breeding habitat is near fresh water across most of Canada and the United States. They migrate to the southern United States, the Caribbean, and South America, and are very rare vagrants to western Europe.”	Moderate	Yes	Confirmed on shoreline as recently as January 2016, near Oso Flaco Lake in September 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Pipilo maculatus</i>	Spotted Towhee	None	None	IUCN Least Concern	“The spotted towhee lives in dry upland forests, open forests, brushy fields, and chaparrals. It breeds across north-western North America and is present year-round in California, Nevada, Arizona, Utah, Oregon, Washington, Idaho and southern British Columbia.”	High	Yes	Confirmed on-site Districtwide.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Cyanocitta stelleri</i>	Steller's Jay	None	None	IUCN Least Concern	“Steller's jay occurs in most of the forested areas of western North America as far east as the eastern foothills of the Rocky Mountains from southern Alaska in the north to northern Nicaragua in the south completely replacing the blue jay prevalent on the rest of the continent in those areas.”	Low	Yes	Observed near Oso Flaco Lake in August 2021.	eBird, iNaturalist
Birds	<i>Piranga rubra</i>	Summer Tanager	None	None	G5, S1, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Summer resident of desert riparian along lower Colorado River, and locally elsewhere in California deserts.	Moderate	Yes	Confirmed on-site as recently as October 2022. Oceano Dunes SVRA is outside the breeding range for this species.	WHPP 2017, CNDDDB, eBird
Birds	<i>Melanitta perspicillata</i>	Surf Scoter	Non-BCC Vulnerable	None	IUCN Least Concern	“This migratory species breeds in the boreal forests near northern freshwater lakes. The surf scoter winters in marine habitats near the shore.”	High	Yes	Confirmed regularly in waves on the shoreline.	IPaC, HMS dB, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Calidris virgata</i>	Surfbird	None	None	IUCN Least Concern	“Its breeding habitat is alpine tundra, preferably rocky ridges dominated by scree, rock fields, lichens, dwarf shrubs and Dryas (mountain avens), and less commonly in tundra with mosses and sedges. It is generally found away from suitable habitat that is close to forest. In the non breeding season, it is a rocky shore specialist, feeding on rocky shores, reefs, and ledges on the coast. It will feed from the spray zone on the water's edge to just above the tide line. In some circumstances, it will feed on sandy beaches and mudflats near rocky areas.”	Low	Yes	Confirmed on shoreline as recently as April 2020.	HMS dB, eBird, iNaturalist
Birds	<i>Buteo swainsoni</i>	Swainson's Hawk	None	Threatened	BLM_S-Sensitive IUCN_LC-Least Concern	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees.	Moderate	No	n/a	CNDDb
Birds	<i>Catharus ustulatus</i>	Swainson's Thrush	None	None	IUCN Least Concern	“The breeding habitat of Swainson's thrush is coniferous woods with dense undergrowth across Canada, Alaska, and the northern United States; also, deciduous wooded areas on the Pacific coast of North America.”	High	Yes	Confirmed on-site Districtwide.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Melospiza georgiana</i>	Swamp Sparrow	None	None	IUCN Least Concern	“Swamp sparrows breed across the northern United States and boreal Canada. While swamp sparrows can be found year-round in small numbers on the southern edge of their breeding range, individuals are probably all migratory, primarily migrating to the southeastern United States.”	Low	Yes	Observed near Oso Flaco Lake in November 2022.	eBird, iNaturalist
Birds	<i>Leiothlypis peregrina</i>	Tennessee Warbler	None	None	IUCN Least Concern	“The Tennessee warbler breeds from the Adirondack Mountains in New York through northern Vermont, New Hampshire, and Maine north and west throughout much of Canada. It is also found breeding in northeast Minnesota and northern Upper Peninsula of Michigan. It is migratory, wintering in southern Central America, the Caribbean, and northern Colombia and Venezuela, with a few stragglers going as far south as Ecuador.”	Low	Yes	Observed near Oso Flaco Lake in November 2022.	eBird, iNaturalist
Birds	<i>Larus glaucoides ssp. thayeri</i>	Thayer's Gull	None	None	IUCN Least Concern	“It is a large gull native to North America that breeds in the Arctic islands of Canada and winters primarily on the Pacific coast, from southern Alaska to the Gulf of California, though there are also wintering populations on the Great Lakes and the upper Mississippi River.”	Low	Yes	Confirmed on shoreline as recently as April 2010.	HMS dB, iNaturalist
Birds	<i>Setophaga townsendi</i>	Townsend's Warbler	None	None	IUCN Least Concern	“Their breeding habitats are coniferous forests with large trees on the northwestern coast of North America.”	Moderate	Yes	Confirmed on-site Districtwide as recently as November 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Tachycineta bicolor</i>	Tree Swallow	None	None	IUCN Least Concern	“The tree swallow breeds in North America. Its range extends to north-central Alaska and up to the tree line in Canada. It is found as far south as Tennessee in the eastern part of its range, California and New Mexico in the west, and Kansas in the center. The wintering range is from California and southwestern Arizona in the west and southeastern Virginia in the east south along the Gulf Coast to the West Indies, Panama, and the northwestern South American coast. The breeding habitat of this bird is primarily in open and wooded areas, especially those near water.”	High	Yes	Confirmed on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Agelaius tricolor</i>	Tricolored Blackbird	BCC Rangewide	Threatened	G1G2, S1S2, BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Located in freshwater marsh, marsh & swamp, swamp, and wetland habitats.	Low	Yes	Confirmed on-site at Oso Flaco Lake as recently as March 2022. No nesting documented on-site.	IPaC, CNDDDB, WHPP 2017

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Tyrannus melancholicus</i>	Tropical Kingbird	None	None	IUCN Least Concern	“This bird breeds from southern Arizona and the lower Rio Grande Valley of Texas in the United States through Central America, South America as far as south as central Argentina and eastern Peru, and on Trinidad and Tobago. Birds from the northernmost and southern breeding areas migrate to warmer parts of the range after breeding.”	Low	Yes	Observed near Oso Flaco Lake in October 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Aythya fuligula</i>	Tufted Duck	None	None	IUCN Least Concern	“The tufted duck breeds throughout temperate and northern Eurasia. It occasionally can be found as a winter visitor along both coasts of the United States and Canada. Their breeding habitat is close to marshes and lakes with plenty of vegetation to conceal the nest. They are also found on coastal lagoons, shorelines and sheltered ponds.”	Low	Yes	Observed in Oso Flaco Lake in January 1996.	eBird, iNaturalist
Birds	<i>Cygnus columbianus</i>	Tundra Swan	None	None	IUCN Least Concern	“As their common name implies, the tundra swan breeds in the tundra of the Arctic and subarctic, where they inhabit shallow pools, lakes and rivers. These birds, unlike mute swans (<i>C. olor</i>) but like the other Arctic swans, are migratory birds. The winter habitat of both subspecies is grassland and marshland, often near the coast; they like to visit fields after harvest to feed on discarded grains and while on migration may stop over on mountain lakes.”	Low	Yes	Observed in Oso Flaco Lake as recently as December 2011.	eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Cathartes aura</i>	Turkey Vulture	None	None	IUCN Least Concern	“It is found in open and semi-open areas throughout the Americas from southern Canada to Cape Horn.”	High	Yes	Confirmed on-site Districtwide.	HMS dB, eBird
Birds	<i>Ixoreus naevius</i>	Varied Thrush	None	None	IUCN Least Concern	“The varied thrush breeds in western North America from Alaska to northern California. It is migratory, with northern breeders moving south within or somewhat beyond the breeding range. Moves to lower elevations during the winter where it is often seen in towns and orchards and thickets or migrates to California.”	Low	Yes	Observed in revegetated dune scrub in December 2014, near Oso Flaco Lake in February 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Chaetura vauxi</i>	Vaux’s Swift	None	None	G5, S2S3, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Redwood, Douglas-fir, and other coniferous forests. Nests in large hollow trees and snags. Often nests in flocks.	Moderate	Yes	Confirmed on-site at Oso Flaco Lake as recently as May 2022. No nesting documented on-site.	WHPP 2017, CNDDDB, HMS dB
Birds	<i>Pyrocephalus rubinus</i>	Vermilion Flycatcher	None	None	IUCN Least Concern	Their range includes almost all of Mexico, extending north into the southwestern United States, and south to scattered portions of Central America, and parts of northwestern and central South America. It has ranged as far north as Canada.[20] North American populations are generally resident, migrating only at the edge of the range. (Wikipedia.org)	Low	Yes	Observed near Oso Flaco Lake in August 2016.	eBird

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Tachycineta thalassina</i>	Violet-green Swallow	None	None	IUCN Least Concern	“The type of habitat occupied by violet-green swallows varies depending on their geographical location and elevation. Across their range, these birds can be found in deciduous, coniferous and mixed forests, as well as within canyons and in close proximity to large cliffs.”	High	Yes	Confirmed on-site Districtwide as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Rallus limicola</i>	Virginia Rail	None	None	IUCN Least Concern	“The Virginia rail lives in freshwater and brackish marshes, sometimes salt marshes in winter. Northern populations migrate to the southern United States and Central America. On the Pacific coast, some are permanent residents. Its breeding habitat is marshes from Nova Scotia to Southern British Columbia, California and North Carolina, and in Central America.”	Moderate	Yes	Confirmed near Oso Flaco Lake as recently as November 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Vireo gilvus</i>	Warbling Vireo	None	None	IUCN Least Concern	“Its breeding habitat is open deciduous and mixed woods from Alaska to Mexico and the Florida Panhandle.”	High	Yes	Confirmed on-site Districtwide.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Sialia mexicana</i>	Western Bluebird	None	None	IUCN Least Concern	“The western bluebird has been displaced from its natural habitat by the felling of trees; however it has adapted to coniferous forests, farmlands, semi-open terrain, and desert to survive. The year-round range includes California, the southern Rocky Mountains, Arizona, and New Mexico in the United States, and as far south as the states of Oaxaca and Veracruz in Mexico. The summer breeding range extends as far north as the Pacific Northwest, British Columbia, and Montana. Northern birds can migrate to the southern parts of the range; southern birds are often permanent residents.”	High	Yes	Confirmed on-site Districtwide in August 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Aechmophorus occidentalis</i>	Western Grebe	BCC Rangewide	None	This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	“This species of waterbirds is widespread in western North America, so there is no specific place of abundance.”	High	Yes	Confirmed regularly swimming near the shoreline.	IPaC, HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Larus occidentalis</i>	Western Gull	None	None	IUCN Least Concern	“The western gull is a year-round resident in California, Oregon, Baja California, and southern Washington. It is migratory, moving to northern Washington, British Columbia, and Baja California Sur to spend the nonbreeding season.”	High	Yes	Confirmed regularly on the shoreline.	HMS dB, eBird, iNaturalist
Birds	<i>Tyrannus verticalis</i>	Western Kingbird	None	None	IUCN Least Concern	“The breeding habitat is open areas in western North America. The increased presence of trees throughout the Great Plains during the past century due to fire suppression and tree planting facilitated the range expansion of the western kingbird, as well as range expansions of many other species of birds.”	Moderate	Yes	Confirmed on-site Districtwide as recently as May 2021.	HMS dB, eBird, iNaturalist
Birds	<i>Sturnella neglecta</i>	Western Meadowlark	None	None	IUCN Least Concern	“The breeding habitats of western meadowlarks are grasslands, prairies, pastures, and abandoned fields, all of which may be found across western and central North America, as far south as northern Mexico.”	High	Yes	Confirmed on-site Districtwide as recently as October 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Calidris mauri</i>	Western Sandpiper	None	None	IUCN Least Concern	“Their breeding habitat is tundra in eastern Siberia and Alaska. They migrate to both coasts of North America and South America, as well as the Caribbean.”	High	Yes	Confirmed regularly on the shoreline.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Charadrius nivosus nivosus</i> ¹	Western Snowy Plover	Threatened	None	G3T3, S2, CDFW_SSC- Species of Special Concern NABCI_RWL- Red Watch List USFWS_BCC- Birds of Conservation Concern	Sandy beaches, salt pond levees and shores of large alkali lakes.	High	Yes	Confirmed regularly nesting and wintering on-site.	IPaC, CNDDDB
Birds	<i>Piranga ludoviciana</i>	Western Tanager	None	None	IUCN Least Concern	“The breeding range of the western tanager includes forests along the western coast of North America from southeastern Alaska south to northern Baja California, Mexico.”	High	Yes	Confirmed on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Contopus sordidulus</i>	Western Wood-pewee	None	None	IUCN Least Concern	“Their breeding habitat is open wooded areas in western North America. These birds migrate to South America at the end of summer.”	Moderate	Yes	Confirmed on-site Districtwide as recently as June 2022.	HMS dB, eBird, iNaturalist

¹ *Anarhynchus nivosus nivosus* (American Ornithological Society 2024).

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo	Threatened	Endangered	G5T2T3, S1, , BLM_S-Sensitive NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems.	Low	Yes	Confirmed just north of the Oceano Dunes SVRA at Oceano Lagoon as recently as 2010. Oceano Dunes SVRA is outside the known breeding range for this species.	CNDDDB, WHPP 2017
Birds	<i>Numenius phaeopus</i>	Whimbrel	None	None	IUCN Least Concern	“The common whimbrel was traditionally considered a sub-cosmopolitan bird, breeding in Russia and Canada, then migrating to coasts all around the world to spend the winter. However the North American population of whimbrels were considered distinct enough to be considered a separate species from the common whimbrel. In 2020, the new world population was recognized as a separate species, with the whimbrel in North America being assigned to the binomial name <i>Numenius hudsonicus</i> .”	High	Yes	Confirmed regularly on the shoreline.	HMS dB, eBird, iNaturalist
Birds	<i>Sitta carolinensis</i>	White-breasted Nuthatch	None	None	IUCN Least Concern	“The breeding habitat of the white-breasted nuthatch is woodland across North America, from southern Canada to northern Florida and southern Mexico. In the eastern part of its range, its preferred habitat is old-growth open deciduous or mixed forest, including orchards, parks, suburban gardens and cemeteries.”	Moderate	Yes	Observed near Oso Flaco Lake as recently as November 2022.	eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Zonotrichia leucophrys</i>	White-crowned Sparrow	None	None	IUCN Least Concern	“Their breeding habitat is brushy areas across northern Canada and the western United States.”	High	Yes	Confirmed on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Plegadis chihi</i>	White-faced Ibis	None	None	IUCN Least Concern	“This species breeds colonially in marshes, usually nesting in bushes or low trees. Its breeding range extends from the western United States south through Mexico, as well as from southeastern Brazil and southeastern Bolivia south to central Argentina, and along the coast of central Chile. Its winter range extends from southern California and Louisiana south to include the rest of its breeding range.”	Moderate	Yes	Observed at Oso Flaco Lake in October 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Elanus leucurus</i>	White-tailed Kite	None	None	G5, S3S4, BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland.	High	Yes	Confirmed on-site as recently as September 2021. Nesting on-site unconfirmed.	CNDDDB, WHPP 2017, HMS dB
Birds	<i>Zonotrichia albicollis</i>	White-throated Sparrow	None	None	IUCN Least Concern	“White-throated sparrows breed in central Canada and New England. In winter, this species migrates to the southern and eastern United States.”	Low	Yes	Observed in Oceano Campground in February 2001, near Oso Flaco Lake in October 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Aeronautes saxatalis</i>	White-throated Swift	None	None	IUCN Least Concern	“White-throated swifts are year-round residents of coastal and southern California, southern Arizona, southern New Mexico, western Texas, central Mexico, and the Sierra Madre Occidental and Oriental mountains. Swifts roost in cliffs, bluffs, and canyons, as well as man-made structures like bridges, overpasses, and walls of quarries.”	Moderate	Yes	Confirmed in vegetated islands as recently as May 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Zenaida asiatica</i>	White-winged Dove	None	None	IUCN Least Concern	“Some populations of white-winged doves are migratory, wintering in Mexico, Central America, and the Caribbean. They are year-round inhabitants in Texas. The white-winged dove inhabits scrub, woodlands, desert, urban, and cultivated areas. They are found increasingly farther north, now being visitors to most of the United States, and small parts of southern Canada.”	Low	Yes	Confirmed in vegetated islands as recently as June 2019.	HMS dB, eBird, iNaturalist
Birds	<i>Melanitta deglandi</i>	White-winged Scoter	Non-BCC Vulnerable	None	IUCN Least Concern	“White-winged Scoters have the largest breeding range among North American scoters. They mainly breed in boreal forest from Alaska to Western Canada and are less common east towards the Hudson Bay and south towards the Canadian Prairies. It winters further south in temperate zones, on the Great Lakes, the coasts of the northern United States and the southern coasts of Canada. It forms large flocks on suitable coastal waters.”	Low	Yes	Observed in Oso Flaco Lake in January 2009.	IPaC, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Tringa semipalmata</i>	Willet	BCC Rangewide	None	IUCN Least Concern	“Two subspecies (which may actually be different species) have very different breeding habitats. The eastern willet breeds in coastal saltmarshes while the western willet breeds in freshwater prairie marshes, sloughs, potholes and other inland wetlands. In winter both subspecies are coastal birds being found on both rocky and sandy coasts as well as on mudflats and in coastal marshes.”	High	Yes	Confirmed regularly on the shoreline.	IPaC, HMS dB, eBird, iNaturalist
Birds	<i>Empidonax traillii</i>	Willow Flycatcher	None	Endangered	IUCN Least Concern	“Their breeding habitat is deciduous thickets, especially willows and often near water, across the United States and southern Canada. These neotropical birds migrate to Mexico and Central America, and in small numbers as far south as Ecuador in South America, often selecting winter habitat near water.” Note: All three subspecies of willow flycatcher are listed as endangered by CDFW while the USFWS lists only the southwestern willow flycatcher as endangered.	High	Yes	Confirmed on-site Districtwide as recently as September 2022.	HMS dB, eBird, iNaturalist
Birds	<i>Phalaropus tricolor</i>	Wilson's Phalarope	None	None	IUCN Least Concern	“This bird, the largest of the phalaropes, breeds in the prairies of North America in western Canada and the western United States. It is migratory, wintering in inland salt lakes near the Andes in Argentina. They are passage migrants through Central America around March/April and again during September/October.”	Low	Yes	Confirmed on shoreline as recently as August 2000, near Oso Flaco Lake in September 2022.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Gallinago delicata</i>	Wilson’s Snipe	None	None	IUCN Least Concern	“They breed in marshes, bogs, tundra and wet meadows in Canada and the northern United States and on the Chukchi Peninsula, Russia. They are year-round residents on the U.S. Pacific coast.”	High	Yes	Observed near Oso Flaco Lake in September 2022.	eBird, iNaturalist
Birds	<i>Cardellina pusilla</i>	Wilson's Warbler	None	None	IUCN Least Concern	“The breeding habitat is fairly open woodland with undergrowth or shrubs and thickets in moist areas with streams, ponds, bogs, and wet clearings. Wilson's warbler breeds in northern Canada and the western US; it winters in overgrown clearings and coffee plantations, forest edges, deciduous forests, tropical evergreens, pine-oak forests, mangroves, thorn-scrub, riparian gallery forests, brushy fields, and mixed forests . At all seasons, it prefers secondary growth, riparian habitats, lakes, montane and boreal forests with overgrown clearcuts.”	High	Yes	Confirmed on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Aix sponsa</i>	Wood Duck	None	None	IUCN Least Concern	“The birds are year-round residents in parts of its southern range, but the northern populations migrate south for the winter. They overwinter in the southern United States near the Atlantic Coast. 75% of the wood ducks in the Pacific Flyway are non-migratory.”	Moderate	Yes	Confirmed in Oso Flaco Lake as recently as September 2021.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Mycteria americana</i>	Wood Stork	None	None	G4, S2?, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Freshwater and saltwater sloughs, lagoons, shallow ponds and marshes.	Low	Yes	Confirmed on-site at Oso Flaco Lake in 2011. Oceano Dunes SVRA is outside the breeding range for this species.	WHPP 2017, CNDDDB
Birds	<i>Helmitheros vermivorum</i>	Worm-eating Warbler	None	None	IUCN Least Concern	“These birds breed in the Eastern United States. In winter, these birds migrate to southern Mexico, the Greater Antilles, and Central America particularly along the Caribbean Slope where they occupy both scrub and moist forests.”	Low	Yes	Observed in Oceano Campground in December 2000, near Oso Flaco Lake in August 2016.	HMS dB, eBird, iNaturalist
Birds	<i>Chamaea fasciata</i>	Wrentit	BCC Rangewide	None	IUCN Least Concern	“Lives in chaparral, oak woodlands, and bushland on the western coast of North America.”	High	Yes	Confirmed on-site Districtwide.	IPaC, HMS dB, eBird, iNaturalist
Birds	<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	Threatened	Endangered	IUCN Least Concern	“Their breeding habitat is deciduous woods from southern Canada to Mexico and the Caribbean. They migrate to Central America, and as far south as northern Argentina.”	Low	Yes	Observed at Oso Flaco Lake in June 1999.	eBird, iNaturalist
Birds	<i>Pica nuttalli</i>	Yellow-billed Magpie	BCC Rangewide	None	G3G4, S3S4, IUCN_LC-Least Concern, NABCI_YWL-Yellow Watch List, USFWS_BCC-Birds of Conservation Concern	Central Valley and coastal mountain ranges from south of San Francisco to Santa Barbara County.	Low	Yes	Observed near Oso Flaco Lake in October 2017.	IPaC, CNDDDB, eBird

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Birds	<i>Icteria virens</i>	Yellow-breasted Chat	None	None	G5, S3, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses.	Moderate	Yes	Confirmed on-site at the Oso Flaco Maps Station in 2000 and at Oso Flaco Lake in April 2022. Nesting on-site unconfirmed.	WHPP 2017, CNDDDB, HMS dB, eBird
Birds	<i>Vireo flavoviridis</i>	Yellow-green Vireo	None	None	IUCN Least Concern	“It breeds from southern Texas (occasionally the Rio Grande Valley) in the United States and the western and eastern mountain ranges of northern Mexico (the Sierra Madre Occidental and Sierra Madre Oriental—also the Cordillera Neovolcanica) south to central Panama. It is migratory, wintering in the northern and eastern Andes and the western Amazon basin. This vireo occurs in the canopy and middle levels of light woodland, the edges of forest, and gardens at altitudes from sea level to 1500 m.”	Low	Yes	Observed at Oceano Lagoon in October 2000, near Oso Flaco Lake in September 1998.	HMS dB, eBird, iNaturalist
Birds	<i>Xanthocephalus xanthocephalus</i>	Yellow-headed Blackbird	None	None	G5, S3, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds.	Moderate	Yes	Confirmed on-site near Oceano Lagoon and at Oso Flaco Lake as recently as May 2022. No nesting documented on-site.	WHPP 2017, CNDDDB, HMS dB, eBird

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Birds	<i>Setophaga petechia</i>	Yellow Warbler	None	None	G5, S3S4, CDFW_SSC-Species of Special Concern, USFWS_BCC-Birds of Conservation Concern	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada.	High	Yes	Confirmed on-site at Oso Flaco Lake as recently as November 2022. Nesting on-site unconfirmed.	WHPP 2017, CNDDDB, HMS dB, eBird
Birds	<i>Setophaga coronata</i>	Yellow-Rumped Warbler (unk race)	None	None	IUCN Least Concern	“During the breeding season, the yellow-rumped warbler is generally known to be residing in either exclusively coniferous areas across the North American continent. During the winter, when the yellow-rumped warbler is not in breeding season, it often inhabit resourceful open areas with shrubs or scattered the trees, that can provide it with some source of food supply, such as bayberries and insects, etc.”	High	Yes	Confirmed on-site Districtwide.	HMS dB, eBird, iNaturalist
Birds	<i>Setophaga dominica</i>	Yellow-throated Warbler	None	None	IUCN Least Concern	“These birds breed in southeastern North America, and their breeding ranges extend from southern Pennsylvania and northern Missouri, to the Gulf of Mexico. One subspecies, from northwest Florida, is resident all year round. The other populations of this species are migratory, wintering at the Gulf Coast, eastern Central America, and the Caribbean.”	Low	Yes	Observed near Oso Flaco Lake in April 2013.	HMS dB, eBird, iNaturalist

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Plants	<i>Abronia latifolia</i>	Yellow Sand Verbena	None	None	None	Coastal dunes, scrub	High	Yes	Observed as recently as 2022. Dispersed in foredunes.	ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Abronia maritima</i>	Sticky Sand Verbena	None	None	CRPR:4.2	Coastal dunes	High	Yes	Observed as recently as 2022. Common in foredunes.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Abronia umbellata</i> var. <i>umbellata</i>	Beach Sand Verbena	None	None	None	Disturbed sandy areas, coastal dunes and scrub	High	Yes	Observed as recently as 2022. Common in openings in stabilized backdunes.	ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Plants	<i>Acacia longifolia</i>	Golden Wattle	None	None	Non-native	Disturbed places, especially sandy coastal areas	High	Yes	Observed as recently as 2022. Dispersed throughout park in areas of past non-native stabilization plantings	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Achillea millefolium</i>	Yarrow	None	None	IUCN Least Concern	Coastal dunes, scrub	High	Yes	Observed as recently as 2022. Common throughout Park.	VegCAMP 2022, CSLRCD 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Acmispon americanus</i> var. <i>americanus</i>	American Bird's Foot Trefoil	None	None	None	Coast, chaparral, mountain forest, water courses, roadsides, other disturbed areas	High	Yes	Observed as recently as 2022. Dispersed throughout park in duneswales and wetland edges.	CSLRCD 2022, ODSVRA Restoration Monitoring 2022
Plants	<i>Acmispon glaber</i> var. <i>glaber</i>	Deerweed	None	None	None	Chaparral, roadsides, coastal sands	High	Yes	Observed as recently as 2022. Common throughout Park.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004

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Plants	<i>Acmispon strigosus</i>	Strigose Lotus	None	None	None	Coastal scrub, chaparral, foothills, deserts, roadsides, other disturbed areas	High	Yes	Observed as recently as 2022. Common throughout stabilized backdunes.	Staff observation 2022 Ben Wagner, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Acmispon tomentosus</i>	Woolly Deer-Vetch	None	None	None	Washes, riverbanks, chaparral	High	Yes	Observed as recently as 2022. Common in vegetated dune swales. Varieties integrating on site.	ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004,
Plants	<i>Agrostis hooveri</i>	Hoover's Bent Grass	None	None	CRPR:1B.2	Chaparral, cismontane woodland, closed-cone coniferous forest, valley and foothill grassland.	Medium	No	Suitable habitat present but not observed within the park	CNDDDB 2022
Plants	<i>Ambrosia chamissonis</i>	Silver Beachweed	None	None	None	Beaches, dunes	High	Yes	Observed as recently as 2022. Common in foredunes.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004

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Plants	<i>Ambrosia psilostachya</i>	Ragweed	None	None	None	Roadsides, dry fields	High	Yes	Observed as recently as 2022. Observed in Dunes Preserve and Oso Flaco areas.	Staff observation 2022 Ben Wagner, MIG/TRA 2015
Plants	<i>Ammophila arenaria</i>	European Beachgrass	None	None	Non-native, Cal-IPC: high	Sand dunes	High	Yes	Observed as recently as 2022. Dispersed in large patches in Southern Non-Riding Area and Phillips 66 Leasehold	ODSVRA Restoration Monitoring 2022, VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004,
Plants	<i>Amsinckia spectabilis</i> var. <i>microcarpa</i>	Small Fruit Seaside Fiddleneck	None	None	None	Sandy mesas, stabilized dunes	High	Yes	Observed as recently as 2022. Common throughout stabilized backdunes.	CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Anemopsis californica</i>	Yerba Mansa	None	None	None	Saline or alkaline soil, wet or moist areas, seeps, springs	High	Yes	Observed as recently as 2012 within the Oso Flaco Lake wetlands.	MIG/TRA 2015
Plants	<i>Anthriscus caucalis</i>	Bur-Chervil	None	None	None	Shaded places	High	Yes	Observed as recently as 2003 at Oso Flaco Lake.	ESW 2004
Plants	<i>Aphanisma blitoides</i>	Aphanisma	None	None	CRPR:1B.2	Coastal bluff scrub, coastal dunes, coastal scrub.	Medium	No	Not observed within the park. Just outside of known range for species. Nearest occurrence is 8 miles to the south.	CNDDDB

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Plants	<i>Aphyllon fasciculatum</i>	Clustered Broomrape	None	None	None	Dry, generally bare places, on Artemisia	High	Yes	Observed as recently as 2012 within the Vegetation Islands.	MIG/TRA 2015
Plants	<i>Apiastrum angustifolium</i>	Wild Celery	None	None	IUCN Least Concern	Chaparral, coastal scrub	High	Yes	Observed as recently as 2012 within the Vegetation Islands.	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Apium graveolens</i>	Celery	None	None	Non-native	Wet places	High	Yes	Observed as recently as 2003 at Oso Flaco Lake.	ESW 2004
Plants	<i>Arctostaphylos luciana</i>	Santa Lucia Manzanita	None	None	CRPR:1B.2	Chaparral, cismontane woodland.	None	No	Not observed within the park. Suitable habitat with upland chaparral and shale outcrops absent.	CNDDDB 2022
Plants	<i>Arctostaphylos morroensis</i>	Morro Manzanita	Threatened	None	CRPR:1B.1	Stabilized sand dunes, sandstones, chaparral	None	No	Not observed within the park. Outside of known range for species. Nearest occurrence 17 miles northwest.	IPaC
Plants	<i>Arctostaphylos pechoensis</i>	Pecho Manzanita	None	None	CRPR:1B.2	Closed-cone coniferous forest, chaparral, coastal scrub.	None	No	Not observed within the park. Suitable habitat with shale outcrops absent.	CNDDDB 2022
Plants	<i>Arctostaphylos pilosula</i>	Santa Margarita Manzanita	None	None	CRPR:1B.2	Closed-cone coniferous forest, chaparral, broadleafed upland forest, cismontane woodland.	None	No	Not observed within the park. Suitable habitat with shale outcrops absent.	CNDDDB 2022
Plants	<i>Arctostaphylos purissima</i>	La Purisima Manzanita	None	None	CRPR:1B.1	Chaparral, coastal scrub.	None	No	Not observed within the park. Outside of known range for species. Nearest occurrence 7 mile south.	CNDDDB 2022

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Plants	<i>Arctostaphylos rudis</i>	Sand Mesa Manzanita	None	None	CRPR:1B.2	Chaparral, coastal scrub.	Medium	Yes	Extirpated on site. Known from one individual in Phillips 66 Leasehold from staff observation around 2010 by Mark Skinner.	CNDDDB 2022, Staff observation 2010 Mark Skinner
Plants	<i>Arenaria paludicola</i>	Marsh Sandwort	Endangered	Endangered	CRPR:1B.1	Marshes and swamps.	High	Yes	Observed as recently as 2022 within the Oso Flaco Lake wetlands.	VegCAMP 2022, Rare Plant Surveys 2022, CNDDDB 2022, IPaC
Plants	<i>Artemisia californica</i>	Coastal Sage Brush	None	None	None	Coastal scrub, chaparral, open woodland	High	Yes	Observed as recently as 2022. Dispersed within the Phillips 66 Leasehold and occasional in the Vegetated Islands	Staff observation 2022 Ben Wagner, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman
Plants	<i>Artemisia douglasiana</i>	California Mugwort	None	None	None	Open to shady areas, often in drainages	High	Yes	Observed as recently as 2022 within the Oso Flaco Lake margins.	Staff observation 2022 Ben Wagner, MIG/TRA 2015, ESW 2004
Plants	<i>Artemisia dracunculus</i>	Tarragon	None	None	None	Coastal scrub, woodlands and grasslands, especially disturbed sites	High	Yes	Observed as recently as 2022. Common with low lying areas of Phillips 66 Leasehold.	CSLRCD 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004

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Plants	<i>Arundo donax</i>	Giant Reed	None	None	Non-native, Cal-IPC: high	Moist places, seeps, ditchbanks	High	Yes	Observed as recently as 2022 within the Arroyo Grande Creek channel.	Staff observation 2007 Clint Scheuerman, ESW 2004,
Plants	<i>Astragalus nuttallii</i> var. <i>nuttallii</i>	Ocean Bluff Milk Vetch	None	None	CRPR:4.2	Rock, sandy areas, bluffs	High	Yes	Observed as recently as 2022. Common throughout the park within vegetated dune swales.	ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Atriplex leucophylla</i>	Beach Saltbush	None	None	None	Sandy soils, dunes	High	Yes	Observed as recently as 2022. Dispersed within foredune habitat especially the Southern Non-Riding Area	ODSVRA Restoration Monitoring 2022, MIG/TRA 2015
Plants	<i>Atriplex prostrata</i>	Fat-Hen	None	None	Non-native	Wet places, marshes	High	Yes	Observed as recently as 2012 within North Oso-Flaco dunes.	MIG/TRA 2015
Plants	<i>Avena barbata</i>	Slim Oat	None	None	Non-native, Cal-IPC: moderate	Disturbed sites	High	Yes	Observed as recently as 2007 at Boy Scout Camp vegetation island.	Staff observation 2007 Clint Scheuerman
Plants	<i>Avena fatua</i>	Wildoats	None	None	Non-native, Cal-IPC: moderate	Disturbed sites	High	Yes	Observed as recently as 2003 at Oso Flaco Lake and the Vegetation Islands.	ESW 2004
Plants	<i>Azolla filiculoides</i>	Mosquito Fern	None	None	IUCN Least Concern	Ponds, slow streams	High	Yes	Observed as recently as 2012 with the Vegetated Islands	MIG/TRA 2015, ESW 2004

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Plants	<i>Baccharis glutinosa</i>	Salt Marsh Baccharis	None	None	None	Coastal freshwater and saltwater marshes, streambanks	High	Yes	Observed as recently as 2022 at Oso Flaco Lake.	VegCAMP 2022, MIG/TRA 2015
Plants	<i>Baccharis pilularis</i>	Coyote Brush	None	None	None	Coastal bluffs, woodland, grassland, disturbed sites	High	Yes	Observed as recently as 2022. Common throughout Park.	VegCAMP 2022, CSLRCD 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Baccharis salicifolia</i> ssp. <i>salicifolia</i>	Mule Fat	None	None	None	Riparian woodland, canyon bottoms, disturbed sites, often forming thickets	High	Yes	Observed as recently as 2007 at Boy Scout Camp vegetation island.	Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Berula erecta</i>	Cut Leaved Water Parsnip	None	None	None	Marshy areas, streams	High	Yes	Observed as recently as 2012 at Oso Flaco Lake	MIG/TRA 2015, ESW 2004
Plants	<i>Bolboschoenus maritimus</i>	Alkali Bulrush	None	None	None	Brackish to saline coastal, inland marshes, shores	High	Yes	Observed as recently as 2012 in North Oso Flaco	MIG/TRA 2015
Plants	<i>Brassica napus</i>	Rapeseed	None	None	Non-native	Disturbed areas, fields	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004
Plants	<i>Brassica nigra</i>	Black Mustard	None	None	Non-native, Cal-IPC: moderate	Disturbed areas, fields	High	Yes	Observed as recently as 2012. Documented at Pavilion Hill vegetation island and Oso Flaco Lake	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004

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Plants	<i>Briza minor</i>	Annual Quaking Grass	None	None	Non-native	Shaded or moist, open sites	High	Yes	Observed as recently as 2003 at BBQ Flats vegetation island	ESW 2004
Plants	<i>Bromus catharticus</i>	Rescue Grass	None	None	Non-native	Open, disturbed places	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004
Plants	<i>Bromus diandrus</i>	Ripgut Brome	None	None	Non-native, Cal-IPC: moderate	Open, generally disturbed areas	High	Yes	Observed as recently as 2022. Common throughout Park.	CSLRCD 2022, VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Bromus hordeaceus</i>	Soft Chess	None	None	Non-native, Cal-IPC: limited	Fields, disturbed areas	High	Yes	Observed as recently as 2022. Dispersed within Vegetation Islands and Phillips 66 Leasehold.	CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Bromus madritensis</i> var. <i>madritensis</i>	Foxtail Chess	None	None	Non-native	Disturbed areas, roadsides	High	Yes	Observed as recently as 2022. Common throughout Park.	Staff observation 2022 Ben Wagner, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman
Plants	<i>Bromus rubens</i>	Red Brome	None	None	Non-native, Cal-IPC: high	Disturbed areas, roadsides	High	Yes	Observed as recently as 2022. Common throughout Park.	Staff observation 2022 Ben Wagner, MIG/TRA 2015, ESW 2004

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Plants	<i>Bromus sitchensis</i> var. <i>carinatus</i>	California Brome	None	None	None	Coastal prairies, openings in chaparral, plains, open oak and pine woodland	High	Yes	Observed as recently as 2022. Documented at Boyscout Camp Island and Oso Flaco Lake	CSLRCD 2022, MIG/TRA 2015, ESW 2004
Plants	<i>Cakile maritima</i>	Sea Rocket	None	None	Non-native, Cal-IPC: limited	Beach dunes	High	Yes	Observed as recently as 2022. Common in foredunes.	ODSVRA Restoration Monitoring 2022, VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Calochortus obispoensis</i>	San Luis Mariposa-Lily	None	None	CRPR:1B.2	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland.	Low	No	Not observed within the park. Suitable serpentine soils absent.	CNDDDB 2022
Plants	<i>Calochortus simulans</i>	La Panza Mariposa-Lily	None	None	CRPR:1B.3	Valley and foothill grassland, cismontane woodland, chaparral, lower montane coniferous forest.	Low	No	Not observed within the park. Suitable upland habitat and granitic soils absent.	CNDDDB 2022
Plants	<i>Calyptridium monandrum</i>	Pussypaws	None	None	None	Widespread in desert and scrub, open areas, sandy soils, burns	High	Yes	Observed as recently as 2022. Common within stabilized back dunes.	CSLRCD 2022, ESW 2004
Plants	<i>Calystegia soldanella</i>	Beach Morning Glory	None	None	IUCN Least Concern	Sandy seashores, coastal strand	High	Yes	Observed as recently as 2022. Common in foredunes.	ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, ESW 2004

