2022 WILDLIFE HABITAT PROTECTION PLAN

Clay Pit State Vehicular Recreation Area

2022 Wildlife Habitat Protection Plan
Clay Pit State Vehicular Recreation Area
Oroville, CA

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Acronyms and Abbreviations

ARU	Autonomous Recording Unit
ATV	All-Terrain Vehicle
BAS	Best Available Science
BIOS	Biogeographical Information and Observation System
BMP	Best Management Practices
BRCP	Butte Regional Conservation Plan
CalEPA	California Environmental Protection Agency
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CSP	California Department of Parks and Recreation
Department	California Department of Parks and Recreation
District	Northern Buttes District
Division	Off-Highway Motor Vehicle Recreation Division
DMA	Drainage Management Area
DOM	Department Operations Manual
DWR	California Department of Water Resources
EIR	Environmental Impact Report
FERC	Federal Energy Commission
GIS	Geographic Information System
HCP	Habitat Conservation Plan
IPaC	Information for Planning and Consultation
MU	Resources Management Unit
NDVI	Normalized Difference Vegetation Index

NRD	Natural Resources Division
NTU	Nephelometric Turbidity Units
NVCS	National Vegetation Classification System
NWS	National Weather Service
OHMVRD	Off-Highway Motor Vehicle Recreation Division
OHV	Off-Highway Vehicle
ORA	Open Riding Area
ORMP	Oroville Recreation Management Plan
OWA	Oroville Wildlife Area
PRC	Public Resource Code
RWQCB	Regional Water Quality Control Board
SB 249	Senate Bill 249
SCP	Soil Conservation Plan
STWG	State and Tribal Wildlife Grants
SVRA	State Vehicular Recreation Area
SWAMP	Surface Water Ambient Monitoring Program
USACE	United States Army Corp of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VegCAMP	Vegetation Classification and Mapping Program
VELB	Valley Elderberry Longhorn Beetle
VPFS	Vernal Pool Fairy Shrimp
WHPP	Wildlife Habitat Protection Plan

1 Introduction

1.1 Purpose and Scope of the Wildlife Habitat Protection Plan

The goal of a Wildlife Habitat Protection Plan (WHPP) update is to present the full picture of a State Vehicular Recreation Area's (SVRA) wildlife and habitat management effort. It serves as a dynamic working document, providing land managers with guidance for managing habitat along with short- and long-term resource management goals and the methods to achieve them. Each updated WHPP utilizes scientific literature, expert opinion, and staff expertise in setting resource management goals and describing land management activities. The scope of a WHPP encompasses the full spectrum of land management and visitor use activities that affect wildlife habitat at an SVRA. It includes existing settings, goals, management actions, and a plan for "why and when" management actions are implemented, among other items.

For Clay Pit State Vehicular Recreation Area (Clay Pit SVRA), the WHPP update allows SVRA resources staff to reevaluate the park's current resource monitoring and management program and restructure it to meet the new legislative requirements of Senate Bill 249 (SB 249). Clay Pit SVRA's WHPP provides an overview of the park's 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 Clay Pit SVRA WHPP contributes to the California Department of Parks and Recreation's (CSP) mission to preserve California's extraordinary biological diversity while providing opportunities for high-quality recreation.

1.2 Legal and Operational Requirements

Since 1988, California's Public Resources Code (PRC) required a WHPP for each SVRA focused on sustaining viable species composition. In 2017, SB 249 amended the PRC to require SVRAs to develop a WHPP that conserves and improves wildlife habitats. SB 249 also added other specific requirements. WHPPs consider statutorily required state and regional conservation objectives, apply best available science, and undertake annual monitoring at each SVRA to evaluate whether WHPP objectives are being met. Additionally, SB 249 expanded the roles and responsibilities of the Off-Highway Motor Vehicle Recreation Division (OHMVRD) and the CSP in each SVRA's WHPP development and resources management processes, including oversight and annual reporting.

A list of statutory requirements that apply to this WHPP as outlined in the PRC can be found in *Appendix 4: PRC Requirements*.

1.3 Relationship With Other SVRA Plans

Clay Pit SVRA's WHPP is a planning document that guides the management of natural resources within the park's boundaries. The WHPP was developed in coordination with the SVRA's other principal management and planning documents (Figure 1-1). The other related guiding documents for Clay Pit SVRA include the 2012 General Plan, 2022 Soil Conservation Plan, and 2022 Water Quality Management Plan.

Figure 1-1. State Parks' Planning Structure.

Clay Pit SVRA 2012 General Plan

Clay Pit SVRA's General Plan was approved by California's Off-Highway Motor Vehicle Recreation Commission and adopted on June 23, 2012. The General Plan was the first in the park's history. It was developed as a broad-based policy document that establishes a long-range vision and provides goals and guidelines to direct future improvements, services, and programs at the SVRA. It outlines specific long- and short-term goals for the future management and development of the SVRA and provides a framework intended to guide daily park management. The General Plan focuses explicitly on improving recreation opportunities and facilities while maintaining and protecting the park's existing natural resources.

State Park General Plans are considered "Projects" under the California Environmental Quality Act (CEQA) and thus are subject to CEQA compliance. Since the implementation of the Clay Pit SVRA General Plan could result in actions that could potentially physically alter the environment at the SVRA, an accompanying program Environmental Impact Report (EIR) which assessed these potential impacts was

developed concurrently with the General Plan. The goals and guidelines described in the General Plan were evaluated in the EIR for their potential effects on the environment and designed to ensure that implementing the SVRA's General Plan would not result in significant environmental impacts.

Clay Pit SVRA's General Plan is the park's primary management document. All other management and project-specific plans tier off the general plan and must remain consistent with it. Therefore, Clay Pit SVRA's General Plan was used as a guide and source for developing this WHPP and the information provided within.

Clay Pit SVRA's 2012 Final General Plan and EIR can be found online at OHMVRD's Clay Pit SVRA homepage.

Soil Conservation Plan

Clay Pit SVRA resources staff, at the time of this WHPP's writing, are in the process of developing a Soil Conservation Plan (SCP) to comply with the Department's 2020 Soil Conservation Standard and Guidelines. The SCP is expected to be completed and implemented by January 1, 2023, and, like the WHPP, is a management plan that describes the different measures, practices, and strategies used to ensure compliance standards within an SVRA are being met. However, unlike the WHPP, the SCP focuses on the sustainable management of soil resources and implementing long-term prescribed use within an SVRA.

Despite the WHPP and SCP focusing on different resource aspects, there is considerable overlap in both resource programs. Many of the resources indicators for determining and measuring soil compliance within the SVRA coincide and can be used in tandem with resources indicators that measure the health of natural resources at the SVRA. Therefore, to avoid confusion from potentially contradicting management plans or criteria (e.g., goals, objectives, monitoring, etc.), these documents directly correspond to and influence each other's monitoring and management goals and adaptive management decisions.

Water Quality Monitoring Plan

Clay Pit SVRA resources staff, at the time of this WHPP's writing, are in the process of developing a Water Quality Monitoring Plan for the SVRA. It, like the SCP, is expected to be completed and implemented as part of Clay Pit SVRA's resources management by January 1, 2023. This Water Quality Monitoring Plan will ensure that water quality monitoring and measurements are compliant with regulatory standards. The Water Quality Monitoring Plan will be designed to be comparable with a Surface Water Ambient Monitoring Program (SWAMP). The SWAMP is a State Water Resources Control Board program that assesses the state's surface waters. Monitoring results are collected by the program and its partners to produce comprehensive and standardized

data products for statewide water resource management. The plan will be designed following the SWAMP Quality Assurance Program.

The monitoring methods used for the Water Quality Monitoring Plan will inform several aspects of the park's resources management. Monitoring methods outlined by this document will be incorporated into the WHPP and used to inform its adaptive management process. Water quality monitoring data can be readily used to evaluate many aspects of the WHPP, including evaluating the success of riparian restoration projects, soil loss and sedimentation, and the health of aquatic habitat and resources. The development and implementation of this document will occur over the lifetime of this WHPP and will be instrumental to the Clay Pit SVRA WHPP program.

1.4 CEQA Compliance

The overall purpose of this WHPP is to present a full picture of the SVRA's resources and resource monitoring programs. As a part of this process, the WHPP also 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 CEQA process (not necessarily the product) begins at this stage. If discretionary projects or actions are identified, CSP will follow Department procedures for meeting CEQA compliance. Once a project or action has been selected for implementation, it will undergo CEQA review at that time using the CSP Project Evaluation Form.

1.5 Update Cycle and Approval Process

This WHPP will be evaluated at least once every five years. Each update will encompass wildlife habitat protection and restoration planning in the SVRA over the next five years. Updates will include a summary of wildlife habitat protection and conservation at the SVRA since the previous WHPP update and a description of the goals and objectives for the next five years. The update will reflect changes to vegetative land cover, land use, species occurrence, disturbance, land acquisitions, and updates to monitoring protocols or technology. WHPP updates will undergo a review by the Department's Natural Resources Division (NRD) to ensure Best Available Science (BAS) was applied, and will require OHMVRD approval.

Once completed, an updated WHPP will be approved by the Northern Buttes District's Natural Resources Program Manager and District Superintendent, submitted to NRD and OHMVRD for peer review, posted for public comment, submitted again to NRD for BAS confirmation, then submitted again to OHMVRD for final review and approval. If a CEQA review is deemed necessary, it will be completed at that time.

1.6 Adaptive Management Strategy

With the passage of SB 249, Section §5090.14 was added to the PRC to define adaptive management within CSP's OHMVRD program more accurately:

> "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.