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Plants	<i>Calystegia subacaulis</i> ssp. <i>episcopalis</i>	Cambria Morning-Glory	None	None	CRPR:4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland.	Low	No	Not observed within the park. Suitable upland dry scrub and woodland absent.	CNDDDB 2022
Plants	<i>Camissonia strigulosa</i>	Contorted Primrose	None	None	None	Open sandy soils of dunes, grassland, desert scrub	High	Yes	Observed as recently as 2022. Common in stabilized backdunes.	CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Camissonia psis cheiranthifolia</i> ssp. <i>cheiranthifolia</i>	Shrubby Beach Primrose	None	None	None	Sandy slopes, flats, coastal dunes	High	Yes	Observed as recently as 2022. Common throughout Park.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Camissonia psis micrantha</i>	Spencer Primrose	None	None	None	Canyons, coastal dunes, beaches, sandy fields, washes	High	Yes	Observed as recently as 2022. Common in stabilized backdunes.	VegCAMP 2022, CSLRCD 2022, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Capsella bursa-pastoris</i>	Shepherd's Purse	None	None	Non-native	Disturbed areas	High	Yes	Observed as recently as 2003 within the Worm Valley and Pipeline Re-Veg vegetated islands.	ESW 2004,

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Plants	<i>Cardamine oligosperma</i>	Idaho Bittercress	None	None	None	Wet meadows, shady banks, damp areas	High	Yes	Observed as recently as 2003 within the Vegetated Islands area	Staff observation 2007 Clint Scheuerman
Plants	<i>Cardionema ramosissimum</i>	Sand Mat	None	None	None	Sandy beaches, hills, dunes, bluffs	High	Yes	Observed as recently as 2022. Common in the stabilized backdunes.	CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Carduus pycnocephalus</i>	Italian Thistle	None	None	Non-native, Cal-IPC: moderate	Roadsides, pastures, disturbed areas	High	Yes	Observed as recently as 2022. Documented within Phillip 66 Leasehold, Vegetated Islands and Southern Non-Riding Area.	CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Carex barbarae</i>	Santa Barbara Sedge	None	None	None	Seasonally wet places	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004
Plants	<i>Carex cusickii</i>	Cusick's sedge	None	None	IUCN Least Concern	Shores, peatland, fens	High	Yes	Observed as recently as 2022 in the Oso Flaco Lake wetlands.	VegCAMP 2022
Plants	<i>Carex obispoensis</i>	San Luis Obispo Sedge	None	None	CRPR:1B.2	Closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland.	Low	No	Not observed within the park. Suitable serpentine soils absent.	CNDDDB 2022
Plants	<i>Carex pansa</i>	Sanddune Sedge	None	None	IUCN Least Concern	Coastal sand	High	Yes	Observed as recently as 2012 within the Phillips 66 Leasehold	MIG/TRA 2015, ESW 2004

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Plants	<i>Carex praegracilis</i>	Field Sedge	None	None	IUCN Least Concern	Often alkaline, moist places	High	Yes	Observed as recently as 2022. Common throughout Park is stabilized dunes and swales.	VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Carpobrotus chilensis</i>	Sea Fig	None	None	Non-native, Cal-IPC: moderate	Coastal sandy shores	High	Yes	Observed as recently as 2022. Common throughout the Park within foredunes and areas of past non-native stabilization plantings.	CSLRCD 2022, ODSVRA Restoration Monitoring 2022, VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Carpobrotus edulis</i>	Ice plant	None	None	Non-native, Cal-IPC: high	Many coastal habitats, especially sand	High	Yes	Observed as recently as 2022. Common throughout the Park within foredunes and areas of past non-native stabilization plantings.	VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Castilleja affinis</i> var. <i>affinis</i>	Indian Paintbrush	None	None	None	Chaparral, coastal scrub	High	Yes	Observed as recently as 2022. Common throughout Park.	CSLRCD 2022, ODSVRA Restoration Monitoring 2022, VegCAMP 2022, Staff observation 2007 Clint Scheuerman, ESW 2004

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Plants	<i>Castilleja densiflora</i> var. <i>obispoensis</i>	San Luis Obispo Owl's-Clover	None	None	CRPR:1B.2	Valley and foothill grassland, meadows and seeps.	Low	No	Not observed within the park. Suitable valley and foothill grassland habitat absent.	CNDDDB 2022
Plants	<i>Castilleja exserta</i> var. <i>exserta</i>	Owls Clover	None	None	None	Open fields, grassland	High	Yes	Observed as recently as 2022. Common within stabilized back dunes.	CSLRCD 2022, MIG/TRA 2015, ESW 2004
Plants	<i>Castilleja latifolia</i>	Seaside Paintbrush	None	None	CRPR:4.3	Coastal dunes, scrub	High	Yes	Observed as recently as 2012. Documented throughout the Park.	MIG/TRA 2015
Plants	<i>Caulanthus californicus</i>	California Jewelflower	Endangered	Endangered	CRPR:1.B.1	Flats, slopes, generally in non-alkaline grassland	None	No	Not observed within the park. Out of known range for species. Nearest occurrence is 30 miles northeast.	IPaC
Plants	<i>Ceanothus impressus</i> var. <i>impressus</i>	Santa Barbara Ceanothus	None	None	CRPR:1B.2	Chaparral.	None	No	Not observed within the park. Suitable chaparral habitat absent.	CNDDDB 2022
Plants	<i>Ceanothus impressus</i> var. <i>nipomensis</i>	Nipomo Mesa Ceanothus	None	None	CRPR:1B.2	Chaparral.	Medium	No	Suitable habitat present but not observed within the park	CNDDDB 2022
Plants	<i>Centaurea melitensis</i>	Tocalote	None	None	Non-native, Cal-IPC: moderate	Disturbed fields, open woodland	High	Yes	Observed as recently as 2022. Documented in Boyscout Camp vegetation island and along the roadside at Phillips 66 Leasehold.	CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman

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Plants	<i>Centromadia parryi ssp. congdonii</i>	Congdon's Tarplant	None	None	CRPR:1B.1	Valley and foothill grassland.	None	No	Not observed within the park. Suitable valley and foothill grassland habitat absent. Out of known range for species.	CNDDDB 2022
Plants	<i>Chenopodium album</i>	Lamb's Quarters	None	None	Non-native	Disturbed areas, fields	High	Yes	Observed during 2022 rare plant surveys	CSLRCD 2022
Plants	<i>Chenopodium californicum</i>	California Goosefoot	None	None	None	Generally open sites, sandy to clay soils	High	Yes	Observed as recently as 2022. Common in Vegetation Islands and stabilized backdunes.	ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Chenopodium littoreum</i>	Coastal Goosefoot	None	None	CRPR:1B.2	Coastal dunes.	High	Yes	Observed as recently as 2022. Dispersed throughout low lying areas of Phillips 66 Leasehold.	CNDDDB 2022, MIG/TRA 2015
Plants	<i>Chenopodium murale</i>	Nettle Leaf Goosefoot	None	None	Non-native	Disturbed areas, fields	High	Yes	Observed as recently as 2012 at Oso Flaco Lake	MIG/TRA 2015,
Plants	<i>Chlorogalum pomeridianum var. minus</i>	Dwarf Soaproot	None	None	CRPR:1B.2	Chaparral.	None	No	Not observed within the park. Suitable chaparral and serpentine outcrop habitat absent.	CNDDDB 2022

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Plants	<i>Chorizanthe angustifolia</i>	Narrow Leaf Spineflower	None	None	None	Sand	High	Yes	Observed as recently as 2022. Common throughout Park. Note: C. a. var. eastwoodiae reclassified as C. eastwoodiae.	CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004,
Plants	<i>Chorizanthe aphanantha</i>	Irish Hills Spineflower	None	None	CRPR:1B.1	Chaparral, coastal scrub.	None	No	Not observed within the park. Suitable serpentine chaparral habitat absent.	CNDDDB 2022
Plants	<i>Chorizanthe breweri</i>	Brewer's Spineflower	None	None	CRPR:1B.3	Chaparral, cismontane woodland, coastal scrub, closed-cone coniferous forest.	None	No	Not observed within the park. Suitable gravel and rocky substrate absent.	CNDDDB 2022
Plants	<i>Chorizanthe diffusa</i>	Difuse spineflower	None	None	None	Sand or gravel	High	Yes	Observed as recently as 2022. Documented within stabilized backdunes of Southern Non-Riding Area	CSLRCD 2022
Plants	<i>Chorizanthe douglasii</i>	Douglas' Spineflower	None	None	CRPR:4.3	Sand or gravel	High	Yes	Observed as recently as 2009. Documented in Vegetated Islands	MIG/TRA 2015
Plants	<i>Chorizanthe eastwoodiae</i>	Eastwood's spineflower	None	None	None	Sand	High	Yes	Observed as recently as 2022. Common throughout Park. Note: C. a. var. eastwoodiae reclassified as C. eastwoodiae.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022
Plants	<i>Cirsium fontinale</i> var. <i>obispoense</i>	Chorro Creek Bog Thistle	Endangered	Endangered	CRPR:1B.2	Serpentine seeps within chaparral, cismontane woodland, coastal scrub, valley and foothill grassland.	None	No	Not observed within the park. Suitable serpentine seeps absent.	CNDDDB 2022, IPaC

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Plants	<i>Cirsium occidentale</i> var. <i>compactum</i>	Compact Cobwebby Thistle	None	None	CRPR:1B.2	Chaparral, coastal dunes, coastal prairie, coastal scrub.	Medium	No	Not observed within the park. Suitable habitat present however nearest observation is 7 miles to the south	CNDDDB 2022
Plants	<i>Cirsium occidentale</i> var. <i>occidentale</i>	Cobweb Thistle	None	None	None	Grassland, coastal dunes, oak woodland, scrubland, often disturbed areas	High	Yes	Observed as recently as 2022. Common throughout Park.	ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004,
Plants	<i>Cirsium rhothophilum</i>	Surf Thistle	None	Threatened	CRPR:1B.2	Coastal dunes, coastal bluff scrub.	High	Yes	Observed as recently as 2022. Observed within Southern Non-Riding Area foredunes.	CNDDDB 2022, ODSVRA Rare Plant Surveys 2022, MIG/TRA 2015
Plants	<i>Cirsium scariosum</i> var. <i>loncholepis</i>	La Graciosa Thistle	Endangered	Threatened	CRPR:1B.1	Coastal dunes, coastal scrub, brackish marshes, valley and foothill grassland, cismontane woodland.	High	Yes	Observed as recently as 2022. Known on site from one occurrence at Surprise Lake in the Southern Non-Riding Area.	CNDDDB 2022, ODSVRA Rare Plant Surveys 2022, IPaC
Plants	<i>Cirsium vulgare</i>	Bullthistle	None	None	Non-native, Cal-IPC: moderate	Disturbed areas	High	Yes	Observed as recently as 2012. Documented at Phillips 66 Leasehold and Oso Flaco Lake.	MIG/TRA 2015

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Plants	<i>Cladium californicum</i>	California Saw-Grass	None	None	CRPR:2B.2	Meadows and seeps, marshes and swamps (alkaline or freshwater).	Medium	No	Not observed within the park. Suitable habitat present. Recorded nearby in Black Lake Canyon.	CNDDDB 2022
Plants	<i>Clarkia speciosa</i> ssp. <i>immaculata</i>	Pismo Clarkia	Endangered	Rare	CRPR:1B.1	Chaparral, cismontane woodland, valley and foothill grassland.	Medium	No	Not observed within the park. Just outside of known range for species. Nearest occurrence is 2.5 miles to the northeast.	CNDDDB 2022, IPaC
Plants	<i>Claytonia parviflora</i> var. <i>parviflora</i>	Miners Lettuce	None	None	None	Vernally, often disturbed sites	High	Yes	Observed as recently as 2022 Documented within the Vegetated Islands, Phillips 66 Leasehold and Oso Flaco Lake	CSLRCD 2022, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Claytonia perfoliata</i> var. <i>mexicana</i>	Southern Miner's Lettuce	None	None	None	Shrubland, woodland, rock crevices, rockslides	High	Yes	Observed as recently as 2007. Documented within the Vegetated Islands and Oso Flaco Lake area.	Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Clematis ligusticifolia</i>	Creek Clematis	None	None	None	Along streams, wet places	High	Yes	Observed as recently as 2012. Documented within the Vegetated Islands.	MIG/TRA 2015

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Plants	<i>Conicosia pugioniformis</i>	False Ice Plant	None	None	Non-native, Cal-IPC: limited	Sandy places, especially coastal dunes	High	Yes	Observed as recently as 2022. Common throughout Park.	VegCAMP 2022, CSLRCD 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Conium maculatum</i>	Poison Hemlock	None	None	Non-native, Cal-IPC: moderate	Moist, especially disturbed places	High	Yes	Observed as recently as 2022. Observed within low lying areas around Oso Flaco Lake and at the Phillips 66 Leasehold	CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Chloropyron maritimum ssp. palustre</i>	Salt Marsh Bird's-Beak	Endangered	Endangered	CRPR:1B.2	Coastal salt marsh	Low	No	Not observed within the park. Marginal brackish marsh habitat present. Nearest observation is 19 miles northwest.	IPaC
Plants	<i>Corethrogyne filaginifolia</i>	California Aster	None	None	None	Coastal scrub, chaparral, grassland, foothill woodland, forest	High	Yes	Observed as recently as 2022. Common throughout Park.	ODSVRA Restoration Monitoring 2022, CSLRCD 2022, VegCAMP 2022, Staff observation 2007 Clint Scheuerman, ESW 2004

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Plants	<i>Cortaderia jubata</i>	Jubata Grass	None	None	Non-native, Cal-IPC: high	Disturbed coastal sites	High	Yes	Observed as recently as 2022. Dispersed throughout Park particularly in low lying areas and wetland margins.	VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004, Staff Observation 2022 Ben Wagner
Plants	<i>Cotula coronopifolia</i>	Brass Buttons	None	None	Non-native, Cal-IPC: limited	Saline and freshwater marshes, mud flats	High	Yes	Observed as recently as 2012. Documented at Oso Flaco Lake and the Cottonwood vegetation island.	MIG/TRA 2015, ESW 2004
Plants	<i>Crassula connata</i>	Sand Pygmy Weed	None	None	None	Open areas	High	Yes	Observed as recently as 2007. Documented within the Vegetated Islands.	Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Croton californicus</i>	Desert Croton	None	None	None	Sandy soils, dunes, washes	High	Yes	Observed as recently as 2022. Common throughout Park.	CSLRCD 2022, VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004

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Plants	<i>Cryptantha clevelandii</i>	Common Cryptantha	None	None	None	Loamy soils, slopes, grassland, coastal scrub	High	Yes	Observed as recently as 2022. Common throughout Park.	ODSVRA Restoration Monitoring 2022, CSLRCD 2022,VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Cryptantha leiocarpa</i>	Coast Cryptantha	None	None	None	Sandy soils, coastal dunes, beaches	High	Yes	Observed as recently as 2003 at Oso Flaco Lake.	ESW 2004
Plants	<i>Cuscuta californica</i>	California Dodder	None	None	None	On herbs, shrubs, roadsides, chaparral, grassland, yellow-pine forest	High	Yes	Observed as recently as 2003 at Oso Flaco Lake.	ESW 2004
Plants	<i>Cuscuta subinclusa</i>	Canyon Dodder	None	None	None	Generally on herbs, shrubs, in forests near streams, river canyon bottoms, salt marshes	High	Yes	Observed as recently as 2022 in the North Oso Flaco foredunes.	ODSVRA Restoration Monitoring 2022
Plants	<i>Daucus pusillus</i>	Wild Carrot	None	None	IUCN Least Concern	Rocky or sandy places	High	Yes	Observed as recently as 2022. Common throughout Park.	CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Deinandra increscens</i> ssp. <i>increscens</i>	Grassland Tarplant	None	None	None	Sandy or clayey soils (sometimes serpentine), grassland, openings in scrub or woodland, disturbed sites	High	Yes	Observed as recently as 2022. Observed within the Phillips 66 Leasehold.	CSLRCD 2022

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Plants	<i>Deinandra increscens ssp. villosa</i>	Gaviota Tarplant	Endangered	Endangered	CRPR:1B.1	Coastal scrub, valley and foothill grassland, coastal bluff scrub.	Low	No	Not observed within the park. Outside of known range for species. Nearest occurrence 8.5 miles south.	CNDDDB 2022
Plants	<i>Deinandra paniculata</i>	Paniculate Tarplant	None	None	CRPR:4.2	Grassland, open chaparral and woodland, disturbed areas, often in sandy soils	High	Yes	Observed as recently as 2022. Observed within the Phillips 66 Leasehold.	CSLRCD 2022, MIG/TRA 2015
Plants	<i>Delairea odorata</i>	Cape Ivy	None	None	Non-native, Cal-IPC: high	Shady, disturbed places, riparian woodland, coastal scrub	High	Yes	Observed as recently as 2022. Observed around the Oso Flaco Lake	ESW 2004
Plants	<i>Delphinium parryi ssp. blochmaniae</i>	Dune Larkspur	None	None	CRPR:1B.2	Chaparral, coastal dunes (maritime).	High	Yes	Observed as recently as 2022 at Phillips 66 Leasehold and Coreopsis Hill in the Southern Non-Riding Area	CNDDDB 2022, CSLRCD 2022
Plants	<i>Delphinium parryi ssp. eastwoodiae</i>	Eastwood's Larkspur	None	None	CRPR:1B.2	Chaparral, valley and foothill grassland. Serpentine.	None	No	Not observed within the park. Suitable serpentine soils absent.	CNDDDB 2022
Plants	<i>Delphinium umbraculorum</i>	Umbrella Larkspur	None	None	CRPR:1B.3	Cismontane woodland, chaparral.	None	No	Not observed within the park. Suitable upland woodland and chaparral habitat absent.	CNDDDB 2022
Plants	<i>Descurainia pinnata</i>	Yellow Tansy Mustard	None	None	None	Disturbed areas, sagebrush scrub, pinyon/juniper woodland, sandy fields, dry washes, streambanks, dry slopes, cliffs	High	Yes	Observed as recently as 2022. Common throughout Park.	CSLRCD 2022, MIG/TRA 2015
Plants	<i>Dipterostemon capitatus ssp. capitatus</i>	Blue Dicks	None	None	None	Open areas in forest, woodland, scrub, desert, grassland, on many soils, including serpentine	High	Yes	Observed as recently as 2022 within the Phillips 66 Leasehold	CSLRCD 2022, ESW 2004

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Plants	<i>Distichlis spicata</i>	Salt Grass	None	None	None	Salt marshes, coastal dunes, moist, alkaline areas	High	Yes	Observed as recently as 2022. Common within wetland margins throughout Park.	CSLRCD 2022, MIG/TRA 2015, ESW 2004
Plants	<i>Dithyrea maritima</i>	Beach Spectaclepod	None	Threatened	CRPR:1B.1	Coastal dunes, coastal scrub.	High	Yes	Observed as recently as 2022 within the North Oso Flaco and South Oso Flaco foredunes.	CNDDDB 2022, MIG/TRA 2015
Plants	<i>Dudleya abramsii</i> ssp. <i>bettinae</i>	Betty's Dudleya	None	None	CRPR:1B.2	Coastal scrub, valley and foothill grassland, chaparral.	None	No	Not observed within the park. Suitable upland habitats absent.	CNDDDB 2022
Plants	<i>Dudleya abramsii</i> ssp. <i>murina</i>	Mouse-Gray Dudleya	None	None	CRPR:1B.3	Chaparral, cismontane woodland, valley and foothill grassland.	None	No	Not observed within the park. Suitable upland habitats absent.	CNDDDB 2022
Plants	<i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i>	Blochman's Dudleya	None	None	CRPR:1B.1	Open, rocky slopes, often in shallow clays over serpentine or in rocky areas with little soil.	None	No	Not observed within the park. Suitable serpentine soils absent.	CNDDDB 2022
Plants	<i>Dudleya lanceolata</i>	Southern California Dudleya	None	None	None	Soil or slopes with broken rocks	High	Yes	Observed as recently as 2022. Common throughout Park.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004

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Plants	<i>Ehrharta calycina</i>	Perennial Veldt Grass	None	None	Non-native, Cal-IPC: high	Sandy soils	High	Yes	Observed as recently as 2022. Common throughout stabilized backdunes.	VegCAMP 2022, CSLRCD 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Elymus condensatus</i>	Giant Wild Rye	None	None	None	Dry slopes, open woodland	High	Yes	Observed as recently as 2022. Documented at Oso Flaco Lake and the Vegetation Islands.	VegCAMP 2022, CSLRCD 2022, MIG/TRA 2015, ESW 2004
Plants	<i>Elymus glaucus</i>	Blue Wild rye	None	None	None	Open areas, chaparral, woodland, forest	High	Yes	Observed as recently as 2012 within the Southern Non-Riding Area	MIG/TRA 2015
Plants	<i>Elymus pacificus</i>	Pacific Wild Rye	None	None	None	Coastal bluffs	High	Yes	Observed as recently as 2022. Known from one location in back dunes at Orion Vegetation Peninsula	Staff observation 2022 Ben Wagner
Plants	<i>Elymus triticoides</i>	Beardless Wild Rye	None	None	None	Dry to moist, often saline, meadows	High	Yes	Observed as recently as 2012 at Oso Flaco Lake	MIG/TRA 2015, ESW 2004
Plants	<i>Epilobium ciliatum subsp. watsonii</i>	Willow herb	None	None	IUCN Least Concern	Moist coastal bluffs, streamsides, disturbed sites	High	Yes	Observed as recently as 2012. Documented at Oso Flaco Lake and associated wetlands.	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004

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Plants	<i>Equisetum arvense</i>	Common Horsetail	None	None	IUCN Least Concern	Streambanks, wet meadows, springs, other wet, shaded places	High	Yes	Observed as recently as 2003. Documented at Oso Flaco Lake	ESW 2004
Plants	<i>Equisetum hyemale subsp. affine</i>	Common Scouring Rush	None	None	IUCN Least Concern	Streams, moist, sandy, gravelly areas	High	Yes	Observed as recently as 2003. Documented at Oso Flaco Lake	ESW 2004
Plants	<i>Equisetum laevigatum</i>	Smooth Scouring Rush	None	None	None	Moist, sandy or gravelly areas	High	Yes	Observed as recently as 2003. Documented at Oso Flaco Lake	ESW 2004
Plants	<i>Eriastrum densifolium ssp. densifolium</i>	Giant Eriastrum	None	None	None	Coastal dunes	High	Yes	Observed as recently as 2022. Common in Vegetated Islands.	ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Ericameria ericoides</i>	Mock Heather	None	None	None	Dunes, inland sandy soils	High	Yes	Observed as recently as 2022. Common throughout Park.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004

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Plants	<i>Erigeron blochmaniae</i>	Blochman's Leafy Daisy	None	None	CRPR:1B.2	Coastal dunes, coastal scrub.	High	Yes	Observed as recently as 2022. Common throughout Park.	CNDDDB 2022, CSLRCD 2022, ODSVRA Restoration Monitoring 2022, VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Erigeron canadensis</i>	Canada Horseweed	None	None	None	Disturbed places	High	Yes	Observed as recently as 2022. Common throughout Park.	ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Eriodictyon altissimum</i>	Indian Knob Mountainbalm	Endangered	Endangered	CRPR:1B.1	Chaparral (maritime), cismontane woodland, coastal scrub. Chaparral on Pismo sandstone	None	No	Not observed within the park. Suitable Pismo sandstone substrate absent.	CNDDDB 2022, IPaC
Plants	<i>Eriogonum gracile</i>	Slender Buckwheat	None	None	None	Sand	High	Yes	Observed as recently as 2012. Documented in North Oso Flaco	MIG/TRA 2015

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Plants	<i>Eriogonum parvifolium</i>	Sea Cliff Buckwheat	None	None	None	Sand	High	Yes	Observed as recently as 2022. Common throughout Park.	ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Eriophyllum staechadifolium</i>	Seaside Woolly Sunflower	None	None	None	Dunes, sea bluffs, coastal scrub	High	Yes	Observed as recently as 2022. Common throughout Park.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Erodium botrys</i>	Big Heron Bill	None	None	Non-native	Dry, open or disturbed sites	High	Yes	Observed as recently as 2022 along roadside within the Phillips 66 Leasehold.	CSLRCD 2022, ESW 2004
Plants	<i>Erodium cicutarium</i>	Coastal Heron's Bill	None	None	Non-native, Cal-IPC: limited	Open, disturbed sites, grassland, scrub	High	Yes	Observed as recently as 2022 documented within the Vegetated Islands and Phillips 66 Leasehold.	CSLRCD 2022, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Eryngium aristulatum</i> var. <i>hooveri</i>	Hoover's Button-Celery	None	None	CRPR:1B.1	Vernal pools.	Low	No	Not observed within the park. Suitable vernal pool habitat absent.	CNDDDB 2022

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Plants	<i>Erysimum suffrutescens</i>	Suffrutescent Wallflower	None	None	CRPR:4.2	Stabilized coastal sand dunes, coastal scrub	High	Yes	Observed as recently as 2022. Common throughout Park.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Erythranthe serpentinalis</i>	Irish Hills Monkeyflower	None	None	CRPR:1B.1	Chaparral (openings), meadows and seeps (edges). Serpentine. Rocky.	None	No	Not observed within the park. Suitable serpentine rocky soils absent.	CNDDDB 2022
Plants	<i>Eschscholzia californica</i>	California Poppy	None	None	None	Grassy, open areas	High	Yes	Observed as recently as 2022. Common within stabilized back dunes.	CSLRCD 2022, MIG/TRA 2015, ESW 2004
Plants	<i>Eucalyptus globulus</i>	Blue Gum	None	None	Non-native, Cal-IPC: limited	Disturbed areas	High	Yes	Observed as recently as 2022 within Eucalyptus Tree vegetation island.	MIG/TRA 2015
Plants	<i>Euphorbia lathyris</i>	Gopher Plant	None	None	Non-native	Disturbed areas	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004
Plants	<i>Euthamia occidentalis</i>	Western Goldenrod	None	None	None	Marshes, streambanks, meadows	High	Yes	Observed as recently as 2022 at Oso Flaco Lake	Staff Observation 2022 Ben Wagner, ESW 2004
Plants	<i>Festuca bromoides</i>	Brome Fescue	None	None	Non-native	Dry, disturbed places, coastal-sage scrub, chaparral	High	Yes	Observed as recently as 2012. Documented in the Southern Non-Riding Area	MIG/TRA 2015

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Plants	<i>Festuca myuros</i>	Rattail Sixweeks Grass	None	None	Non-native, Cal-IPC: moderate	Generally open places, sandy soils	High	Yes	Observed as recently as 2022. Dispersed throughout Park.	CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Festuca octoflora</i>	Sixweeks Grass	None	None	IUCN Least Concern	Sandy to rocky soils, open sites	High	Yes	Observed as recently as 2022. Documented within the Vegetated Islands.	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Festuca perennis</i>	Italian Rye Grass	None	None	Non-native, Cal-IPC: moderate	Dry to moist disturbed sites, abandoned fields	High	Yes	Observed as recently as 2007 within the Vegetated Islands.	VegCAMP 2022, Staff observation 2007 Clint Scheuerman,
Plants	<i>Foeniculum vulgare</i>	Fennel	None	None	Non-native, Cal-IPC: moderate	Roadsides, disturbed sites	High	Yes	Observed as recently as 2012. Documented in South Oso Flaco.	MIG/TRA 2015,
Plants	<i>Fragaria chiloensis</i>	Beach Strawberry	None	None	None	Ocean beaches, coastal grassland	High	Yes	Observed as recently as 2022. Common within the Sothern Non-Riding Area foredunes.	ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004

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Plants	<i>Frangula californica</i> ssp. <i>californica</i>	California Coffeeberry	None	None	None	Coastal-sage scrub, desert scrub, chaparral, forest, woodland	High	Yes	Observed as recently as 2022. Common within stabilized back dunes and wetland margins throughout Park.	VegCAMP 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Frankenia salina</i>	Alkali heath	None	None	None	Salt marshes, alkali flats	High	Yes	Observed as recently as 2022 at Oso Flaco Lake.	VegCAMP 2022
Plants	<i>Galium aparine</i>	Cleavers	None	None	None	Grassy, shady places	High	Yes	Observed as recently as 2022 within the Vegetated Islands.	MIG/TRA 2015
Plants	<i>Galium californicum</i>	California Bedstraw	None	None	None	Shady to open places, conifer or mixed forest, chaparral, sea cliffs, hillsides	High	Yes	Observed as recently as 2022. Documented in the Southern Non-Riding Area	CSLRCD 2022
Plants	<i>Galium porrigens</i> var. <i>porrigens</i>	Climbing Bedstraw	None	None	None	Among shrubs in chaparral, forest	High	Yes	Observed as recently as 2012. Documented within the Vegetated Islands and Oso Flaco Lake	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Gamochaeta ustulata</i>	Purple Cudweed	None	None	None	Dunes, bluffs, fields, disturbed sites	High	Yes	Observed as recently as 2012 at Oso Flaco Lake	MIG/TRA 2015
Plants	<i>Hazardia squarrosa</i>	Sawtooth Goldenbush	None	None	None	Foothills, coastal mtns, open woodland, scrub	High	Yes	Observed as recently as 2012. Documented in the Southern Non-Riding Area	MIG/TRA 2015

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Plants	<i>Helenium puberulum</i>	Sneezeweed	None	None	IUCN Least Concern	Streambanks, seepage areas, lake margins	High	Yes	Observed as recently as 2012. Documented at Oso Flaco Lake and the Vegetation Island Area	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004,
Plants	<i>Heliotropium curassavicum</i>	Chinese Parsley	None	None	None	Moist to dry, saline to alkaline soils, generally near water	High	Yes	Observed as recently as 2012 at Oso Flaco Lake	MIG/TRA 2015
Plants	<i>Helminthotheca echioides</i>	Bristly Ox-Tongue	None	None	Non-native, Cal-IPC: limited	Disturbed areas	High	Yes	Observed as recently as 2012. Documented at Oso Flaco Lake and the Vegetated Islands	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Hesperocnide tenella</i>	Western Stinging Nettle	None	None	None	Moist, shaded areas, often at base of rocks or shrubs, in chaparral, coastal scrub, riparian woodland, mesic oak woodland	High	Yes	Observed as recently as 2022. Common throughout Park in low lying shaded areas.	CSLRCD 2022, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Hesperocyparis macrocarpa</i>	Monterey Cypress	None	None	IUCN_VU-Vulnerable	Closed-cone-pine/cypress forests, widely planted	High	Yes	Observed as recently as 2022. Outside of historic range. Historically planted within the Vegetated Islands.	VegCAMP 2022, MIG/TRA 2015
Plants	<i>Heteromeles arbutifolia</i>	Toyon	None	None	None	Chaparral, oak woodland, mixed-evergreen forest	High	Yes	Observed as recently as 2012 within the Southern Non-Riding Area	MIG/TRA 2015

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Plants	<i>Heterotheca grandiflora</i>	Telegraph Weed	None	None	None	Disturbed areas, dry streambeds, sand dunes	High	Yes	Observed as recently as 2022. Dispersed throughout Park.	ODSVRA Restoration Monitoring 2022, CSLRCD 2022, VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Hirschfeldia incana</i>	Field Mustard	None	None	Non-native, Cal-IPC: moderate	Disturbed areas	High	Yes	Observed as recently as 2022. Documented within the Vegetated Islands and Phillips 66 Leasehold.	VegCAMP 2022, Staff observation 2007 Clint Scheuerman, ESW 2004,
Plants	<i>Hordeum murinum</i>	Foxtail Barley	None	None	Non-native, Cal-IPC: moderate	Moist, generally disturbed sites	High	Yes	Observed as recently as 2012. Documented at Eucalyptus Tree vegetation island.	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Horkelia cuneata</i> var. <i>cuneata</i>	Wedge Leaved Horkelia	None	None	None	Old dunes, coastal sandhills	High	Yes	Observed as recently as 2022. Common in low lying areas in stabilized backdunes. Intermediates between varieties common on site.	ODSVRA Restoration Monitoring 2022, CSLRCD 2022, VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004

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Plants	<i>Horkelia cuneata</i> var. <i>puberula</i>	Mesa Horkelia	None	None	CRPR:1B.1	Chaparral, cismontane woodland, coastal scrub.	High	Yes	Documented North of Oso Flaco Lake in back dunes from one occurrence in 1973. Listed as common so identification in question.	CNDDDB 2022
Plants	<i>Horkelia cuneata</i> var. <i>sericea</i>	Kellogg's Horkelia	None	None	CRPR:1B.1	Closed-cone coniferous forest, coastal scrub, coastal dunes, chaparral.	High	Yes	Documented on site near Jack Lake as recently as 1989. Intermediates between varieties common on site.	CNDDDB 2022
Plants	<i>Hydrocotyle verticillata</i>	Whorled Marsh Pennywort	None	None	None	Lake margins, ponds, slow-moving streams, canals, seeps, springs, marshes	High	Yes	Observed as recently as 2022 at Oso Flaco Lake and associated wetlands.	MIG/TRA 2015
Plants	<i>Hypochaeris glabra</i>	Smooth Cat's-Ear	None	None	Non-native, Cal-IPC: limited	Disturbed areas, grassland, open woodland	High	Yes	Observed as recently as 2022. Documented within the Vegetation Islands and Phillips 66 Leasehold.	CSLRCD 2022, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Isolepis cernua</i>	Low Bulrush	None	None	None	Sandy, sometimes brackish sea shores, bluffs, sand dunes, creeks, marshes	High	Yes	Observed as recently as 2022. Documented in wetland habitat at Phillips 66 Leasehold and Oso Flaco Lake	CSLRCD 2022, MIG/TRA 2015, ESW 2004
Plants	<i>Iva axillaris</i> var. <i>robustior</i>	Wormwood	None	None	None	Seasonally wet, saline habitats, roadsides	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004

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Plants	<i>Jaumea carnosa</i>	Marsh Jaumea	None	None	None	Coastal salt marshes, bases of sea cliffs	High	Yes	Observed as recently as 2012. Documented in wetland habitat at Phillips 66 Leasehold and Oso Flaco Lake	MIG/TRA 2015, ESW 2004,
Plants	<i>Juncus breweri</i>	Brewer's Rush	None	None	None	Coastal dunes and marshes	High	Yes	Observed as recently as 2022. Common within low lying areas throughout the Park. Integrated with J. lescurii on site.	VegCAMP2022
Plants	<i>Juncus bufonius</i> var. <i>bufonius</i>	Toad Rush	None	None	IUCN Least Concern	Damp sunny ground, generally disturbed	High	Yes	Observed as recently as 2003 within the Vegetated Islands Area.	ESW 2004
Plants	<i>Juncus effusus</i> var. <i>pacificus</i>	Soft Rush	None	None	IUCN Least Concern	Seeps, shores, marshes, generally damp sunny ground	High	Yes	Observed as recently as 2012. Documented within the Vegetated Islands and Southern Non-Riding Areas	MIG/TRA 2015, ESW 2004
Plants	<i>Juncus lescurii</i>	Dune Rush	None	None	None	Coastal meadows, dune hollows, marsh edges	High	Yes	Observed as recently as 2022. Common within low lying areas throughout the Park. Integrated with J. breweri on site.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004

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Plants	<i>Juncus phaeocephalus</i> var. <i>phaeocephalus</i>	Brown Headed Rush	None	None	None	Coastal meadows, dune hollows, marsh edges	High	Yes	Observed as recently as 2003 at Boyscout Camp vegetation island and Oso Flaco Lake	ESW 2004
Plants	<i>Koeleria macrantha</i>	June Grass	None	None	None	Dry, open sites, clay to rocky soils, shrubland, woodland, conifer forest	High	Yes	Observed as recently as 2012 at Oso Flaco Lake and Southern Non-Riding Areas.	MIG/TRA 2015, ESW 2004
Plants	<i>Lactuca serriola</i>	Prickly Lettuce	None	None	Non-native	Abundant. Disturbed places	High	Yes	Observed as recently as 2012 within the Vegetated Islands.	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman
Plants	<i>Lamarckia aurea</i>	Goldentop	None	None	Non-native	Open ground, moist seeps, rocky hillsides, sandy soil	High	Yes	Observed as recently as 2022. Documented within the Phillips 66 Leasehold and the Vegetated Islands.	Staff observation 2022 Ben Wagner, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Lastarriaea coriacea</i>	Leather Spineflower	None	None	None	Sand or gravel	High	Yes	Observed as recently as 2022. Documented within the Phillips 66 Leasehold	VegCAMP 2022, ESW 2004
Plants	<i>Lasthenia californica</i>	Goldfields	None	None	None	Coastal scrub, woodlands and grasslands	High	Yes	Observed as recently as 2022 within the Phillips 66 Leasehold	CSLRCD 2022
Plants	<i>Lasthenia gracilis</i>	Needle Goldfields	None	None	None	Coastal scrub, woodlands and grasslands	High	Yes	Observed as recently as 2022 within the Southern Non-Riding Area near Coreopsis Hill	CSLRCD 2022

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Plants	<i>Layia erubescens</i>	Blushing Layia	None	None	CRPR:1B.2	Loose, fine sand of backdunes, sandhills	High	Yes	Observed as recently as 2022 within the Phillips 66 Leasehold	VegCAMP 2022
Plants	<i>Layia glandulosa</i>	White Layia	None	None	None	Generally coarse sandy or gravelly (silty) soils	High	Yes	Observed as recently as 2022 within the Phillips 66 Leasehold	CSLRCD 2022
Plants	<i>Layia hieracioides</i>	Hawkweed Layia	None	None	None	Open, semi-shady, or disturbed sites, in light soil	High	Yes	Observed as recently as 2012 within the Vegetated Islands and Phillips 66 Leasehold	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Layia jonesii</i>	Jones' Layia	None	None	CRPR:1B.2	Chaparral, valley and foothill grassland. Clay soils and serpentine outcrops	Low	No	Not observed within the park. Suitable clay and serpentine outcrops absent.	CNDDDB 2022
Plants	<i>Lemna minor</i>	Duckweed	None	None	IUCN Least Concern	Freshwater	High	Yes	Observed as recently as 2012 within Oso Flaco Lake	MIG/TRA 2015, ESW 2004
Plants	<i>Lepidium chalepense</i>	Lens-Podded Hoary Cress	None	None	Non-native, Cal-IPC: moderate	Disturbed areas, pastures, fields, riverbanks	High	Yes	Observed as recently as 2007 within the Vegetated Islands	Staff observation 2007 Clint Scheuerman
Plants	<i>Lepidium didymum</i>	Lesser Swine Cress	None	None	Non-native	Disturbed areas, fields, pastures	High	Yes	Observed as recently as 2003. Documented at the Worm Valley vegetation island.	ESW 2004

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Plants	<i>Leptosyne gigantea</i>	Giant Coreopsis	None	None	None	Leptosyne gigantea	High	Yes	Observed as recently as 2022 within stabilized areas in the Southern Non-Riding	VegCAMP 2022, CSLRCD 2022, MIG/TRA 2015, ESW 2004
Plants	<i>Lessingia pectinata</i> var. <i>pectinata</i>	Valley Lessingia	None	None	None	Sandy soil	High	Yes	Observed as recently as 2012 within the Phillips 66 Leasehold	MIG/TRA 2015,
Plants	<i>Linanthus californicus</i> var. <i>tomentosum</i>	Prickly Phlox	None	None	CRPR:4.2	Stabilized coastal dunes	High	Yes	Observed as recently as 2022. Common within stabilized back dunes	ODSVRA Restoration Monitoring 2022, CSLRCD 2022, ESW 2004, MIG/TRA 2015
Plants	<i>Loeflingia squarrosa</i> var. <i>squarrosa</i>	Spreading Pygmy Leaf	None	None	None	Sand, gravel of hills, mesas, dunes, disturbed areas	High	Yes	Observed as recently as 2003. Documented at Oso Flaco Lake and within the Vegetated Islands	ESW 2004
Plants	<i>Logfia filaginoides</i>	California Cottonrose	None	None	None	Bare, rocky, or grassy sites, drainages	High	Yes	Observed as recently as 2012 within the Vegetated Islands.	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Lonicera involucrata</i> var. <i>ledebourii</i>	Coast Twinberry	None	None	None	Moist places	High	Yes	Observed as recently as 2022. Common within low lying willow thickets in the Vegetated Islands and stabilized backdunes.	VegCAMP 2022, MIG/TRA 2015,

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Plants	<i>Lupinus arboreus</i>	Coastal Bush Lupine	None	None	None	Coastal bluffs, dunes, or more inland	High	Yes	Observed as recently as 2022 within the Phillips 66 Leasehold.	Staff Observation 2022 Ben Wagner, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Lupinus bicolor</i>	Lupine	None	None	None	Abundant. Open or disturbed areas, many plant communities	High	Yes	Observed as recently as 2022. Common within the stabilized backdunes.	CSLRCD 2022, ESW 2004
Plants	<i>Lupinus chamissonis</i>	Beach Blue Lupine	None	None	None	Coastal strand, dunes	High	Yes	Observed as recently as 2022. Common throughout Park.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Lupinus ludovicianus</i>	San Luis Obispo County Lupine	None	None	CRPR:1B.2	Chaparral, cismontane woodland.	Low	No	Not observed within the park. Suitable upland chaparral and cismontane woodland absent. Nearest occurrence is 5 miles north.	CNDDB 2022
Plants	<i>Lupinus nipomensis</i>	Nipomo Mesa Lupine	Endangered	Endangered	CRPR:1B.1	Coastal dunes.	High	Yes	Observed as recently as 2022. Documented within the Phillips 66 Leasehold.	MIG/TRA 2015, CNDDB 20222022, IPaC

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Plants	<i>Lysimachia arvensis</i>	Scarlet Pimpernel	None	None	Non-native	Disturbed places, ocean beaches	High	Yes	Observed as recently as 2022. Documented at Oso Flaco Lake and the Vegetation Islands.	ODSVRA Restoration Monitoring 2022, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Malacotha mnus gracilis</i>	Slender Bush-Mallow	None	None	CRPR:1B.1	Chaparral. Dry, rocky slopes.	Low	No	Not observed within the park. Suitable upland chaparral habitat absent.	CNDDDB 2022
Plants	<i>Malacothrix californica</i>	Desert Dandelion	None	None	None	Open, sandy soil in coastal dunes, grassland, oak woodland, chaparral, desert margins	High	Yes	Observed as recently as 2012. Documented in the Southern Non-Riding Area.	MIG/TRA 2015, ESW 2004,
Plants	<i>Malacothrix incana</i>	Dunedelion	None	None	CRPR:4.3	Dunes	High	Yes	Observed as recently as 2022. Common within foredunes.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Malva parviflora</i>	Cheeseweed	None	None	Non-native	Disturbed places	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004,
Plants	<i>Marah fabaceus</i>	Manroot	None	None	None	Streamsides, washes, shrubby open areas	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004
Plants	<i>Matricaria discoidea</i>	Pineapple Weed	None	None	None	Abundant. Disturbed sites, riverbanks	High	Yes	Observed as recently as 2003 at Oso Flaco Lake and the Pipeline Re-veg Vegetation Island	ESW 2004

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Plants	<i>Hesperomec on linearis</i>	Narrowleaf queen poppy	None	None	None	Grassy areas, washes	High	Yes	Observed as recently as 2022 within the Southern Non-Riding Area at Coreopsis Hill	Staff Observation 2022 Ben Wagner, ESW 2004
Plants	<i>Medicago polymorpha</i>	California Burclover	None	None	Non-native, Cal-IPC: moderate	Chaparral, oak woodland, streambanks, roadsides, disturbed areas	High	Yes	Observed as recently as 2003 at Oso Flaco Lake and the Vegetation Islands.	ESW 2004,
Plants	<i>Melica imperfecta</i>	Coast Range Melic	None	None	None	Dry rocky hillsides, chaparral, woodland	High	Yes	Observed as recently as 2022. Documented within Phillip 66 Leasehold, Vegetated Islands and Southern Non-Riding Area	CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Melilotus albus</i>	White sweetclover	None	None	Non-native	Pastures, open disturbed sites	High	Yes	Observed as recently as 2022. Documented by Park staff in Dunes Preserve	Staff Observation 2022 Ben Wagner
Plants	<i>Melilotus indicus</i>	Annual Yellow Sweetclover	None	None	Non-native	Open, disturbed areas	High	Yes	Observed as recently as 2022. Dispersed within disturbed areas throughout park.	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Mentha arvensis</i>	Mint	None	None	IUCN Least Concern	Moist places, fields	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004
Plants	<i>Monardella sinuata ssp. sinuata</i>	Southern Curly-Leaved Monardella	None	None	CRPR:1B.2	Coastal dunes, coastal scrub, chaparral, cismontane woodland.	Medium	No	Not observed within the park. Suitable habitat present.	CNDDDB 2022

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Plants	<i>Monardella undulata ssp. crispa</i>	Crisp Monardella	None	None	CRPR:1B.2	Coastal dunes, coastal scrub.	High	Yes	Observed as recently as 2022. Common throughout Park in margins of dune scrub and open sand areas.	CNDDDB 2022, VegCAMP 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Monardella undulata ssp. undulata</i>	San Luis Obispo Monardella	None	None	CRPR:1B.2	Coastal dunes, coastal scrub.	High	Yes	Observed as recently as 2022. Documented within the Phillip 66 leasehold and the stabilized backdunes directly east of Coreopsis Hill.	CNDDDB 2022, CSLRCD 2022, MIG/TRA 2015
Plants	<i>Morella californica</i>	California Wax Myrtle	None	None	None	Coastal dunes and scrub, closed-cone pine, redwood forest	High	Yes	Observed as recently as 2022. Common throughout Park within low lying protected areas.	VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004,
Plants	<i>Mucronea californica</i>	California Spineflower	None	None	CRPR:4.2	Sand	High	Yes	Observed as recently as 2022. Common throughout flats within stabilized backdunes.	ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, ESW 2004
Plants	<i>Muhlenbergia utilis</i>	Aparejo Grass	None	None	CRPR:2B.2	Meadows and seeps, marshes and swamps, chaparral, coastal scrub, cismontane woodland.	Medium	No	Not observed within the park. Suitable habitat present.	CNDDDB 2022

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Plants	<i>Nasturtium gambelii</i>	Gambel's Yellowcress	Endangered	Threatened	CRPR:1B.1	Marshes and swamps.	High	Yes	Observed as recently as 2022 at Oso Flaco Lake. Occurrence confirmed hybridized by Le et al. 2020	CNDDDB 2022, IPaC, Rare plant surveys 2022,
Plants	<i>Navarretia fossalis</i>	Spreading Navarretia	Threatened	None	CRPR:1B.1	Vernal pools, ditches	Low	No	Not observed within the park. Suitable vernal pool habitat absent.	IPaC
Plants	<i>Nemacaulis denudata</i> var. <i>denudata</i>	Coast Woolly Heads	None	None	CRPR:1B.2	Coastal dunes.	High	Yes	Observed as recently as 2022. Documented along the Oso Flaco Lake service road and the within the BBQ Flat and Eucalyptus Tree vegetated islands.	CNDDDB 2022, ODSVRA Restoration Monitoring 2022, ESW 2004
Plants	<i>Nemacladus secundiflorus</i> var. <i>robbinsii</i>	Robbins' Nemacladus	None	None	CRPR:1B.2	Chaparral, valley and foothill grassland.	Low	No	Not observed within the park. Suitable upland chaparral and grassland absent.	CNDDDB 2022
Plants	<i>Nemophila pedunculata</i>	Littlefoot Nemophila	None	None	None	Ocean bluffs, grassland, slopes, meadows, sandbars, fields, woodland, streambanks	High	Yes	Observed as recently as 2003 within the Vegetated Islands Mu.	ESW 2004
Plants	<i>Nuttallanthus texanus</i>	Blue Toadflax	None	None	None	Sand or gravel	High	Yes	Observed as recently as 2022. Common throughout Park in stabilized backdunes.	CSLRCD 2022, ESW 2004

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Plants	<i>Oenothera elata ssp. hookeri</i>	Evening Primrose	None	None	None	Moist, coastal, slightly inland, sandy bluffs	High	Yes	Observed as recently as 2022. Documented throughout Park in low lying dune swale areas.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Parapholis incurva</i>	Sickle Grass	None	None	Non-native	Disturbed, well drained soils of salt marshes, generally above highest tide level	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004
Plants	<i>Parietaria hespera var. californica</i>	Pellitory	None	None	None	Rocky slopes, canyons, among boulders, in coastal scrub, chaparral, oak woodland	High	Yes	Observed as recently as 2003 at Oso Flaco Lake and within the southern Vegetated Islands	ESW 2004
Plants	<i>Pennisetum clandestinum</i>	Kikuyu Grass	None	None	Non-native, Cal-IPC: limited	Disturbed areas	High	Yes	Observed as recently as 2003 at Oso Faco Lake	ESW 2004
Plants	<i>Penstemon centranthifolius</i>	Scarlet bugler	None	None	None	Dry, open chaparral or oak woodland	High	Yes	Observed as recently as 2022. Documented within the Phillips 66 Leasehold	Staff oservation 2022 Ben Wagner, MIG/TRA 2015
Plants	<i>Pentagramma triangularis var. triangularis</i>	Goldback Fern	None	None	None	Generally shaded, sometimes rocky or wooded areas	High	Yes	Observed as recently as 2022. Documented within the back dunes of the Southern Non-Riding Area MU, Vegetated Islands MU and Oso Flaco Lake	Staff observation 2022 Ben Wagner, Staff observation 2007 Clint Scheuerman, ESW 2004

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Plants	<i>Persicaria lapathifolia</i>	Willow Weed	None	None	IUCN Least Concern	Moist places, disturbed areas, roadsides, fields	High	Yes	Observed as recently as 2002 at Oso Flaco Lake	VegCAMP 2022, MIG/TRA 2015, ESW 2004
Plants	<i>Phacelia distans</i>	Common Phacelia	None	None	None	Clay to rocky soils, slopes	High	Yes	Observed as recently as 2022. Common throughout stabilized backdunes of Phillips 66 leasehold and Oso Flaco Lake	CSLRCD 2022, ESW 2004
Plants	<i>Phacelia douglasii</i>	Douglas' Phacelia	None	None	None	Open, generally sandy areas	High	Yes	Observed as recently as 2022. Documented within stabilized backdunes of Phillips 66 leasehold and Oso Flaco Lake	Staff Observation 2022 Ben Wagner, ESW 2004
Plants	<i>Phacelia ramosissima</i> var. <i>austrolitoralis</i>	Branching Phacelia	None	None	CRPR:3.2	Diverse habitats, including sand dunes, salt marshes, coastal bluffs, canyons, washes, flats, meadows, conifer forest	High	Yes	Observed as recently as 2022. Common throughout Park in dune scrub habitat.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Phalaris minor</i>	Little-Seeded Canary Grass	None	None	Non-native	Disturbed areas, cultivated fields	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004
Plants	<i>Pholisma arenarium</i>	Dune Food	None	None	None	Sandy soil, coastal dunes, chaparral, desert	High	Yes	Observed as recently as 2022. Common within stabilized backdunes at Phillips 66 Leasehold	CSLRCD 2022, MIG/TRA 2015

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Plants	<i>Pinus radiata</i>	Monterey Pine	None	None	IUCN Endangered	Closed-cone-pine forest, oak woodland	High	Yes	Observed as recently as 2022. Documented at Boyscout Camp Island and Oso Flaco Lake	VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Plagiobothrys chorisianus</i> var. <i>hickmanii</i>	Hickman's Popcorn Flower	None	None	CRPR:4.2	Moist places, vernal pools, sandy deposits over clay pans	High	Yes	Observed as recently as 2012 within the Phillips 66 Leasehold and Maidenform vegetation area.	MIG/TRA 2015
Plants	<i>Plantago erecta</i>	California Plantain	None	None	None	Sandy, clay, or serpentine substrates, grassy slopes, flats, open woodland	High	Yes	Observed as recently as 2022. Documented within the Phillips 66 Leasehold and Oso Flaco Lake	CSLRCD 2022, ESW 2004
Plants	<i>Plantago major</i>	Common Plantain	None	None	Non-native	Disturbed areas	High	Yes	Observed as recently as 2012. Documented at Oso Flaco Lake and Worm Valley	MIG/TRA 2015, ESW 2004
Plants	<i>Poa annua</i>	Annual Blue Grass	None	None	Non-native	Abundant. Disturbed moist ground	High	Yes	Observe as recently as 2007 at Oso Flaco Lake and the Eucalyptus Tree and Boyscout Camp Vegetated Islands.	Staff observation 2007 Clint Scheuerman
Plants	<i>Poa secunda</i> var. <i>secunda</i>	One-Sided Blue Grass	None	None	None	Dry slopes to saline/alkaline meadows to alpine	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004
Plants	<i>Polygonum aviculare</i> ssp. <i>depressum</i>	Knotweed	None	None	Non-native	Disturbed places	High	Yes	Observed during 2012 MIG/TRA vegetation surveys	MIG/TRA 2015, ESW 2004

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Plants	<i>Polypogon imberbis</i>	Streambank Rabbits Foot Grass	None	None	Non-native	Sand dunes, salt marshes	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004
Plants	<i>Polypogon monspeliensis</i>	Annual Beard Grass	None	None	Non-native, Cal-IPC: limited	Moist places, along streams	High	Yes	Observed as recently as 2022. Common within low lying wet areas.	VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Polypogon viridis</i>	Water Beard Grass	None	None	Non-native	Disturbed areas, wet areas, ponds, streambanks	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004
Plants	<i>Populus trichocarpa</i>	Black Cottonwood	None	None	IUCN Least Concern	Scattered. Alluvial bottomland, streambanks	High	Yes	Observed as recently as 2022. Documented within low lying wet areas of the Vegetated Islands MU and at Oso Flaco Lake	VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Potentilla anserina</i> var. <i>pacifica</i>	Pacific Silverweed	None	None	None	Coastal wetlands, often brackish	High	Yes	Observed as recently as 2022. Common along wetland margins throughout Park.	Staff observation 2022 Ben Wagner, MIG/TRA 2015, ESW 2004
Plants	<i>Prunus fasciculata</i> var. <i>punctata</i>	Sand Almond	None	None	CRPR:4.3	Sandy soils, scrubland, oak woodland	High	Yes	Observed as recently as 2022. Common within stabilized backdune areas of Phillips 66 Leasehold	CSLRCD 2022, MIG/TRA 2015, ESW 2004
Plants	<i>Prunus ilicifolia</i>	Hollyleaf Cherry	None	None	IUCN Least Concern	Canyons, slopes, scrubland, woodland	High	Yes	Observed as recently as 2012 within the Phillips 66 Leasehold	MIG/TRA 2015

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Plants	<i>Pseudognaphalium biolettii</i>	Two-Color Rabbit-Tobacco	None	None	None	Rocky slopes, roadsides, dunes, coastal scrub, chaparral, oak woodland	High	Yes	Observed as recently as 2022. Common throughout stabilized backdunes.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Pseudognaphalium californicum</i>	Ladies' Tobacco	None	None	None	Sandy canyons, dry hills, coastal chaparral	High	Yes	Observed as recently as 2022. Common throughout stabilized backdunes.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Pseudognaphalium canescens</i>	Wright's Cudweed	None	None	None	Rocky sites, pine woodland	High	Yes	Observed as recently as 2022. Documented within the stabilized backdunes of the Southern Non-Riding Area MU	MIG/TRA 2015, CSLRCD 2022
Plants	<i>Pseudognaphalium luteoalbum</i>	Jersey Cudweed	None	None	Non-native	Disturbed sites, fields, streambeds, drying mud	High	Yes	Observed as recently as 2012. Documented within the Vegetated Islands, Phillips 66 and Oso Flaco Lake	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Plants	<i>Pseudognaphalium ramosissimum</i>	Pink Cudweed	None	None	None	Dunes, chaparral slopes, roadsides	High	Yes	Observed as recently as 2022. Common throughout stabilized backdunes.	ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Pseudognaphalium stramineum</i>	Cottonbattin g Plant	None	None	None	Dunes, chaparral slopes, roadsides	High	Yes	Observed as recently as 2007. Documented within the Vegetated Islands MU	Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Pteridium aquilinum</i>	Western Brackenfern	None	None	None	Pastures, woodland, meadows, hillsides, partial to full sun	High	Yes	Observed as recently as 2012 within the Southern Non-Riding Area	MIG/TRA 2015
Plants	<i>Pterostegia drymarioides</i>	Fairy Mist	None	None	None	Sand or gravel	High	Yes	Observed as recently as 2022. Common throughout Park in the understory of low lying areas.	CSLRCD 2022, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Quercus agrifolia</i>	Coast Live Oak	None	None	IUCN Least Concern	Valleys, slopes, mixed-evergreen forest, woodland	High	Yes	Observed as recently as 2022. Small stands documented near the southern Park boundary, southern Phillip 66 leasehold boundary and in the Boyscout Camp Vegetated Island.	Staff observation 2022 Ben Wagner, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman
Plants	<i>Rafinesquia californica</i>	California Chicory	None	None	None	Open sites in scrub, woodland, often common after fire	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Plants	<i>Ranunculus sceleratus</i>	Cursed Crowfoot	None	None	None	Wet ground or shallow water	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004
Plants	<i>Raphanus sativus</i>	Jointed Charlock	None	None	Non-native, Cal-IPC: limited	Disturbed areas, fields	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004
Plants	<i>Rhus integrifolia</i>	Lemonade Berry	None	None	None	Canyons, generally n-facing slopes, chaparral	High	Yes	Observed as recently as 2012 within the Phillips 66 Leasehold	MIG/TRA 2015
Plants	<i>Ribes divaricatum</i> var. <i>pubiflorum</i>	Spreading Gooseberry	None	None	None	Coastal bluffs, forest edges	High	Yes	Observed as recently as 2022. Common throughout Park within low lying dune swales.	CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Rorippa palustris</i> ssp. <i>palustris</i>	Bog yellowcress	None	None	None	Generally wet places	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004
Plants	<i>Rubus ursinus</i>	California Blackberry	None	None	None	Open, disturbed areas	High	Yes	Observed as recently as 2022. Common throughout Park in low lying wet areas.	VegCAMP 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Rumex conglomeratus</i>	Green Dock	None	None	Non-native	Moist places	High	Yes	Observed as recently as 2012. Documented at Oso Flaco Lake.	MIG/TRA 2015, ESW 2004

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Plants	<i>Rumex salicifolius</i>	Willow Leaved Dock	None	None	None	Wet places, margins, rocky slopes	High	Yes	Observed as recently as 2012. Documented at Oso Flaco Lake.	MIG/TRA 2015, ESW 2004
Plants	<i>Salix exigua</i>	Sandbar Willow	None	None	IUCN Least Concern	Shores, bars, silt, sand, gravel	High	Yes	Observed as recently as 2012 at Oso Flaco Lake	MIG/TRA 2015
Plants	<i>Salix lasiolepis</i>	Arroyo Willow	None	None	IUCN Least Concern	Abundant. Shores, marshes, meadows, springs, bluffs	High	Yes	Observed as recently as 2022. Common throughout Park.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Salix sitchensis</i>	Sitka Willow	None	None	IUCN Least Concern	Tidal swamps, marshes, springs, streambeds	High	Yes	Observed as recently as 2012. Documented within the Vegetated Islands and at Oso Flaco Lake	MIG/TRA 2015, ESW 2004
Plants	<i>Salvia columbariae</i>	Chia Sage	None	None	None	Dry, disturbed sites, chaparral, coastal-sage scrub	High	Yes	Observed as recently as 2022 within the Phillips 66 Leasehold	Staff observation 2022 Ben Wagner
Plants	<i>Salvia mellifera</i>	Black Sage	None	None	IUCN Least Concern	Coastal-sage scrub, lower chaparral	High	Yes	Observed as recently as 2022 within the Phillips 66 Leasehold	CSLRCD 2022, MIG/TRA 2015, ESW 2004
Plants	<i>Sambucus mexicana</i>	Blue Elderberry	None	None	None	Streambanks, open places in forest	High	Yes	Observed as recently as 2022 within the Phillips 66 Leasehold and back dunes of the Southern Non-Riding Area MU	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, MIG/TRA 2015

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Plants	<i>Sanicula crassicaulis</i>	Pacific Sanicle	None	None	None	Open slopes, ravines, woodland	High	Yes	Observed as recently as 2007. Documented within the Vegetated Islands and at Oso Flaco Lake	Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Clinopodium douglasii</i>	Yerba Buena	None	None	None	Shady places, chaparral, woodland	High	Yes	Observed as recently as 2013. Documented within the BBQ Flat Vegetated Island, Maidenform and Oso Flaco Lake within low lying wet areas.	Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Schoenoplectus americanus</i>	Olneys Three Square Rush	None	None	None	Mineral-rich or brackish marshes, shores, fens, springs	High	Yes	Observed as recently as 2012. Documented at Oso Flaco Lake and the BBQ Flat Vegetated Island	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Schoenoplectus californicus</i>	California Bulrush	None	None	None	Brackish to fresh marshes, shores	High	Yes	Observed as recently as 2022. Common throughout Park in heavily saturated wetland areas.	VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Scirpus microcarpus</i>	Small Fruited Bulrush	None	None	None	Marshes, wet meadows, streambanks, pond margins, sometimes weedy	High	Yes	Observed as recently as 2022. Documented at Oso Flaco Lake.	VegCAMP 2022, ESW 2004
Plants	<i>Scrophularia atrata</i>	Black-Flowered Figwort	None	None	CRPR:1B.2	Closed-cone coniferous forest, chaparral, coastal dunes, coastal scrub, riparian scrub.	Medium	No	Not observed within the park. Suitable habitat present. Nearest occurrence is 2 miles to the north.	CNDDDB 2022

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Plants	<i>Scrophularia californica</i> var. <i>californica</i>	California Figwort	None	None	None	damp places, chaparral, roadsides	High	Yes	Observed as recently as 2003 at Oso Flaco Lake	ESW 2004
Plants	<i>Senecio aphanactis</i>	Chaparral Ragwort	None	None	CRPR:2B.2	Chaparral, cismontane woodland, coastal scrub.	Low	No	Not observed within the park. Marginal habitat present in stabilized dune scrub. Nearest occurrence is 6 miles northeast.	CNDDDB 2022
Plants	<i>Senecio blochmaniae</i>	Dune Ragwort	None	None	CRPR:4.2	Coastal sand dunes, sandy floodplains	High	Yes	Observed as recently as 2022. Common throughout the Park.	VegCAMP 2022, ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Senecio californicus</i>	California Butterweed	None	None	None	Sandy, dry or drying sites	High	Yes	Observed as recently as 2022. Documented within the Phillips 66 Leasehold and Oso Flaco Lake	CSLRCD 2022, ESW 2004
Plants	<i>Senecio elegans</i>	Purple Ragwort	None	None	Non-native	Disturbed coastal sites	High	Yes	Observed as recently as 2022. Documented within the foredunes of the Southern Non-Riding Area MU.	Staff Observation 2022 Ben Wagner, ESW 2004

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Plants	<i>Senecio vulgaris</i>	Common Groundsel	None	None	Non-native	Disturbed areas	High	Yes	Observed as recently as 2012. Documented at Oso Flaco Lake and the Vegetated Islands	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Silene laciniata</i> var. <i>laciniata</i>	Catch Fly Campion	None	None	None	Chaparral, oak woodland	High	Yes	Observed as recently as 2022. Documented within the Phillips 66 Leasehold and at Oso Flaco Lake	ODSVRA Restoration Monitoring 2022, CSLRCD 2022, MIG/TRA 2015, ESW 2004
Plants	<i>Silybum marianum</i>	Milk Thistle	None	None	Non-native, Cal-IPC: limited	Invasive. Roadsides, pastures, disturbed areas	High	Yes	Observed as recently as 2022. Documented within the Phillips 66 Leasehold and at Oso Flaco Lake	CSLRCD 2022, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Solanum douglasii</i>	Douglas' Nightshade	None	None	None	Dry scrub, woodland	High	Yes	Observed as recently as 2015. Documented throughout Park in low lying dune swale habitat.	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Solidago confinis</i>	Southern Goldenrod	None	None	None	Wet streambanks, springs, marshes	High	Yes	Observed as recently as 2015. Documented throughout Park in low lying and wet dune swale habitat.	MIG/TRA 2015, ESW 2004
Plants	<i>Sonchus asper</i>	Spiny Sowthistle	None	None	Non-native	Wet streambanks, springs, marshes	High	Yes	Observed as recently as 2015. Documented within the Vegetated Islands, Oso Flaco Lake and Southern Non-riding Area	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004

Group	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat (Quoted habitats from iNaturalist)	Potential to Occur within District	Known to Occur within District	Occurrence	Source
Plants	<i>Sonchus oleraceus</i>	Sow Thistle	None	None	Non-native	Disturbed places	High	Yes	Observed as recently as 2022. Documented within the Vegetated Islands, Oso Flaco Lake and Southern Non-riding Area	VegCAMP 2022, MIG/TRA 2015, ESW 2004
Plants	<i>Sparganium eurycarpum</i> var. <i>eurycarpum</i>	Broadfruit Bur Reed	None	None	None	Marshes, lakes, ponds, along streams	High	Yes	Observed as recently as 2022. Documented within the Oso Flaco Lake wetlands.	VegCAMP 2022, MIG/TRA 2015, ESW 2004
Plants	<i>Spergularia marina</i>	Salt Sand Spurry	None	None	None	Mud flats, alkaline fields, sandy river bottoms, sandy coasts, salt marshes	High	Yes	Observed as recently as 2012. Documented at Oso Flaco Lake.	MIG/TRA 2015, ESW 2004
Plants	<i>Stellaria longipes</i> var. <i>longipes</i>	Goldie's Starwort	None	None	None	Streambanks, moist to boggy meadows, seeps	High	Yes	Observed as recently as 2003 within the Pipeline Re-veg Vegetated Island.	ESW 2004
Plants	<i>Stellaria media</i>	Chickweed	None	None	Non-native	Oak woodland, meadows, disturbed areas	High	Yes	Observed as recently as 2022. Documented within the Vegetated Islands, Oso Flaco Lake and Phillips 66 Leasehold.	CSLRCD 2022, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Stephanomeria virgata</i>	Twiggy Wreath Plant	None	None	None	Chaparral openings, grassland	High	Yes	Observed as recently as 2022. Common within the Phillips 66 leasehold and documented as Oso Flaco Lake and the Boyscout Camp Vegetated Island.	CSLRCD 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman

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Plants	<i>Symphyotrichum defoliatum</i>	San Bernardino Aster	None	None	CRPR:1B.2	Meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, valley and foothill grassland.	Low	No	Not observed within park. Nearest occurrence 1/2 mile east of park, however, identification is uncertain. Otherwise, park is outside known range for species.	CNDDDB 2022
Plants	<i>Taraxacum officinale</i>	Common Dandelion	None	None	Non-native	Abundant. Esp disturbed areas	High	Yes	Observed as recently as 2003. Documented within the Eucalyptus Tree Vegetated Island.	ESW 2004
Plants	<i>Thinopyrum junceiforme</i>	Russian Wheatgrass	None	None	Non-native	coastal sand	High	Yes	Observed as recently as 2022. Documented along the Arroyo Grande Creek bank.	Staff observation 2022 Ben Wagner, MIG/TRA 2015
Plants	<i>Toxicodendron diversilobum</i>	Poison Oak	None	None	None	Canyons, slopes, chaparral, coastal scrub, oak woodland	High	Yes	Observed as recently as 2022. Common throughout Park in stabilized backdunes and in the understory in riparian areas.	ODSVRA Restoration Monitoring 2022, MIG/TRA 2015
Plants	<i>Triticum aestivum</i>	Common Wheat	None	None	Non-native	Escaped cereal crop along roadsides and in disturbed places	High	Yes	Observed as recently as 2012. Documented within the Pipeline Re-veg Vegetated Island.	MIG/TRA 2015, ESW 2004
Plants	<i>Typha domingensis</i>	Cattail	None	None	IUCN Least Concern	Nutrient-rich freshwater to brackish marshes, wet disturbed places	High	Yes	Observed as recently as 2012. Documented within the Vegetated Islands.	MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004

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Plants	<i>Typha latifolia</i>	Broadleaf Cattail	None	None	IUCN Least Concern	Unpolluted to nutrient-rich freshwater (brackish) marshes	High	Yes	Observed as recently as 2022. Documented within the Oso Flaco Lake wetlands and within the Vegetated Islands.	Staff observation 2022 Ben Wagner, MIG/TRA 2015, ESW 2004
Plants	<i>Uropappus lindleyi</i>	Silver Puffs	None	None	None	Open grassland, woodland, chaparral, deserts, generally in loose soils	High	Yes	Observed as recently as 2007. Documented at Oso Flaco Lake and the Boyscout Camp Vegetated Island	Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Urtica dioica</i>	Stinging Nettle	None	None	IUCN Least Concern	Moist or riparian areas, willow scrub	High	Yes	Observed as recently as 2022. Common throughout park within low lying wet areas.	VegCAMP 2022, MIG/TRA 2015, Staff observation 2007 Clint Scheuerman, ESW 2004
Plants	<i>Verbena lasiostachys</i>	Western Vervain	None	None	None	Open, dry to wet places	High	Yes	Observed as recently as 2003 at Oso Flaco Lake.	ESW 2004
Plants	<i>Veronica anagallis-aquatica</i>	Water Speedwell	None	None	Non-native	Wet meadows, streambanks, slow streams	High	Yes	Observed as recently as 2012. Documented at Oso Flaco Lake and the Eucalyptus Tree Vegetated Island	MIG/TRA 2015, ESW 2004
Plants	<i>Yabea microcarpa</i>	Hedge Parsley	None	None	None	Grassy slopes, dunes, chaparral, woodland	High	Yes	Observed as recently as 2003. Documented at Oso Flaco Lake and the Pipeline and Maidenform vegetated areas.	ESW 2004

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Plants	<i>Zannichellia palustris</i>	Horned Pondweed	None	None	IUCN Least Concern	Streams, ponds, lakes	High	Yes	Observed as recently as 2003 at Oso Flaco Lake.	ESW 2004

Status Key:

California Rare Plant Ranks (CRPR)

Rank 1A – Presumed extinct in California

Rank 1B – Rare, threatened, or endangered in California and elsewhere

Rank 2A: Plants presumed extirpated in California, but more common elsewhere;

Rank 2B: Rare, threatened, or endangered in California, but more common elsewhere

Rank 3 – Plants for which more information is needed – A review list

Rank 4 – Plants of limited distribution – A watch list

Additional threat ranks endangerment codes are assigned to each taxon or group as follows:

- .1 – Seriously endangered in California (over 80% of occurrences threatened/high degree of immediacy of threat).
- .2 – Fairly endangered in California (20-80% occurrences threatened).
- .3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

APPENDIX 2: MANAGEMENT ACTION DETAILS

The goals and objective of the WHPP are meant to guide the management of natural resources at Oceano Dunes SVRA. Management actions are the responses that can be taken to improve habitat, reduce impacts to habitat, respond to triggers, and attempt to reach success criteria, all to move towards the WHPP's habitat goals and objectives. These actions are informed by the SVRA's resource objectives, success criteria, and management triggers. The list below are management actions that will be used at the SVRA. This list includes any action such as potential projects, best management practices, and descriptions of methods for implementing management actions, which help achieve the goals of the WHPP.

Ongoing Resource Management Actions

1. Prevent unauthorized vehicle incursion by installing new fence and signage and maintaining existing fence and signage to protect native vegetation communities and sensitive and special status species and habitats.
2. Conduct manual and/or chemical removal of invasive plant species.
3. Continue annual ecological restoration program with a focus on native plant communities including local seed collection, plant propagation, and field installation.
4. Cage individual listed plants to prevent herbivory when appropriate and authorized within applicable permits.
5. Conduct out-planting of listed species when authorized within applicable permits.
6. Conduct management actions outlined in the Nesting Season Management Plan (Appendix 5). Actions include closures and fencing, informational signage and enforcement, habitat enhancement, and predator management.
7. Close pooled habitats and monitor creek conditions to make sure fencing is preventing public access into suitable TWG habitat.
8. Coordinate with willing landowners and water agencies within Arroyo Grande Creek and Lagoon MU to minimize upstream water quality/quantity effects.
9. Control non-native predators such as bullfrogs, largemouth bass, crayfish etc.
10. Conduct required monitoring and implement best management practices to ensure compliance with project permits, management plans, state and federal laws and regulations.

APPENDIX 3: MONITORING METHODOLOGY FOR GOALS AND OBJECTIVES

STATE AND FEDERALLY LISTED PLANTS	335
OBJECTIVE 1 – CONSERVE STATE AND FEDERALLY LISTED PLANT SPECIES THROUGH 2029.	335
<i>Beach Spectaclepod and Surf Thistle Monitoring Method.....</i>	<i>337</i>
<i>Nipomo Mesa Lupine Monitoring Method.....</i>	<i>339</i>
WESTERN SNOWY PLOVER AND CALIFORNIA LEAST TERN	342
OBJECTIVE 2 – CONSERVE WESTERN SNOWY PLOVER (SNPL) POPULATIONS THROUGH 2029.....	342
<i>Western Snowy Plover Monitoring Methods</i>	<i>342</i>
OBJECTIVE 3 – CONSERVE CALIFORNIA LEAST TERN (CLTE) POPULATIONS THROUGH 2029.....	344
<i>California Least Tern Monitoring Methods.....</i>	<i>344</i>
FISH	347
OBJECTIVE 4 – MAINTAIN PRESENCE OF KNOWN POPULATIONS OF TIDEWATER GOBY (TWG) THROUGH 2029.	347
<i>Tidewater Goby Monitoring Methods.....</i>	<i>347</i>
CALIFORNIA RED-LEGGED FROG	351
OBJECTIVE 5 – MAINTAIN PRESENCE OF KNOWN POPULATIONS OF CALIFORNIA RED-LEGGED FROG (CRLF) THROUGH 2029.	351
<i>California Red-Legged Frog Monitoring Methods.....</i>	<i>351</i>
VEGETATION COMMUNITIES.....	353
OBJECTIVE 6 – CONSERVE NATIVE CALIFORNIA PLANT COMMUNITIES THROUGH 2029.....	353
<i>Native California Plant Communities Mapping Monitoring Methods.....</i>	<i>353</i>
OBJECTIVE 7 - IMPROVE HABITAT QUALITY THROUGH REDUCING INVASIVE PLANT SPECIES COVER THROUGH 2029.	355
<i>Invasive Species Monitoring Methods.....</i>	<i>355</i>
OBJECTIVE 8 - IMPROVE HABITAT FOR MIGRATORY AND NESTING BIRDS, SMALL MAMMALS, AND NATIVE VEGETATION THROUGH 2029.	
.....	358
<i>Native California Plant Community Restoration Project Monitoring Methods.....</i>	<i>358</i>

The Oceano Dunes SVRA Monitoring Program is clearly defined and based on WHPP goals and objectives. It provides quantitative performance indicators composed of clearly defined metrics,

baselines, and achievable targets. The discussion below details the baseline, methods, and uncertainties of these monitoring efforts.