Adaptive management is a common strategy and fundamental component of implementing BAS in natural resource management. It is the guiding force behind Clay Pit SVRA's monitoring program and the 2022 WHPP. Adaptive management includes an assessment of the park's resources, developing objectives based on those conditions, identifying management actions, and monitoring these actions, which allows evaluation and adjustment of practices (Figure 1-2). Sections 2 through 6 provide information on natural resource planning for each step of the adaptive management process.

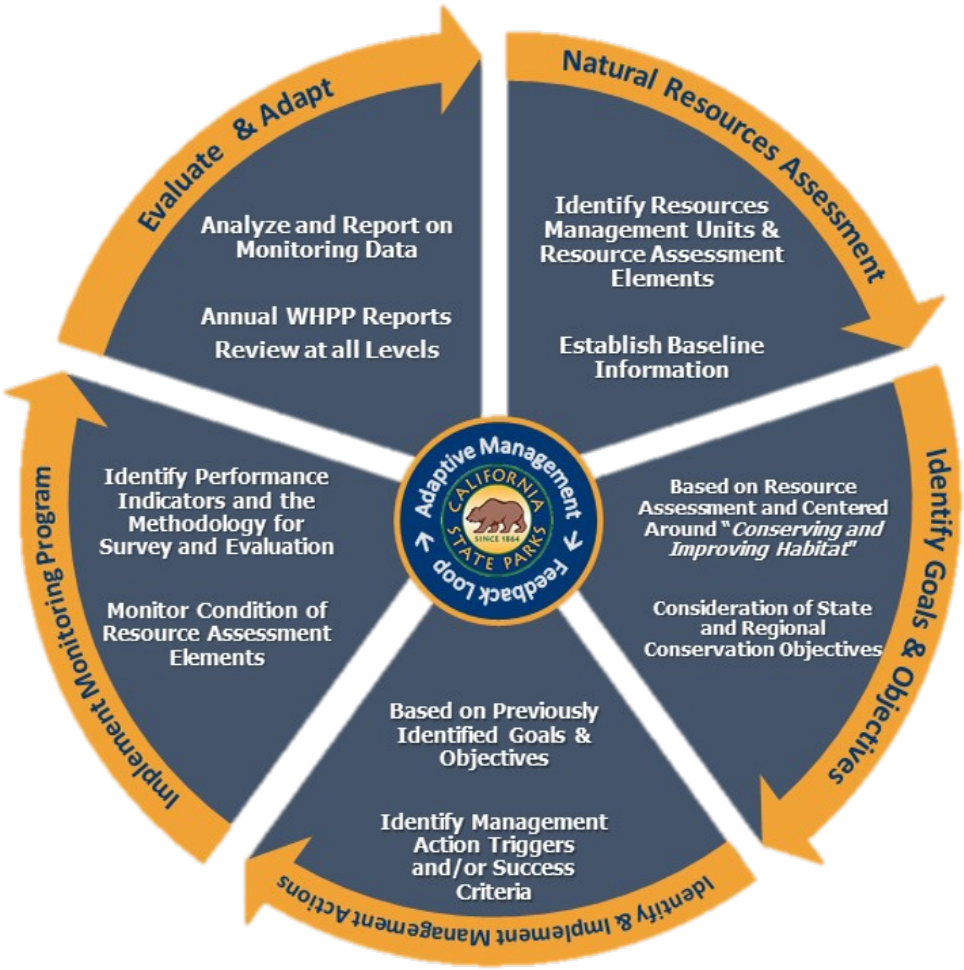

Figure 1-2. Steps of the WHPP Adaptive Management Process.

2 SVRA Setting & Natural Resource Assessment

2.1 Park Overview & General Assessment Elements

2.1.1 Location and Regional Context

Clay Pit SVRA is a 220-acre park located in unincorporated Butte County (Figure 2-1). The site is situated along Larkin Road, approximately three miles southwest of Oroville and 3.3 miles east of Highway 99. The northern and western boundaries of the park are formed by Larkin Road, with a California Department of Fish & Wildlife (CDFW) shooting range and wildlife area bordering the park on its southern and eastern boundaries, respectively. The park can be found in the northwestern corner of the United States Geologic Survey (USGS) Palermo 7.5 quadrangle. Surrounding natural landmarks include the Feather River, located roughly one to two miles south and east of the SVRA, and Lake Oroville, located approximately eight miles northeast of the SVRA.

Clay Pit SVRA is located within CSP's Northern Buttes District. The Northern Buttes District encompasses a wide variety of park units, including Castle Crags State Park and McArthur Burney Falls Memorial State Park in the north portion of the District, to Clear Lake State Park and Anderson Marsh State Historic Park to the south. The headquarters office for Northern Buttes District is in the City of Oroville, and the nearest park unit is Lake Oroville State Recreation Area, located approximately eight miles northeast of the SVRA. Prairie City SVRA is the closest SVRA, located in Rancho Cordova, about 90 miles to the south.

The nearest population center is the City of Oroville (pop. 18,000), just north and east of Clay Pit SVRA. The region's largest city is Chico (pop. 110,000), around 23 miles to the northwest. The population within unincorporated Butte County includes approximately 66,000 people (DOF 2021).

2.1.2 Relevant SVRA and Regional History

The Clay Pit basin is a large, shallow, excavated, bowl-like depression formed when clay was mined and used to construct the nearby Oroville Dam. In 1981, after construction of the dam was complete, CSP entered into an agreement with CDFW and the California Department of Water Resources (DWR), the landowners, to take over management of the Clay Pit site, previously known as "the impervious materials borrow area at Oroville Division." The Agreement for Transfer to the Department of Parks and Recreation of the Impervious Materials Borrow Area at Oroville Division was signed on January 22, 1981.

The agreement gave CSP the right to plan, develop, and administer real and personal property for the site as an OHV park, and it was subsequently designated as an SVRA. DWR retains the right to inundate the site or remove additional borrow material, if

necessary, for the Oroville Division of the State Water Project; however, DWR has not exercised, nor expressed an interest in exercising, these rights. The agreement was mutually beneficial as CSP was looking to expand legal OHV recreation opportunities at the site due to its popularity as a local location for unofficial OHV recreation following the clay mining effort.

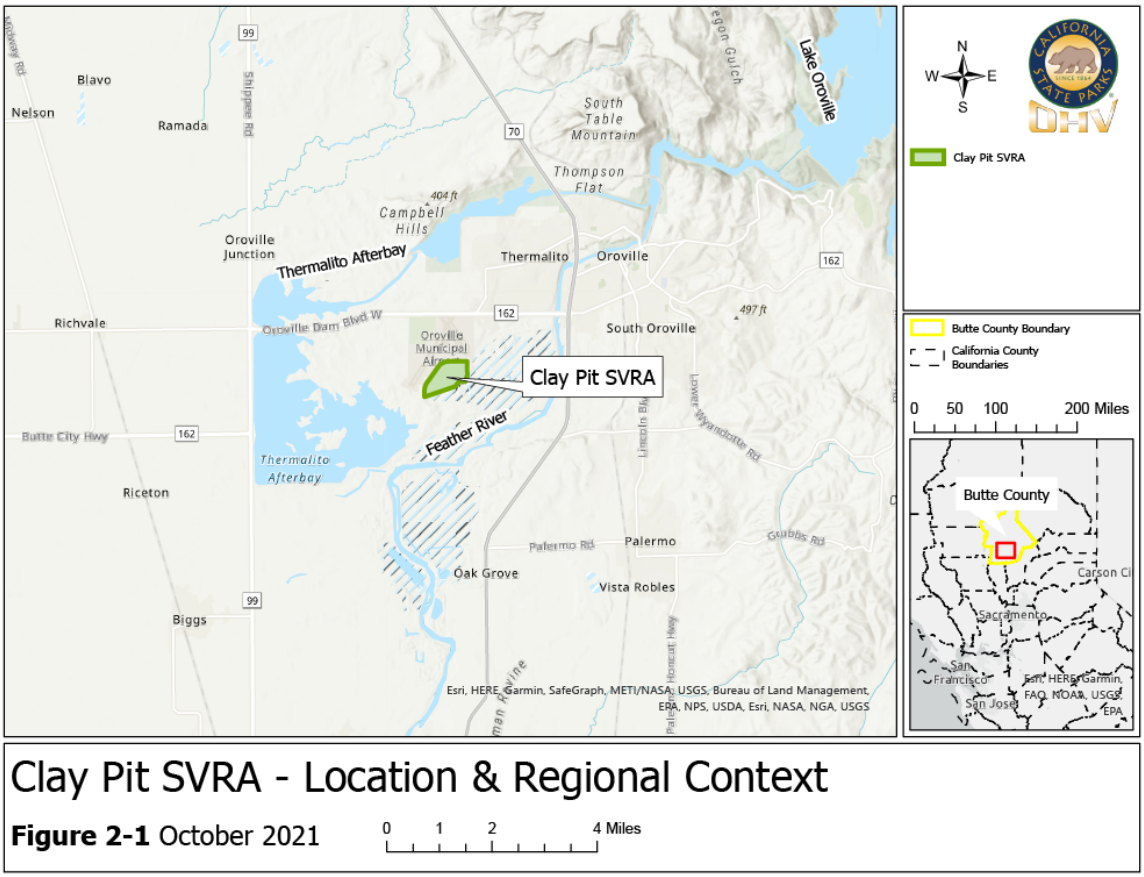

Figure 2-1. Clay Pit SVRA - Location and Regional Context Map.

2.1.3 Regional Land Use

Land use designations adjacent to Clay Pit SVRA range from industrial and residential lands to land managed for recreation and natural resources. The property immediately north of the park contains the Oroville Municipal Airport and its associated industrial buildings (Figure 2-2). While much of the airport property is used for associated municipal purposes, it contains large open areas of relatively unmanaged grasslands and vernal pool habitat. Farther northwest past the airport property and upland from the SVRA is Table Mountain Golf Club. During wet months, runoff from these two properties enters the SVRA from the northwest via an incised drainage culvert located under Larkin Road.

Immediately bordering the park to the south and east of Clay Pit SVRA is the Oroville Wildlife Area. CDFW manages Oroville Wildlife Area as a natural wildlife area and offers public recreational opportunities, including hunting, fishing, boating, and wildlife viewing. The land east of the park is primarily oak woodland habitat and contains a remnant oxbow of the Feather River into which runoff from the park and its northern properties drain. To the south of the SVRA are a CDFW vernal pool management area and CDFW's Rabe Road outdoor shooting range.

Residences, ranches, and grazing lands are located to the west and south of the park. Clay Pit SVRA also sits around two miles east of the Thermalito Afterbay, a regulating reservoir associated with Lake Oroville and the State Water Project that provides additional outdoor recreational opportunities. Thermalito Afterbay is part of the Oroville Wildlife Area managed by CDFW.

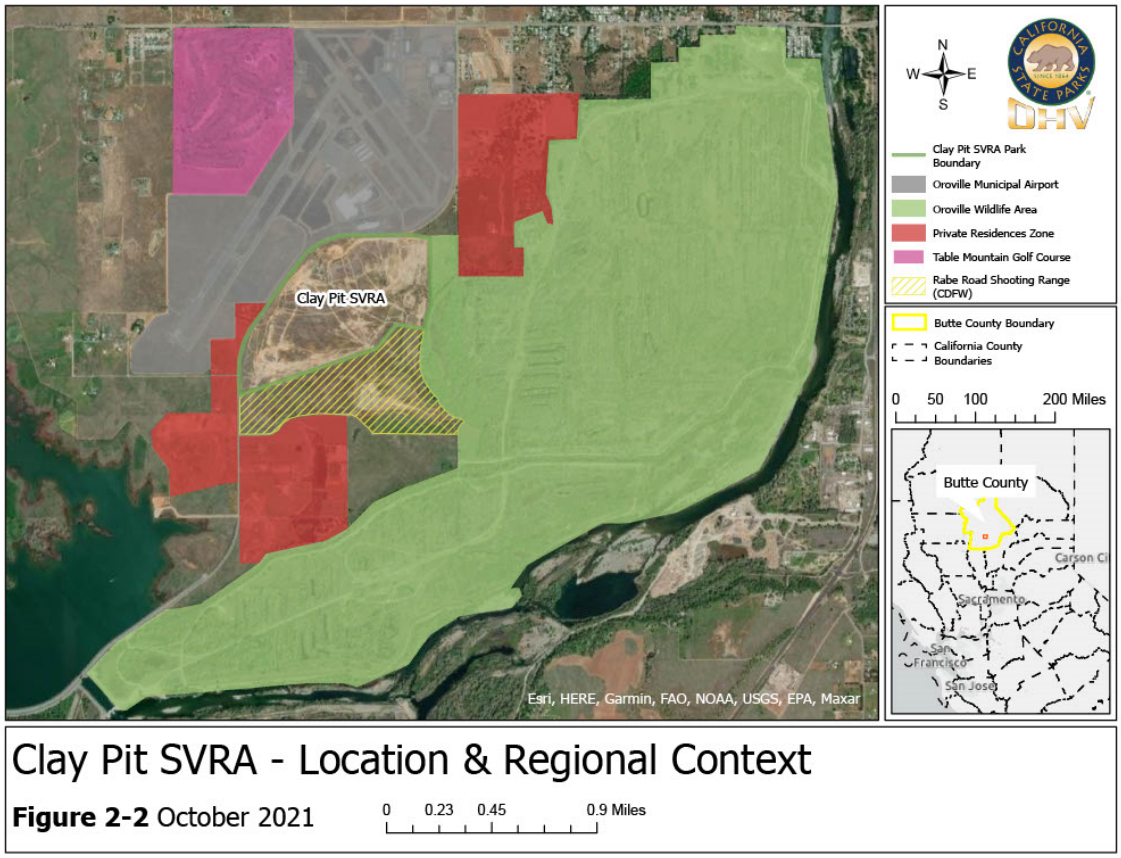

Figure 2-2. Clay Pit SVRA – Location and Regional Context.

2.1.4 SVRA Use Level

Clay Pit SVRA is considered an "Open Ride OHV Park." It primarily contains basic, informal riding trails and open spaces available to all OHVs, including off-road motorcycles (dirt bikes), all-terrain vehicles (ATVs), recreational off-highway vehicles

(ROVs or side-by-sides), and other four-wheel-drive vehicles. Recreational features within the unit are limited to several small rock climb areas and an experimental soils course (Figure 2-3).

Clay Pit SVRA serves a broad age group of visitors, generally from the local area. Ease of access and lack of entrance or use fees make it a low-cost and accessible option for local OHV enthusiasts. Additionally, because of its relatively flat terrain and open use areas, it is a suitable location for bringing children and beginning OHV users. According to visitor surveys performed for the Clay Pit SVRA 2012 Final General Plan, 80% of respondents come to the site with their family or friends, while approximately 20% enjoy coming alone. Respondents also indicated that 78% reside less than 50 miles from the SVRA, and 94% reside within 100 miles.

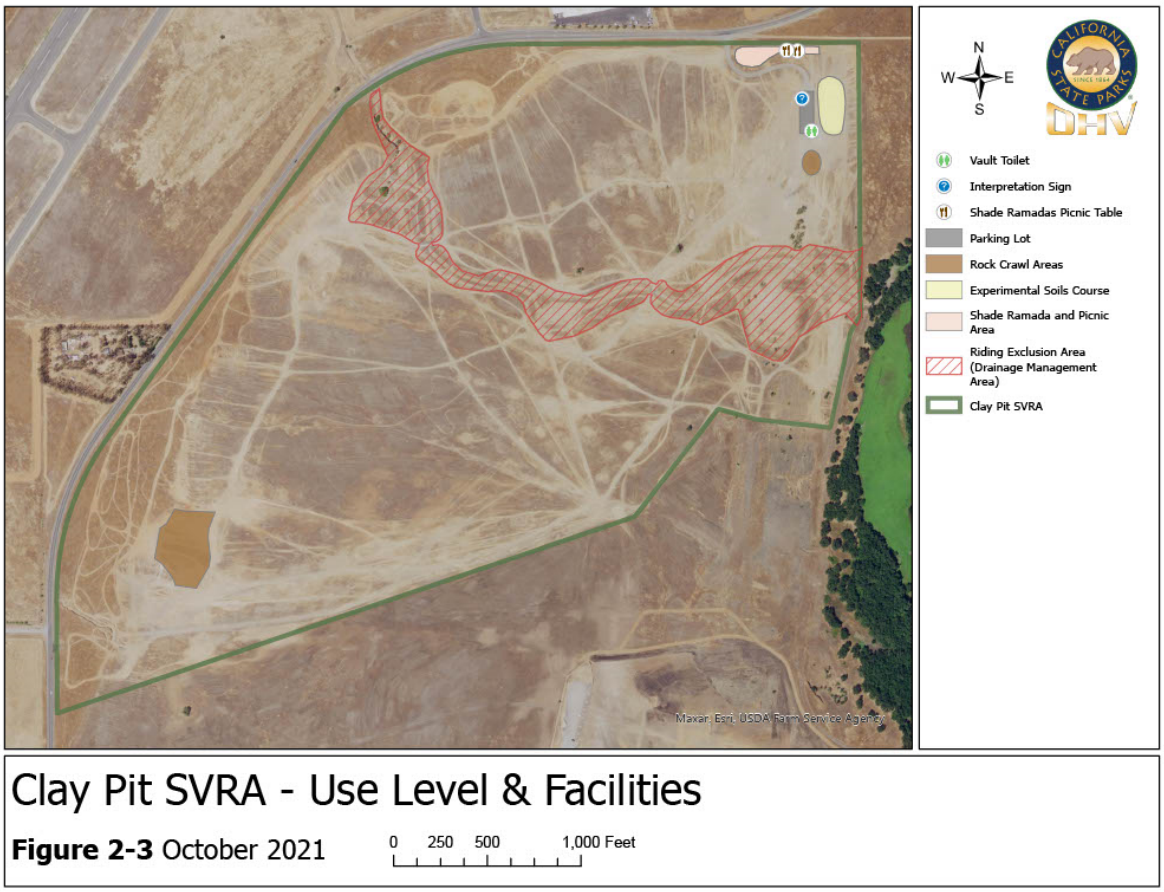

Figure 2-3. Clay Pit SVRA - Use Level and Facilities Map.

Existing traffic at Clay Pit SVRA is estimated to average between 8,900 and 13,800 vehicles per year. Using a ratio of 2.5 people per vehicle generates an estimated range of 22,250–34,500 visitors to the park annually (AECOM 2011). Most visitation occurs during weekends and holidays in the late spring and fall when temperatures are

relatively mild and the soils within the clay pit are still wet, but standing water has either started drying out or has not yet accumulated.

2.1.5 Abiotic Environmental Factors

Local Climate

Clay Pit SVRA is located within the northern reaches of California's Central Valley in the transitional foothills and grasslands along the northwestern base of the Sierra Nevada Mountain Range. Due to the exposed nature of the park and surrounding open grassland terrain, and the lack of any significant structures or features, the area is often subject to strong winds that blow unabated through the valley floor.

Clay Pit SVRA has a temperate climate with relatively wet, mild winters and dry, hot summers. During the summer (June – September), average temperatures will range between 75 degrees Fahrenheit (°F) and 96°F but can reach temperatures as high as the mid-100s (NWS 2021). Winter (December – February) temperatures range between 40°F and 52°F but can drop as low as the upper 30s (NWS 2021). Annual precipitation for the area averages just under 26 inches per year, with most rainfall occurring between October and April. July is the driest month, receiving on average less than 0.04 inches (NWS 2021).