State and Federally Listed Plants

Objective 1 - Conserve State and Federally listed plant species through 2029.

Nipomo Mesa Lupine Habitat Invasive Veldt Grass Monitoring Method

Target 1 - Prevent perennial veldt grass cover from exceeding 25% within Nipomo mesa lupine occupied habitat and 5% within adjacent suitable habitat for Nipomo Mesa lupine within the Northern Non-Riding Area MU.

Baseline

All baseline surveys were conducted in July 2022. Occupied Nipomo Mesa lupine habitat showed 1-5% cover class for two subpopulations, >5-10% cover class for one subpopulation and >10-25% cover class for the remaining three subpopulations. For adjacent suitable habitat, baseline surveys showed two subpopulations within the <1% cover class and the remaining four subpopulations within the 1-5% cover class.

Methods

All activities for Nipomo Mesa lupine are consistent with the CDFW California Endangered Species Act Scientific, Educational, or Management Permit No. 2081(a)-21-008-RP Amendment 1 Invasive Species Control for Nipomo Mesa Lupine Recovery (CDFW 2022).

During the Nipomo Mesa lupine growing season (approximately November through June), which coincides with veldt grass growing season, no weed abatement activities are permitted within occupied habitat. For this target, “occupied habitat” is defined as the area within 15 feet of Nipomo Mesa lupine point locations for the past five years of complete census data. “Suitable adjacent habitat” is defined as area 15-100 feet from occupied habitat.

Once Nipomo Mesa lupine plants have senesced, hand removal of veldt grass is the only weed abatement activity permitted within the occupied habitat. Under this method, veldt grass is removed using hand tools such as shovels, rakes, hoes, McLeods, and Pulaskis. In the event of significant rainfall from June through November (greater than 0.5 inches), a survey within the occupied habitat is conducted to determine if Nipomo Mesa lupine seedlings have germinated. Once seedlings have begun germinating all

weed abatement work within the occupied habitat terminates until the growing season is over.

Within suitable habitat areas (15-100 feet from occupied habitat), removal of veldt grass is conducted through post-emergent graminicide (grass specific) spot treatment. Prior to spot treatment, a survey is conducted by a qualified monitor within the treatment area to determine if there are any Nipomo Mesa lupine plants present. Surveys are conducted by walking in a grid pattern so that full visual coverage of the ground is obtained. Special care is taken to avoid trampling any sensitive plants. If any Nipomo Mesa lupine plants are discovered, they are flagged, mapped, and a 15-foot exclusion buffer is established and flagged around the plant prior to any weed abatement work occurring. Once the survey is complete, working under direction of a qualified monitor, a contractor will apply herbicide with backpack sprayers or truck mounted power sprayers.

To monitor progress, cover class surveys for veldt grass are conducted biannually (every two years) within each of the six sub-populations during the summer months when veldt grass plants are flowering and thus easily detectable. Veldt grass cover can vary from season to season depending on rainfall and other conditions. During the survey, monitor(s) walk passes through each sub-population until full visual coverage of the area is obtained. The monitor(s) then estimate the percent absolute foliar cover of veldt grass within the area using a standardized reference sheet of visual examples of percent cover for each cover class. Estimates are made using the following cover class ranges: <1%, 1-5%, >5-10%, >10-25% and >25%.

Due to limited management options within occupied habitat, the target within occupied habitat is higher than the target adjacent to occupied habitat. Furthermore, within habitat areas outside of the herbicide free zone, complete treatment is difficult to obtain because smaller plants are easily concealed under the canopy of native shrubs during the winter and early spring when treatments are most effective. Though complete removal of veldt grass is desired, given the limitation in treatment options, prevention of veldt grass from exceeding 25% percent cover within occupied habitat and 5% cover within adjacent suitable habitat is an obtainable target and would be beneficial in preventing displacement of Nipomo Mesa lupine by veldt grass.

Uncertainties

Oceano Dunes SVRA acknowledges information gaps may be present when conducting invasive veldt grass monitoring within Nipomo Mesa lupine habitat. Surveys are conducted using visual assessments and monitors may vary in their determination of vegetation cover. Standardized diagrams of cover classes during surveys are used to

minimize bias and variation in assessments. Furthermore, prior to conducting surveys, monitors are trained by a qualified biologist in cover class assessment methodology to minimize variation in the results between monitors.

Beach Spectaclepod and Surf Thistle Monitoring Method

Target 2 - Over a 3-year moving average, maintain or exceed 1,250 square meters of occupied habitat of surf thistle and 200 square meters of occupied habitat of beach spectaclepod.

Baseline

The baseline is 1,504 square meters of occupied habitat for surf thistle and 247 square meters of occupied habitat for beach spectaclepod. The baseline was determined in 2023.

Methods

Monitoring of beach spectaclepod and surf thistle is conducted annually during the late winter or early spring to avoid disturbance to shorebird nesting which typically begins in March. At this time, most beach spectaclepod and surf thistle plants are in vegetative form. If surveys are conducted after March 1, a permitted SNPL monitor is required to be present and monitor for bird activity within the area prior to the survey. Prior to conducting surveys all monitors are trained by a qualified biologist in identification of beach spectaclepod and surf thistle for all life stages.

Surveys are conducted by returning to all historically documented locations of each species, with the locations preloaded on a hand-held GPS. Pre-printed maps of the previous population locations and datasheets are also used to track progress and ensure that the entire population is surveyed. Handheld tally counters and pin flags are also used during surveys to count individuals and visually mark patch boundaries. Measuring tapes are used to measure distances between individuals in order to determine gap lengths between plants.

Beach spectaclepod and surf thistle have clustered growth forms and/or the presence of underground structures so occupied area is used as the metric and not individual plant counts. Therefore, to avoid disturbance during surveys and to standardize mapping across species, surveys are conducted by walking the perimeter of each cluster of plants as opposed to walking a grid pattern. Hand-held GPS units are then used to map polygons of each cluster. Plants are mapped in separate polygons when they are greater than five feet apart for beach spectaclepod and greater than ten feet apart for surf thistle. Plants that are further apart than these distances may be combined into a polygon if it's determined by the monitor that walking between the plants might cause

disturbance to the plants. This can occur where the dune slope is steep and walking between plants can cause erosion of the slope and undermine or bury other plants on the slope. The approximate number of plants and any observed disturbances, including pig rooting or presence of invasive species, are noted for each polygon. In addition, passes are made through the surrounding suitable habitat and any new or previously undiscovered plants are documented and mapped.

Coastal foredune habitat is naturally active and dynamic and, frequently, new areas of sand inundation and wind scouring affect the surface cover of foredune plants. To allow for this expected variability in plant cover from year to year, the total area for the target is smaller than the area for the baseline for both species.

Uncertainties

Oceano Dunes SVRA acknowledges information gaps may be present when conducting rare plant monitoring for beach spectaclepod and surf thistle. For example, monitors may have varying abilities in spotting the target plants during surveys. To minimize variation in the results, prior to conducting surveys, monitors are trained by a qualified biologist in beach spectaclepod and surf thistle identification for all life stages, as well as the established survey methodology. To avoid disturbance to sensitive plants, occupied area of beach spectaclepod and surf thistle is mapped (allowing for gaps between plants) and not the species percent cover. Because of this, polygons will vary considerably in number of plants and plant cover within a given area. As a result, the occupied area of isolated plants will inherently show less area per plant than clustered plants because the area around the plant is not included. In addition, on any given day some variation in accuracy of the handheld GPS units is expected to occur resulting in potential expansion or contraction of polygon areas. This variation is minimized by ensuring that all units have submeter accuracy and that all monitors are trained in setting the minimum accuracy level for each unit.

Invasive plant species, including ice plant and European beach grass, are prevalent within occupied habitat for surf thistle and beach spectaclepod, threatening displacement of individuals. Effective treatments of the invasives, both manual and chemical, are limited due to the potential negative impacts on surf thistle and beach spectaclepod individuals. As a result, loss of occupied habitat may still occur despite management actions to remove invasive plants within the surrounding areas.

Nipomo Mesa Lupine Monitoring Method

Target 3 - Over a 3-year moving average, maintain or exceed 26 reproducing individuals of Nipomo Mesa lupine annually.

Baseline

The baseline is 26 reproducing individuals of Nipomo Mesa lupine annually.

Methods

All activities for Nipomo Mesa lupine are consistent with the CDFW California Endangered Species Act Scientific, Educational, or Management Permit No. 2081(a)-21-008-RP Amendment 1 Invasive Species Control for Nipomo Mesa Lupine Recovery (CDFW 2022).

A full census of the Nipomo Mesa lupine population within the Oceano Dunes SVRA is conducted annually. All surveys are conducted by monitors who have been trained by a qualified biologist and have shown proficiency in identification of Nipomo Mesa lupine in all life stages. During all surveys, special care is taken to avoid trampling seedlings as they can be small and difficult to see. Initial surveys begin in late October or early November and are timed to follow significant rain events (greater than 0.5 inches) which tend to initiate germination.

Because weed abatement activity is conducted within and adjacent to occupied habitat, initial surveys are conducted to establish the avoidance buffers for Nipomo Mesa lupine plants. Avoidance buffers for weed abatement are established and flagged 15 feet from any point locations for Nipomo Mesa lupine from the past five years of complete surveys. Using a handheld GPS with all documented historic point locations of Nipomo Mesa lupine preloaded, initial surveys are conducted by walking in concentric circles around the outer perimeter of the 15-foot avoidance buffer from the previous year so that full visual coverage of the area around the previous avoidance buffer is obtained. If Nipomo Mesa lupine plants are found, they are flagged, numbered, and GPS'd. Any observed disturbances or herbivory affecting the plant is documented. Once the perimeter has been surveyed, the weed abatement avoidance buffer is flagged with red flags. Throughout the season, if Nipomo Mesa lupine plants are discovered within 15 feet of the outer avoidance buffer line, the buffer is expanded to at least 15 feet from the plants.

To protect Nipomo Mesa lupine seedlings from herbivory, cages are installed over the plants. The cages are made with 1/8" to 1" wire mesh or hardware cloth and are anchored with landscaping staples. Wire mesh cages are open on the bottom and no less

than 8" in diameter and 6" tall to prevent any crowding of the Nipomo Mesa lupine seedlings by the cages. A typical gopher basket turned upside down is typically used, but other prefabricated or custom-made cages may be used. Plants are caged as staff time and available material allow.

As the season progresses, reconnaissance level surveys are conducted as staff time permits, to record, map, and cage new plant observations. Throughout the season, as seedlings are encountered, they are flagged with pin flags, numbered, GPS'd, and caged with wire mesh cages. Throughout the growing season, data is collected for each individual including whether it died prematurely, if any disturbance or damage was observed, and if it fruited. Individuals that are observed to have fruits are considered to be reproductive.

During the flowering season, typically in March or April, a complete census survey is conducted by walking in a grid pattern throughout the entire known area of all previously documented subpopulations. Monitors walk in parallel lines scanning back and forth for Nipomo Mesa lupine plants, marking plants with pin flags as they are encountered. Monitors walk close enough so full visual coverage of the ground surface is obtained, typically 10 feet apart.

As the season progresses and plants senesce, the final reproductive fate of each plant is recorded and the pin flags and cages are removed.

The baseline was determined from the lowest 3-year running average from surveys conducted between 2007 and 2022. Complete fruiting observations were not collected in 2018 and 2019, so the running average is calculated using three successive years with survey data available. For example, the 3-year running average for 2020 is the average of the 2020, 2017, and 2016 seasons (Table 13). Nipomo Mesa lupine is an annual plant species that is sensitive to weather fluctuations, so it is typical for a majority of the seedlings to dry out prior to fruiting. Therefore, number of reproducing individuals (individuals with fruits), is used as the performance indicator instead of total individuals to better track successful reproduction of the population.

Table 13. Nipomo Mesa Lupine Census Results within the Oceano Dunes SVRA

Season	Seedling Count	Reproductive Population (plants with seed set)	% Effective Population	*Accumulated Rainfall July-June (inches)	% of Plants Caged
2006-2007	160	95	59%	6.02	0%
2007-2008	96	33	34%	11.38	0%
2008-2009	138	78	57%	6.93	0%
2009-2010	656	176	27%	17.44	0%
2010-2011	469	41	9%	23.62	0%
2011-2012	39	6	15%	9.65	0%
2012-2013	263	102	39%	6.57	0%
2013-2014	87	28	32%	2.99	0%
2014-2015	292	27	9%	6.73	0%
2015-2016	85	26	31%	11.46	0%
2016-2017	89	24	27%	25.17	0%
2017-2018	Census not conducted			8.59	0%
2018-2019	Census not conducted			17.10	0%
2019-2020	157	52	33%	14.14	0%
2020-2021	48	30	63%	7.72	100%
2021-2022	247	93	38%	8.35	100%

*Source: San Luis Obispo County Public Works Oceano (795) Rain Gauge

Uncertainties

Oceano Dunes SVRA acknowledges information gaps may be present when conducting rare plant monitoring for Nipomo Mesa lupine. Monitors may have varying abilities in spotting Nipomo Mesa lupine plants during surveys as they can be very small and difficult to distinguish from the surrounding annual forbs. In order to establish consistency between years and individual monitors, prior to conducting surveys, monitors are trained by a qualified biologist in Nipomo Mesa lupine identification for all life stages, as well as the established survey methodology. Furthermore, staff availability for reconnaissance surveys from season to season may vary resulting in a higher

detection rate during seasons when a more time is spent on surveys. Also, varying temperatures, rainfall and herbivory pressure throughout the season may result in plants senescing before they are detected. This variation is minimized by conducting a full census survey during the flowering season, a time when a majority of the reproductive individuals can be easily detected.

Western Snowy Plover and California Least Tern

Objective 2 – Conserve western snowy plover (SNPL) populations through 2029.

Western Snowy Plover Monitoring Methods

Target 1 - Maintain or exceed 155 SNPL breeding adults over a moving average 3-year window.

Baseline

Baseline is a minimum average of 154 SNPL breeding adults (range 32-226) for the 21-year period 2002-22. The highest 3-year average was 213 breeding adults from 2014-16, but the number of breeding adults have been lower in recent years. Targets are based on the 21-year average since the breeding numbers vary from year to year.

Methods

All activities for the SNPL and the list of authorized individuals are consistent with the Federal Fish and Wildlife Permit ES-815214-10. Point Blue conducts monitoring and banding activities under USFWS permit 10(a)(1)(A) ES-807078-19, Federal U.S. Geological Survey Bird Banding Laboratory Banding Permit 09316, CDFW Scientific Collecting Permit SC-9591, and a CDFW Memorandum of Understanding.

Currently, daily monitoring occurs from March 1 to September 30, including all daylight hours for much of the season. Daily monitoring includes: identifying threats to these species, locating nests, and collecting data to estimate population sizes, survivorship, and reproductive success. Staff monitor nests and chicks using binoculars and spotting scopes from parked vehicles outside of the fenced nesting areas, or from blinds, and walking within nesting areas only when necessary to minimize disturbance to nesting birds and broods. SNPL chicks are banded to brood, typically at the nest.

The Street-legal Vehicle Area and ORA are monitored by vehicle daily along defined transects, and signs of nesting are investigated on foot, as any nest initiated in this area is at risk from recreational activities and requires immediate protection. Early morning transect surveys are conducted daily along the boundary of the Southern Enclosure, and other fenced nesting areas that border the ORA, to look for any SNPL chick tracks

outside of these protected areas. The Southern Enclosure and other seasonally closed areas are also monitored periodically on foot as well as by observing the area with binoculars and spotting scopes from a vehicle. The Southern Enclosure, Oso Flaco, and other seasonally closed shoreline areas are surveyed for SNPL nests and broods by driving slowly during low tide on the smooth, hard-packed sand of the lower exposed intertidal zone, and thoroughly scanning with binoculars and spotting scopes.

District staff and contractors also collect information on predator presence during the nesting season and have an active predator management program aimed at reducing disturbance and depredation by mammalian and avian predators.

Habitat enhancement activities occur within the Southern Enclosure area to maintain and improve habitat for nesting and foraging SNPL. Natural materials, such as driftwood, wrack, or woodchips, are added prior to the SNPL nesting period. These materials offer more areas of disruptive cover, provide shelter from wind and blowing sand, reduce exposure to predators, and augment the nesting substrate for plovers.

During the months of October through February, a minimum of one survey per week is conducted to estimate population of non-breeding SNPL at the District. In addition, as staff levels allow, daily non-breeding surveys are conducted within the Street-legal Vehicle Area of PSB and ORA of the Oceano Dunes SVRA. Staff place A-frame placards near winter plover flocks to increase public awareness of the shoreline speed limits. Park ranger staff regularly enforces park regulations enacted to protect SNPL. Oceano Dunes SVRA also participates in the annual U.S. Pacific coast snowy plover winter window survey coordinated by USFWS.

The latest SNPL and CLTE annual report which highlights management methods, monitoring details, and results can be found [online](#) on the Oceano Dunes SVRA Shorebird Program's Document Library webpage (CDPR 2022).

Uncertainties

Oceano Dunes SVRA acknowledges information gaps may be present when conducting monitoring and calculating data for SNPL. Staff may not identify nests and chicks because of their very cryptic markings, and the birds may be hidden out of view and not located during daily surveys. Nest fates are unknown when there is not enough evidence to determine if they hatched or failed, and unknowns are not included in the percent hatch rate. Oceano Dunes SVRA aims to band as many SNPL chicks as possible each year, but many cannot be banded, and determining unbanded chick fledge rates is a challenge (see CLTE and SNPL annual report, Banding Chicks section on page 11 for more details). Number of breeding adults, nests, hatched nests, chicks, and fledglings are recorded as

minimum numbers and may be undercounts. If the number of breeding males is undercounted, the number of fledglings per breeding male will be overestimated.

Surveys are dependent on the expertise of the surveyors and their ability to detect species visually and audibly which can sometimes lead to inconsistencies between surveyors. Factors outside of the park boundaries may also influence the yearly changes in bird abundance independent of any influence of activities within the park.

Major changes to the actively managed Southern Enclosure are happening as a result of different legal decisions, in particular related to the sixth amendment of CDP 4-82-300. As a result, the habitat characteristics of the Southern Enclosure are changing to more vegetation cover and more topography, which may be directly in conflict with continued nesting density in this area. These changes can be managed to a degree, but there are some areas that are already less productive for nesting snowy plover, (8 enclosures) and our ability to manage for and adapt to these changes may be limited. Furthermore, with more habitat within the historic open riding area, there is a likelihood of attracting additional predators to the nesting areas. Again, these can be mitigated, but since predation is one of the greatest influences in nesting and chick rearing success, any changes in predator activity from other parks' management actions could impact our ability to reach these breeding targets.

Target 2 - Maintain or exceed a moving average of 1.0 SNPL fledglings per male over a 3-year window.

Baseline

Baseline is an average of 1.43 fledglings per male (range 0.29 to 2.45) for 21-year period 2002-22 and an average of 1.22 fledglings per male for the 3-year period 2020-22.

Methods

See Target 1 Methods section above (under SNPL monitoring).

Uncertainties

See Target 1 Uncertainties section above (under SNPL monitoring).

Objective 3 – Conserve California least tern (CLTE) populations through 2029.

California Least Tern Monitoring Methods

Target 1 - Maintain or exceed 30 CLTE breeding adult pairs over a moving average 3-year window.

Baseline

Baseline is a minimum of 23 CLTE breeding adult pairs in 2010. From 2006-22, the 3-year average ranged from a low of 27-28 breeding pairs in 2009-11 to a high of 46-50 breeding adult pairs in 2013-15. Targets for CLTE breeding pairs take into consideration that the population at Oceano Dunes SVRA is variable and numbers have been lower in recent years.

Methods

Oceano Dunes District conducts activities associated with the March 5, 2012 Memorandum of Understanding (MOU) between CDFW and ODD regarding California least tern (CLTE) management at ODD. All activities for California least tern and the list of authorized individuals are consistent with the Federal Fish and Wildlife Permit ES-815214-10. Point Blue conducts monitoring and banding activities under USFWS permit 10(a)(1)(A) ES-807078-19, Federal U.S. Geological Survey Bird Banding Laboratory Banding Permit 09316, CDFW Scientific Collecting Permit SC-9591, and a CDFW Memorandum of Understanding.

Currently, daily monitoring occurs from March 1 to September 30, including all daylight hours for much of the season. Daily monitoring includes: identifying threats to these species, locating nests, locating night roosts, and collecting data to estimate population sizes, survivorship, and reproductive success. Staff monitor nests and chicks using binoculars and spotting scopes from parked vehicles outside of the fenced nesting areas, or from blinds, and walking within nesting areas only when necessary to minimize disturbance to nesting birds and broods. CLTE chicks are banded to individual, typically at the nest.

The Street-legal Vehicle Area and ORA is monitored by vehicle daily along defined transects, and signs of CLTE nesting are investigated on foot, as any nest initiated in this area is at risk from recreational activities and requires immediate protection. Early morning transect surveys are conducted daily along the boundary of the Southern Enclosure, and other fenced nesting areas that border the ORA, to look for any CLTE chick tracks outside of these protected areas. The Southern Enclosure is also monitored periodically on foot as well as by observing the area with binoculars and spotting scopes from a vehicle. Closed shoreline areas of the Southern Enclosure and Oso Flaco are surveyed for CLTE nests and broods by driving slowly during low tide on the smooth, hard-packed sand of the lower exposed intertidal zone, and thoroughly scanning with binoculars and spotting scopes.

Habitat enhancement activities occur within the Southern Exclosure area to maintain and improve habitat for nesting CLTE. Natural materials, such as driftwood, wrack, or woodchips, are added prior to the CLTE nesting period. These materials offer more areas of disruptive cover, provide shelter from wind and blowing sand, reduce exposure to predators, and augment the nesting substrate for terns.

The latest SNPL and CLTE annual report which highlights management methods, monitoring details, and results can be found [online](#) on the Oceano Dunes SVRA Shorebird Program's Document Library webpage (CDPR 2022).

Uncertainties

Oceano Dunes SVRA acknowledges information gaps may be present when conducting monitoring and calculating data for CLTE. Staff may not identify nests and chicks because of their very cryptic markings, and the birds may be hidden out of view and not located during daily surveys. Oceano Dunes SVRA aims to band as many CLTE chicks as possible each year, but many cannot be banded, and determining unbanded chick fledge rates is a challenge (see CLTE and SNPL annual report, Banding Chicks section on page 12 for more details). Number of breeding adults, nests, hatched nests, chicks, and fledglings are recorded as minimum numbers and may be undercounts. Breeding adults are not always on site during the non-breeding season and their survival during this time is dependent on conditions off site. ODD has no control over the number of birds that return to Oceano Dunes SVRA, although ODD management activities can impact the number of birds that nest on site compared to other sites within our sub-population area.

Surveys are dependent on the expertise of the surveyors and their ability to detect species visually and audibly, which can sometimes lead to inconsistencies between surveyors.

Major changes to the actively managed Southern Exclosure are happening as a result of different legal decisions, in particular related to the sixth amendment of CDP 4-82-300. As a result, the habitat characteristics of the Southern Exclosure are changing to more vegetation cover and more topography, which may be directly in conflict with continued nesting density in this area. These changes can be managed to a degree, but there are some areas that are already less productive for nesting CLTE (8 exclosures), and our ability to manage for and adapt to these changes may be limited. Furthermore, with more habitat within the historic open riding area, there is a likelihood of attracting additional predators to the nesting areas. Again, these can be mitigated, but since predation is one of the greatest influences in nesting and chick rearing success, any

changes in predator activity from other parks management actions could impact our ability to reach these breeding targets.

Target 2 - Maintain or exceed a moving average of 0.8 CLTE fledglings per breeding pair over a 3-year window.

Baseline

Baseline is a minimum of 0.15 fledglings per breeding pair in 2017 and a minimum 3-year average of 0.79-0.86 fledglings per pair in 2017-19.

Methods

See Target 1 Methods section above (under CLTE monitoring).

Uncertainties

See Target 1 Uncertainties section above (under CLTE monitoring).

Fish

Objective 4 – Maintain presence of known populations of tidewater goby (TWG) through 2029.

Tidewater Goby Monitoring Methods

Target 1 - Maintain presence of tidewater goby within Arroyo Grande Creek and Lagoon MU.

Baseline

Tidewater goby are present within Arroyo Grande Creek and Lagoon MU. They were first observed within this MU in March 2005 (Rischbieter 2005).

Methods

Tidewater goby surveys are conducted within Arroyo Grande Creek and Lagoon MU approximately three to four times per year by a qualified biologist with a USFWS 10(a)(1)(A) Recovery Permit for tidewater goby. Timing of the surveys is scheduled to coincide with seasonal fishery presence, seasonal and episodic hydrologic (stream course) changes, and other factors that may influence the interaction between park visitors and aquatic resources.

Fisheries surveys are also conducted at least annually at Oso Flaco Creek within Oceano Dunes SVRA and at least three to four times per year at Pismo Creek Lagoon and Carpenter Creek within PSB. Lower portions of Meadow Creek are surveyed at the same

time as Arroyo Grande Creek when, in the opinion of the qualified biologist, conditions appear suitable.

Even though Objective 4 directly applies to TWG, the method details below also apply to South-Central California Coast Steelhead surveys which are done when Arroyo Grande Creek and Lagoon conditions are suitable. All steelhead surveys are conducted by a qualified biologist with State 4(D) coverage and are typically conducted around the same timeframe as the TWG surveys. Only survey methods appropriate for TWG and steelhead are used and are explained in greater detail below.

DIRECT OBSERVATION: Water conditions and clarity at coastal lagoons frequently is not suitable for identifying species by direct (visual) observation of the fish therein. Still, it is important to precede use of the methods below by observing the surface and shorelines of the waters to be surveyed – the objective of this is to detect fish activity (schooling or rising, wakes or jumps of larger fish, or the presence of carcasses or moribund fish), and to make an initial assessment of the best places to employ the more efficient methods described below.

BEACH SEINES: Various sizes and mesh diameter of seines are employed, usually depending on the target species. Surveys usually begin with the smallest seine, and larger seines are utilized later if conditions (depth, species) warrant. In all cases, a minimum of 3 staff are preferred – two to haul the net and a third to guide the center of the net as it approaches the shoreline, to remove debris (if any), and to handle other equipment (like the bucket of water). For tidewater goby, a 30'x4' seine with 3/64" (or 1/16") mesh is preferred. This is usually suitable for shorter hauls which encounter less algae and debris. Typically, 2 to 6 hauls are made with this net, usually progressing from the south end of Arroyo Grande Lagoon towards the north end (depending on depth and ability for foot access). At other lagoons, 1 to 4 hauls are typically made, usually ceasing if/when presence is detected.

The number of hauls may be similar for a 50'x5' seine (3/16" mesh). This larger net is preferred when a haul of longer length is required, occasionally through deeper water, and especially if larger species are believed present (steelhead, striped mullet, topsmelt) which are capable of evading the smaller net. Under larger lagoon conditions, a 100' seine (with a bag) has been used on occasion, to increase the efficiency of detecting these larger species, but hauls of this length are not appropriate if abundant tidewater goby are present. Seines may have one end anchored on shore, and be pivoted in a 90-degree arc, or they may be drawn across the lagoon from either the middle of water column (as depth allows) or from the opposite shore. Preferred landing areas for any seine are shorelines of little or no vegetation or debris – ideally, sandy shorelines of

gentle to moderate slope which allow good access and footing for those pulling the seine, and which are not prone to spilling of the contents of the withdrawn seine.

Occasionally ideal landing areas for the seine are not available. If the seine must overrun a lightly vegetated area, care should be taken to manipulate the lead-line so as to not lose contents. Or, the third (and sometimes also fourth) member of the crew can sometimes be used to lift the lead-line while it is still in the water, just as the seine reaches the obstruction or complex habitat, lifting and orienting the seine in a “hammock” fashion so the contents can be viewed without landing. Other confined areas, too small for the seine (amidst vegetation, rip-rap, or debris) but where dip-netting (see below) is not efficient enough, can be encircled with the seine and then both ends of the seine retracted to the same point in a “purse seine” fashion. In this case, it is helpful to use the third crewmember to keep the lead-line(s) on the bottom by hand, gathering it when the center is in reach and keeping the content of the seine confined between the lead- and float-lines.

In most cases, representative individuals (various sizes) of each species in the net will be removed by hand to a bucket for later measurement. Care should be taken not to impinge fish between debris, or to leave them out-of-water for any time. Once a meaningful subset of the catch has been removed to a bucket, the seine should be immediately retracted into the water body and remaining fish (if any) released from the net. Measurement of fish in the bucket should proceed as soon as practicable (this may be immediately) and those fish then released to or near the point of capture after measuring. (Under certain conditions, usually Permit-specific, aeration of the bucket may be required.)

ELECTROFISHING: Electrofishing is a preferred technique for sampling fish in a lotic stream; locally, this is typically limited to Arroyo Grande Creek upstream of areas where tidewater goby are possibly present. Past years’ surveys have occurred upstream from the extent of backwaters created by beaver dams; in 2017, tidewater goby were detected as far upstream as near the mouth of [lower] Los Berros Creek, and thus electrofishing should not occur downstream of this confluence unless and until conditions change. Several hundred yards of wetted stream may occur in Arroyo Grande Creek between the mouth of Los Berros Creek and Guiton Crossing (approximately the upstream limit of State Park property). Electrofishing can occur as long as water is of modest clarity (low turbidity) and flows are not in excess of 6-8 cfs (estimated).

Electrofishing proceeds in an upstream direction and is usually most efficiently accomplished with four staff: the biologist carrying the backpack electrofisher, two assistants carrying D-ring dip-nets, and an additional assistant carrying a 5-gallon bucket

containing a few inches of cool creek water. Under certain circumstances, the pail can be carried by the biologist with the electrofisher, leaving the dip-netters free to rove and collect stunned fish. All participating staff should be outfitted with waders and insulated (rubber) gloves and be given introductory information about electrofishing technique and safety prior to commencing collection activity.

Direct observation of the area to be surveyed should also precede the introduction of electricity to the water – this is necessary to ensure the lack of presence of amphibians (any life stage) and other non-fish vertebrates (including the public) that may be harmed by such electricity. Electrofishing must not proceed if any life stage of amphibian is present. If any such non-fish vertebrates are present, the area to commence electrofishing should be moved farther upstream, and the direct observation repeated.

The Department has two Smith-Root backpack electrofishers available for conducting electrofishing surveys. The conductivity of water in Arroyo Grande Creek typically only allows operation of these units at low voltage (100V, +/-50V). Unit frequency is typically set at 60Hz (+/-30Hz). Seconds of applied current are usually recorded, to indicate relative “effort.” The team will move upstream in either a continuous or intermittent fashion, generally attempting to “herd” fish upstream ahead of the electric current but focusing special attention in areas of greater depth or cover which have historically been more likely to harbor larger fish. (Small fish, < 2”, tend not to conduct enough electricity to succumb to the electrofisher in these conditions; larger fish are captured with greater efficiency.) Assistants with dip-nets make aggressive efforts to net stunned fish, and netted fish are placed in the 5-gallon pail. If steelhead are among the catch, they are measured and released promptly. Alternatively, the bucket may be aerated and all fish measured and released following completion of the collection effort at its upstream limit. If large numbers of fish are captured and stored in the bucket, either a second bucket should be used to continue, or the collection effort should pause and the fish measured and released before continuing.

DIP-NETTING: Dip-nets are of limited efficiency but can sometimes be used to capture and identify small fish that dart in and out or are otherwise obscured by moderately dense submerged or emergent aquatic vegetation. Dip-nets are also useful in dwindling/remnant pools that are too small for a seine. This method will usually be preceded by direct observation, which will give indication of the presence of an unidentified fish (or aquatic invertebrate). The person using the dip-net must insert it into the water rapidly and attempt a fast “sweep” along the bottom and against the edges of vegetation – and continue this motion into a swift lift/extraction from the water in an effort to retain the contents of the net in the bottom. Any organisms so captured

can be stored in a bucket for a short time, for identification and measurement, or released immediately if identification is easy and sufficient.

GILLNETTING: The Department has occasionally used 100' variable-mesh nylon monofilament gillnets to sample waters too deep for foot access where no sensitive species occur. Gillnets are usually deployed by boat and are weighted/anchored on the bottom and held in place by floats at the top. Locally, this method has been used successfully in Pismo Lake. Such efforts may in the future also include Oso Flaco Lake and/or Oceano Lagoon. Gillnets are ideally fished for both all-day and overnight periods, but specific survey objectives and protocols should be defined and agreed in cooperation with the local CDFW District Biologist and will not be described further here.

Uncertainties

Oceano Dunes SVRA acknowledges information gaps may be present when conducting monitoring for TWG. The ability to survey depends heavily on suitable climatic conditions, specifically precipitation. It is reasonable to predict that in drought years or winters with little precipitation, the lagoon and creek may be unsuitable to survey. Methodologies may also change or be adapted as different methodologies and techniques are incorporated. The ability to obtain regulatory training and permits necessary to perform surveys has been challenging. Permits for TWG require individuals with multiple years of experience participating in surveys and receiving field training from a qualified biologist. In 2023, one ODD staff member was approved to do TWG surveys. Currently, surveys are being done by an outside consultant (former State Park fisheries biologist with 20 years of fisheries experience at ODD) who retains the proper permits for TWG and South-Central California Coastal steelhead.

California Red-Legged Frog

Objective 5 – Maintain presence of known populations of California red-legged frog (CRLF) through 2029.

California Red-Legged Frog Monitoring Methods

Target 1 - Maintain presence of CRLF within Arroyo Grande Creek and Lagoon MU and Oso Flaco Watershed MU.

Baseline

CRLF is present within Arroyo Grande Creek and Lagoon MU and Oso Flaco Watershed MU. Protocol level surveys carried out by District staff in 2017 detected CRLF within both MU's. Annual surveys have been done since 2017.

Methods

CRLF surveys are completed as time and staff allows over a wide range of months to cover different life stages and behaviors. Multiple day and night surveys will be conducted during the breeding season (late November to April) and the non-breeding season (April to September) as time and staff allows. The surveys are based upon protocols described within U.S. Fish and Wildlife Service (USFWS) *Revised Guidance on Site Assessments and Field Surveys for the California Red legged Frog* (Guidance; USFWS 2005b).

Night surveys commence no earlier than one hour after sunset. Night surveys are conducted using a USFWS-approved light and are held at the surveyor's eye level to ensure that the frog's eye shine is visible to the surveyor. Binoculars are also used to see the eye shine of the frogs. Survey data will include numbers of individuals, their location, habitat conditions, and habitat disturbances (if any). The main purpose of day surveys during the breeding season is to look for larvae, metamorphs, and egg masses, while the main purpose of day surveys during the non-breeding season is to look for metamorphosing sub-adults, and non-breeding adults. The main purpose of night surveys is to identify and locate adult and metamorphosed frogs.

Surveys are conducted from stream banks, by kayak, or by walking in the wetted stream channel. Any special status amphibian species seen during these surveys are not handled and are reported to the CNDDB.

Uncertainties

Oceano Dunes SVRA acknowledges information gaps may be present when conducting monitoring for CRLF. CRLF surveys are dependent on the expertise of the surveyors and their ability to detect species visually and audibly which can sometimes lead to inconsistencies between surveyors. Possible errors include inconsistent data collection, possible double-counting, and misidentification by non-experts.

The ability to survey depends heavily on suitable climatic conditions, specifically precipitation. It is reasonable to predict that in drought years or winters with little precipitation, the Arroyo Grande Creek and Lagoon may be unsuitable to survey.

Vegetation Communities

Objective 6 – Conserve native California plant communities through 2029.

Native California Plant Communities Mapping Monitoring Methods

Target 1 - Continue to conserve 1,102 acres of native vegetation communities within Vegetated Islands MU and Northern Non-Riding Area MU.

Baseline

Baseline is 1,102 acres of native vegetation communities within the Vegetated Islands MU and Northern Non-Riding Area MU as of 2020.

Methods

The area closed to riding and designated for conservation within the Vegetated Islands MU and Northern Non-Riding Area MU has increased from 1,344 acres in 2012 to 1,685 acres in 2022 as acreage within the Open Riding Area has been closed and incorporated into these two Management Units. Of the 1,685 acres closed to riding, 1,102 acres is area of native vegetation communities, 22 acres is area of non-native vegetation communities, and 561 acres is bare sand. All of these areas are fenced and signed to prevent vehicles from entering. All of the perimeter fences around the closed areas are mapped using handheld GPS units every 18 months and maps are updated as adjustments are made to the fences. The mapped fence lines are used to determine the total conserved habitat within these areas. Fencing and signage are maintained regularly to prevent vehicle trespass into closed areas.

Native vegetation is primarily conserved through maintenance of vehicle closure fencing that prevents vehicles from disturbing all native vegetation communities within Oceano Dunes SVRA.

Monitoring consists of weekly fence checks and repairs which are both documented on smartphones using the Survey 123 application. All Oceano Dunes SVRA field staff have the Survey 123 application and data collection layer preloaded onto a work provided smartphone. The application allows for georeferenced survey forms with attached photos to be filled out and submitted to an online database where they can be accessed by other staff. The fields on the form include: Name of Submitter, Date and time Recorded, Type of Issue (options include Fence, Hazard, Sign Trash/Graffiti, Illegal Camping and Other), Storm Related Damage (Yes/No), Location Description, Comments about the Issue, Attached Image and Submission Status (New submission, Needs

operator, Being Addressed, and Completed). Once a form is submitted, a Maintenance Supervisor is notified by email and the issue is delegated to staff promptly.

or the entire Oceano Dunes District, vegetation communities were mapped in 2022 using VegCAMP protocols. The VegCAMP mapping was based on 2020 NAIP aerial imagery and therefore is reflective of the extant vegetation in 2020. VegCAMP classifies vegetation according to the National Vegetation Classification System (NVCS) standards, which is a hierarchical classification of vegetation types, with alliance and association at the finest scale level. An association is a characteristic range of species composition, and an alliance is composed of one or more associations.