Topography & Soils

Clay Pit SVRA ranges from 135 feet to 170 feet above mean sea level (Figure 2-4). The only areas of natural topography that remain in the park can be found on the narrow terrace that borders the pit along the park's northern and western boundaries. The basin, created during the park's historic mining activities, falls roughly 35 feet below the surrounding grade, giving the park a bowl-like shape. According to the park's General Plan, it is underlain by a Tertiary-aged Laguna Formation, and the original soil profile is now non-existent. The two soil types identified on-site include gravelly fine sandy loam located on the terraced areas and silty clay that comprises the park's basin (USDA 2021).

Hydrology

Clay Pit SVRA is located within the Lower Feather River Watershed. This watershed is situated within the Lower Feather River hydrologic area and subarea of the Marysville hydrologic unit, within the Sacramento Valley hydrological region. It is also located within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB), which is responsible for implementing federal and state laws and regulations to protect water quality within the Central Valley Basin.

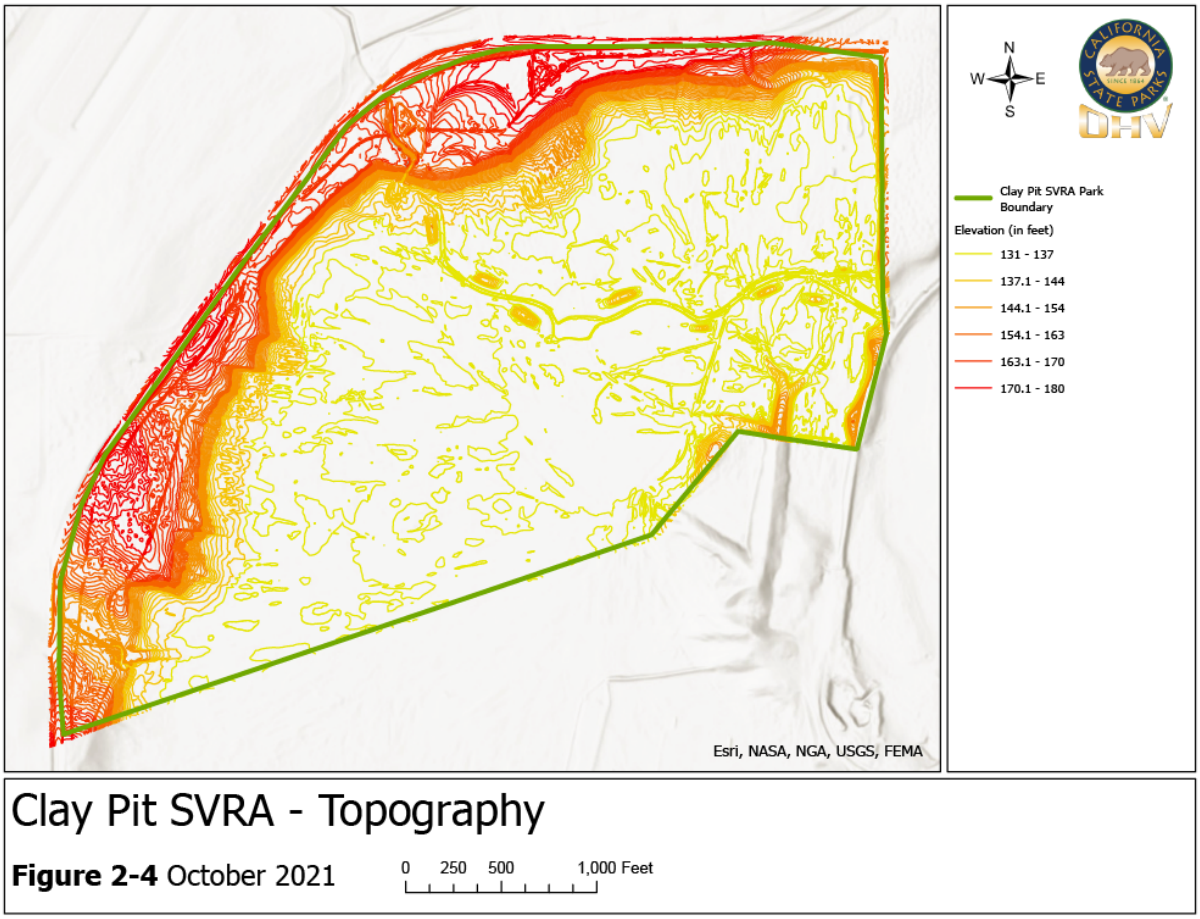

Figure 2-4. Clay Pit SVRA - Topography Map.

The drainage area that includes Clay Pit SVRA comprises 1,315 acres. It consists of the Oroville Municipal Airport, the Table Mountain Golf Course, and surrounding farmland. The SVRA encompasses 18 percent of the watershed, yet the entire watershed drains through the SVRA to an outlet at its eastern boundary. Since the 1940s, the park and surrounding properties' terrains have been heavily altered to the point where little natural hydrology or topography remains. Water is instead drained off properties through a series of manufactured drainage canals. The overall drainage area consists of relatively flat topography with mound and swale features that allow for the formation of vernal/ephemeral pools and swales that collect water during the wet season (CSP 2011).

Clay Pit SVRA's main hydrological feature includes a manufactured drainage canal and pond (Figure 2-5), created during the years that the area was mined for its clay resources. This drainage enters the park via a culvert under Larkin Road from the northwest. It then bisects and meanders through the park before exiting into an oxbow lake located along the eastern boundary of the SVRA. Water enters Clay Pit SVRA's drainage canal from direct precipitation, sheet flows from surrounding properties, and

through a series of culverts under Larkin Road. Due to its low elevation, the southeastern portion of the basin within the SVRA is inundated periodically during high-flow events with backflow from the remnant Feather River oxbow. This drainage feature, although artificial, is considered jurisdictional water under Section 404 of the Clean Water Act and Section 1602 of the California Fish and Game Code.

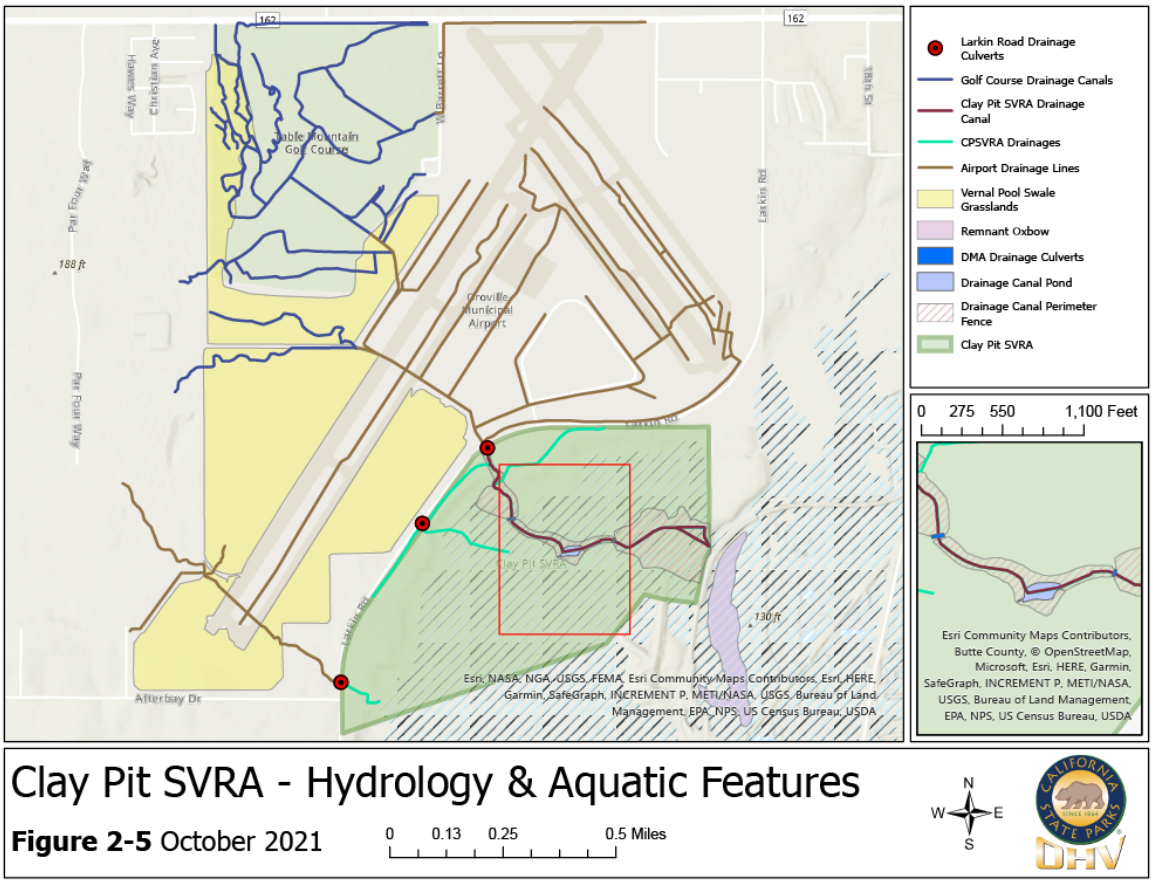

Figure 2-5. Clay Pit SVRA - Hydrology and Aquatic Features Map.

The SVRA also contains approximately 26 acres of wetland habitats, including northern hardpan vernal pools. Due to the park's shape and topography, these aquatic habitats are all considered hydrologically connected to the drainage canal. The drainage canal and wetland habitats regularly remain inundated during the winter and fall (October – February). Climactic conditions can retain standing water into the early summer months (June/July), however, these areas typically recede and evaporate before June.

The SVRA lies within seven miles of four major water bodies: Thermalito Forebay (two miles north), Thermalito Afterbay (two miles west), the Feather River (one mile east), and Lake Oroville (eight miles northeast).

Noise

The existing sound environment at Clay Pit SVRA is influenced by aircraft overflights, light industrial uses, shooting range activities, and transportation sound emanating from vehicular traffic on the site and nearby roadways. The off-site noise from vehicular traffic near the SVRA originates from Larkin Road, west and north of the SVRA. Noise emanating from the Oroville Municipal Airport and the adjacent industrial park, both located north of the SVRA, contributes to the existing ambient sound environment (CSDA 2021). The shooting range located south of the SVRA within the CDFW Oroville Wildlife Area is frequently used, although a large berm separates the two uses and reduces some of the noise drifting into the SVRA. The operation of OHVs is the predominant sound source from within the SVRA, with other minor on-site sound sources including vehicle sounds as visitors come and go from the SVRA, people conversing and calling out to other users, and small gas-powered generators (CSDA 2021). Visitors can also enjoy the sounds of nature, such as birds singing, frogs croaking, and wind rustling through the trees and grasses.

The topographic features of Clay Pit SVRA and surrounding areas influence the sound environment. The SVRA is located within a depressed clay basin, surrounded by a terrace along its northern, western, and eastern boundaries. The terrace is at the same elevation as the surrounding properties on the north, west, and east. In addition, a large berm stretches along a portion of the southern boundary of the SVRA.

On June 29, 2021, a permanent noise monitoring station was installed in the southwest corner of the park to measure the park's influence on local ambient noise. Information gathered from this station will be used to ensure the SVRA is compliant with all local noise and sound monitoring regulations and criteria.

Cultural Resources

The SVRA has been inventoried for prehistoric and historic resources of potential significance and does not contain any resources that would cause constraints to SVRA management and use.

Cultural resources investigations for Clay Pit SVRA include background research and a pedestrian archaeological survey performed by State Park archaeologists. A records search was performed at the Northeast Information Center on October 21, 2008, followed by an archaeological survey on October 28, 2008. OHVMRD archaeologists completed a cultural resource inventory in 2009 (Perez and Long, 2009). During the records search, no known prehistoric resources were discovered in or within a one-mile radius of the SVRA, and no historic-era resources were identified within the SVRA. The Northeast Information Center identified eight historic-era resources within a one-mile radius of the SVRA.

The 2008 pedestrian survey resulted in the identification of one historic-era site and three near-historic-era resources present on site: a ditch complex (Primary number P-04-3124) identified to be possibly associated with historic gold dredging operations in the area, a culvert concentration, a historic refuse pile, and a wire cable concentration. A Determination of Eligibility Statement for all these resources was prepared for and submitted to the State Historic Preservation Officer on June 16, 2010. They concurred with the findings that these resources were not eligible as historical resources defined by PRC 5020.1[j] (Perez and Long, 2009).

2.2 Resource Management Units

Resource Management Units 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. For the WHPP, identifying Resource Management Units is important for the organization and implementation of adaptive management necessary to conserve and improve habitat. Listed in the sections below (2.2.1 - 2.2.3) are the Resource Management Units identified for Clay Pit SVRA.

2.2.1 Description of Resource Management Units

Resource Management Units were established at Clay Pit SVRA in 2020. Delineation of Clay Pit SVRA's management units was based mainly on the current OHV use type. Given the small size of the SVRA, the lack of any significant facilities, and the relatively uniform distribution of habitat features, resources management and prescriptive treatments would be reasonably consistent across the entire park unit from a resource and adaptive management perspective. Thus, there was no reason to subdivide the management of the park's existing resources, and Clay Pit SVRA has largely been kept as a single Resource Management Unit, with a single Resource Management Subunit around the park's drainage canal being its only subdivision (Figure 2-6).

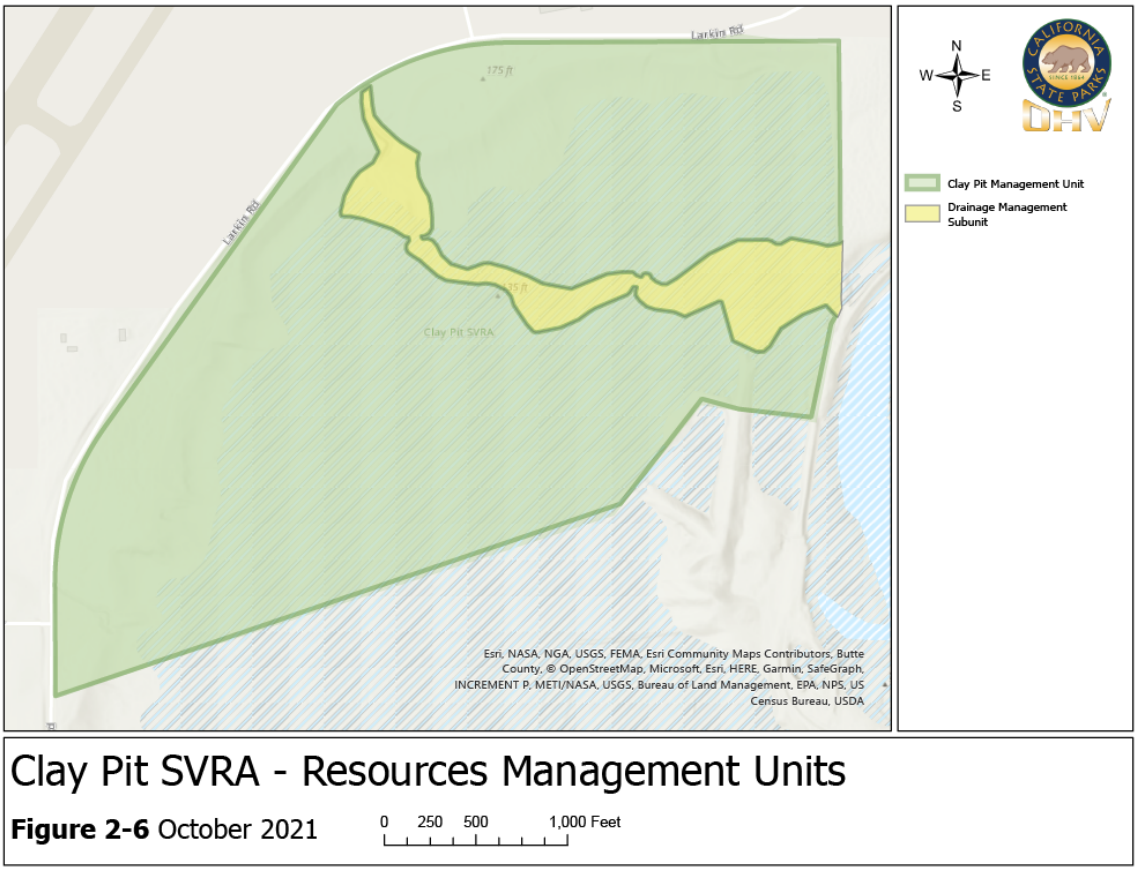

Figure 2-6.Clay Pit SVRA - Resources Management Units Map.

2.2.2 Clay Pit Resources Management Unit

The 220-acre Clay Pit Resources Management Unit (Clay Pit MU) primarily contains informal riding trails, hill climbs, and open spaces accessible to all OHV use types (Figure 2-7). The unit's recreational features include two small rock climbs on either end of the park and an experimental training track just east of the parking lot. Park facilities and infrastructure include a small parking lot, one vault toilet, two shade ramadas with picnic tables, and one interpretive sign.

The habitat of Clay Pit MU is best characterized as degraded annual grassland habitats with wetland features. The annual grassland vegetation communities present in the SVRA consist of primarily non-native or naturalized ruderal herbs and forbs. These communities are adapted to disturbance and are primarily located along the bluffs and elevated rim, as well as throughout the basin floor where slight elevations occur in the basin's topography. These areas also consist of large swaths of exposed dirt and soils created by historic mining activities and the presence of past and current OHV recreation.