VegCAMP uses the USDA PLANTS database as the standard for species nomenclature to be consistent with the NVCS. This standard means that some species names may not reflect commonly accepted changes in California-based taxonomies. For example, VegCAMP refers to the grass with the common name Italian rye, as *Lolium perenne*, not *Festuca perennis* (the current nomenclature used by the CNPS and the Jepson eflora). This project will use the VegCAMP nomenclature when referring to alliance names (e.g., the *Lolium perenne* Semi-natural Herbaceous Alliance). However, it will note synonymous species names used by the Jepson eflora and the CNPS for clarification when necessary.

To be consistent with other VegCAMP mappings throughout the State, vegetation for this project has been mapped to a minimum mapping unit (MMU) of 1 acre, with special stands such as wetlands mapped at ¼ acre. Vegetation is mapped to the alliance level when possible or the group or macrogroup level for herbaceous polygons. Mapping attributes for each polygon include the name of the vegetation type and the associated hierarchy within the NVCS, percent cover of trees, shrubs, herbs, and exotic species, roadedness (impact from roads or trails within the polygon), and crosswalks to other vegetation classification systems.

Uncertainties

Oceano Dunes SVRA acknowledges information gaps may be present when conducting monitoring for conservation of vegetation communities. Fence line mapping is dependent on the accuracy of the handheld GPS unit being used. To maximize accuracy, handheld units with submeter accuracy are used for fence line mapping. Uncertainties in classification of vegetation communities are mitigated through use of the State Vegetation Standard. CDFW developed the State Vegetation Standard, based on the National Vegetation Classification Standard, in collaboration with state resources departments, including CDPR and other federal, non-profit, and private entities. The

State Vegetation Standard is the best available science regarding classifying and organizing vegetation communities and is the "industry standard" within California. It is widely used in wildlife and plant conservation, fire management and analysis, development and planning, climate change analysis, invasive species monitoring, hydrology, and watershed studies.

Objective 7 - Improve habitat quality through reducing invasive plant species cover through 2029.

Invasive Species Monitoring Methods

Target 1 - Prevent exotic plant species, specifically perennial veldt grass, ice plant and European beach grass from exceeding 1% cover within the Vegetated Islands MU.

Baseline

Baseline surveys were conducted in 2022 and showed <1 percent cover of each target species in each of the vegetated islands within the Vegetated Islands MU.

Methods

For invasive plant species monitoring, Oceano Dunes SVRA uses EDRR principles and methodology (CDPR 2020). Following the EDRR principles the following are target specific methods developed by the Oceano Dunes SVRA.

The Vegetated Island MU consists primarily of intact native dune scrub, dune mat and riparian habitats and has undergone substantial native vegetation plantings and restoration work in recent years. To promote and maintain healthy native communities within these areas, Oceano Dunes SVRA actively monitors for invasive species colonization, specifically: perennial veldt grass, ice plant, and European beach grass. Individuals are then removed either manually or through herbicide treatment.

To monitor progress, mapping of veldt grass, ice plant and European beach grass is conducted at least once every two years within each vegetated island. During the survey, monitor(s) walk passes through each island until full visual coverage of the area is obtained. Locations where the targeted species are found are mapped as polygons with a handheld GPS unit by walking the perimeter of the area occupied by the invasive species. The monitor(s) then estimate and document the percent absolute foliar cover of the target species within the mapped area using a standardized reference sheet of visual examples of percent cover for each cover class. Once mapping is completed, the total percent cover for the vegetated island is then calculated by averaging the mapped percent cover and dividing it by the total area of the vegetated island. The target species are common within neighboring properties and wildlife commonly move the seeds into

new areas so finding new occurrences of the target species is common within areas where it was previously absent.

Oceano Dunes SVRA staff and contractors are trained and available to actively detect, map and respond to infestations of invasive plant species with manual and chemical removal to limit the spread of new and previously known infestations. Continued early detection and removal of individuals will be essential to maintain the target of less than 1 percent cover.

Uncertainties

Oceano Dunes SVRA acknowledges information gaps may be present when surveying for invasive plant species. Monitors may have varying abilities in locating and identifying invasive plant species and determining percent cover. To establish consistency between years and individual monitors, prior to conducting surveys, monitors are trained by a qualified biologist in identification of the target species, as well as the established survey methodology. Furthermore, mapping accuracy is dependent on the accuracy of the handheld GPS unit being used. To maximize accuracy, handheld units with submeter capabilities are used for invasive species mapping.

Target 2 -Prevent live European beachgrass from exceeding 1% cover in the 118 acres of foredune habitat within the Southern Non-Riding Area MU.

Baseline

Baseline was <1% cover within foredune habitat of Southern Non-Riding Area. Calculated average cover during baseline surveys in 2022 was 0.52%.

Methods

For invasive plant species monitoring, Oceano Dunes SVRA uses EDRR principles and methodology (CDPR 2020). Following the EDRR principles the following are target specific methods developed by the Oceano Dunes SVRA.

The Southern Non-Riding Area MU consists primarily of intact foredune habitat and has undergone weed abatement activities in recent years including control burns and herbicide application. For the purposes of this Target, the foredune habitat is defined as habitat up to 400 meters immediately downwind of the mean high tide line and is primarily composed of dune mat plant communities. To promote and maintain healthy native communities within these areas, Oceano Dunes SVRA actively monitors for invasive species colonization, specifically European beach grass, and removes individuals through herbicide treatment.

To monitor progress, mapping surveys for European beach grass are conducted at least once every two years within the foredune habitat of the Southern Non-Riding area during the fall and winter months when plants are actively growing, and shorebird nesting is not occurring. During the survey, monitor(s) walk passes through each foredune section until full visual coverage of the area is obtained. If European beach grass is observed, the perimeter of the patch is walked with a handheld GPS unit and mapped as a polygon. The monitor(s) then estimate and document the percent live foliar cover of European beach grass within the patch, using a standardized reference sheet of visual examples of percent cover for each cover class. The total percent cover for the entire foredune habitat is then calculated by averaging the mapped percent cover and dividing it by the total area of habitat. Previous efforts by Oceano Dunes SVRA to remove European beach grass within the foredune area of the Southern Non-Riding Area have been successful within much of the area. European beach grass continues to occur in areas where resprouts or new plants emerge and within areas where herbicide use is limited due to the presence of sensitive resources including State Threatened beach spectaclepod and surf thistle. Continued early detection of new individuals and prevention of spread from areas where herbicide treatment is limited will be essential to maintain cover below one percent.

Uncertainties

Oceano Dunes SVRA acknowledges information gaps may be present when surveying for European beach grass. Monitors may have varying abilities in locating and identifying the target plant species and determining percent cover. Within areas that have received recent herbicide treatment, it can be difficult to differentiate between live stems and dead stems as they can be mixed together and vary in color from green to yellow to brown when stressed. To establish consistency between years and individual monitors, prior to conducting surveys, monitors are trained by a qualified biologist in the established survey methodology, in identification of European beach grass and in determining whether stems are alive or dead under the varying conditions on site.

Furthermore, mapping accuracy is dependent on the accuracy of the handheld GPS unit being used. To maximize accuracy, handheld units with submeter capabilities are used for invasive species mapping.

Objective 8 - Improve habitat for migratory and nesting birds, small mammals, and native vegetation through 2029.

Native California Plant Community Restoration Project Monitoring Methods

Target 1 - Restore a minimum of 50 acres of native California plant communities within the Vegetation Islands MU, Open Riding Area MU and Northern Non-Riding Area MU.

Baseline

The baseline is 1,126 acres of vegetation within the Vegetation Islands MU, Open Riding Area MU and Northern Non-Riding Areas in 2022. This includes 846 acres of Silver dune lupine – mock heather scrub, 127 acres of Arroyo willow thickets, 107 acres of Dune mat, and 46 acres of other vegetation types.

Methods

For the purpose of this Target, restoration project areas are evaluated every five years using VegCAMP which includes ground truthing of aerial imagery to determine total area of persisting vegetation communities within project areas. VegCamp mapping methodology only compiles species lists for sample locations and not for the entire area. To obtain a greater level of detail within restoration project areas, ground surveys of each project area are conducted at least two years after project completion to compile an inventory of plant species that persist within the restored areas and to map areas in need of supplemental plantings where plantings did not survive.

Refer to Methods for Objective 6, Target 1 above for VegCAMP methodology.

To compile an inventory of plant species that persist within restored areas, reconnaissance level surveys are conducted at least two years after project completion to allow time for plantings to establish. The ideal time to conduct the surveys is during the spring months when the majority of species within the Park are flowering and annual species are present. However, depending on staff availability and limited accessibility of certain areas because of bird nesting season, surveys may be conducted at other times of the year.

Surveys are conducted by monitors trained in local species identification and use of species identification keys. Surveys are conducted by walking a grid pattern throughout the entire project area so that full visual coverage of the ground surface is obtained. As species are encountered, they are documented on a datasheet as being present. Care is taken to walk passes close enough to each other to maintain full visual coverage of the project area and this distance may be adjusted to allow for changes in visibility due to

vegetation height. If the identification of a species cannot be determined, potentially due to an immature life stage or lack of sufficient plant parts, a description of the plant and its location is noted, and identification is attempted later in the season. Once the survey for each project area is completed, the datasheets are compiled and filed for future reference and to supplement the VegCAMP ground truthing.

In addition to the species inventory, sections of project areas where plantings did not survive are mapped. Loss of plantings most commonly occurs on the western edge of project areas where there is bare sand upwind. Plants in these areas are exposed to sand driven by the prevailing winds resulting in leaf abrasion, wind burn and burial. Loss may also occur in other areas of the project where wind may scour sand away from plants, causing them to uproot. Other severe conditions including drought, extreme heat, frost or high winds may result in plant loss.

Mapping is conducted by walking areas of bare sand or very low plant cover (less than 5%) within the project area using a handheld GPS unit. These areas are then evaluated for future supplemental planting projects. When supplemental plantings occur, the supplemental project areas are mapped and re-evaluated at least two years after installation to allow sufficient time for plantings to establish.

To determine which species to use for planting and the appropriate planting density, reference sites of intact habitat that have been free of vehicle disturbance for at least 20 years are evaluated. Restoration project areas receive stabilization measures, native vegetation plantings, and seeding with native species to ensure that healthy native communities persist. Projects are installed during the rainy season, typically November through March, so that irrigation is not necessary for the establishment of the plantings. Due to natural conditions that can result in plant loss within restoration areas, including sand inundation, drought, and wind disturbance, planting supplementation can be necessary in subsequent years after initial installation and further natural vegetation loss may occur after the habitat is established. Target restoration numbers are reasonably feasible within the timeframe, staffing level, and funding availability.

Note: Objective 8 will also improve habitat for migratory and nesting birds and small mammals. Monitoring methods are summarized in the Monitoring Related to Scientific Research and Long-term Trends section.

Uncertainties

Oceano Dunes SVRA acknowledges information gaps may be present when conducting monitoring for restoration of native plant communities. Uncertainties in classification of vegetation communities are mitigated through use of the State Vegetation Standard.

CDFW developed the State Vegetation Standard, based on the National Vegetation Classification Standard, in collaboration with state resources departments, including CDPR and other federal, non-profit, and private entities. The State Vegetation Standard is the best available science regarding classifying and organizing vegetation communities and is the "industry standard" within California. It is widely used in wildlife and plant conservation, fire management and analysis, development and planning, climate change analysis, invasive species monitoring, hydrology, and watershed studies.

APPENDIX 4: METHODOLOGY FOR SCIENTIFIC RESEARCH AND LONG-TERM TREND MONITORING

Terrestrial Birds

In 1997, 18 permanent monitoring plots were established for conducting point count surveys at Oceano Dunes SVRA (Figure 22). These surveys used the variable circular plot protocol recommend by Kutilek et al. (1991). The original 18 bird plots were established based on the size and shape of the vegetation “islands” in the open riding area (ORA), the vegetation types within each island, and the proximity to other islands or vegetated areas beyond the boundaries of the open riding area. Based on these parameters, nine treatment plots were chosen that represented the different island types within the ORA. In addition, nine control plots were chosen, which included three plots on the Phillips 66 Leasehold property, one within the revegetated dunes immediately northwest of Oso Flaco Lake, and five locations at Oso Flaco Lake that were selected from a previous 1991 survey of avian populations at Oso Flaco Lake (Burton and Kutilek 1991). This methodology was implemented from 1997 to 2010.

In 2011, Oceano Dunes SVRA contracted with Dr. Francis Villablanca, a Biological Sciences professor at Cal Poly, to design a better terrestrial bird sampling methodology since the methodology used from 1997 to 2010 suffered from many flaws including pseudoreplication and inconsistent methodology. In 2011, Oceano Dunes SVRA re-staked the point count stations to ensure that the same points established in 1997 (based on the 1998 GPS records) were consistently used. Dr. Villablanca suggested that most of the original points continue to be surveyed, but that Oso Flaco Lake points that were within 200 meters of each other be removed as they suffered from pseudoreplication. This resulted in three-point count locations being removed. Dr. Villablanca also suggested that two new control points be added in the Pismo Dunes Natural Preserve within PSB. Dr. Villablanca and Stephanie Little (Oceano Dunes SVRA environmental scientist) chose these control points on December 4, 2012 based on three criteria: that the point

location be representative of the most common habitats in the treatment plots (i.e., lupine-heather and willow), located at least 100 meters away from the ORA so the control count area does not mix with a “treatment” area, and at least 200 meters away from any other point count location. With the addition of these two control points, Oceano Dunes SVRA has 17-point count stations.

Methods

The Oceano Dunes SVRA uses Point Blue Conservation Science point count methodology (Ballard et al. 2003), which follows the guidelines established by Ralph et al. (1995). Surveys are conducted semiannually.

- Breeding Season: Three breeding season surveys are completed, twice in May and once within the first two weeks of June. An additional survey is conducted in late April if staffing levels permit. Surveys are conducted between 10-15 days apart.
- Winter Season: Two winter season surveys are completed between November and December. This is a good period to survey since no birds are known to breed during this time. Surveys are conducted between 10-15 days apart.

Surveys are conducted in teams; however, only one person in the team is the observer in order to ensure consistency in the point count observations, while the other person acts as the data recorder. These point counts are dependent on the expertise of the surveyors and their ability to detect species visually and audibly, which can sometimes lead to inconsistencies between surveyors. Surveys are also conducted in the appropriate weather conditions and are not to be conducted in weather conditions that reduce detectability (e.g., high winds, heavy fog, or steady rain). Breeding and winter point count surveys begin approximately 15 minutes after local sunrise and are completed within 3-4 hours after sunrise, generally by 10 am because bird activity starts to wane. Because it is difficult to complete all 17 points by 10 am, any remaining points are finished the following day. Upon arrival at the first point count location, temperature, wind speed, and weather condition are recorded. Data at each point location is collected for 10 minutes and every species detected at a point is recorded, regardless of how far from the observer. Distance from observer (as measured using a rangefinder), bird behavior, and breeding status (as appropriate) is also recorded. The data recorder then starts a stopwatch set with a 10-minute time interval, and the bird observer begins calling out all birds they can hear or see. Data is recorded on the species, the number of individuals, how it was detected, any breeding behavior, and

distance from the observer using a range finder. The data collector keeps track of birds seen within 0-3 minutes, 3-5 minutes, 5-7 minutes, and 7-10 minutes. Once a data point is finished, the team moves to the next location.

All avian survey data is transferred from paper datasheet into a Microsoft Access Database and proofed after entry.

Baseline

When considering trends in yearly abundance of individual species, we will compare average change in abundance relative to the previous year within a given treatment type (e.g., areas open to OHV users and areas closed to OHV users). Additionally, because metrics of population change are available for most terrestrial birds in the form of the continent-wide Breeding Bird Survey (Sauer et al. 2017), we can compare rate of change within both treatment types to this more general estimate. We will consider yearly abundance trends that contain 95% credible intervals (CI) that overlap zero to have no significant change from the baseline trend. If a significant change in management occurs within the park (e.g., closure of a unit previously open to OHV riding) then abundance trends could be compared between eras (i.e., trend in OHV use era vs. non-OHV use era).

IBP Recommendations for Analysis (IBP 2019)

Analysis will be done using occupancy modeling which will give an estimate of species richness. A summary report will be done each year with a more detailed analysis completed every four years. Note: four years matches shoreline bird analysis and makes sense to have this analysis before the five-year WHPP updates.

IBP made the following recommendations (IBP 2019) that Oceano Dunes SVRA will explore as time and staff allows: Increasing the number of sampling points within Oceano Dunes SVRA would yield greater statistical power to detect population differences between OHV use and non-OHV use areas, however this does not seem like a practical option because there is limited habitat available for sampling in OHV use areas. Oceano Dunes staff have made the best of a unique situation by intensively sampling within seasons using a protocol that allows accounting for imperfect detection. The variability in bird density within the Oceano Dunes study area may make it difficult to find a significant difference between OHV and non-OHV use areas, even with a large number of observations for a single species. If practical for staff, maintaining 3 visits to monitoring points during each spring and 2 visits during each winter would be beneficial for maintaining accurate and precise measures of bird densities within the study area.

Despite the difficulties posed by a small number of sampling points (17), continuing with the current monitoring program can provide the District with data for tracking population trends within OHV use and non-OHV use areas. For example, if the population size of the California Thrasher is significantly declining within the OHV use area and it is stable in the non-OHV use area this would suggest that some aspect of the OHV use is causing the decline. By monitoring these trends, staff may be able to identify species that may be at risk of extirpation within OHV use areas. Trends in population size within the District could be compared to regional measures of population trends, like the continent-wide Breeding Bird Survey (Sauer et al. 2017), and help staff determine if population declines within the District are part of a larger, region-wide decline. A longer-term data set (>10 years) may be required to identify patterns or trends in variation in bird density through time.

Comparing bird abundance or density between OHV use or non-OHV use areas is one of the more useful metrics for understanding how species are affected by OHV users. However, there are other potential analysis avenues that may simplify the process involved, such as occupancy modeling. For instance, occupancy and abundance are generally strongly correlated (Gaston et al. 2000). The distance sampling methodology we used for this report is relatively complex and may not be easy to implement for those without specialized training. Occupancy modeling is less complex and has packages (software programs) that are more user friendly and could make analysis more accessible for District staff. If training is provided in the programming language R and software package “unmarked” (Fiske and Chandler 2011), staff may consider running their own analyses with the assistance of outside consultants.

Note: Diversity is harder to obtain because of sample size constraints. It would not be easy to model all species present. Richness is simpler because an outright count of species is easily attainable.

Uncertainties and Bias

Point counts are dependent on the expertise of the surveyors and their ability to detect species visually and audibly which can sometimes lead to inconsistencies between surveyors. Possible errors include inconsistent data collection such as distance rounding, possible double-counting, and misidentification by non-expert birders.



Figure 22. Locations of Avian Point Counts at Oceano Dunes SVRA

Shoreline Birds

Shoreline bird surveys cover the entire shoreline from the northern Pismo State Beach boundary to the southern Oceano Dunes SVRA boundary (i.e., 14.7 kilometers or 9.13 miles) (Figure 23). Because of experimental design principles, two treatment areas and three control areas were selected based on vehicle use. PSB (Northern Boundary to Grand Ave) is included in the survey as part of the control area. Each survey segment within the treatment and control areas is 745.5 meters long. This allowed staff to standardize shoreline lengths for better statistical results, including multiple replicates per treatment.

Methods

- Three winter surveys (January)
- Three spring surveys (April 15-May 7)
- Three fall migration surveys (October 15-October 31)

Each of the three monitoring surveys (i.e., winter, spring, and fall migration) take place within a single week (i.e., day 1, 3, 5) during a low tide (i.e., between 0.0 and 2-meters). Surveys are standardized for tide and not the time of day, even though time of day could influence bird densities based on visitor use. If staff members are available, two surveys can also be conducted during the high tide to see if there are different distributions and abundances of birds on the shoreline during high tide. High tide surveys are done within the same week, but on alternate days, as the low tide surveys (i.e., day 2, 4, or 6).

The travel route direction is alternated each time a new survey is conducted. Surveys include at least two people (one person will be the driver and recorder and the second person will be the observer). Weather conditions (i.e., temperature, wind speed, cloud cover) are recorded at the beginning of each survey using a Kestrel Weather Meter. Surveys are not conducted in weather with winds >24 miles per hour (mph), heavy fog (i.e., <200 m visibility), or steady rain. The recorder writes the start time for each segment and records the width of the segment in meters on a datasheet. The width goes from the wrack line to the water line. All surveys are conducted by driving a constant speed of 5-7 mph as close to the high tide line as feasible. The observer counts and identifies all birds within each transect. For a bird to be considered “within” the survey area, it needs to be standing or foraging (rather than flying) and within the defined survey area for at least part of the time it takes to do the survey. The bird’s behavior is also recorded (i.e., F=foraging, L=loafing, R=roosting, and O=other).

Baseline

When considering trends in yearly abundance of individual species, we will compare average change in abundance relative to the previous year within a given treatment type (e.g., areas open to OHV users and areas closed to OHV users). Because there are few systematically collected, continent-wide shorebird datasets, it is difficult to compare regional trends in abundance (which could serve as a useful baseline) to trends within the park. In lieu of that, we will consider yearly abundance trends that contain 95% CI that overlap zero to have no significant change from the baseline trend. For example, if yearly abundance trend is 1.2% with a lower CI of -2.3 % and upper CI of 5.3 % then we would consider that species to have no significant change from baseline. However, if yearly abundance trend is 5.2% with a CI of 2.5 % to 7.8% (both positive) then this would be considered a significantly positive trend. If a significant change in management occurs within the park (e.g., closure of a unit previously open to OHV riding) then abundance trends could be compared between eras (i.e., trend in OHV use era vs. non-OHV use era).

IBP Recommendations for Analysis (IBP 2023)

Shoreline bird surveys provide the number and type of species utilizing the Oceano Dunes SVRA and PSB shoreline during the year. Continuing the current bird monitoring established at the park is important for ensuring continuity with historical monitoring data and tracking trends in bird species. An effective use of shoreline bird surveys is to assess the effect of vehicular traffic on shorebirds and their habitat. This can help determine how land use in different transects (e.g., OHV vs. non-riding within portions of PSB) affects the abundance and species richness of shorebirds. With the width of each segment recorded and the length of each segment standardized, an estimate of total survey area can be calculated which then allows for a measurement of bird densities in each segment (i.e., species/area and count/area). Inevitably, some birds will be missed during surveys, so these densities should be considered imperfect measures.

Trends in species abundance and distribution will be modeled using generalized linear models either with frequentist or Bayesian methods using the R programming language similar to Warnock et al. (2021). Recalculating annual abundance trends in areas open and closed to OHV use every four years should be sufficient to detect changes in abundance with respect to management type. Note: four years matches terrestrial bird analysis and makes sense to have this analysis before the five-year WHPP updates.

Uncertainties and Bias

Shoreline bird surveys are dependent on the expertise of the surveyors and their ability to detect species visually which can sometimes lead to inconsistencies between surveyors. Possible errors include inconsistent data collection such as double-counting and misidentification by non-expert birders. Because many bird species that use the park shoreline are migratory, factors outside of the park boundaries may influence the yearly changes in bird abundance independent of any influence of activities within the park. As with other abundance-based surveys, presence and abundance of birds does not necessarily correspond with a species survival rate, reproductive success, or measures of body condition. For example, birds may be abundant in a region but need to expend large amounts of energy to avoid hazards and thereby lower their body condition but continue to use a region because of abundant food resources. In this example, birds may appear to maintain their abundance in a given region but in fact the area is an ecological sink (i.e., a region that is selected for but is actually detrimental overall).

Shoreline Bird Survey

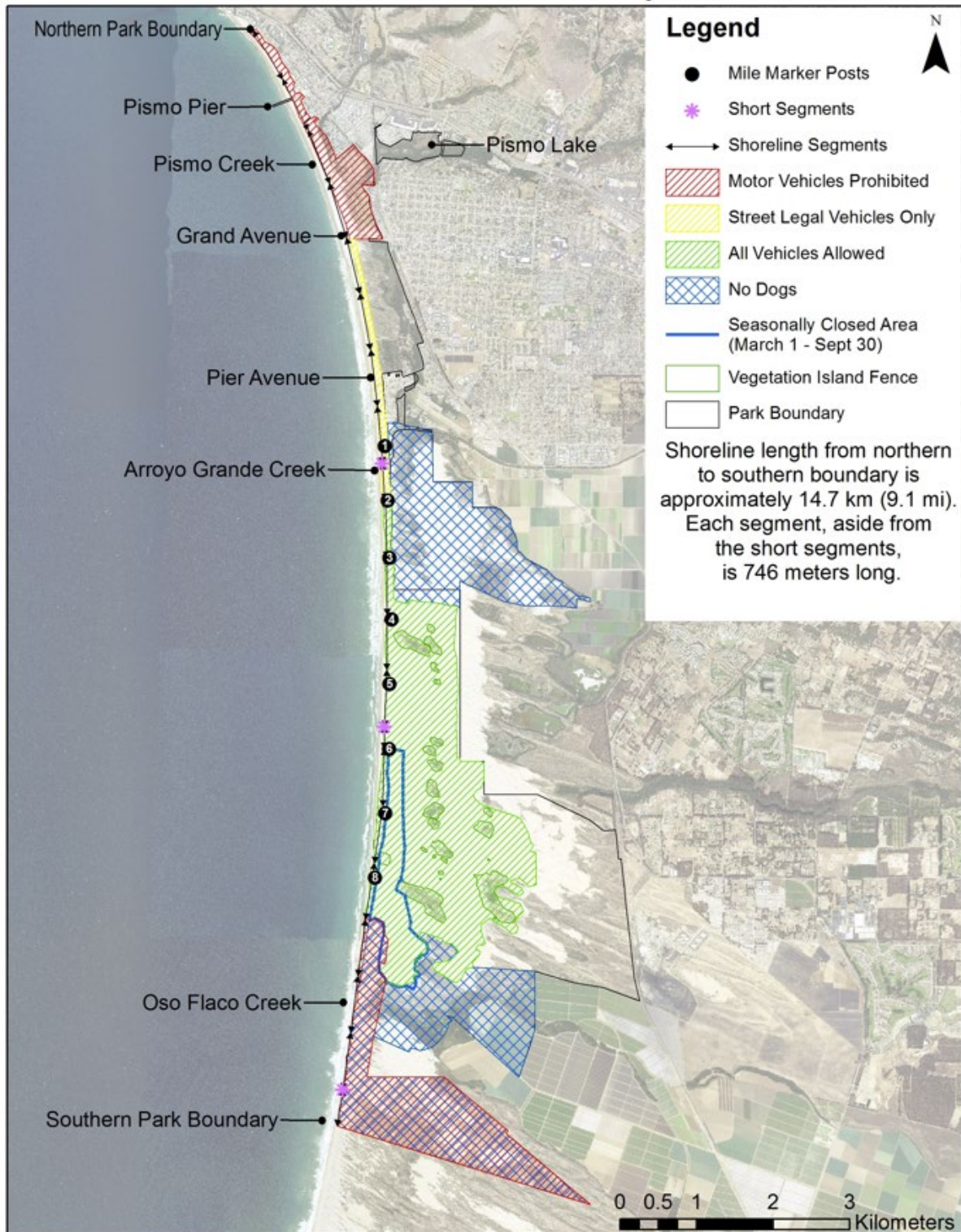


Figure 23. Shoreline Bird Survey Segments at Oceano Dunes District

Small Mammals

Previous small mammal work demonstrated that there is significant workload reduction when monitoring small mammals through baited camera traps while using machine learning (ML) models to process the images as compared to mark-recapture monitoring using live traps (Hopkins et al., 2024). A ML model was created by a graduate student at Cal Poly and has been trained on the seven small mammal species of management interest. In addition, the recent work (Hopkins et al., 2024) found that cameras provide far superior detection of rodents. With this high detection probability achieved through cameras, data analysis can be streamlined, thus providing management with a more sustainable monitoring method. Specifically, occupancy models (MacKenzie et al., 2002) that require in-depth knowledge of model analysis and model selection and are run in the programming language R are not required under the streamlined approach. Instead, Hopkins et al. (2024) found that naive estimates (MacKenzie et al., 2002) provide almost identical results (1% difference) and do not require knowledge or use of coding software for statistical selection of occupancy models or their estimators. With this methodology, calculations of species occurrence can be obtained using skills already possessed by District personnel. Therefore, by using cameras with ML image processing, versus live traps, monitoring of small mammals can be continued by analyzing small mammal occurrence data across the habitats in the District.

Cal Poly Scope of Work for 2023-2024

1. Conduct camera trapping across six sample areas to monitor small mammal occurrence. The plots will be spread throughout the District and encompass two plots for each of the three plot types to obtain representative samples: islands with no OHV riding (I-NOHV), islands in the ORA surrounded by OHV riding (I-OHV), and contiguous (non-island) habitat with no OHV riding (NI-NOHV).
2. Obtain baseline (2023-2024) naive occupancy estimates for small mammal species across the six representative plots for comparisons over time.
3. Cal Poly will train District staff on camera trapping protocol and data collection methods so monitoring can continue independently of Cal Poly following completion of the 2023-2024 grant.
4. Cal Poly will train staff on image processing through the ML model so processing can continue independently following completion of the 2023-2024 grant.
5. Cal Poly will train staff on naive occupancy analysis so analyses can continue independently following completion of the 2023-2024 grant.

Methods

To provide equal representation of the District's habitat types, sample areas will be selected to include two I-NOHV areas (both in Dunes Preserve), two I-OHV areas (Pavilion Hill, Pipeline Reveg), and two NI-NOHV areas (Phillips 66, Maidenform). Each of these areas will receive eight baited camera stations. In order to be representative of the two predominant plant alliances in the District (willow/wax myrtle and lupine/mock heather), for each sample area, half of the camera stations (4) will be placed in the willow/wax myrtle alliance and half (4) will be placed in lupine/mock heather alliance.

Camera trapping will occur in fall and continue yearly following completion of the collaborative work with Cal Poly San Luis Obispo. Each camera deployment will occur for a three-night session. Given the equipment requirements, two areas will be sampled at a time, for a total of three consecutive weeks of sampling.

Cameras will be deployed at each station in the evening, as close to sunset as possible, to reduce bait consumption by non-target species. Cameras will be mounted on a fixed metal post station marker, facing horizontally to the ground. Each post will contain a fixed PVC pipe below the camera, where the bait is inserted and dispensed via gravity. The PVC pipe will be filled with rolled oats upon each camera deployment. Following three nights of deployment, cameras will be retrieved and brought in for image processing.

Image processing will involve utilizing the ML model. The model will intake field data, including area sampled, station number, camera number, and SD card number, and create station directories for image upload and processing. Images will then be manually uploaded into station folders from the camera SD card. Following upload, the ML model will be used to process all of the camera images and identify the species within. The identification for each image will be available should it be necessary to confirm correct identification. The result of the model processing will be a detection history for each species. The detection history will contain '0's and '1's for each of the three nights and each station, representing non-detection (0) or detection (1) per night and station. If a species is detected rarely, the model may require confirmation of detection, and this will need to be done manually by personnel.

Once detection histories are obtained from the ML model, the District will estimate naive occupancy for each species using data from all six areas. These results will provide a baseline occupancy rate for each species so future estimates can be compared to detect changes in species occurrence.

Baseline

As data collection continues and five years of species occurrence is available, a regression analysis will be done to determine if there are significant changes in species occurrence across the District. The regression analysis will be done for each species and analyze occurrence to determine if species occurrence is staying consistent, increasing, or decreasing. If the regression analysis demonstrates a significant change in species occurrence over time ($p\text{-value} < 0.05$), the slope of the regression will demonstrate if occurrence is increasing (positive slope) or decreasing (negative slope).

Should a species occurrence be demonstrated to be significantly changing, additional regression analyses can be done for better insight. Using inference on the species ecology and management actions, additional regression analyses can be done by partitioning the data to determine if the changes in occurrence are specific to a vegetation alliance (willow/wax myrtle versus lupine/mock heather) or area (I-OHV, I-NOHV, NI-NOHV).

Uncertainties and Bias

The advantage of using cameras and naive occupancy is the simplicity and reduction in effort. The disadvantage is that only more complex analyses of occupancy allow an assessment of the influence of detection probabilities and sample sizes on the inference. Naive occupancy calculations do not account for imperfect detection and possible sources of detection heterogeneity. However, Hopkins et al. (2024) demonstrated that detection of rodents through baited camera stations is so high, correction through more complex modeling is not necessary with estimates of naive and corrected for occupancy having a 1% difference. Using naive occupancy will still require different methodology to test significant changes in occurrence and the available methodology (regression analysis) requires a longer time period of data before changes can be detected. A general rule of thumb with regression analyses is to have a minimum of ten data points, in this case that would be ten years of data collection. With ten years of data, significant changes in occurrence will be better detectable. However, the analysis can be performed with less data (5 years) with the understanding that significant differences in occurrence over time will be harder to detect.

The ML model used to process the camera images has a mean average precision of ~95%. Therefore, for all positive detections where the number of positive identifications over the total number of station images is less than the error percentage of the ML model, the identification will need to be manually confirmed. With manual confirmation of positive identifications, the error of the model is accounted for. The manual

confirmation of images will be dependent on the expertise of the surveyor and their ability to correctly identify and distinguish between species in images.

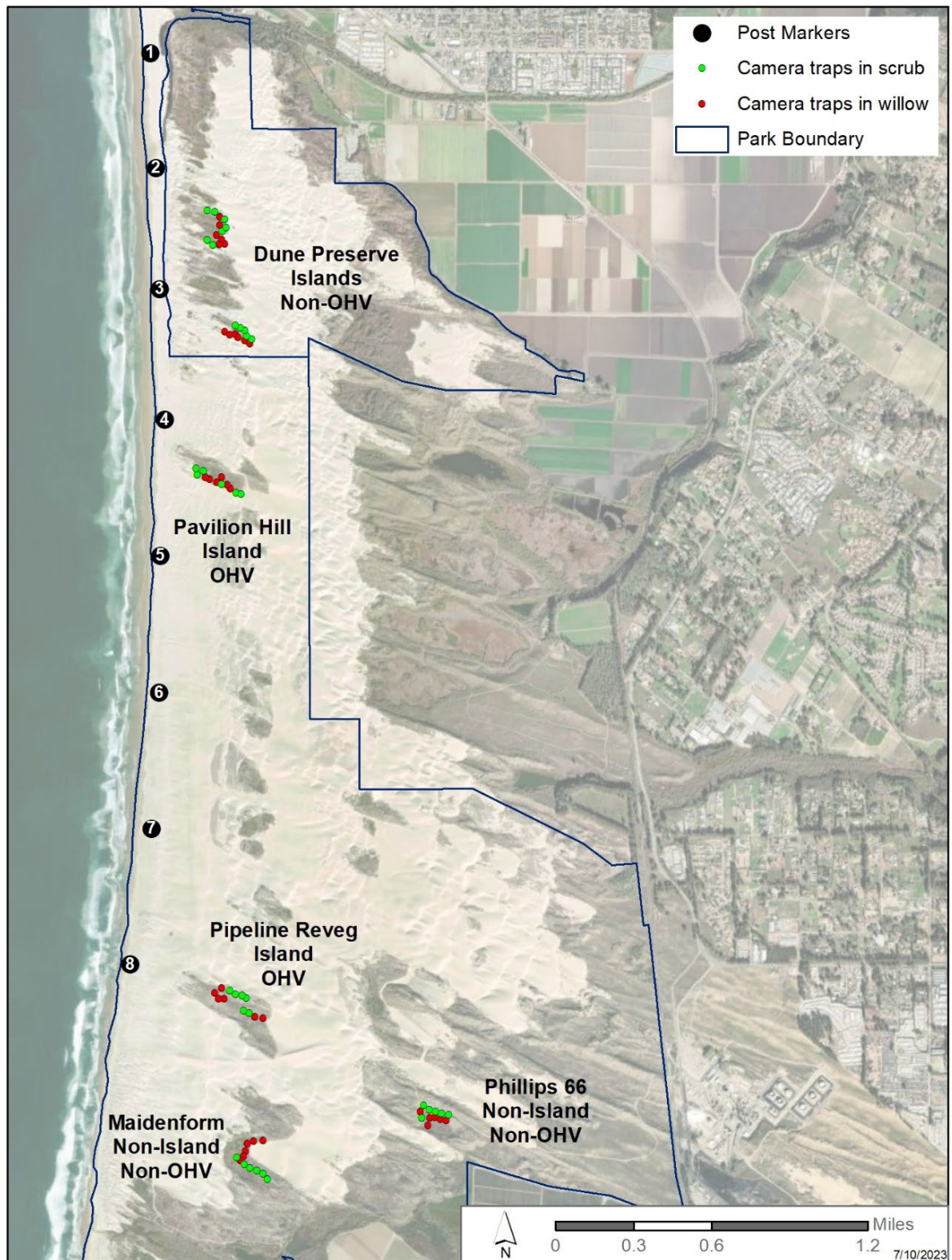


Figure 24. Small Mammal Camera Trap Plots at ODD

Bats

Methods

Acoustic monitoring of bats will be performed at Oceano Dunes SVRA once every 3-5 years or as time and staff allow. Monitoring methods will be consistent with the methods described in the 2017 Report: Acoustic Bat Surveys at the Oceano Dunes State Vehicular Recreation Area (Wildlife Project 2017). Passive acoustic bat detectors will be deployed in at least the four locations surveyed in 2017 associated with potential drinking sites for bats: Pismo Lagoon, Oceano Lagoon, Oso Flaco Lake, and Little Oso Flaco Lake. Wildlife Acoustics SM4 acoustic bat detectors will be placed with microphones mounted on PVC poles that support a microphone 3 meters or more above the water's surface. Each acoustic detector unit will be set to collect data beginning at one hour before sunset and continue until 1 hour after sunrise. Recordings will be made continuously for at least a two-week period for each survey effort. Acoustic surveys should be conducted in at least two seasons each year (e.g., summer and winter), if staff time and other resources allow.

Data will be analyzed using Kaleidoscope 4.0.1 software (Wildlife Acoustics). Acoustic signatures that are not identifiable, are ambiguous, or which overlap significantly with another species will be discarded.

Table 14. Results of acoustic detections at four sites in the Oceano Dunes SVRA and adjacent District lands in summer 2017. Bold type indicates species detected; all others include potential bats species in California that may be detected during surveys (Wildlife Project 2017).

Species	Status	Pismo Lake	Visitor Center Lagoon	Oso Flaco Lake	Little Oso Flaco Lake
Pallid Bat	CSC	~	DETECTED	~	~
Townsend's Big-eared Bat	CSC	~	DETECTED	~	~
Spotted Bat	CSC	~	~	~	~
Western Yellow Bat	CSC	~	~	~	~
Western Red Bat	CSC	~	DETECTED	~	~
Hoary Bat	None	DETECTED	DETECTED	~	DETECTED
Silver-haired Bat	None	~	~	~	~
Big-brown Bat	None	DETECTED	DETECTED	~	DETECTED
Arizona Bat	CSC	~	~	~	~
California Bat	None	~	~	~	~
Western Small-footed Bat	None	~	~	~	~
Cave Bat	CSC	~	~	~	~
Long-eared Bat	None	~	~	~	~
Little Brown Bat	None	~	~	~	~
Fringed Bat	None	~	~	~	~
Long-legged Bat	None	~	~	~	~
Yuma Bat	None	DETECTED	DETECTED	DETECTED	DETECTED
Canyon Bat	None	DETECTED	DETECTED	~	~
Pocketed Free-tailed Bat	CSC	~	~	~	~
Mexican Free-tailed Bat		DETECTED	DETECTED	DETECTED	DETECTED
Western Mastiff Bat	CSC	~	~	~	~

Species	Status	Pismo Lake	Visitor Center Lagoon	Oso Flaco Lake	Little Oso Flaco Lake
Mexican Long-tongued Bat	CSC	~	~	~	~
Lesser Long-nosed Bat	FE	~	~	~	~
California Leaf-nosed Bat	CSC	~	~	~	~
GPS Location (10S)	n/a	716110 E; 3890313 N	716356 E; 3887450 N	717033 E; 3879039 N	717779 E; 3879245 N

APPENDIX 5: NESTING SEASON MANAGEMENT PLAN

The Nesting Season Management Plan is updated annually in collaboration with CDFW.

**2024 NESTING SEASON MANAGEMENT PLAN
TO AVOID TAKE OF CALIFORNIA LEAST TERN AND
WESTERN SNOWY PLOVER AT THE
OCEANO DUNES STATE VEHICULAR RECREATION AREA**

FEBRUARY 2024

**Prepared for
California Department of Fish and Wildlife
United States Fish and Wildlife Service**

**Prepared by
California Department of Parks and Recreation
Oceano Dunes District**

TABLE OF CONTENTS

INTRODUCTION	1
BACKGROUND AND PURPOSE	1
ADAPTIVE MANAGEMENT	2
ROLE OF OTHER DEPARTMENTS AND AGENCIES	2
SITE PROTECTED AREAS.....	4
MONITORING.....	8
GENERAL BREEDING SEASON MONITORING METHODS	8
RARE PLANT MONITORING ACTIVITIES	9
MONITORING OF SNPL WINTER FLOCKS	10
MANAGEMENT ACTIONS.....	11
OPEN RIDING AREA NEST BUFFER FENCING	11
OTHER NEST EXCLOSURES AND FENCING.....	12
NESTS FOUND IN REVEGETATION AREAS	13
MANAGEMENT ACTIONS SPECIFIC TO CLTE	14
PUBLIC INFORMATION AND INTERPRETATION	15
MAINTENANCE ACTIVITIES	16
RULES, REGULATIONS, AND ENFORCEMENT	17
PROHIBITED RECREATIONAL ACTIVITIES.....	17
ENFORCEMENT ACTIVITIES	17

List of Figures

Figure 1. Oceano Dunes District site map.	6
Figure 2. Map of District Fore dune closure, Southern Exclosure, and Oso Flaco protected areas.....	7

Attachments

Attachment A: Relevant Sections of Habitat Conservation Plan - Installation and Maintenance of Protection Fencing and Avoidance and Minimization Measures
Attachment B: Recommendation section from Oceano Dunes State Vehicular Area (ODSVRA) 2023 nesting season annual report (November 2023)
Attachment C: Protocol for SNPL Broods located in open riding areas of Oceano Dunes District
Attachment D: Mechanical Trash Removal Handbook

INTRODUCTION

Background and Purpose

On 21 March 2001 the California Department of Parks and Recreation (DPR), Oceano Dunes District (District) incidental take exemption pursuant to Section 7 of the Endangered Species Act expired. The incidental take exemption from the U.S. Fish and Wildlife Service's biological opinion with the U.S. Army Corps of Engineers (ACOE) lapsed. The ACOE determined that the activity being conducted at the District was no longer under ACOE jurisdiction. Therefore the District lost the federal nexus needed to continue take exemptions under a Section 7 consultation.

The biological opinion exempted incidental take of 2 federally listed species: the California least tern (*Sternula antillarum browni*) (CLTE) and the western snowy plover (*Anarhynchus nivosus nivosus*) (SNPL). Both birds have documented nesting and foraging habitat at the District. The biological opinion (dated 25 January 1996) provides a list of rules governing the recreational activities at the District; program elements of a CLTE and SNPL monitoring program; reasonable and prudent measures necessary and appropriate to minimize incidental take; and additional terms and conditions to implement the reasonable and prudent measures.

The District has been diligently implementing the terms and conditions of the biological opinion since its issuance. As anticipated by the biological opinion, some incidental take of CLTE and SNPL has taken place. However, measures undertaken at the District have resulted in the overall protection of the CLTE and SNPL populations within park boundaries, resulting in an increase in the breeding populations over time at the District, which has contributed to the recovery of both species.

The absence of ACOE jurisdiction has left the District without take authorization. The District/DPR has met with the U.S. Fish and Wildlife Service (USFWS) to address the situation and to determine the best course of action to resolve conflicts between listed species and ongoing vehicular recreation activities. In consultation with USFWS, the District/DPR released a Draft Habitat Conservation Plan (HCP) in November 2020 and is currently revising the document (see Attachment A for specific sections relating to CLTE and SNPL management).

The District/DPR also meets with California Department of Fish and Wildlife (CDFW) quarterly to fulfill the guidelines listed in the Biodiversity Management Plan (BMP), dated 13 January 2021. The plan recommends the completion of a state Natural Communities Conservation Plan (NCCP) within 5 years to ensure consistency with the California Endangered Species Act. At present DPR believes that it can continue to operate the off-highway vehicle use area Oceano Dunes State Vehicular Recreation Area (SVRA) and provide protection (attempting no take) of the listed species through the implementation of various protections, monitoring, and management measures as described in the sections below.

Until the District has an approved HCP and NCCP, operations continue under a "no-take" scenario, and District staff have been working closely with the USFWS and the CDFW to develop a yearly nesting season plan for CLTE and SNPL. District staff meets with USFWS and CDFW prior to the start of each nesting season to map out distinctive measures for this nesting season plan.

Specific protection measures and prescribed management protocols for implementation by DPR as contained within USFWS biological opinion (1-8-95- F/C-17) prepared under Section 7 consultation with the ACOE for the issuance of Regional General Permit No. 42 (Corps of Engineers File No. 95-50035-TAW), dated 25 January 1996; USFWS permit No. ES815214; California Department of Fish and Wildlife letter concerning DPR management protocols for the avoidance of take of CLTE within the District, dated

8 May 2001, and additional measures added in 2002, 2003, 2006, and 2016 are incorporated by reference and are components of this plan; and California Department of Fish and Wildlife in cooperation with DPR “Oceano Dunes Biodiversity Management Plan”, dated 13 January 2021 (BMP). The following detail describes modifications, changes, or additions to the management protocols contained in the above referenced documents.

Additional measures listed are derived from the District monitoring of the prior nesting season. These measures are listed as recommendations in the annual DPR report written in consultation with Point Blue Conservation Science (Point Blue) (see Appendix B). The District/DPR oversees the CLTE and SNPL program using data collected by staff and consultants. Through these consultations and data collection, the District reviews all recommendations and implements what is reasonable and sound given all issues. The District continues to implement management actions that will ensure the highest extent of protection to both the CLTE and SNPL, and these actions overtime have resulted in breeding success and population growth of both species. The District is responsible for the management of these 2 species within its boundaries. All measures will be operational and in place by 1 March 2024, unless otherwise noted or discussed with appropriate wildlife agencies. A subset of these measures will also be used after the nesting season to assure that SNPL are afforded protection during the winter (see section titled “Monitoring of SNPL Winter Flocks” within this document).

Adaptive Management

The management measures and protocols contained in this proposal represent the best management practices at this time. However, adaptive management practices may be employed in the protection efforts for CLTE and SNPL during the course of the 2024 nesting season. Adaptive management will be used to provide management flexibility to best afford protection for these species. Program adaptations causing initiation of changes of these proposed management actions could result from the following:

- Observations and data collected by District management and monitoring staff that may indicate CLTE or SNPL protocols proposed herein as ineffective.
- USFWS or CDFW may indicate more recent findings on species management.
- Recognition and response to currently unforeseen threats to the species, or other factors.

Role of Other Departments and Agencies

District agreement with United States Fish and Wildlife Service and California Department of Fish and Wildlife:

- USFWS staff is available to provide quick and timely responses to informational requests by DPR/District on aspects of the plan that need immediate action.
- During the course of the 2024 nesting season, the USFWS or CDFW may recommend protocol alterations or modifications for the management and protection of CLTE and SNPL. DPR agrees to consult with USFWS and CDFW to coordinate and gain concurrence on any new management protocol changes that may affect CLTE and SNPL.
- USFWS has agreed to consult with CDFW on any modifications suggested or required by CDFW.

During the nesting season, the District will be in communication with USFWS and/or CDFW if there is an occurrence of CLTE and SNPL injury, mortality, or hazing events as described below. If the event is potentially related to vehicle impacts, DPR will consult with CDFW to determine if buffer sizes in place during the nesting season need to be adjusted, with a decision made within 48 hours of the notification.

- Injury or mortality, including all life stages of SNPL found outside buffer areas, adults or juveniles with wing injuries found inside fenced areas, mortality of adults or juveniles found near fencing, and other SNPL injuries or mortalities determined by District staff to possibly be related to recreational or management operations will be reported to USFWS and CDFW in email by the next business day. Does not include predation events.
- Hazing and disturbance events occurring outside buffer areas for all life stages of SNPL will be reported to CDFW by the next business day, with an email report sent to USFWS.
- SNPL chicks found in vehicle riding areas and outside buffer areas or protected shoreline areas (open riding area) will be reported to CDFW by the next business day, with an email report sent to USFWS.
- CLTE injury or mortality for all life stages will be reported to CDFW within 30 minutes by phone, with details of the event sent in email to both CDFW and USFWS by the next business day. Does not include predation events.
- Injury or mortality of CLTE and SNPL due to predation events will be reported in the breeding season annual summary document.

During the non-nesting season (October through February), the District will be in communication with USFWS and CDFW by the next business day for SNPL injuries or mortalities found in the area open to recreational vehicles when cause of injury or mortality is possibly related to vehicle impacts. A detailed report of the incident will be emailed to both agencies within 3 working days.

During the 2024 breeding season, DPR will continue working with CDFW to follow agreed upon guidelines outlined in the BMP:

- Provide site-specific data and information on nesting success, bird mortality and bird disturbance by vehicles relative to recent and current management practices.
- Study the experimental placement of SNPL nesting exclosures of varying sizes in the open riding area. Historical data was provided to CDFW in a detailed story map which analyzed SNPL nest buffer sizes to demonstrate buffers less than 150 meters have high hatch and fledgling success. In 2022-23, District began adding to this long-term data set by working with CDFW and scientific consultants to experimentally place protective fencing at varying distances from SNPL nests as a buffer from the riding and camping area and this effort will continue in 2024. Buffer distances for this experiment will be no smaller than 100 feet (30.5 meters) and no greater than 492 feet (150 meters).
- Design a study to analyze the impacts of night riding on SNPL. The study will be jointly prepared by DPR and CDFW and the District will also consult with outside peers during the study design process. Included in the design will be a control with night riding prohibited along the shoreline and foredunes south of marker post 4.5 during at least half of the study period, with exceptions for emergency vehicle access necessary for health and safety purposes. The study may be conducted over more than one year, if necessary to meet the goals of the study. The District intends to continue to plan and develop the study during the 2024 season (pending budgetary and

contracting restrictions), with the goal of beginning the study as soon as the 2024 nesting season, but no later than the beginning of the 2025 nesting season.

- The District intends to continue to plan and develop the study during the 2024 season (pending budgetary and contracting restrictions). With the goal of beginning the study as soon as the 2024 nesting season, but no later than the beginning of the 2025 nesting season.
- Continue to communicate and work with the CDFW raptor program to only selectively relocate raptors posing a significant threat to CLTE and SNPL.

Site Protected Areas

The following exclosures and symbolically fenced areas will be in place, or installed as nests are initiated within these areas, and District staff will monitor, adjust, and repair fencing as necessary throughout the 2024 CLTE and SNPL nesting season (see maps in Figure 1 and 2).

Arroyo Grande creek / Post 1.5 area

Arroyo Grande creek and lagoon is symbolically fenced during the nesting season using posts, rope, and signs. If a SNPL nest is found in this area, buffer fencing will be constructed around the nest and provide a minimum of 100 feet between the nest and the area open to the public. There have been no nests found in this area since 2017. The rope is removed 1 October, but some posts and signs remain to prohibit vehicles driving into the upper Arroyo Grande Creek lagoon year-round.

Foredune closure shoreline

The Foredune closure is a restoration area within the open riding area that was closed with fencing in January 2020 to improve air quality conditions. There are 3 plots making up the Foredune closure, totaling 48 acres, approximately a quarter mile south of Post 4 to north of Post 6 (approximately 0.8 miles of shoreline). Although the plots were not originally closed for SNPL management, there is suitable nesting habitat in these early years of restoration, and SNPL nests have been found in all 3 plots each year from 2020-23. The fence surrounding each plot is intended to keep people and vehicles out of the restoration area, but the fence is not maintained as predator fencing and coyotes can easily move through the area. District staff working inside or nearby these plots on foot during the nesting season will coordinate with nest monitors to minimize disturbance to SNPL. The adjoining shoreline west of the area is closed to public use for the breeding season (1 March to 30 September) to protect SNPL broods. Rope fencing with posts and signs extend into the intertidal area to designate the closed shoreline and wire fencing closes off the western portion of the alleyways between the plots.

Southern Exclosure

Beginning October 2021, approximately 300 acres within the southern portion of the riding area has been closed to the public year-round. Prior to this, the Southern Exclosure was installed seasonally, with the fencing removed during the non-nesting season from 1 October to 29 February. For the 2024 nesting season, the Southern Exclosure will remain closed for the nesting season, and may be opened 1 October to once again be closed seasonally during the nesting season, depending on the outcome of litigation. As was done in prior nesting seasons to discourage coyotes from entering the exclosure, fencing will include 2-inch by 4-inch no-climb wire fencing buried 6-8 inches, a second layer of wire fencing to extend the height to 6 feet, and signage to form a single contiguous fenced area. In addition, 4-inch diameter, tall, steel posts were experimentally installed prior to the 2023 nesting season to better support the eastern fencing for year-round use. The taller fence is being monitored and evaluated for effectiveness while additional fencing options are being explored.

The integrity of the fence requires regular maintenance and upkeep using heavy equipment and manual labor, especially after high wind events moving sand around the fence. Jute netting, attached to the bottom of the fence at ground level and buried by sand, was tested in multiple locations of the enclosure fencing in 2022-23 and found to be effective to stabilize sand immediately adjacent to the fence, with the netting remaining completely buried for the nesting season. The jute netting will continue to be used on the enclosure fence in 2024 and inspected throughout the season to ensure the netting remains sufficiently covered by sand.

The adjoining shoreline is also part of the Southern Enclosure and is symbolically fenced using large posts, rope, and signs to deny public access year-round. During winter months outside the nesting season (October through February), the west fencing is removed to avoid being destroyed during storm-driven surf, but the shoreline area remains closed to the public year-round.

Oso Flaco Lake Natural Area (Oso Flaco): Approximately 1.7 miles of shoreline, narrow in width, and dunes that are typically heavily vegetated, relative to the riding area. Oso Flaco is divided into 2 areas:

North Oso Flaco: The approximately 68 acres and 0.5-mile stretch of shoreline area north of the Oso Flaco boardwalk and south of the Southern Enclosure. Foredunes are closed by 2-inch by 4-inch no-climb wire fence buried 6-8 inches and a second layer of wire fencing to extend height to 6 feet, and is connected to the Southern Enclosure. The adjacent shoreline is closed to the public using symbolic fencing with large posts, rope, and signs. North Oso Flaco has been closed to the public year-round since March 2022, including the shoreline component. For the 2024 nesting season, North Oso Flaco will remain closed for the nesting season, and may be opened to the public 1 October, depending on the outcome of litigation.

South Oso Flaco: The upper beach for the area south of the boardwalk to the southern boundary (1.2 miles) is closed with symbolic rope, posts, and signs during the nesting season. The symbolic fencing is installed at the beach end of the Oso Flaco boardwalk trail to direct visitors away from potential nesting areas. This fencing is removed at the end of the nesting season, on or close to 1 October, and the foredune areas are open to the public during the non-nesting season.

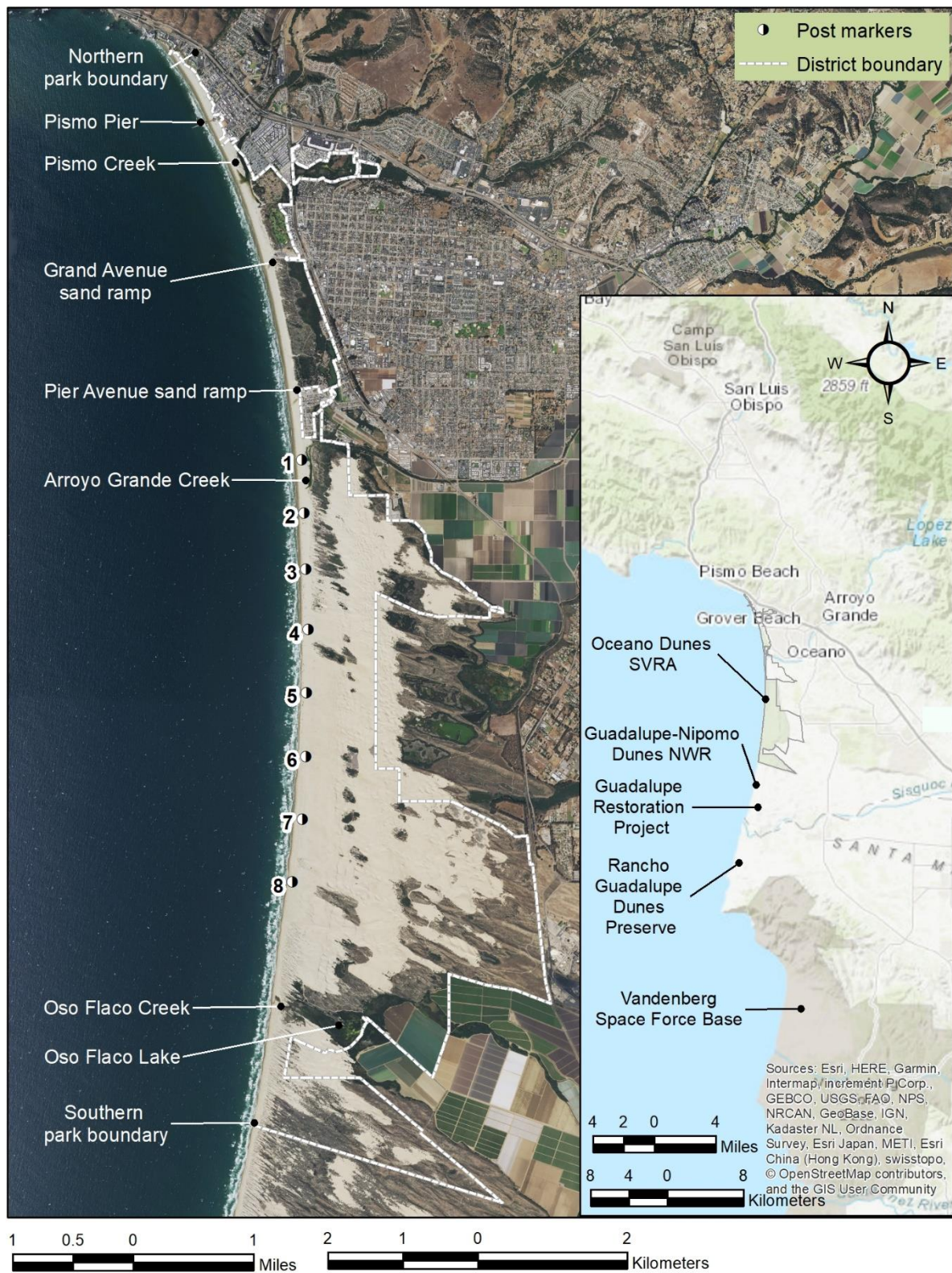


Figure 1. Oceano Dunes District site map.



Figure 2. Map of District Fore dune closure, Southern Exclosure, and Oso Flaco protected areas.

MONITORING

Daily monitoring occurs from 1 March to 30 September to collect and record breeding season data. The District maintains 4 to 8 monitors during morning and early afternoon hours. As the season progresses, monitoring increases to include the late afternoon and early evening hours. Monitoring involves walking to assess or find new nests as well as scanning for nests and broods from parked vehicles (a proven and effective blind). Monitoring occurs in a manner to minimize disturbance or adverse effects to adult birds, nests, and chicks. Nest cameras placed on a small number of nests provide additional monitoring information.

General Breeding Season Monitoring Methods

District monitoring includes the following methods and procedures to protect CLTE and SNPL:

- Monitoring will take place daily during the nesting season, with staff in the field early in the morning (just after daylight), and for a minimum of 8 hours per day when nests and chicks are present, to enable a better identification of potential human use related threats to CLTE and SNPL and to summon law enforcement assistance if needed to prevent or eliminate any human use related threats to the species.
- If entering an area with nesting plovers or terns, monitors will be those individuals approved by USFWS for this function.
- During anticipated high visitor use periods as determined by historic visitor attendance records, e.g., Memorial Day Weekend, Fourth of July Weekend, Labor Day Weekend, additional staff will be scheduled to provide extended hours of monitoring within the Oceano Dunes SVRA.
- During holiday periods, field staff will focus specifically during daylight and evening hours on monitoring the northern boundary of the closed protected shoreline to address any trespass concerns.
- Point Blue has been contracted by DPR to provide a permitted bander for the 2024 nesting season. The Point Blue bander(s) will be responsible for the banding of CLTE and SNPL chicks for the full breeding season, and if determined necessary, to band SNPL adults. The Point Blue bander will be in consultation with and under the direction of the Senior Environmental Scientist assigned to the District. In addition, a District staff member has been trained by Point Blue since 2022 and will assist with banding SNPL chicks if state and federal permits for this activity are obtained this season. The banding of newly hatched chicks will follow protocols approved by USFWS and CDFW. The banders will report all banding data and records per guidelines established by USFWS and Point Blue.
- SNPL eggs will be “floated” to help estimate hatch rates when egg progression is unknown. Floating is performed by District and Point Blue staff that are approved by USFWS for this activity. CLTE eggs may be floated, if approved by the CDFW permit office, and will be done by a Point Blue contractor already approved by USFWS for this activity.
- Any breeding activity in the riding area (such as tracks, scrapes, or pairs observed) will be monitored closely. The areas will be marked and rechecked during the day and 1 person will be assigned each morning to recheck any potential breeding areas. All CLTE and SNPL tracks in the riding area will be walked to check for potential nests. Any nest found would be immediately protected with symbolic fencing as described in section below titled “Open Riding Area Nest Buffer Fencing.”

- Monitors will closely track chicks/broods hatched from any area within the riding area (buffer areas or revegetation areas). If determined necessary, staff may carefully direct a SNPL brood to the Southern Exclosure or other appropriate area with a closed shoreline component. Prior to a known nest hatching, monitors will oversee the erection of signs and/or temporary fencing to provide a safe passage until the brood reaches a non-vehicle use area of the SVRA. Fencing may remain in place for a longer period when SNPL broods are frequently seen in the open riding area and will be removed after chicks fledge or are no longer present. Refer to Attachment C for details on protecting SNPL broods in the open riding area and methods to direct SNPL broods to a protected area of the shoreline.
- SNPL chicks observed within a closed protected area, but close to the boundary of riding will be monitored closely until they move a safe distance away. The area outside of the closed protected area will be scanned thoroughly each morning for chicks that may have moved into the area open to riding. If chicks are found and it is appropriate, the brood will be directed back into the exclosure, as described above and in Attachment C.
- The District will continue to participate in the Region 5 working group for SNPL recovery and in the USFWS breeding window surveys.
- Predator management will be implemented in the 2024 nesting season as in previous seasons to address predation issues at the District. Predator management personnel have been contracted for the duration of the 2024 season. The District will continue to work with CDFW raptor program to limit the number of raptor relocations by only selectively relocating raptors posing a significant threat to nesting SNPL and CLTE.
- The District will limit UAV/drone use for restoration monitoring to the periods outside of the nesting season.

Rare Plant Monitoring Activities

Rare plant surveys are performed every 1-3 years in the District. Populations of surf thistle (*Cirsium rhothophilum*) and beach spectaclepod (*Dithyrea maritima*) are known from North and South Oso Flaco within the nesting area. It is not possible to fully map the distribution of these plant species outside the nesting season. Beach spectaclepod in particular is an annual plant that is difficult to identify outside of the flowering period from April – May.

The District proposes the following protocols to allow these surveys to be conducted in the nesting area of Oso Flaco while eliminating or minimizing the potential for take to nesting CLTE and SNPL:

- The plant surveys will be performed by an experienced permitted monitor (listed on the USFWS Recovery Permit for the activity of independently conducting population surveys) or a permitted monitor will accompany the botanist at all times.
- Prior to conducting botanical surveys, the nesting sites in the survey area will be reviewed. No surveys will be conducted within 150 feet of known nest locations until the nest fates are determined (hatch or fail) and the brood and attending adult are known to have left the area. No surveys or walking within sight of nests will occur for nests that are close to hatch or newly hatched.
- Staff will follow existing nest search protocols to identify new nests, breeding behavior, and the presence of adults tending broods.

- If new nests, breeding behavior or adults tending broods are noted in an area, the team will leave the area as soon as possible and not return until the nest fates are determined or breeding/brooding activity is no longer detected in the area.
- Botanical surveys will take the minimum time necessary, no longer than 15 minutes at each site with a known population, to avoid disturbance to breeding birds in the area.
- Walking surveys of the entire foredune complex in the North and South Oso Flaco areas will take the minimum time necessary to identify new, previously unmapped populations of target species.
- All botanical surveys will be conducted under similar constraints as nest search surveys including during appropriate weather conditions, wind conditions, times when predator activity is not occurring, and other precautions as listed in the Federal Recovery Permit for the District.

Monitoring of SNPL Winter Flocks

Measures to be implemented during the non-nesting season (1 October through 29 February) will consist of:

- Monitoring for location of SNPL weekly within beach areas of the District from the Pismo Pier to the southern boundary.
- Monitoring for location of SNPL daily within the Oceano Dunes SVRA (areas open to vehicular recreation), as staff levels and weather conditions allow.
- Participation in the USFWS winter window survey.
- 15 MPH and other signs placed on A-frame placards near winter plover flocks in the open riding area to advise the public to drive with caution.
- Continued public education programs with enhanced use of brochures, signage, and social media.
- Continued staff education programs.
- Continued enforcement of dog leash laws.
- Continued enforcement of the posted 15 MPH vehicle speed limits on the beach.
- Beach closures may occur in the event that conditions such as tides, storms, or creek flow cause the beach to be unsafe to the public.
- Arroyo Grande Creek is assessed daily during storm, wave, and high tide events and creek crossing by vehicles may close when on-duty State Park Peace Officers (SPPO's) determine it is too dangerous to cross or when water depth at the location where public is likely to cross exceeds 12 inches. CDPR may also close the park to camping if sustained storms or tidal conditions will result in extended creek crossing closures.

MANAGEMENT ACTIONS

The District manages for CLTE and SNPL to optimize breeding success and reduce the potential for take. To reduce visitor disturbance to breeding birds, staff installs fence and posts signage to close areas to visitors. Staff may augment existing habitat with branches, woodchips, and wrack (surf-cast kelp). An active predator management program reduces disturbance and depredation by mammalian and avian predators. Under select circumstances, and in consultation with USFWS and CDFW, District staff may collect abandoned but potentially viable eggs or chicks for captive-rearing and may send carcasses to an approved facility for investigative necropsy.

Open Riding Area Nest Buffer Fencing

Additional buffer fencing will be erected and maintained for CLTE and SNPL nests established in areas open to vehicle use during the nesting season (open riding area). For 2024, buffer fencing for CLTE nests will be a minimum 984 feet (300 meters) between nest and open riding area. As an experiment, as outlined in the BMP and in consultation with CDFW, buffer sizes for SNPL between the nest and the open riding area will vary in size. Buffer distances for this experiment will be no smaller than 100 feet and no greater than 492 feet. Buffer configuration and sizes will take into account the need for safe public and emergency access and sizes adjusted as necessary, and in consultation with CDFW. The fencing will remain in place during the period when nests are active or chicks are found within the buffer area. Once chicks move out of the area or reach fledge age and are flight capable, the fencing will be removed.

General guidelines for open riding area nest buffers

For a nest found in the open riding area, it will be protected with fencing to establish the minimum buffer distances described above and using the following guidelines:

- When the nest is found, it will immediately be protected with symbolic rope fencing and signs and may be slightly smaller than the full buffer, but no smaller than 50 feet. The larger buffer installation will be scheduled as soon as monitoring staff determine it is feasible, depending on the schedule and staff requirements, usually within 1-3 days of the nest being found. Symbolic fencing will be removed once fencing for the larger buffer area is in place.
- Material for buffer area will consist of wire “field” fencing (not predator proof) with t-posts and will not be buried.
- The large size of the CLTE buffer (984 feet) may take more than 1 day to install and the symbolic fence will remain in place until the wire fencing is in place.
- If determined necessary by the Senior Environmental Scientist and/or monitoring staff for predator protection, a circular exclosure or mini-nest exclosure will also be placed around the SNPL nest as described in the “Other Nest Exclosures and Fencing” section below. (These smaller exclosures are not used for CLTE.)
- Nest buffer fencing will be extended westerly to the surf line if evaluation by the Senior Environmental Scientist, monitoring staff, and/or USFWS / CDFW determine it is necessary to provide a secure travel corridor for SNPL brood foraging activity.
- Signs will be placed on the fence to designate a closed nesting area.

Open riding area nests adjacent to closed areas

When individual CLTE or SNPL nests are established within the open riding area, and are located within close proximity to an existing exclosure, the Fore dune closure, buffer area, revegetation area, or other area

closed to recreational vehicle use, buffer fencing will be erected to enlarge the closed area so as to encompass the nest site, if topography allows and determined appropriate by the Senior Environmental Scientist/monitoring staff.

Open riding area nests close to each other

When 2 or more nests in the open riding area are located adjacent to each other and not close enough to be connected to a wire fenced area as described above, they will be encompassed into a new large closed fenced area, if topography allows and determined appropriate by the Senior Environmental Scientist/monitoring staff.

Open riding area nests near restrooms

If a CLTE or SNPL nest is established with a restroom facility within the minimum buffer zone, the following protocols will be implemented:

- Permanent Restroom Buildings will be closed to public use and buffer fencing will surround and isolate the restroom to prevent public use.
- Chemical toilets will be relocated to a minimum distance of 984 feet from nest sites of CLTE and 100 feet from nest sites for SNPL.

Other Nest Enclosures and Fencing

Bumpout

If a CLTE or SNPL nest is initiated inside the Southern Enclosure, Foredune enclosure, or within the closed buffer area, but close to the fence that borders the open riding area, staff will install additional fencing to maintain a perimeter of a minimum distance of 984 feet from the public riding and camping area to CLTE nests and 100 feet from the riding and camping area for nests of SNPL. Nests with these “bumpouts” or buffer enclosure fencing will be monitored regularly. If an incubating bird is observed by monitors to be disturbed by recreational activity, the bumpout will be increased in size as needed. All nests are monitored for disturbance and any nest that is disturbed by regular recreational activity may receive a bumpout. This additional fencing will remain in place during the period when nests are active or chicks are found in this area. Once chicks move out of the area or reach fledgling age, the bumpouts or buffer fencing will be removed.

Circular enclosure

District staff may build an approximate 3.5-foot radius circular enclosure (used since 2012) for SNPL nests in the Southern Enclosure, Oso Flaco, within other buffer fencing, or other areas approved by the Senior Environmental Scientist, as needed for additional predator protection. The enclosure is constructed using 2-inch by 4-inch wire no-climb fence, bottom 8 inches buried, and 1/2-inch by 1/2-inch mesh netting covers the top. Circular enclosures are typically erected at the 2-egg stage of the clutch, or after nest is consistently incubated, to help reduce abandonment threat.

Mini-enclosure

District staff may use a mini-enclosure measuring 3-foot by 3-foot by 3-foot (used since 2010) for SNPL nests in the Southern Enclosure, Oso Flaco, within other buffer fencing, or other areas approved by the Senior Environmental Scientist, as needed for additional predator protection. These are constructed with 2-inch by 4-inch wire non-climb fence (with a top of the same material) and are secured with stakes. When appropriate, they are buried 4 inches deep.

Symbolic fence in South Oso Flaco

District staff install symbolic fencing on 1 March to close off the upper beach and foredunes in South Oso Flaco. If a nest is established outside or within but close to the symbolic fencing boundary, the rope fencing will be moved further west to give the nest a greater buffer area while still providing a walkway for the public.

All of the enclosure sizes are approximate and can be adjusted based on topography, site conditions, operational needs (including the need to maintain a safe travel corridor for emergency response), and the level of threat to the nesting birds. Deviations from the enclosure sizes will be discussed with appropriate wildlife agencies.

Nests Found in Revegetation Areas

Revegetation areas are within the off-highway vehicle use areas and are closed to riding year-round to protect sensitive dune vegetation. These are protected by wire fencing allowing passage of animals but are closed to all public entry. These areas do not have a protected adjacent shoreline and nearby SNPL food resources are limited. If a CLTE or SNPL nest is established in a revegetation area, the following protocols will be implemented:

- Staff will install buffer fencing to maintain a perimeter of a minimum distance of 984 feet from the riding and camping area for nests of CLTE. For SNPL, fencing for such nest buffer areas will be experimentally placed varying distances away from the nest site, in consultation with CDFW, with a minimum buffer distance of 100 feet and no greater than 492 feet.
- A Circular or mini-enclosure may be installed, in addition to the buffer fencing, if deemed necessary by the Senior Environmental Scientist and/or monitoring staff for SNPL protection. (Smaller enclosures are not used for CLTE.)
- District staff entering and working nearby revegetation areas on foot will coordinate with nest monitors and take appropriate steps to minimize disturbance to nests and birds. No surveys or walking within sight of nests will occur for nests that are close to hatch or newly hatched.

Management Actions Specific to CLTE

The District, in consultation with CDFW, are confident the measures mentioned within this nesting season plan, if faithfully implemented at the District, will avoid take of CLTE, a State listed and fully protected species. The District proposes that these same measures will be adequate to assure USFWS that there will be no take of CLTE during the 2024 nesting season.

Orange fencing

The top of the Southern Exclosure fencing is lined with a strip of thicker plastic fencing (orange silt construction fencing cut into approximately 16-inch-wide sections) covering most of the western and northern fenced areas from Post 6 to approximately Post 8. This strip of “orange fencing” has been used on the Southern Exclosure fence since 2016 and is intended to increase the visibility of the exclosure fence for flying CLTE. The condition of the plastic fencing will be assessed each year prior to the nesting season and repaired or replaced as necessary.

Night roost

District staff identify the location of the CLTE night roost by searching for tracks and other signs during daily morning surveys and by monitoring tern activity at dusk as viewing conditions allow. Recreational vehicle activity is allowed at night for registered campers and up to 10 pm for day users. If the night roost is located in the riding area outside the closed buffer area, monitoring staff will install symbolic fencing to obtain a buffer minimum of 330 feet and park staff will avoid driving near the area. Fencing will be added as deemed necessary by the Senior Environmental Scientist or monitors, in consultation with CDFW, and fencing will be removed once the night roost is no longer present.