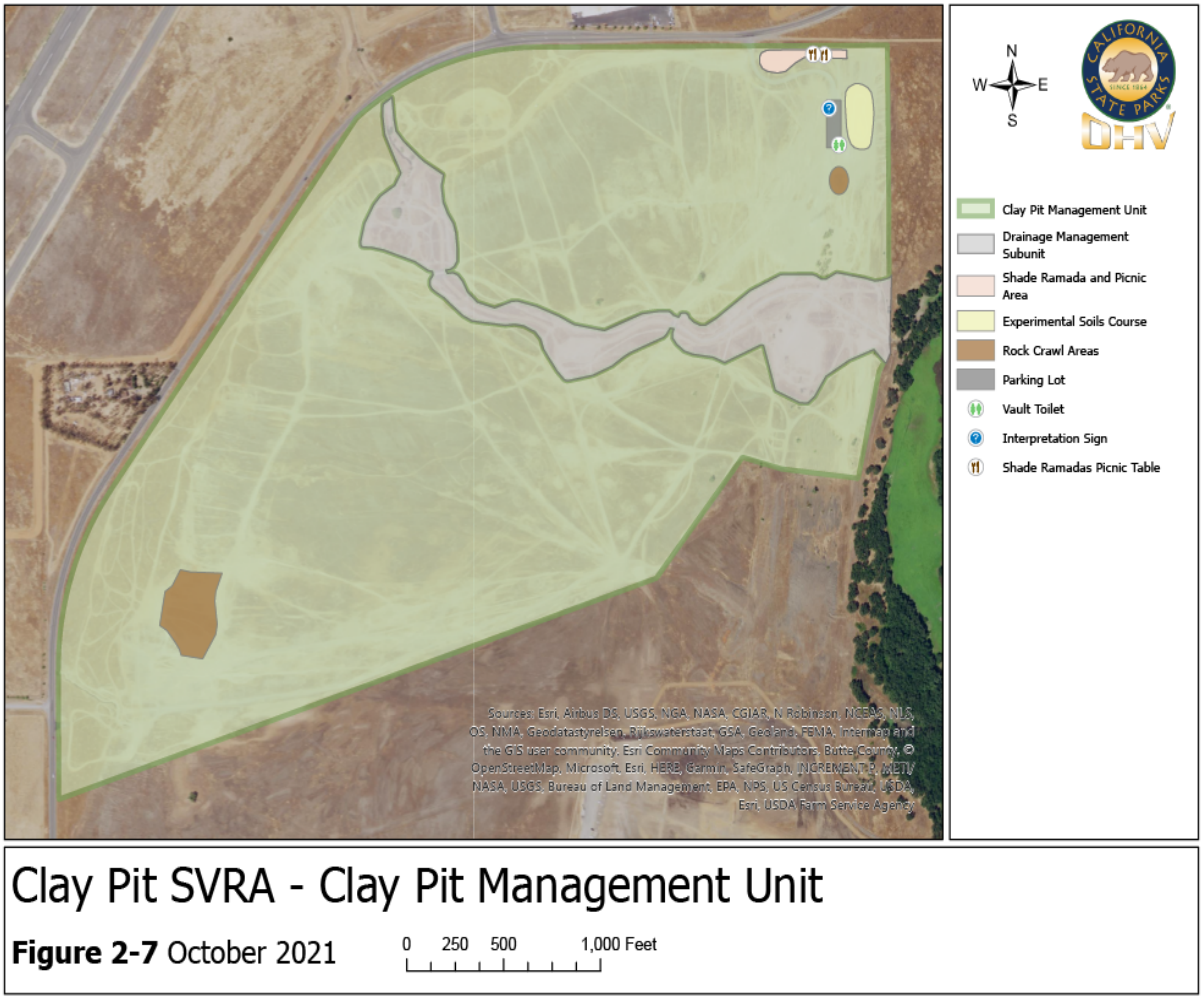

Figure 2-7.Clay Pit SVRA - Clay Pit Management Unit Map.

Wetland features consist mostly of northern hardpan vernal pools distributed throughout the park. These pools tend to occur in the more moist and lower elevation basin and drainage canal areas where water accumulates.

The unit also contains scattered individual and small stands of cottonwood trees along the eastern portion of the basin. However, these stands are too sparse and lack sufficient habitat characteristics to be characterized as a cottonwood forest vegetation community.

2.2.3 Drainage Management Area Subunit

The Drainage Management Area (DMA) Subunit (Figure 2-8) is an approximately 19-acre Resource Management Subunit of Clay Pit MU. Like Clay Pit MU, the habitat in the DMA Subunit consists of degraded annual grasslands and mixed wetland habitats. The DMA Subunit contains the park's largest aquatic features and represents the

topographical low point of the SVRA. Much of this subunit is regularly inundated during the winter and will occasionally flood entirely after large storm events or wet seasons with significant amounts of rainfall. Because of this, the DMA Subunit has a higher wetland to grassland habitat ratio, and many of the park's larger and more diverse vernal pool habitat and vegetation communities are present in the DMA Subunit.

The DMA Subunit also contains the SVRA's artificial drainage canal, which transects the park unit from the northwest to the southeast. This drainage enters the property from the northwest from a culvert under Larkin Road and conveys the entire region's watershed to a remnant oxbow lake located just east of the SVRA.

Before 2014, OHV use types in the DMA Subunit were similar to the rest of the SVRA, as the area was open to all forms of OHV recreation. However, at the request of the Central Valley RWQCB and to avoid the potential discharge of any excess sediment or foreign substances into the Feather River system, a vehicle exclusion area was established along the length of the entire watercourse (Central Valley RWQCB 2014). Initially, in 2014, the area was fenced off using short, stackable fences to prevent unauthorized OHV from entering; however, the structures were quickly vandalized, and illegal OHV incursions into the drainage area continued to occur. In 2017, a more sophisticated and durable peeler core fence was permanently installed to prevent unauthorized OHV entry to the DMA Subunit. Since this installation, incursions into the DMA Subunit have been rare. The area has passively regenerated portions of its riparian vegetation communities and portions of the vegetative filter that protects the drainage canal.

Besides the perimeter fencing, the only other structures present in the subunit are erosion control features. These features include two hardened creek culvert crossings that allow users access to the southern two-thirds of the SVRA and a rock weir at the eastern end of the drainage canal where water exits the SVRA.

Because the DMA Subunit is closed to OHV recreation and contains a higher concentration of sensitive and aquatic features, restoration efforts as outlined in this WHPP will primarily focus on revegetation of this subunit. Restoration efforts in this subunit will specifically target the areas where the vegetative filter, meant to protect the canal from sedimentation, has failed to fully revegetate and is failing to prevent and/or reduce the amount of sediment entering the drainage canal.

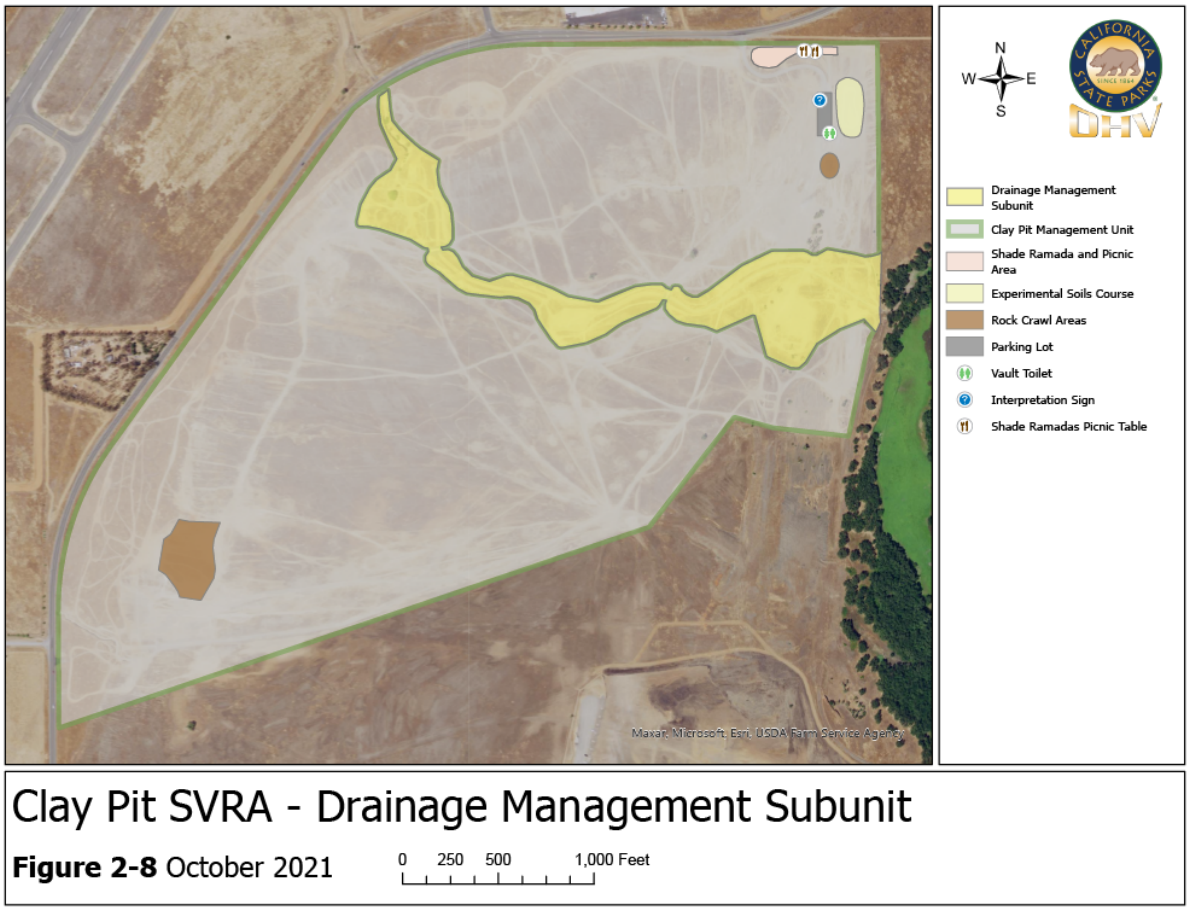

Figure 2-8. Clay Pit SVRA - Drainage Management Area Subunit Map.

2.3 Natural Resource Assessment

A natural resource assessment provides landowners with an understanding of the presence and condition of the natural resources within the lands they manage. An assessment is the first step upon which adaptive management builds and describes the lands' important conservation issues. This next section defines the various natural resource elements pertinent to Clay Pit SVRA, including those required by the PRC, and the specific elements that address the needs of the present wildlife species.

2.3.1 Soils

According to the United States Department of Agriculture's (USDA) Web Soil Survey tool, Clay Pit SVRA is underlain by a Tertiary-aged Laguna Formation. This formation generally consists of stratified alluvial deposits from the Feather River and is comprised of layers of poorly graded gravel with silt, clay, sand and cobbles, silty gravel, and clayey gravel (USDA 2021). Consistency and relative density of the formation varies

because of different patterns in weathering, cementation, and deposition, but are generally stiff/dense to hard/very dense.

According to the USDA, two soil types are present and mapped within Clay Pit SVRA (Figure 2-9). The terrace along the northern and western rim consists of Oroville-Thermalito-Fernandez-Thompson Flat soil complex (gravelly fine sandy loam), and the basin floor consists of Pits soil complex (e.g., silty clay) (USDA 2021).

The soil profiles originally present throughout Clay Pit SVRA have been mostly eliminated or removed by the historic placer mining and clay soil extraction activities in the area before the site became an SVRA (AECOM 2011). The grassland terrace present along Larkin Road contains the only remaining unexcavated soil complexes. Although it is an informal road, OHV use and stormwater erosion have disturbed and created relatively minor alterations to these areas.

Due to these cemented clay-based soils at the surface of the site, the topsoil layer is relatively impervious to water absorption. The retention of surface water, rather than being absorbed, results in a perched water table, which seasonally inundates the park's various pools and lower topographical features. In particularly exceptional rain years, the park's pit will flood with backflow from the adjacent oxbow lake and become unavailable for recreation.

Given the "open riding" nature of the park, management of soils and erosional features caused by OHV recreation can be challenging. While the park has some informal trails and hill climbs, Clay Pit's open riding area has few restrictions on where and what type of OHV activity can occur in any given section of the unit. This OHV use creates an issue with locating and planning erosion repairs and restoration from year to year. Combined with the park's bowl-like topography, it becomes an ever-changing erosive environment with problems that are difficult to pinpoint. The park's clay-latent soils are compacted when dry and generally resistant to soil impacts associated with OHV activity. However, OHV use may damage the clay soils by creating ruts or promoting scouring and other unnatural erosional features during storm events or when the soil becomes saturated. These features harden once the soil dries, becoming relatively permanent, which can lead to larger erosional issues over time.

Severe soil erosion caused by the land's hydrology is evident in two places in the SVRA, both of which occur at the outfall from drainage culverts entering the SVRA property from under Larkin Road. These culverts, one on the southwestern boundary and one on the northwestern boundary, have scoured portions of the park's remaining terrace, creating deeply incised channels. The culvert along the northwestern boundary of the SVRA empties directly into the park's main drainage, leading to increased sediment deposition into the canal. Meanwhile, the southwestern boundary culvert outflow disperses as it enters the pit area and flows into the various vernal pools located in the southwestern end of the SVRA.

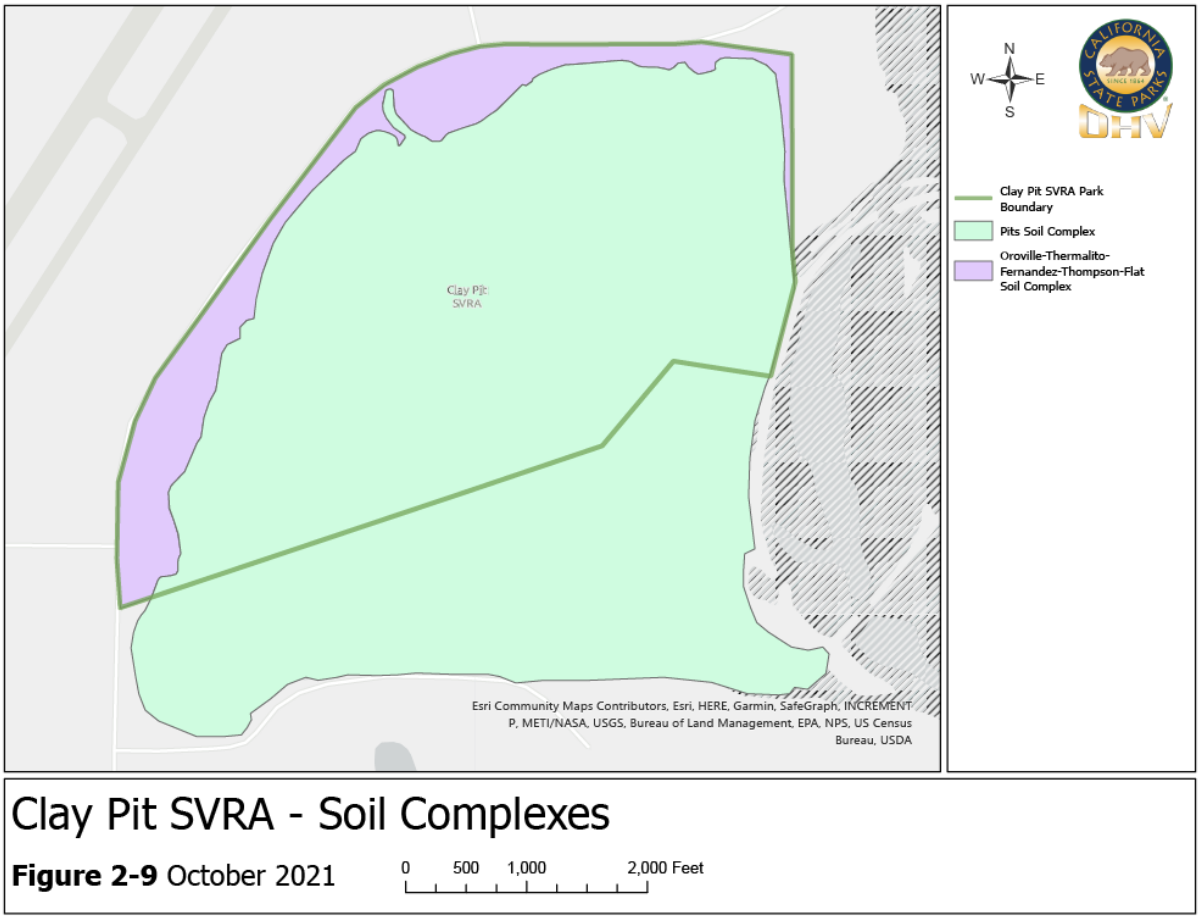

Figure 2-9. Clay Pit SVRA - Soil Complexes Map.

2.3.2 Biological Resources

2.3.2.1 Species Inventories

A wildlife inventory of Clay Pit 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 the Division 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, 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. This list can be found in *Appendix 1: Wildlife Species Inventory*. Below are breakdowns of the methods used to compile this inventory.

2.3.2.1.1 Desktop Research

An online species inventory was performed to determine which potentially occurring rare, sensitive, or listed wildlife and plant species could be present within the

boundaries of the SVRA. This inventory involved running queries based on the location of Clay Pit SVRA through several regulatory databases which use both known wildlife and plant population ranges and confirmed recorded field observations of species to document potential species occurrences. The databases consulted for this research include CDFW's California Natural Diversity Database (CNDDB), United States Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC), and the California Native Plant Society's (CNPS) Rare Plant Inventory database. Using the information collected from these databases, staff generated a list of wildlife and plant species potentially present within Clay Pit SVRA (*Appendix 1 Wildlife Inventory*). Discussed below is a summary of each database and how it was used to generate the accumulated wildlife information.

California Natural Diversity Database (CNDDB)

CDFW's CNDDB is a California natural heritage program that provides an inventory of the status and locations of rare plants and animals within the state (CDFW 2021). CNDDB is comprised of both a text information system, Rare Find 5, and a Biogeographic Information and Observation System (BIOS), which provides spatial data for documented sensitive plants, wildlife, and habitats. Both systems can provide land managers with essential information about special status species and wildlife in a specified search area.

On April 21, 2021, OHMVRD and Clay Pit SVRA resources staff accessed and queried CNDDB. Using mapping tools present on CNDDB's BIOS engine, resources staff generated a geographic information system (GIS) map with a list of sensitive resources occurrences present within a 5-mile radius buffer of the SVRA. This spatial data and the reference text data from Rare Find 5 were used to add several potentially occurring sensitive wildlife species to the SVRA's wildlife inventory.

Information for Planning and Consultation (IPaC)

IPaC is a project planning tool designed by the USFWS to help streamline the environmental review process. Using wildlife and resource information generated from USFWS field offices, IPaC can generate species lists of sensitive resources protected under the Endangered Species Act that may be present in each area. Like CNDDB, IPaC uses a GIS mapping system and spatial data to help resources and land managers more easily identify and determine resources within the scope of an area.

On April 21, 2021, OHMVRD and Clay Pit SVRA resources staff accessed and queried the USFWS IPaC database. Using the current mapping tools, resources staff generated a list of sensitive resources identified by USFWS as potentially present within the search area. Because IPaC does not have a radius tool, the search area encompassed the USGS 7.5-minute quadrangle for Palermo, California (which includes Clay Pit

SVRA) as well as the eight surrounding quadrangles. The results were added to the wildlife inventory (*Appendix 1: Wildlife Species Inventory*).

California Native Plant Society's (CNPS) Rare Plant Inventory

CNPS's Rare Plant Inventory is a web-based program developed to direct and guide the management of rare and endangered plant species within California (CNPS 2021). This tool allows land managers and stewards to inventory locations in California for the presence of sensitive or rare plant species and habitats.

On April 21, 2021, OHMVRD and Clay Pit SVRA resources staff searched a USGS 7.5-minute nine quad map surrounding Clay Pit SVRA, using CNPS's Rare Plant inventory database. Resources staff used the resulting information to generate a list of sensitive and rare plant species potentially present in and around the area. The plant species identified by this report were added to the wildlife inventory in *Appendix 1: Wildlife Species Inventory.*

2.3.2.1.2 Field Assessments

Since 1994, Clay Pit SVRA natural resources staff have performed various biological inventory surveys to help them identify, protect, and manage the park's existing wildlife and habitat features. These reports were used to generate a running wildlife inventory which was updated with each successive survey effort. Resources staff verified and updated the list in April 2021 to meet the wildlife inventory criteria outlined by SB 249. It was then combined with the resource lists generated by Desktop Research.