Buffer Bumpout

For CLTE nests, exclosure fencing will be maintained a minimum of 984 feet from active nesting areas and a large buffer bumpout will be installed east of the Southern Exclosure:

- As nests are initially established (within 7 days of first nest found) in the Southern Exclosure, the buffer bumpout configuration on the east side of the exclosure will be determined by District staff based on these early nest locations to obtain the required buffer distance. The buffer bumpout fencing will be installed as soon as possible, depending on the schedule and staff requirements, usually within 1-3 days of determining the buffer configuration. Fencing will be added as necessary to the Southern Exclosure or other closed areas to maintain this buffer distance. The tern buffer bumpout will be removed once CLTE nests have hatched, SNPL nests within the tern buffer and without other protective fencing have hatched, and CLTE and SNPL chicks have either moved into other protective areas or have reached fledge age.
- The buffer bumpout area will consist of wire “field” fencing (not predator proof) with t-posts and will be left unburied.
- Signs will be installed to prohibit public access within the buffer bumpout.
- If necessary, as determined by the Senior Environmental Scientist and/or monitoring staff, vehicle paths in the riding area between revegetation areas and adjacent to the large bumpout may be closed to public vehicular use.
- District monitoring staff may enter the buffer bumpout by vehicle to monitor CLTE and SNPL nests and broods within the Southern Exclosure. The area will be scanned thoroughly each morning and prior to driving through the area.
- District staff may also enter these areas for park maintenance activities, emergency response, or other necessary park surveys. Unless it is an emergency, staff will coordinate with monitors prior

to entering for updates on most recent nest activity in or near these areas. Appropriate steps will be taken to minimize disturbance to nests and avoid moving birds out of this area and into areas where they may be vulnerable to park activities.

Additional management and protections specific to CLTE chick or juveniles

- In the event that CLTE chicks are observed traveling outside a closed buffer area, small mesh fencing or silt fencing may be used to reduce CLTE travel outside the closed area. Buffer size may be altered based on operational need, public safety considerations, and to maintain adequate travel corridors within the open riding area. DPR will consult with CDFW for agreement and approval if the appropriate setback distances cannot be achieved as a result of operational needs.
- CLTE chicks within the Southern Exclosure or a closed buffer area will be monitored closely, and fencing may be adjusted, if chicks are found within 150 feet of the fence that borders public recreational activity areas. If chick movement is a result of monitoring activity (such as walking inside the exclosure to band), the chicks will be monitored until they are a safe distance from the fence and the chicks are no longer subject to disturbance.
- Banding of CLTE chicks will continue at the District for 2024. Permitted banders from Point Blue have been contracted to perform this duty.
- Driftwood has been placed throughout the Southern Exclosure in past years to serve as natural shelter for CLTE chicks and, as necessary, additional driftwood may be placed on the shoreline in 2024.
- In recent years, Oso Flaco Lake has rarely been used by CLTE for foraging and the footbridge hand railing has not been used since 2018 for perching fledglings and adults. If CLTE are present at Oso Flaco Lake and observed using the railing as a perch, the visiting public will be provided with information and guidelines to avoid disturbance of the activities of CLTE. If, in the opinion of the Senior Environmental Scientist or monitors, visitor activities are significantly disrupting CLTE behavior, the footbridge may be closed to public use, or types of public use on the boardwalk may be temporarily prohibited until the CLTE have left the lake area.

Public Information and Interpretation

- All first time visitors will be provided with a flyer or pamphlet describing the natural history of the species, their status under endangered species acts, recovery efforts in place within the SVRA and a list or description of activities either prohibited or desired by the public that serve to protect both CLTE and SNPL. This information will be regularly updated as needed.
- Interpretive programs will be updated to reflect new information and emerging trends, including through social media.
- All first-time visitors entering the District by vehicle will be provided with a copy of the park brochure that contains information on the federally and state listed status of the CLTE and SNPL, and management actions in place to aid in the recovery effort of these species.
- All visitors entering the District by vehicle to camp will be offered plastic garbage bags and will be informed they are to haul their trash out of the park at the end of their visit. Visitor participation in reducing or eliminating trash within the SVRA will discourage predators from frequenting the visitor use area and thus reduce the likelihood of predation on CLTE and SNPL.

- Trash dumpsters will be provided for the deposit of trash bags near the OHV staging area, near Post 2. The location of the trash dumpsters will be changed as necessary to avoid disturbance to any nearby active SNPL or CLTE nests.
- Interpretive signs describing park law, policies, and guidelines for the protection of SNPL and shorebirds are posted at multiple bathroom locations throughout camping areas in the open riding area.
- Seven days a week, 24-hours a day the District AM radio station broadcasts information on visitor safety and park rules and regulations.
- Visitors entering the District by vehicle with a dog will be provided with an informational handout about the negative effects of unleashed dogs on wildlife.

Maintenance Activities

- All protocols for maintenance activities and maintenance vehicle movement and routing contained in the biological opinion remain in effect. Since 2014, the District has ceased conducting surveys for plover nests specifically prior to maintenance activities on the sand ramps because there is too much visitor use activity in these areas to be considered viable nesting or roosting areas. These areas will be regularly inspected a minimum of once per day associated with the regular monitoring activities within the open riding area. During these daily morning surveys, the park is surveyed from south of the Pismo Pier, near Pismo Creek, to the Fore dune closure shoreline to identify snowy plover individuals and nests. The sand ramps will be covered in this daily survey.
- All tools, materials, and equipment necessary to construct a single nest enclosure, buffer closure, or bumpout will be available throughout the 2024 nesting season and will be installed as soon as possible as requested by monitoring staff.
- Resource monitoring staff, as well as Maintenance staff and Peace Officers, will carry trash bags in each vehicle and provide trash bags to visitors for the removal of trash and litter from visitor use areas.
- The Southern Enclosure fence will be maintained throughout the season and on a regular basis with the assistance of heavy equipment. This is necessary to maintain its intended use to deter coyotes from entering the nesting colony and to keep the public out of the nesting area. Please refer to Attachment A for specific information on maintenance of the enclosure fence using hand labor and/or heavy equipment.
- Mechanical trash removal will occur in the open riding area and outside areas closed for CLTE and SNPL nesting. A District Environmental Scientist shall survey areas immediately prior to planned mechanical trash removal and the activities shall maintain a safe buffer from CLTE, SNPL, and other wildlife. Activities will avoid wet sand on the shoreline and shall occur above the high tide and wrack line. An operational handbook for mechanical trash removal has been developed by the District and is attached.

RULES, REGULATIONS, AND ENFORCEMENT

Prohibited Recreational Activities

The District Superintendent has issued orders to prohibit:

- Public or pet access, entry, occupation in posted closure areas, or operation of vehicles or E-bikes in designated closure areas.
- Camping, parking, or stopping a motor vehicle within 100 feet of a nest closure area (Southern Exclosure, Foredune closure, closed buffer area, and bumpouts) or hanging personal materials on closure fencing.
- Kite flying south of the Pier Avenue ramp during the nesting season.
- Kite surfing south of Post 6 and launching/landing south of Pier Avenue.
- Entry into any signed or closed area, including people and animals.
- Dogs in the Pismo Dunes Natural Preserve and Oso Flaco (dogs are permitted in other areas of the District, but must be on a leash and under control of the owner at all times).
- Public Drone/UAV south of Pier Avenue ramp during the nesting season.

Enforcement Activities

State Park Peace Officers (SPPO's) will provide focused law enforcement of trespass into the nesting exclosures and other nest closures, the dog leash laws, the posted 15 MPH beach speed limit, firework violations, kite flying violations, public use of drones/unmanned aerial vehicles (UAV), and litter violations throughout the 2024 nesting season.

- SPPO's will respond to requests by monitors for assistance with CLTE and SNPL protection and security. The enforcement of laws affecting the safety of CLTE and SNPL will be the highest non-emergency priority for law enforcement focus and action within the District.
- During anticipated high visitor attendance periods (major holiday weekends including Memorial Day, Fourth of July, and Labor Day), SPPO staffing levels will be increased (as needed and as staffing levels allow) to provide additional enforcement of all park regulations, including focused enforcement of protections outlined below.
- Every day, a minimum of 2 SPPO's will be on duty and available from 0630 through 2400 HRS to respond to:
 1. Requests for assistance by monitors for the protection of CLTE and SNPL
 2. Exclosure/closed buffer area trespass violations
 3. Leash law violations
 4. Posted 15 MPH beach speed limit violations
 5. Firework violations
 6. Kite flying violations

7. Drones/UAV violations
 8. Litter violations
- During the Fourth of July holiday period, SPPO's, volunteers and other department staff will educate and contact the public and enforce CCR 4314 firework violations, focusing on areas near the Southern Enclosure and other nesting areas. Additional resources may be brought in to enforce firework restrictions including CAL Fire Law Enforcement staff.

ATTACHMENT A

Relevant Sections of Draft Habitat Conservation Plan - Installation and Maintenance of Protection Fencing and Avoidance and Minimization Measures

The HCP includes Section 4.3.1.2.1 on Pages 4/17-18 discussing the activities and management practices implemented to avoid and minimize impacts to covered species. Additionally, there are four Snowy Plover avoidance and minimization measures (AMMs) that are specific to enclosure fence maintenance. AMMs 70-73 on page 5-29.

Covered Species Management

Installation and Maintenance of Western Snowy Plover and California Least Tern Protection Fences (CA-12a)

Exclosure (in place year-round) and symbolic fencing (installed each breeding season 1 March to 30 September) are maintained in the HCP area as part of the ongoing SNPL and CLTE management program.

Nesting and Brooding Disturbance. Both heavy equipment and hand maintenance of the fence and bumpout installation can disturb nesting SNPL by temporarily flushing brooding adults away from nests or chicks or by flushing chicks. Once the adults leave the nests or chicks, eggs can be buried by sand, depredated, or inadequately incubated and chicks can be depredated, inadequately fed, or flushed into the open riding area.

Maintenance using heavy equipment is typically shorter in duration than maintenance by hand and thus likely results in less impact to nesting SNPL than hand maintenance. In addition, effects from exclosure and symbolic fence maintenance have been minimal in the past due to the implementation of established protocols in the SNPL and CLTE management program. Specifically, fence maintenance and bumpout installation are timed to avoid extremely windy periods or other inclement weather. In addition, monitors conduct a survey prior to conducting fence maintenance activities. If a nesting SNPL could be impacted by activities, monitors postpone maintenance, if appropriate, or remain on site during fence maintenance/installation to minimize disruption to SNPL. Furthermore, if chicks are flushed out of the exclosure during fence maintenance and/or bumpout installation, monitors attempt to follow and protect the chicks until they move back inside the exclosure. Overall, fenced protected areas have been shown to increase SNPL and other shorebird reproductive success in other locations. In the HCP area, reproductive success has increased since the implementation of the SNPL and CLTE management program, including the use of the exclosure and symbolic fencing; therefore, the exclosure and symbolic fencing areas have provided a considerable benefit to SNPL.

Snowy Plover Avoidance and Minimization Measures

AMM 70 Fence maintenance and bumpout installation will continue to be timed to avoid high wind periods and other periods deemed critical for chick or nest survival, like extreme temperatures.

AMM 71 Monitors will continue to escort maintenance vehicles driving through the closed shoreline, as necessary. All DPR staff driving within the closed shoreline area will continue to be trained on how to operate a vehicle on the shoreline when SNPL broods are present to avoid collision or other harm, e.g., scanning in front of vehicle, driving where chicks are less likely to occur, avoiding wrack, and keeping speeds at or below 5 mph.

AMM 72 Monitors will continue to conduct surveys prior to conducting fence maintenance activities. If nesting SNPL could be impacted by activities, monitors will postpone maintenance, if appropriate. Monitors will remain on site during fence maintenance/ installation conducted by hand to monitor nearby nests and minimize disruption to SNPL.

AMM 73 If any chicks are flushed out of the exclosure, monitors will continue to follow and protect chicks until they move back inside the exclosure as described in section 2.2.2.1.2.

ATTACHMENT B

Recommendation section from Oceano Dunes State Vehicular Area (ODSVRA) 2023 nesting season annual report (November 2023)

Continue monitoring

Monitoring is critical for effective protection of nesting terns and plovers. As problems and threats arise for adult birds, nests, and chicks, timely information from monitoring can help guide appropriate management actions and evaluate the effectiveness of those actions. Monitoring efforts at ODSVRA should have adequate funding, resources, and flexibility to address anticipated problems (e.g., nesting failure, causes of chick loss, predator pressure) as well as unanticipated problems.

Continue banding least tern and snowy plover chicks

Continue banding least tern and snowy plover chicks to better understand chick behavior and factors promoting or threatening survival of chicks (e.g., feeding rates for tern chicks, foraging activity and movements of plover chicks, age and location of disappearance of different cohorts of chicks). Banding also provides a means to document fledging success. Banding a large portion of the tern and plover chicks hatching from ODSVRA is necessary to determine the seasonal productivity and for assessing the management effectiveness. Additionally, bands provide an opportunity to gain insight into predator impacts on chicks and fledglings. Banding of tern and plover chicks also provides information on natal site fidelity of terns and plovers fledged at ODSVRA, as well as migration to other sites.

Every year, ODSVRA bands as many tern and plover chicks as possible, but there are situations when park staff will determine the banding effort is not suitable or could be detrimental to the birds. Chicks are not banded at ODSVRA when it will cause a disturbance to nearby young tern and plover broods. A variety of other factors will prohibit banding including, but not limited to, very young unbanded chicks lost prior to any banding opportunity, weather conditions (and other conditions defined in the USFWS permit) that would make banding unsafe, topography and vegetation in area of chicks making them difficult to locate, and chicks from nests with unknown locations found when too old and mobile to capture for banding. In 2023, there were the highest percentages of unbanded tern chicks (42%, 28/66) and plover chicks (57.3%, 224/391) compared to any other season since banding began. In 2022, there were 27.5% (19/69) unbanded tern chicks and 32.6% (169/515) unbanded plover chicks, and compares to 19.2% (range=9.4-35.9%) for tern and 34.5% (range=12.3-52.4%) for plover during the previous 10-year period 2012-21. The increase in unbanded chicks of both tern and plover in 2023 is likely a result of the highest number of plover nests hatching during a period that occurred simultaneously with tern nests hatching. This caused increased densities of young chicks in many areas, and banding is not possible in these dense brood situations since it would cause a high amount of detrimental disturbance to the broods. In addition, there has been an increase in density of vegetation and size of hummocks in the Southern Exclosure and Fore dune closure, making chicks more difficult to view and locate for banding.

Even though the number of unbanded chicks was high in 2023, all of the unbanded plover chicks were successfully tracked and fates for them were determined with intensive brood monitoring. Tern broods do not tend to remain in one area compared to plovers and may leave the site very quickly after fledgling, which makes unbanded tern chicks more difficult to track and determine fate.

Since 2022, Point Blue has been training ODSVRA staff to band plover chicks and it is recommended to continue to train additional staff in 2024 with the goal to apply for additional permits to band. For 2024, Point Blue will continue banding efforts at ODSVRA and have agreed to provide more than one banding contractor if needed during the busier part of the season as an option to attempt to band additional chicks if conditions allow.

Continue banding least tern chicks to individual

Beginning in 2006, least tern chicks were banded to allow individual chicks to be identified. This was done, in part, by placing one or two different colors of tape on the federal band, creating a unique combination for each chick. Banding to individual provides the opportunity to gain additional information that otherwise may not be obtainable, including:

- 1) providing the most accurate means to count the number of juveniles produced;
- 2) identifying if different areas within the colony are having different fledging success during a season;
- 3) identifying if broods hatching more than one chick are fledging more than one chick;
- 4) tracking individual chick and juvenile movement within the ODSVRA colony;
- 5) providing information on the length of stay of individual juveniles at the ODSVRA colony after fledging;
- 6) tracking recruitment of juveniles into ODSVRA's breeding population; and
- 7) tracking movement of individuals to other colonies in California.

Banding to individual provides valuable information to assist in developing and assessing site management actions directed toward the recovery of the least tern.

Continue option to band adult snowy plovers

The occurrence of abandoned plover nests can raise concern about possible mortality of adult plovers. If elevated adult mortality rates occur or are suspected, it could prove beneficial to band certain adults. This would allow monitors to verify if mortality was taking place and possibly identify the causes.

Continue to provide bumpouts and buffer fencing to protect least tern and snowy plover nests and chicks in or close to the open riding area

Least tern and snowy plover nests inside fenced areas of the Southern Exclosure, Foredune closure, and revegetation areas, may receive temporary additional fencing if a buffer is needed to increase the nest distance from recreational activities in the open riding area. These bumpouts connect to the fence adjacent to nests and extend into the open riding area. Buffer fencing for nests and the tern night roost, when found in the open riding area, is connected to the closest adjacent closure fencing, if appropriate. The bumpout and buffer sizes, determined in consultation with USFWS and CDFW, differs for plover and tern.

It is recommended for 2024 to provide the buffer distances listed below to comply with the January 2021 Biodiversity Management Plan (BMP) using a bumpout or nonpredator fencing (CDFW 2021):

Least tern nests: Provide a tern nest buffer distance of 984 feet (300 meters).

Least tern night roost in the open riding area: Install a bumpout or nonpredator fencing to maintain a minimum of 330 feet (100 meters) from the tern night roost location.

Snowy plover nests in the Southern Exclosure and Foredune closure: Continue to install bumpouts to provide a minimum 100-foot buffer distance between the plover nest and the open riding area for plover nests found inside the Southern Exclosure or Foredune closure, and located close to the fence that borders the open riding area.

Snowy plover nests outside the Southern Exclosure and Foredune closure: Continue to experiment with various plover nest buffer sizes for nests found outside the Southern Exclosure and Foredune closure (such as the open riding area or revegetation areas), in consultation with CDFW, with buffer distances no smaller than 100 feet and no greater than 492 feet (150 meters). Hatch rates for the various buffer sizes will be compared over time. Chicks hatching from these plover nests are monitored closely as they move from nest

to determine the daily location of brood for the week after hatch, survival of chicks, and ultimate fledge rates.

Nest bumpouts and buffers may be smaller in size for cases where topography will not allow the minimum size or as necessary to maintain a safe vehicle corridor adjacent to the north and east fence of any bumpout or buffer. Additionally, to immediately protect the nest when it is first found, and because the buffer requirements are so large, a smaller size buffer consisting of symbolic rope fencing with signs or a smaller single nest wire enclosure may be installed until a larger buffer installation can be scheduled when staff time, material availability, and weather conditions permit. The bumpout and buffer material consists of nonpredator fencing. Access to enter bumpouts or closed buffer areas will not be allowed by the public, but ODSVRA staff vehicles and equipment are allowed within these areas for tasks related to daily tern and plover monitoring, periodic vegetation monitoring, and regular fence maintenance. Other vehicles and personnel will also be allowed to access these areas as necessary to respond to public emergency situations. The bumpout or buffer fencing is removed once nesting activity ceases or there are no longer broods inside the fenced area.

Nests will be monitored closely to assess the adequacy of protective fencing in reducing disturbance. If necessary, bumpouts or buffers may increase in size if disturbance to incubating birds is observed as a result of recreational activity. The buffer size may also be adjusted if tern chicks or nocturnal roosting terns are observed to remain close to the closed buffer area fence.

For plover nests in the open riding area or any area outside of the Southern Enclosure and Foredune closure, a fence corridor that can be closed to the public may be provided as appropriate once nest is close to hatch. This may be done by extending fencing westerly to the surf line to provide a secure chick travel corridor to a protected area of shoreline for foraging habitat.

Continue to protect snowy plover broods in the open riding area

The shoreline is important as foraging habitat and for raising snowy plover chicks. After a nest hatches, broods typically move toward the closest shoreline and establish a territory. Portions of the open riding area are temporarily closed, using symbolic fence or nonpredator fencing and signs, to provide a corridor of safe passage for broods moving in the open riding area between nests and foraging areas (see section titled Snowy plover chicks in the open riding area and closed buffer areas on page 39).

In 2024, it is recommended to provide protection to plover broods in the open riding area in consultation with USFWS and CDFW, including methods to allow staff to guide broods to a protected area when necessary (see section titled Broods in the open riding area on page 19). For broods found in the open riding area that are in critical danger from recreational activities, and when it is not practical for a chick closure or travel corridor to be installed, it is recommended that chicks be captured and relocated to an approved rehabilitation facility. Examples of circumstances where chick capture would be needed include: broods that are found far away from any closed shoreline and surrounded by campers where a chick corridor or closed area is not feasible; chicks become separated or appear weak while moving on their own within the riding area to a closed area; or no adult is present and chicks are unattended in the open riding area for an extended period. If possible, USFWS and CDFW will be consulted prior to any capture of chicks, however immediate action may be taken as necessary to avoid loss of chicks due to recreational activities.

Continue to use predator proof fencing and allow staff and heavy equipment access throughout the season to maintain the effectiveness of the enclosure perimeter fence protecting terns and plovers breeding in the Southern Enclosure and North Oso Flaco

The contiguous area enclosed by predator fencing within the Southern Enclosure and North Oso Flaco is important in discouraging coyotes during the nesting season from entering nesting and chick-rearing habitat, as well as to limit vehicle and human trespass year-round. The Enclosure predator fencing was

installed seasonally 2006-21 and the area has been closed to the public year-round since October 2021 based on operational needs and for consistency with other agency requirements. The fence during the nesting season is composed of two layers of wire fencing six feet above the surface, with the bottom layer of two-inch by four-inch mesh buried a minimum of eight inches to discourage coyote entry. High winds at ODSVRA can cause gaps or blowouts at the bottom of the fence, and the fence is prone to falling if not repaired in a timely manner. Other areas may become buried by sand which creates low sections in the fence. Coyotes can take advantage of the gaps and low spots to enter the enclosure, making nests and chicks vulnerable to predation. Additionally, gaps and downed fence can cause trespass issues. In 2023, and in past years, heavy equipment was used to repair and maintain the fence for the nesting season by pushing or pulling sand away from the fence, usually once per week (or more as needed) on the eastern fence line that borders the open riding area to maintain the fence for predator control. Staff also access closed buffer areas to repair fencing by hand and add fence material to close gaps and keep the fence at an optimal height.

During the 2023-24 winter months (October to February), it is recommended to continue to repair damaged fence to prevent public trespass, but it will not be necessary to maintain the fence to the same level as during the breeding season since it will not be intended for predator protection. The western fence will be removed during the winter to avoid damage by winter storms and high surf events. Although the predator fencing is effective for the nesting season, it requires almost daily maintenance, multiple hours of staff time, and is not intended to be used as a permanent fence. Prior to the 2023 season, taller and more sturdy posts were used for approximately one mile of the fencing for Boneyard enclosure and the southern portion of 8 enclosure as an experiment and we are evaluating the durability and longevity of this new fence. For 2024, if the Southern Enclosure and North Oso Flaco is expected to remain in place year-round, it is recommended that additional fencing options be explored, with the goal of finding materials that can last more than a single season, in order to maintain the integrity of the predator enclosure fencing. Incorporating new fence materials into the management program at ODSVRA, determined in consultation with USFWS and CDFW, will depend on year-round closure plans, available materials, and staff time.

Prior to the 2024 nesting season, it is recommended to replace the western enclosure predator fencing and repair the fence using heavy equipment and hand crews, to remove any gaps or low spots that may have developed over the winter. Throughout the 2024 nesting season, it is also recommended to maintain the predator fence and continue to allow staff and heavy equipment access to the fence for repairs within closed buffer areas if necessary. The heavy equipment is necessary to cover gaps or pull sand away from heavily buried areas, usually on a weekly basis to maintain the fence. Prior to equipment use, staff would scan the area within and outside the enclosure fence line to determine if there is nesting activity near the fence and any sensitive areas would be avoided by the equipment operator.

Continue to assess habitat in the Southern Enclosure and, as necessary, distribute natural materials and increase efficiency in distributing woodchips with the help of maintenance staff and heavy equipment

Natural materials such as driftwood, woodchips, and wrack (surf-cast kelp) have been distributed since 2002 within the Southern Enclosure (including the shoreline) to enhance habitat features to benefit nests and chicks. Tern shelters have not been used since 2014 because the natural habitat enhancement material, such as driftwood, are preferred as a source of cover for chicks. In 2023, woodchips and wrack were not distributed because the enclosure had sufficient materials remaining from previous years. Driftwood was collected on the shoreline at the end of the season, since it would have otherwise washed out during winter high tide and storm events, but was left in other upland areas of the Southern Enclosure. Driftwood was redistributed in bare areas of the Southern Enclosure shoreline and, in lesser amounts on the Foredune closure shoreline, at the beginning of the 2023 nesting season. Driftwood and wrack is gathered into trucks or trailers and unloaded into the Southern Enclosure by hand. From 2008 to 2022, woodchips were loaded into dump trucks, truck beds, or trailers using ODSVRA heavy equipment operators and distributed by hand into the Southern Enclosure.

In 2024, it is recommended to assess the habitat and substrate present in the Southern Enclosure and Fore-dune closure shoreline prior to the nesting season and, if determined necessary, distribute driftwood, woodchips, and wrack to bare areas. It is also recommended to continue using available heavy equipment and dump trucks for woodchip dispersal. The equipment increases staff efficiency, allows larger amounts of woodchips to be dispersed, and a broader distribution of material to provide shelter from wind and cover from predators. The use of heavy equipment needs to be balanced with other operational needs in the park.

Continue to monitor wrack levels on the Southern Enclosure shoreline and, if necessary, implement distribution of wrack and inoculate with wrack-associated invertebrates (these invertebrates are an important part of the prey base for snowy plover chicks, juveniles, and adults)

A five-year study (2007-11) by Drs. Jenifer Dugan and Mark Page, researchers from the Marine Science Institute at the University of California Santa Barbara (UCSB), examined the responses of invertebrate numbers and diversity in areas where wrack was added to the Southern Enclosure shoreline throughout the breeding season. The unpublished results indicated that, prior to 2021, when the enclosure was seasonally closed only for the breeding season (March-September), there was not a sufficient period of time for invertebrates to effectively and naturally recover species diversity and abundance on the Southern Enclosure shoreline following five months of recreational use. In 2012-22, park staff inoculated wrack added to the Southern Enclosure shoreline with invertebrates, but this was not done in 2023 because the year-round closure allowed for sufficient natural wrack to accumulate. Staff continued the UCSB method of invertebrate surveys used since 2012 (see paragraph titled Wrack and talitrids in the Management Actions section on page 18 for more detail) and recommend continuing these surveys in 2024. The surveys would help to document trends over time and determine if the invertebrate population is recovering on the Fore-dune closure and Southern Enclosure shorelines to assist management decisions for the future. Wrack addition and inoculation using UCSB methods may occur on the shoreline in 2024 if abundance of talitrids or wrack amounts appears low, depending on available materials, accessibility of beach areas, equipment, and staff time.

Experiment with vegetation and topography management in the Southern Enclosure to improve nesting habitat

Over the last several years, areas developed dense vegetation within 6, 7, and 8 enclosures, resulting in increasingly tall vegetated hummocks and severe topography. This is especially evident in 8 enclosure. Concurrently, nesting by terns and plovers in these areas shows a marked decrease. Although nests in dense vegetation are more difficult to locate, the lower nest numbers are likely due to the combination of substrate and viewshed not being appropriate for nesting, the large dune hummocks attracting avian predators as perch locations, and the amount of area closed for nest buffers or revegetation elsewhere in the park has increased over time in areas with better quality nesting habitat.

Least terns and snowy plovers typically select open habitats with low dunes and limited vegetation cover (less than 10%), to allow the birds to have a larger viewshed for earlier detection of predators (Swaigood et al. 2018) (Muir and Colwell 2010) (Page et al. 1995). Approximately 25% of the acreage in 6, 7, and 8 enclosures (roughly 40 acres mostly on the west side) has become less productive for tern and plover, with nest numbers in this area having 16.5% of the total nests during the 2016-20 period compared to only 5.8% since the year-round closure from 2021-23. There were a total of 53 tern and plover nests in an approximate 20 acre area on the west side of 8 enclosure where topography is highest from 2016-20, and only 3 nests from 2021-23 in the same area. Since 2021, possibly in response to increased vegetation and topography on the west side of the Southern Enclosure, there has been a substantial increase of nesting closer to the east fence of the enclosure, placing more nests closer to recreational activities and requiring additional buffer fencing to protect these nests (see maps showing topography and nest abundance changes in Figures C.12 to C.14 in Appendix C).

The foredune plants that have persisted in the enclosure include mainly sea rocket (*Cakile maritima*), beach bur (*Ambrosia chamissonis*), and Coastal sand verbena (*Abronia latifolia*). It is recommended to design an experimental habitat manipulation plan in 2024 to improve nesting habitat to be distributed for review and approval by outside agencies. The plan would focus on removal during the nonbreeding season of the nonnative sea rocket and larger dune hummocks in heavily vegetated areas where nesting has reduced in the Southern Enclosure. The intent of the vegetation removal would be to mimic the natural action of creek and river mouths, which can clear out acres of vegetation in one storm event to create “blow-out” areas within the foredune habitat, extremes for which foredune habitats are adapted. Vegetation at the very western edge of the enclosure would be avoided since these hummocks are beneficial to plover broods as a place to take cover from predators and shelter from wind. Only large hummocks would be targeted, small hummocks left in place, with a goal of creating a mosaic of plants and open sand areas attractive to snowy plovers for nesting. Prior to any habitat manipulation, trained park staff would verify sensitive listed plant species and small mammal burrows are absent. A trained monitor would also be present during mechanical removal to ensure all wildlife remains safe and any sensitive plants are avoided. Changes in tern and plover nesting numbers and nest fates in the experimental vegetation removal areas would be documented and evaluated as part of the plan.

Continue to evaluate physical features of the nesting and chick-rearing habitat in the Southern Enclosure using drone/Uncrewed Aircraft Systems (UAS) equipment during the nonbreeding season
Beginning in 2018, and each year afterward, drone equipment was used to photograph the Southern Enclosure habitat using protocols created in consultation with USFWS or CDFW. Flights were performed prior to any nests being established or after nests hatched and chicks fledged from the flight area. All areas with drone flights were continuously monitored for snowy plovers and their behavior. Snowy plovers generally showed no signs of disturbance. The information collected during flights recorded placement of enhancement materials distributed by staff and can be used to assess nesting habitat. It is recommended for 2024 to continue scheduling drone flights in February, prior to the initiation of nests, and flights at the end of September or early October, after all plover chicks have fledged and are flight-capable.

Continue to use the trash dumpster design at marker post 2 that has been used since the fall 2020

The predator management strategy at ODSVRA includes methods to discourage attracting predators to the site, including to the trash dumpsters at marker post 2. In the past, experiments with trash dumpster covers of different configurations presented logistical and operational challenges and were discontinued. ODSVRA worked with the local trash company and they provided a new trash cover design that was installed on the beach near marker post 2 beginning in the fall of 2020. Prior to this, four to six large trash dumpsters (22 feet long, eight feet wide, and four feet high with 20 cubic yards capacity and open on top) were used and attracted a large number of gulls landing on and foraging in the dumpsters. The new dumpster design has the same dimensions, but with a closed top and a side door that is left open. This design meets the park requirements and may have helped lower the number of gulls attracted to our park. Reduction in gull numbers at the park may also be partly a result of lower camper and visitor numbers since 2020 and less waste produced. The maximum number of gulls present at one time at the dumpster area during 2021-23 nesting seasons ranged from 59-170. This is much lower than the max of 297 and 445 recorded in 2019 and 2018, respectively, years when the park was at full capacity and dumpsters uncovered on the top were used. It is recommended for 2024 to continue using the newer design of covered trash dumpsters in the marker post 2 area, as it is effective in lowering the number of gulls attracted to the area. Gull surveys are not recommended to continue, as there is ample data previously collected, but the twice per week surveys may recommence using previous methods if there are changes in the dumpster design used at marker post 2 (see Monitoring and Management section for survey details).

Ongoing management actions that will continue in 2024

The following are part of our ongoing management actions and monitoring procedures for which a specific recommendation is no longer necessary (see Monitoring and Management Actions section for more detail). Background information and justifications for these management actions have been discussed in detail in previous annual reports.

- Oso Flaco area protection will continue at the same monitoring and management level as set in 2005 (Site Description).
- The Arroyo Grande Creek protected area will be clearly delineated as a closed area around the Arroyo Grande Creek and lagoon by using posts, symbolic rope, and signs, as practiced since 2006 (Site Description).
- A thermal scope (Trijicon REAP-IR) acquired in 2019, will continue to be used for monitoring the least tern night roost and additional equipment options will continue to be explored.
- Continue monitoring least tern juveniles and the night roost. Continue monitoring foraging activity at nearby freshwater lakes if time allows.
- Continue use of motion detection cameras for nest monitoring and train and permit additional monitoring staff as needed.
- Continue to use an anemometer with data logger from a wind monitoring tower to record daily wind speeds and direction.
- Continue option to use least tern chick fencing on the east side of the exclosure if a method to maintain the tern chick fencing is found.
- Predator monitoring and management actions that have been in place since 2002 will continue.
- The Foredune closure, Southern Exclosure, and North Oso Flaco shoreline will continue to be protected during the breeding season; this includes maintaining the posts and rope at marker post 4.5 and Oso Flaco boardwalk intertidal zones to minimize trespass. The Southern Exclosure and North Oso Flaco are closed year-round (since October 2021), and the shoreline of the Foredune closure is open 1 October to 29 February.
- Continue use of circular exclosures with net tops and mini-exclosures as needed to protect nests from mammalian and avian predators. These small exclosures are not without risks to incubating adults and will continue to be closely monitored and evaluated for their use.
- Surveys for plovers will continue during the nonbreeding season. These weekly surveys have been conducted since the winter of 2009-10.
- Continue to maintain option to salvage and rescue eggs, chicks, juveniles, and adults under very limited circumstances.
- Continue to document impacts and, when possible, reduce disturbance caused by low-flying aircraft over the Southern Exclosure and Oso Flaco.
- Continue to work to address water quality issues at Oso Flaco Lake.
- Continue to work on outreach methods and informational signage at ODSVRA to increase public awareness of threats to nesting and roosting terns and plovers.
- Efforts to hire and retain skilled monitors throughout the year will continue at ODSVRA.

ATTACHMENT C

Protocol for SNPL Broods located in open riding areas of Oceano Dunes District

The following is the Oceano Dunes District (District) protocol for snowy plover (SNPL) broods located in the area open to vehicles, off-road use, and camping (open riding area, ORA) of the park. This activity is designed to monitor or safely guide chicks to an area closed to the public with an attached closed shoreline where they are protected from public activity and to reduce conflicts from recreation and public activities at the beach. For broods that are observed frequently moving in the open riding area between protected areas (such as between the Southern Enclosure and revegetation islands to the east), staff may install temporary symbolic or wire fencing to create a travel corridor for the chicks. The fencing will be removed once chicks have fledged or monitors determine broods are no longer using travel corridors. The location coordinates for each instance of SNPL chicks found in the open riding area will be recorded by monitoring staff using Survey123 phone application and the data will be provided to CDFW and USFWS upon request. If possible, District Staff will consult with CDFW and USFWS prior to known nests located in the open riding area hatching or once a brood is found greater than 200 feet away from a protected area prior to any guided movement of broods, however immediate action may be taken as necessary to avoid loss of chicks due to recreational activity. If movement to a protected area is approved to occur or deemed necessary, the protocols below will be applied.

The protected shoreline is monitored closely, and when SNPL broods are being raised near the boundary of the open riding area, staff will be assigned to monitor broods at the boundary periodically or during all daylight hours, as necessary to protect broods. If broods move slightly out of the boundary and there is not an immediate threat detected, they are monitored closely until they return. If the brood does not return in a quick manner, or continues to move further away from the boundary, monitors will guide the brood back to the protected shoreline using methods to those described in “Relocation process” section below. Broods at the boundary will continue to be monitored after they safely make their way to the protected shoreline.

Nests within the ORA

For nests within the ORA without a protected adjacent shoreline, the following protocols apply. Note: This includes nests within revegetation areas or any other area outside the Southern Enclosure, the Fore dune closure, and Oso Flaco (see Figure 2).

- The nest is monitored on a daily basis, and checked more frequently upon becoming close to hatch.
- Temporary chick fencing (small mesh fencing) may be installed around the nest to prevent chick movement into the ORA during the night when District monitoring staff is not available.
- Once the nest hatches, the chicks may be banded if the bander determines it is safe and appropriate. Alternately, chicks can be banded on another day after the brood establishes a territory on the protected shoreline.
- While remaining at or near the nest, the brood is checked by monitoring staff throughout the day, giving updates to other field staff on brood status and location. SNPL broods often stay at or near the nest site until the chicks become more mobile. It can take ~1 day for this to occur. Once mobile, the adult will lead the chicks towards the shoreline to forage.
- Once the brood is mobile or moving to the shoreline, District staff will monitor the brood as they are guided to the protected shoreline to establish a territory.

- District staff will conduct a thorough assessment of the area the brood will be moving through to identify any risks posed by predators, public activity, or other potential disturbance factors.
- Staff will monitor brood to keep track of their location and to redirect any vehicle traffic or pedestrian foot traffic away from the brood, adding or modifying fencing and/or signage if necessary.
- Predators will be monitored and hazed from the brood area.
- Note that broods found in the ORA, either from one that moved outside the enclosure on its own or one from an unknown nest location, will be guided by staff to a protected closed area following the process outlined below. CDFW and USFWS will be notified of these events by the next business day, with an email report sent to USFWS.

Preparations and planning for guided brood movement will include the following:

- The location to where the brood will be guided to is chosen ahead of time. The location recommended is usually the closest protected shoreline area, or other closed nesting area, but other factors will be considered such as location and density of other broods and nests. This is to prevent territorial disputes amongst the SNPL broods and/or nesting adults in the area which may cause harm to the chicks.
- Fencing and/or signage may be installed ahead of time to allow the brood to have a protected passage to a safe area. For example, nests in the open riding area or revegetation areas east of the Southern Enclosure will be provided an appropriately sized fenced corridor, that can be closed to the public once the nest is showing signs of hatch, for the brood to move west through the corridor into the protected closed area. The corridor fencing will be removed from the ORA once monitors determine the brood is no longer using the travel corridor and has safely moved to a protected closed area.
- If conditions are appropriate, District monitoring staff will begin the process of encouraging the brood towards a safe location to establish a territory to raise the chicks in.

Relocation process:

District staff will monitor broods that may leave the protected area, identify threats to brood movement or safety, guide the brood to a protected shoreline, and monitor the brood once it returns to a protected closed area. The relocation process includes the following steps:

- Trained staff will be involved with this process, with District Environmental Scientists that are listed on the Federal Recovery Permit (permitted ES) leading the team. The experienced Point Blue bander may also assist with monitoring the brood.
- As the brood begins to move westward on its own to the shoreline, staff will establish a vehicle perimeter to be able to keep track of the brood as well as to redirect any pedestrian or vehicle traffic. District State Park Peace Officers may assist if available.
- The adult(s) and chicks will be allowed time to brood and forage while staff monitor from inside vehicles, using spotting scopes and binoculars. The vehicles act as a blind, allowing the brood to behave normally without disturbance.
- Once sufficient brooding/foraging time has passed, the permitted ES will carefully exit their vehicle and slowly start walking towards the brood, encouraging them towards the target location. Staff within vehicles will monitor the moving brood, noting all behaviors and communicating the information with others involved in the process via radio/phones.

- Periodically, the permitted ES guiding the brood on foot will retreat and crouch down, or get back into a vehicle if close and available. This is to give the chicks time to rest, be brooded, and forage with limited disturbance.
- The vehicle perimeter created by District staff will slowly readjust as the brood moves, maintaining their ability to help monitor the brood, scan for nearby predators, and redirect pedestrian/vehicle traffic.
- Portable brooders and hand warmers will be available if one or more chicks appears to be sluggish or cold anytime during this process as a rescue measure.¹
- Once the brood is at the planned location on the closed shoreline or within protected nesting habitat, staff will monitor the brood from a distance from inside vehicles. Staff will avoid driving or walking in the location near the brood for the rest of the day to limit disturbance and to allow the brood to establish their territory.
- The scheduled night shift staff will check on the brood from a distance after day shift leaves. The brood will also be searched for first thing the next morning.

The process takes approximately 1-3 hours, or may take longer depending on weather conditions, public activity nearby, distance of travel, and other factors.

¹ District staff have successfully used hand warmers and brooders in other instances that are not related to chick relocation to warm chicks that have become separated from attending adults. It is our experience that the chicks can be reunited after a short period of warming to avoid a chick from becoming separated or left behind.



HANDBOOK | Mechanical Trash Removal
Adopted January 2024

Guidelines and Procedures to Guide and Inform
Mechanical Trash Removal Operations at
Oceano Dunes District.

Executive Summary

This Handbook has been developed by Oceano Dunes District staff, with input and review by the Oceano Dunes District core management team, the Off-Highway Motor Vehicle Recreation Division, and the Natural Resources Division, to guide and inform mechanical trash removal operations within Oceano Dunes State Vehicular Recreation Area and Pismo State Beach. This handbook has been approved by the Oceano Dunes District, District Superintendent.

Oceano Dunes District (the District) manages approximately 6 miles of public coastal beach shoreline within Oceano Dunes SVRA (ODSVRA) and Pismo State Beach (PSB). The District attracts, on average, over two million visitors annually to California State Parks' largest campground (ODSVRA), consisting of 500 overnight camping units, and approximately six (6) miles of shoreline for daily beach active and passive recreational opportunities. The District's campgrounds are regularly sold-out during the summer and major holiday seasons, and attract high daily visitor attendance use during these same periods.

High visitation, recreational use, and beach camping results in garbage and refuse impacts at ODSVRA and PSB. Mechanical trash removal has been identified by the District as one tool to address this issue and will be used as part of a comprehensive approach to achieve the desired results of refuse removal, public safety improvements, and improving beach and environmental health.

This Mechanical Trash Removal Handbook and activities identified within have been developed and designed to protect natural beach ecosystems by avoiding areas with known sensitive resources including vegetated areas, waterways, areas that support beach wrack/surf cast kelp, known cultural resources, known wildlife and shorebird populations, known coastal dependent species (notably Pismo clams and grunion), and generally the states natural resources found within ODSVRA and PSB. This handbook complies with Department policy.

TABLE OF CONTENTS

Executive Summary	1
Introduction	3
Adaptive Management	4
Purpose	4
Policy	5
Administration	6
Maintenance & Equipment	7
Training	7
Planning	8
Operations	9
Project Areas	10
Reporting & Notification	11
Handbook Revisions	11
Guiding Principles	12
Map (Figure 1)	13
Appendix A. NOAA Best Management Practices Guidelines	14
Appendix B. Bio-diversity Management Plan	16
Appendix C. Habitat Conservation Plan Avoidance and Minimization Measures	17
Appendix D. Dust Control Program Mitigation Measures	18

INTRODUCTION

The target audience for the Mechanical Trash Removal Handbook is District staff. This handbook sets forth and describes the various policies, guidelines, protocols, and procedures used in planning, developing, and implementing mechanical trash removal activities. In addition, this handbook describes specific roles and responsibilities of Maintenance, Resource, and other District program staff as related to the ongoing oversight and management of mechanical trash removal activities.

ODSVRA and PSB are the only state vehicular recreation area (SVRA) and state beach (SB) to support and allow public vehicles (off-highway vehicles and street-legal vehicles) to operate on California State Park beaches. ODSVRA is also the only SVRA in the State Park system which allows for dispersed, self-contained camping on the beach. Many natural and cultural resources are currently protected and prohibit vehicle traffic, however ODSVRA and PSB are both designed and intended to accommodate vehicle travel and vehicle based recreational opportunities. Public vehicle access and recreation at ODSVRA and PSB dates back to 1906, prior to the Department acquiring ODSVRA in 1974.

ODSVRA and PSB offer visitors numerous high quality outdoor recreational opportunities, are highly impacted and heavily used State Parks, and as such, human impacts are identified and included in ongoing operational plans, such as trash collection and removal. Focused beach trash removal activities using mechanical trash removal equipment will be used to address targeted high use and impacted public areas (figure 1, page 13). Mechanical trash removal will assist in addressing human caused impacts, which will result in cleaner, safer, and healthier beaches.

Mechanical trash removal activities will further assist in compliance with the District's Phase II Municipal Separate Storm Sewer System (MS4) permit. The District is reviewing current trash and disposal efforts as well as storm water run-off impacts, and developing new strategies and practices to achieve and maintain required MS4 permit compliance. Mechanical trash removal operations will play a part in efforts to reduce and eliminate refuse and trash discharge into state waters.

Mechanical trash removal will be one component used as part of a comprehensive approach to improve beach health as part of a campaign to educate the public regarding proper trash disposal protocols through interpretive signage, flyers, and face-to-face interaction. Another component of positive public change may also be achieved through increasing the presence of law enforcement staff, focused trash enforcement, and issuing citations for non-compliance as required. Such education will work to mitigate the need to use mechanical trash removal equipment over time, as less waste will be present on the beach.

ADAPTIVE MANAGEMENT

The District recognizes that additional studies, data, information, and best management practices continue to be identified, developed, and refined over time, improving any given industry and program, and its success in achieving overall objectives. This adaptive management will be applied to mechanical trash removal operations, allowing the District to remain flexible in: implementing, eliminating, or refining procedures; expanding, reducing, or altering practices; adapting new or additional data and information; reducing and eliminating refuse discharge into coastal waters and terrestrial sensitive habitats; enhancing public safety by removing unknown and unseen hazards to humans; and preserving and protecting California state beaches.

PURPOSE

Regularly scheduled and ongoing maintenance and housekeeping activities continue to service ODSVRA and PSB and address refuse collection throughout the park units, with focus on high-use public areas including but not limited to: the Post 2 dumpster collection site; high-use Day Use areas; and high-use camping areas. Refuse collection housekeeping strategies evolve and adapt to new trends, training, and equipment.

The purpose of the mechanical trash removal activities outlined in this handbook are intended to:

- Remove refuse buried in the sand of ODSVRA and PSB.
- Service the primary public recreation areas of ODSVRA and PSB.
- Accomplish activities in a timely efficient manner.
- Reduce the need of intensive labor and prohibitive time to achieve the same results.
- Maintain safe pedestrian friendly beaches.
- Enhance natural environmental conditions.
- Eliminate illicit discharge into state waters.
- Improve health of public beaches.
- Provide safe and healthy public recreational beach conditions and opportunities.

Mechanical trash removal activities will: focus on specific project areas; be planned and coordinated by District staff; follow the best mechanical trash removal management practices; and align with the best available mechanical trash removal information, best resource management, conservation practices, guiding principles found on page 12, and Appendices included in this handbook.

Pre-identified and targeted locations are planned to be treated no more than twice a year (figure 1, page 13) unless additional treatments are found necessary and planned for appropriately. Any deviations from BMPs or these guidelines will be presented to, and require approval by, the District Superintendent.

POLICY

Mechanical trash removal operations are activities identified and included in the Oceano Dunes Biodiversity Management Plan, the Oceano Dunes Draft Habitat Conservation Plan, and are consistent with Department policies as found in Department Operations Manual 300, sections 0311.4.2 and 0311.4.2.1, as identified below,

- **0311.4.2 Beach Grooming**

Sandy coastal beaches are prime recreational assets of the State Park System but are also important ecosystems with characteristic physical and biological processes and inhabitants. Beach wrack consists of rafts of offshore kelp that are carried in by the wind and tides and deposited on the beach, providing food and shelter for the organisms that reside in and on it.

Beach grooming, or the routine mechanical removal of trash and other debris, is carried out on some coastal beaches for public safety and/or aesthetic reasons, especially on beaches that are heavily used for recreation. Beach grooming does not refer to annual beach clean-up events or one-time efforts following large storms. Evidence suggests that grooming using mechanical rakes in some instances alters natural beach processes by reducing the establishment of native beach plants, widening the portion of beach exposed to wind transport of sand and potentially exacerbating sand loss.

- **0311.4.2.1 Beach Grooming Policy**

Where needed, coastal districts will develop beach-grooming strategies that are appropriate for the primary purpose for which the unit was established, the classification of the unit, the amount of public use the beach receives, and in consideration of potential impacts to natural resource values and processes. The districts should limit the amount or type of grooming used to that necessary for public health and safety, while allowing natural physical and biological uses of beach wrack to continue.

While the Department uses the term *Beach Grooming* in policy, policy further clarifies the term to also mean the act of *the routine mechanical removal of trash and other debris*. It is important to clarify that the District does not conduct beach grooming activities for the purpose of enhancing the appearance or aesthetics of ODSVRA or PSB.

Mechanical trash removal activities found in this handbook have been explicitly designed to avoid native beach plants, beach wrack, and any impacts to the natural physical and biological uses of beach wrack.

This handbook is intended to outline expectations of the District in conducting mechanical trash removal operations consistent with Department policy. If guidelines are found in conflict with Department policies, Department policies shall prevail.

ADMINISTRATION

District Staff. The District's mechanical trash removal program will be planned, implemented, and maintained by Oceano Dunes District staff, including but not limited to, state archaeologist (SA), environmental scientist (ES), and state park equipment operator (SPEO) staff.

Core Staff. The District's core management team, consisting of the District Maintenance Chief, the Natural Resources program manager, the District Interpretation, Education and Cultural program manager, and the District Planning Chief, shall provide support to District staff involved in the mechanical trash removal program by reviewing policy compliance, providing updates to this handbook, and providing recommendations to planned activities.

District Superintendent. The District Superintendent is accountable and responsible for all District operations, including the mechanical trash removal program. The District Superintendent shall approve any mechanical trash removal changes in procedures or guidelines absent an updated handbook and shall approve any project activities not already covered by this handbook.

ADMINISTRATION SUPPORT

For the Districts mechanical trash removal program to function successfully, support from a variety of Department Divisions is required, including:

Park Operations. Provides Executive oversight, natural resource program recommendations, and policy guidance.

Off-Highway Motor Vehicle Recreation Division. Provides Executive oversight, financial support, natural resource program recommendations, and policy guidance.

Natural Resources Division. Provides natural resource program recommendations and policy guidance.

MAINTENANCE AND EQUIPMENT

- Barber, Surf Rake, Model 600HD (dual unit)
- John Deere 9430 (or similar fleet), tractor

SPEO will be required and responsible for conducting a pre-operational inspection to confirm equipment is in good working order. If deficiencies are found, the SPEO shall report to the State Park Heavy Equipment Mechanic (HEM) any issues for discussion and/or to be addressed. Pre-inspection maintenance shall be conducted after completion of the inspection and where appropriate.

SPEO will be required and responsible for conducting a post-operational inspection to confirm equipment is in good working order. If deficiencies are found, the SPEO shall report to the HEM any issues for discussion and/or to be addressed. Post-inspection maintenance shall be conducted after completion of the inspection and where appropriate.

TRAINING

Barber provided SPEO initial training (2019). The training included set-up, connecting dual units, connecting unit to tractor, operations, maintenance, and troubleshooting.

Barber provided HEM initial training. Training included set-up, connecting dual units, regular and routine maintenance, regular and routine repairs, and troubleshooting systems.

The District Maintenance Chief shall be responsible for creating and implementing an ongoing maintenance and training plan for all subsequently trained employees in the operations and maintenance of this unit.

PLANNING

Successful mechanical trash removal operations will be the result of proper equipment, safe operations, established practices, and above all, clear communication. In advance of any planned mechanical trash removal operations, it will be incumbent upon SPEO, SA, and ES staff to coordinate and collaborate well in advance of any planned activities. SPEO, SA, and ES staff will have the following roles in mechanical trash removal activities:

State Park Equipment Operator.

- Plan early. Provide SA and ES program staff sufficient time and notice to conduct project review.
- Identify proposed project area (pre-planned or new activities).
- Consider other project sites as alternatives.
- Consult with archaeological staff.
- Consult with ES staff.
- Consider weather forecast.
- Identify time/date of project.
- Collaborate with SA and ES staff on project day.
- Complete Documentation (photos, date, time, duration, material weight and distribution, etc.)

Environmental Scientist.

- Review proposed project area.
- Identify known constraints.
- Provide planning feedback.
- Inspect project area.
- Remain immediately available during project (on site or by cell phone or radio).

State Archaeologist.

- Review proposed project area.
- Identify known constraints.
- Provide planning feedback.
- Inspect project area (if required).

Planning guidelines require an ES and SA to visually inspect each project site for the presence of any natural or cultural concerns. Visual inspection may occur in advance of the project, but at a minimum, must occur immediately prior to the commencement of any mechanical trash removal activities.

If in their professional opinion it is determined no natural or cultural concerns exist in the project area, an ES and/or SA may determine a visual inspection is not required, and work may proceed as planned without further inspection of the project area.

If any natural or cultural conflicts are identified during a project pre-inspection within the planned project areas, SPEO, ES, and/or SA staff will evaluate the conflicts and determine appropriate measures to address those conflicts, which may include, a delay in starting the project, finding an alternate project, or canceling the project altogether.

Mechanical trash removal operations should be planned for the morning, to conduct activities during periods where public attendance and activity is expected to be lower. While it is operationally preferred to conduct activities in morning hours, mechanical trash removal operations may be undertaken throughout normal business hours if deemed appropriate.

Mechanical trash removal operations generally will not be planned during evening hours or other low-light conditions unless, on a case-by-case basis, a specific project is identified, reviewed, and approved by District staff, and after review and approval by the District Superintendent.

Other factors shall be considered when planning mechanical trash removal operations such as, but not limited to, heavy public use periods, high wind events, high tidal periods, shoreline marine mammal activity, clam surfacing events, spawning grunion, and storm events.

OPERATIONS

Successful mechanical trash removal operations will be the result of teamwork and clear communication. SPEO, SA, and ES staff shall brief on project scope, determine a project is clear to proceed, determine communication plans, and debrief once work is complete.

Once a project has begun, ES and/or SA staff will remain on site during mechanical trash removal activities or shall be immediately available by cell phone or radio. The SPEO and the ES and/or SA shall identify this process prior to mechanical trash removal activities.

If any natural or cultural conflicts are identified during a project, SPEO, ES, and/or SA staff will immediately cease any work within the vicinity and protect the site from any further disturbance. ES and/or SA staff will determine appropriate actions and make required notifications based upon the conflict. At a minimum, SPEO, ES and SA staff will notify their respective managers of the conflict.

Mechanical trash removal operations will be designed and implemented to occur seasonally; between the months of February and May, and September through December. These timeframes establish general periods where the greatest effectiveness and efficiency of mechanical trash removal activities will be expected. These timeframes consider winter rain periods (December through February) which may make mechanical trash removal activities less effective; and summer visitation

(May through September) which may make mechanical trash removal activities less efficient with increased visitor attendance.

Mechanical trash removal activities may be planned and occur, but shall be designed to avoid known seasonal nesting shorebirds, to prevent any disturbance to nesting shorebirds, and to prevent any conflict to nesting shorebirds.

Any changes to planned activities must be discussed and agreed upon by the SPEO, ES, and SA staff prior to deviations from pre-determined projects.

PROJECT AREAS

Figure 1 identifies mechanical trash removal project areas which have been generally approved by the District to support mechanical trash removal activities. Other project areas may be identified, reviewed and approved on a case-by-case basis after review and approval by the District Superintendent. Mechanical trash removal activities are intended to remove litter, waste, and other refuse from high impact and heavily used areas of the park where traditional public gatherings and camping impacts have been identified. In most cases, particular areas should be cleaned no more than twice a year, unless extenuating circumstances (large amounts of broken glass, etc.) require additional mechanical trash removal. Such additional mechanical trash removal will require the approval of the District Superintendent.

Mechanical trash removal operations are most effective in, and will target beach areas above, the high tide line where most human-use impacts are found. Mechanical trash removal operations will avoid high tide and wrack line disturbance, as well as creek mouth and lagoon areas, unless a specific need and plan has been developed in cooperation with ES and/or SA staff.

During shorebird non-nesting periods (October – February annually), mechanical trash removal activities may occur in the areas generally identified in Figure 1. In ODSVRA, mechanical trash removal activities are generally approved in the Post 2 and trash dumpster area, south to and including the Open Area, south from the Open Area to Post 6, and east of the foredune restoration area. In PSB, mechanical trash removal activities are generally approved in the Grand Avenue and Pier Avenue entrance areas.

During shorebird nesting periods (March – September annually), mechanical trash removal activities may occur in the areas generally identified in Figure 1 as adjusted. In ODSVRA, mechanical trash removal activities are generally approved in the Post 2 and trash dumpster area, south to and including the Open Area, south from the Open Area to Post 4 ½. In PSB, mechanical trash removal activities are generally approved in the Grand Avenue and Pier Avenue entrance areas.

These considerations identify factors which will lead to successful and efficient mechanical trash removal operations, however nothing shall preclude mechanical trash

removal operations to be performed outside of these general guidelines, areas, and timeframes given SPEO, ES and SA staff have discussed, developed, and agreed upon an appropriately planned project, which has been presented to, and approved by the District Superintendent.

REPORTING AND NOTIFICATION

Upon completion of a mechanical trash removal project, the District SPEO shall document and record such project information to include, but not limited to, date, time, specific project site location, type, distribution and (approximate) weight of material collected, additional notes, photographs, and relevant information. Documentation shall be saved to a shared electronic database location available for review by District staff, including, but not limited to, SPEO, ES, SA, Supervisors, and Management.

These monitoring actions will provide historical reference data, allowing the District to identify if activities need to be increased, reduced, or eliminated and if project areas need to be added, refined, or eliminated.

Upon completion of a mechanical trash removal project, the District SPEO, ES and/or SA shall notify District Management for awareness.

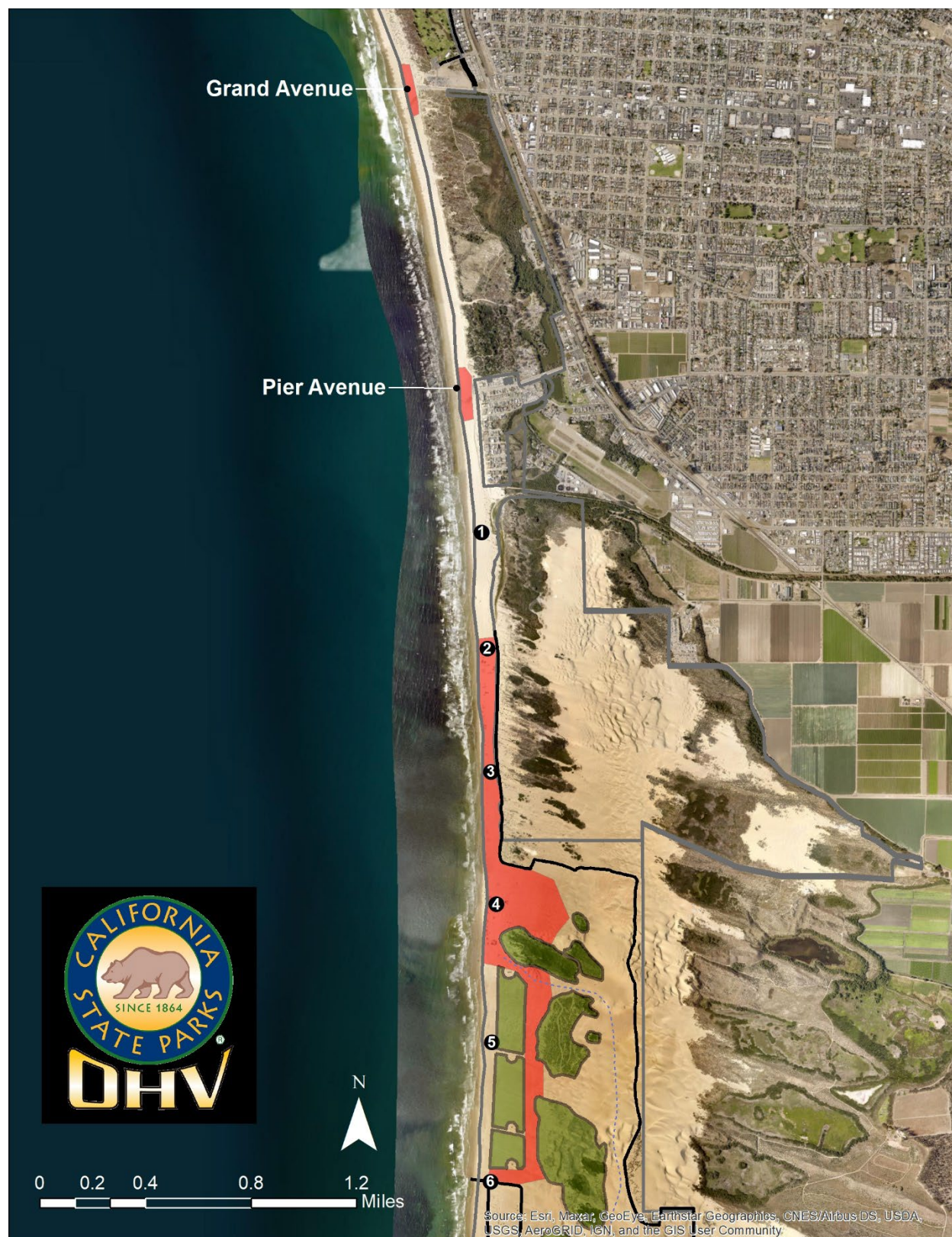
HANDBOOK REVISIONS

Periodically, or as new data becomes available, District staff shall review this handbook to consider the overall success of the mechanical trash removal program, consider additional measures which may be necessary, and recommend additional revisions to be considered for approval by the District Superintendent.

GUIDING PRINCIPLES

- Activities shall maintain a reasonable buffer from the high-tide line.
- Activities shall maintain a reasonable buffer above the wrack line.
- Mechanical trash removal activities shall be designed to avoid wet sand (i.e., wave run-up).
- Activities shall be designed to occur during daylight hours unless otherwise approved.
- District Environmental Scientist staff shall inspect and clear project area immediately prior to activities.
- District Archaeologist staff shall review cultural site maps prior to beach cleaning activities.
- Activities shall maintain a reasonable buffer from creek mouths and lagoon areas, unless otherwise approved.
- Activities shall maintain a safe buffer from all wildlife. Report any wildlife conflict or impact to Ranger and Environmental Scientist staff immediately.
- Activities shall maintain a reasonable buffer from all vegetation, unless otherwise approved.
- Activities shall avoid all cultural sites. Report any cultural site conflict or impact to Ranger and State Archaeologist staff immediately.
- Activities shall maintain a safe buffer from all visitors and campsites.
- Staff should be aware of changed public activity, wildlife activity, and weather activity that may enter the work area for the ability to immediately pause, stop, or alter activities until conditions change.
- Generally, activities shall be limited to twice per year in any one area, or as required to achieve specific goals.
- All debris shall be disposed of in the appropriate location at the end of each operation.
- Pre-planned project areas are identified in Project Map (figure 1, page 13).
- In the event of any natural or cultural conflicts, SPEO, ES, and/or SA staff will immediately cease any work within the vicinity and protect the site from any further disturbance. ES and/or SA staff will determine appropriate actions and make required notifications based upon the conflict.

Oceano Dunes District Mechanical Trash Removal Operations



Project Map

Figure 1. Areas in red currently identified as mechanical trash removal project areas

APPENDIX A

Excerpts (*Edited*) from NOAA Marine Debris Program¹ | General Debris Removal BMPs (NOAA 2013, 2014, 2018).

There are a number of general BMPs that should be employed for any intertidal debris removal project regardless of specific access or removal methods. In general, these BMPs are intended to complement and elaborate upon the best practices identified in the Programmatic Environmental Assessment for the NOAA MDP (NOAA, 2013).

- Avoid collisions and contact with all wildlife.
- All removal operations should take place during daylight hours. Night operations may require establishment of additional location specific BMPs.
- Avoid all bird and turtle nesting or aggregation areas or marine mammal haul-out locations.
- Ensure no nesting birds are adjacent to debris, in the footprint of vehicle traffic, or in the path of debris to be removed by dragging. On sites with nesting bird sensitivity, resource agency and/or landowner representatives should be present to identify any birds nesting in the area and determine the current status of the nesting birds and fledglings. If any of the birds in the area are still nesting (with eggs or young birds at the nest), it is preferable to delay the recovery until such time that no birds are nesting and the young birds have left the area.
- To limit disturbance to birds and other sensitive wetland and intertidal-associated species, work crews should be limited in size and number to the minimum number of personnel and equipment required to complete removal in an efficient time frame. Equipment and personnel should work as closely together as is feasible during recovery operations to minimize disturbance, rather than spread across the entire site.
- Minimize unnecessary disturbance or removal of natural sediment, organic, matter, and vegetation not required to access man-made debris items. If moving organic debris is required, replace or deposit in the nearest tidally influenced area. Organic debris plays vital ecological function in many intertidal areas and should remain in place to the extent possible.
- Historic and precontact-era artifacts of any type (e.g., pot sherds, arrowheads, ship timbers, and bottles) should not be collected and should be reported to the appropriate agency.
- Staging areas for sorting or storing recovered debris should not be located in wetlands or intertidal areas if possible.
- Remove all equipment and materials deployed to facilitate debris removal operations at conclusion of operations.

¹ https://marinedebris.noaa.gov/sites/default/files/mdp_pea.pdf

Un-vegetated Intertidal Recovery Techniques

- As per recovery in vegetated wetland environments, both manual and equipment assisted lifting or dragging methods may be used.
- Manual recovery is preferred if the substrate is firm enough to support foot traffic and debris is small and light enough to be removed by hand-picking or with hand tools. This also assumes that recovery teams can walk on the substrate and remove the debris. Debris may be dismantled by hand and removed via a route that is safe and clear of vegetation.
- Where manual recovery is not possible, wheeled or tracked vehicles and equipment may be used to recover debris items via lifting or dragging if access is available and substrate is firm enough to support transit. In general, lifting techniques are preferred to dragging techniques in order to minimize the impact of removal.

Un-vegetated Intertidal Recovery Specific BMPs

- Removal operations on sand beaches in particular may require specific restrictions on timing and location of removal activities to avoid impacts to high-profile or particularly sensitive species such as beach nesting birds.
- Removal operations on sand beaches or other un-vegetated shorelines may require specific restrictions on specific removal methods to limit erosion along shorelines where this is an issue of particular concern.
- Specific guidance regarding timing and location of removal activities may be required to minimize disturbance to human and socio-economic uses of un-vegetated shorelines, particularly high-use or amenity beaches and shorelines.

APPENDIX B

Excerpts from the 2021 Biodiversity Management Plan for Oceano Dunes District.

The BMP includes a suite of recommendations, some of which would result in a major change to CSP operations and some that are less prescriptive. Some of those recommendations for the most significant topics are summarized below,

- Introduction
California Least Tern and Western Snowy Plover, Limit use of mechanical trash removal equipment.
- 4.2.2.3. Ocean Fisheries
Neither grunion nor Pismo clam are specifically managed for by CSP within the BMP Area, though CSP's limited use of equipment for mechanical trash removal only above the mean high tide line helps trash removal related impacts to grunion eggs and larvae.
- 4.3.3.1. Grunion
Grunion adults and eggs could be significantly impacted by mechanical trash removal (Martin et al. 2006). However, CSP implements NOAA guidance on mechanical trash removal and grunion when they developed their mechanical trash removal program. This program has CSP performing mechanical trash removal only higher than the highest wrack line to avoid areas where grunion eggs could be deposited. Adults could be directly impacted by vehicles driving at night on the wetted sand during an active run, and it is probable that eggs and larvae would be impacted by driving on the wetted sand during all times of day when present.
- 4.4.3.1. Grunion
The reduction in public use numbers proposed by CSP will help reduce related impacts to grunion. Also, CSP's limited use of mechanical trash removal equipment to remove trash above the highest wrack line helps minimize mechanical trash removal related impacts to grunion eggs and larvae.
- 5.4. Recommended Additional Conservation Actions
Other recommendations include: restricting public access to the shoreline habitat area in front of the newly established 48-acre foredune area if nests are present, working with the CDFW raptor program to decrease the number of raptor relocations, and limiting mechanical trash removal to fewer than four times per year and only in limited areas where needed. It should be noted that CSP does not conduct trash removal activities for the purposes of removing beach wrack. In fact, CSP policies prohibit the removal of beach wrack. Instead, equipment is used to remove trash that gets buried quickly in the constantly shifting sands at ODSVRA. CSP conducts mechanical trash removal only above the mean high tide line and only in limited areas at ODSVRA.

APPENDIX C

Excerpts from the 2020 Draft Habitat Conservation Plan for Oceano Dunes District.

Avoidance and Minimization Measures

- AMM 104 Mechanical trash removal will not occur in areas where any SNPL are present.
- AMM 105 Mechanical trash removal will only occur above the highest high tide, avoid all wrack/surf cast kelp, avoid all live vegetation, and avoid lagoons and flowing creeks.
- AMM 106 Equipment will observe all speed limits and will not exceed 10 mph.
- AMM 107 Mechanical trash removal will not be conducted within 500 feet of any known nesting area.
- AMM 108 Natural resources staff will inspect and approve the area subject to mechanical trash removal prior to each deployment. Natural resources staff will remain on site or immediately available for monitoring purposes.
- AMM 109 In conjunction with mechanical trash removal, CDPR will implement a study to establish baseline conditions of invertebrate populations, including talitrids and to determine the impact of mechanical trash removal on these populations. The study will, at a minimum, compare invertebrate abundance in mechanical trash removal areas to baseline conditions prior to the start of mechanical trash removal to areas where mechanical trash removal is absent. If CDPR finds a significant decline in invertebrate numbers in mechanical trash removal areas, additional measures will be implemented (e.g., habitat enhancement measures, reduction in frequency of mechanical trash removal, and/or reduction in mechanical trash removal locations).

APPENDIX D

Excerpts from the 2017 Dust Control Program for Oceano Dunes SVRA.

Mitigation Measures

Mitigation Measure AIR-1D: To ensure that implementation of mechanical trash removal does not cause or contribute to violations of air quality standards, the OHMVR Division shall undertake the following actions.

- If mechanical trash removal has increased emissivity in an area south of Post 4 (or other area determined by the SAG), the OHMVR Division shall, in consultation with the SAG, identify and implement measures that offset the increased emission concentrations. These measures may include, but are not limited to:
 - Permanently discontinuing mechanical trash removal activities in the area that has experienced an increase in emissivity so it can return to baseline conditions, or
 - Controlling dust from another portion of the SVRA that is equivalent to the measured increase in emissivity from the raked area.
- Mechanical trash removal activities may be resumed when, in consultation with the SAG, it has been determined the change in emissions from the area that underwent mechanical trash removal has been fully offset.
- The OHMVR Division may reduce/cease monitoring being carried out pursuant to Mitigation Measure AIR-1A for areas that have undergone mechanical trash removal under the following criteria.
 - Monitoring may be reduced to an interval of once every 6 months if the monitoring has demonstrated that emissions in the mechanically raked area have stabilized over a period no less than 1 year (i.e., new maximum emissivity values are not being recorded), control measures have been implemented that fully offset the maximum increase in emissions after the mechanical trash removal has occurred (i.e., immediately after the area has been raked), and modeling/statistical analysis is not being conducted for the initial emissions rate being analyzed pursuant to item 1) above.
 - Monitoring may cease if the OHMVR Division no longer proposes to mechanically rake an area, or the monitoring has demonstrated that emissions in the mechanically raked area have stabilized over no less than 2 years (i.e., no new maximum emissivity values have been recorded), and modeling/statistical analysis is not being conducted for that emissions rate pursuant to item 1) above.
 - If at any time a new area of the SVRA is proposed for mechanical trash removal, its baseline emissivity shall be documented, and monitoring shall occur pursuant to Mitigation Measure AIR-1A at a rate of once every 3 months. Conditions 3a) and 3b) must then be met again to decrease the frequency of the monitoring after a mechanically raked area has recorded an increased emissivity factor compared to baseline conditions.

APPENDIX 6: PUBLIC RESOURCES CODE RELATED TO THE WILDLIFE HABITAT PROTECTION PLAN

PRC §5090 provides language on conserving and improving natural resources within SVRAs, which further informs the scope and purpose of WHPPs:

§5090.10 “‘Conservation’ and ‘conserve’ mean activities, practices, and programs that protect and sustain soils, plants, wildlife, habitats, and cultural resources in accordance with the standards adopted pursuant to Section 5090.35.

§5090.11 “‘Restoration’ and ‘restore’ mean, upon closure of the unit or any portion thereof, the restoration of land to the contours, the plant communities, and the plant covers comparable to those on surrounding lands or at least those that existed prior to off-highway motor vehicle use.

§5090.13 “‘Monitoring program’ means a program adopted by the department that provides periodic evaluations of the condition of resources and informs adaptive management within state vehicular recreation areas.”

§5090.14 “‘Adaptive management’ means to use the results of information gathered through a monitoring program or scientific research to adjust management strategies and practices to conserve cultural resources and provide for the conservation and improvement of natural resources.”

§5090.32. (g) the Off-Highway Motor Vehicle Recreation Division (Division) to “Prepare and implement management and wildlife habitat protection plans for lands in, or proposed to be included in, state vehicular recreation areas, including new state vehicular recreation areas. These plans shall be developed in consideration of statutorily required state and regional conservation objectives. However, a plan shall not be prepared in any instance specified in [subdivision \(c\) of Section 5002.2](#). Trails may only be added or included as components of existing trail systems when developing or updating plans in state vehicular recreation areas, upon completion of full environmental review.”

§5090.35. (a) “The protection of public safety, the appropriate utilization of lands, and the conservation of natural and cultural resources are of the highest priority in the management of the state vehicular recreation areas. Additionally, the division shall promptly repair and continuously maintain areas and trails and anticipate and prevent accelerated and unnatural erosion and other off-highway vehicle impacts to the extent possible. The division shall take steps necessary to prevent damage to significant natural and cultural resources within state vehicular recreation areas.”

§5090.35. (c) (1) “The division shall compile and, when determined by the department to be necessary, periodically review and update an inventory of wildlife populations and prepare a wildlife habitat protection plan that conserves and improves wildlife habitats for each state vehicular recreation area. By December 31, 2030, the division shall compile an inventory of native plant communities in each state vehicular recreation area to inform future plan updates.”

§5090.35. (d) “The division shall monitor annually in each state vehicular recreation area to determine whether soil conservation standards are being met and the objectives of wildlife habitat protection plans are being met.”

5090.35. (f) “The division shall protect natural, cultural, and archaeological resources within the state vehicular recreation areas.”

§5090.39. (a) “The department shall require that: (1) Any soil conservation standard, wildlife habitat protection plan, or monitoring program, required by this chapter, applies best available science. (2) All standards, plans, and monitoring programs subject to paragraph (1) shall provide opportunities for public comment, including, but not limited to, written comments and public meetings, as appropriate.”

§5090.43. (a) “State vehicular recreation areas consist of areas selected, developed, and operated to provide off-highway vehicle recreation opportunities. State vehicular recreation areas shall be selected for acquisition on lands where the need to establish areas to protect natural and cultural resources is minimized, the terrain is capable of withstanding motorized vehicle impacts, and where there are quality recreational opportunities for off-highway motor vehicles. Areas shall be developed, managed, and operated for the purpose of providing the fullest appropriate public use of the vehicular recreational opportunities present, in accordance with the requirements of this chapter, while providing for the conservation of cultural resources and the conservation and improvement of natural resource values over time.”

§5090.43. (b) “After January 1, 1988, no new cultural or natural preserves or state wildernesses shall be established within state vehicular recreation areas. To protect natural and cultural resource values, sensitive areas may be established within state vehicular recreation areas where determined by the department to be necessary to protect natural and cultural resources. These sensitive areas shall be managed by the division in accordance with Sections 5019.71 and 5019.74, which define the purpose and management of natural and cultural preserves.”

§5090.43. (c) “If off-highway motor vehicle use results in damage to any natural or cultural resources or damage within sensitive areas, appropriate measures shall be promptly taken to protect these lands from any further damage. These measures may include the erection of physical barriers and shall include the restoration of natural resources and the repair of damage to cultural resources.”