Recent surveys and annual monitoring have been performed at Clay Pit SVRA for three taxonomic groups: vegetation, birds, and invertebrates.

Vegetation

For vegetation, species were added through rare plant inventory surveys completed in 2005 and 2013 by CSP botanists. These surveys followed CNPS's *2001 Botanical Survey Guidelines* (CNPS 2001) and focused on finding target species of rare plants identified by CNPS's Rare Plant Inventory database. In addition to attempting to identify rare plants, these surveys also documented all the plant species observed on-site, regardless of status. As a result of these surveys, 127 different vegetative species were identified at Clay Pit SVRA. Since then, the plant species list generated by these surveys has been updated regularly. Updates include the addition of any new species observations and updates to taxonomic nomenclature of previously identified species.

As an additional note, these botanical surveys are specifically designed to prioritize and target the detection of sensitive or rare plant species occurrences at Clay Pit SVRA. Therefore, the surveys were timed to occur right at bloom season, where the probability

of detecting the desired rare species is maximized. There is a possibility that some plant species that bloom or appear during different seasons at the SVRA went undetected and were not recorded or accounted for by the surveys.

Birds

Avian monitoring is performed annually at the SVRA using point count surveys. While these surveys were inconsistently performed during the transition of Clay Pit SVRA to Northern Buttes district, the data collected contains approximately seven years of recent and relevant avian population information and species data. This dataset was collected with a consistent survey methodology, and the continuation of the program will lead to more long-term data sets, which can help inform the park's resources management. Avian point count surveys are dependent on the expertise of the surveyors and their ability to detect species visually and audibly, sometimes leading to inconsistencies between surveyors. SVRA resources staff are looking to combat this inconsistency with the deployment and use of autonomous recording units (ARUs), which will improve identification and detection rates by allowing surveyors to relisten to audio recordings taken during surveys.

Invertebrates

Surveys for listed large branchiopod species at Clay Pit SVRA first occurred in 2005, following a delineation of the park's wetland resources and habitats. These surveys, performed by DWR, attempted to identify the presence of any special status invertebrate species within the identified wetland areas. The surveys determined that listed vernal pool branchiopod species were present throughout most of the park's vernal pools and associated wetland habitat. In 2010, as part of Clay Pit SVRA's General Plan process, EcoAnalysts, Inc. performed additional surveys of the SVRA's wetland habitats to determine the distribution and extent of the park's sensitive invertebrate populations. The 2010 surveys determined that one species, vernal pool fairy shrimp (VPFS) (*Branchinecta lynchi*), was present at the SVRA and found to be present within all wetland and aquatic habitats present. Both survey years were performed using wet season survey protocols from USFWS's *Survey Guidelines for the Listed Large Branchiopods* (USFWS 2017).

Other Taxonomic Resources

The transition of park management and staff turnover have led to small gaps and inconsistencies in monitoring and annual survey data for all taxonomic groups. Clay Pit SVRA resources management, upon review of its Natural Resource Assessment and desktop research, has identified several taxonomic groups that are underrepresented by the park's recent survey history and wildlife inventories. These groups include amphibians, bats, mammals, and reptiles. With this WHPP update, these gaps in field assessments have been identified. New resources surveys and monitoring will be

performed over the next five years to inform and provide a more accurate update to the park's wildlife inventory.

2.3.2.2 Native Plant Community Inventory

The native plant community inventory was compiled and mapped using the methods and standards in the State of California's Vegetation Classification and Mapping Program (VegCAMP). The steps include field surveys followed by digitizing vegetation community polygons using aerial imagery interpretation and mapping software. VegCAMP classifies vegetation according to the National Vegetation Classification System's (NVCS) standards, a hierarchical classification of vegetation types, with alliance and association at the most fine-scale level. An association is a characteristic range of species composition, and an alliance is composed of one or more associations.

2.3.2.2.1 Vegetation Communities

Surveys for the VegCAMP mapping project in 2021 took place during an unusually hot and dry year. Therefore, herbaceous species may have germinated in lower numbers or earlier than is typical and may have been missed by surveyors. Annual early spring site visits are recommended to survey for potential additions to the list of herbaceous alliances. The following descriptions are based on data and observations from 2021 VegCAMP surveys and the Clay Pit General Plan. More information about all alliances may be found on the CNPS website.

Grassland and Vernal Pool Matrix

This mapping unit comprises 216 acres of the 220-acre park (Figure 2-10). It is characterized by degraded annual grassland, with small vernal pools scattered throughout. Typically, this vegetation is sparse because of the rocky soils exposed by historic placer mining and clay soil extraction activities. It consists primarily of non-native ruderal (weedy) species adapted to disturbance, although some native flora is present. Numerous OHV trails traverse the degraded annual grassland habitat creating large swaths of bare ground throughout the SVRA. The grassland vegetation types are within the "California Annual and Perennial Grassland" macro group. A few scattered solitary Fremont cottonwood (*Populus fremontii)* trees occur throughout.

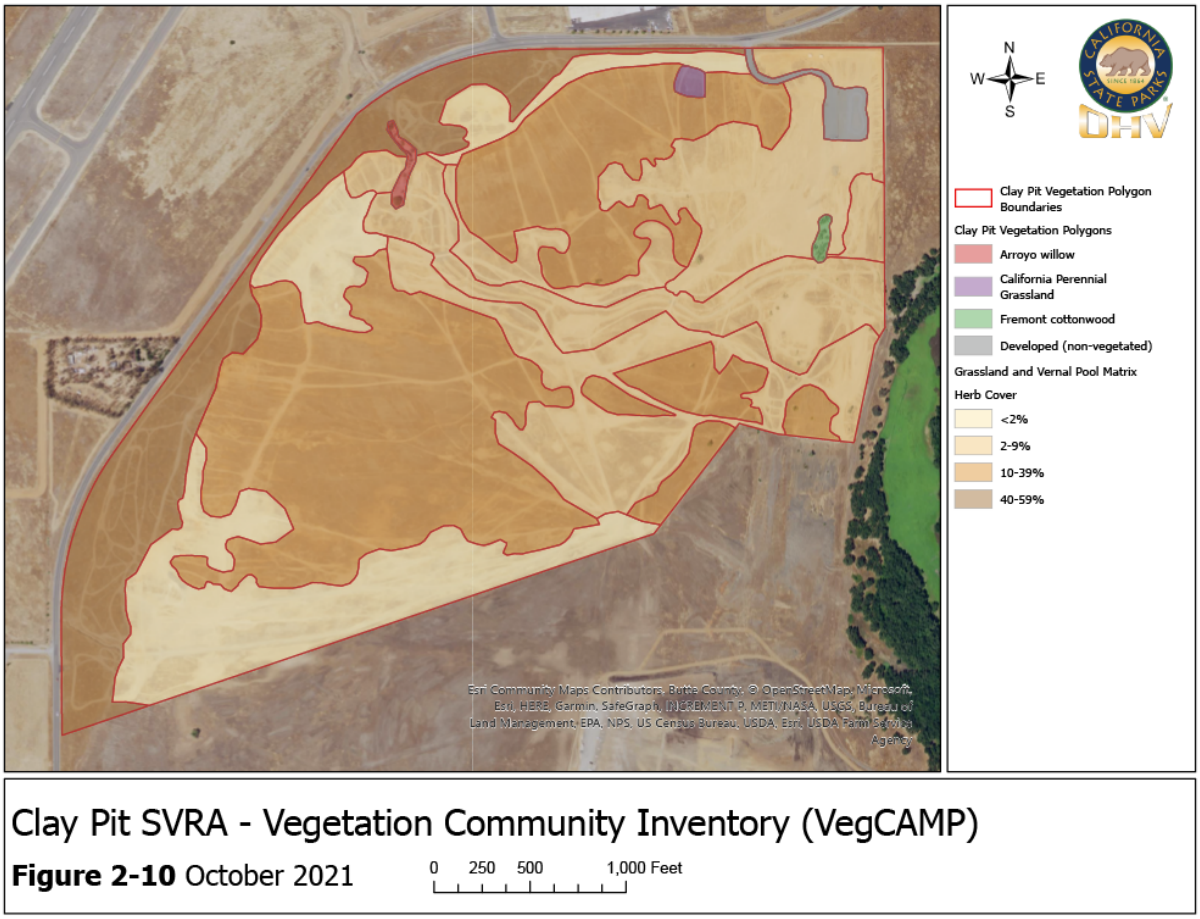

Figure 2-10. Clay Pit SVRA - Vegetation Community Inventory Map.

In the terraced area along Larkin Road (approximately 27 acres), the grassland is dominated by non-native species, generally fitting the *Avena spp. – Bromus spp*. Herbaceous Semi-Natural Alliance. The topography is undulating, with hummocked mounds formed by excavation activity. Dominant species include *Elymus caput-medusae, Avena spp., Briza maxima, Aegilops triuncialis,* and *Bromus hordeaceous*. Overall plant cover is higher in the terraced area than in the rest of the park (Figure 2-10). Native species are present, though at low cover, including *Dichelostemma multiflorum* and *Calycadenia spicata*. Yellow starthistle (*Centaura solstitialis)* occurs in narrow stands along Larkin Road and along the north end of the intermittent drainage (Figure 2-11).

In the non-terraced basin area (approximately 189 acres), grasslands are similarly dominated by non-native annual species, including Bromus hordeaceous, Bromus rubens, Avena spp., and Festuca perennis. Notably, Elymus caput-medusae (Medusahead grass) and Aegilops triuncialis (barb goatgrass) do not have a significant presence in the pit area. Herbaceous cover tends to be lower throughout the basin area than in the terraced area (Figure 2-10). The most common alliances in the basin area

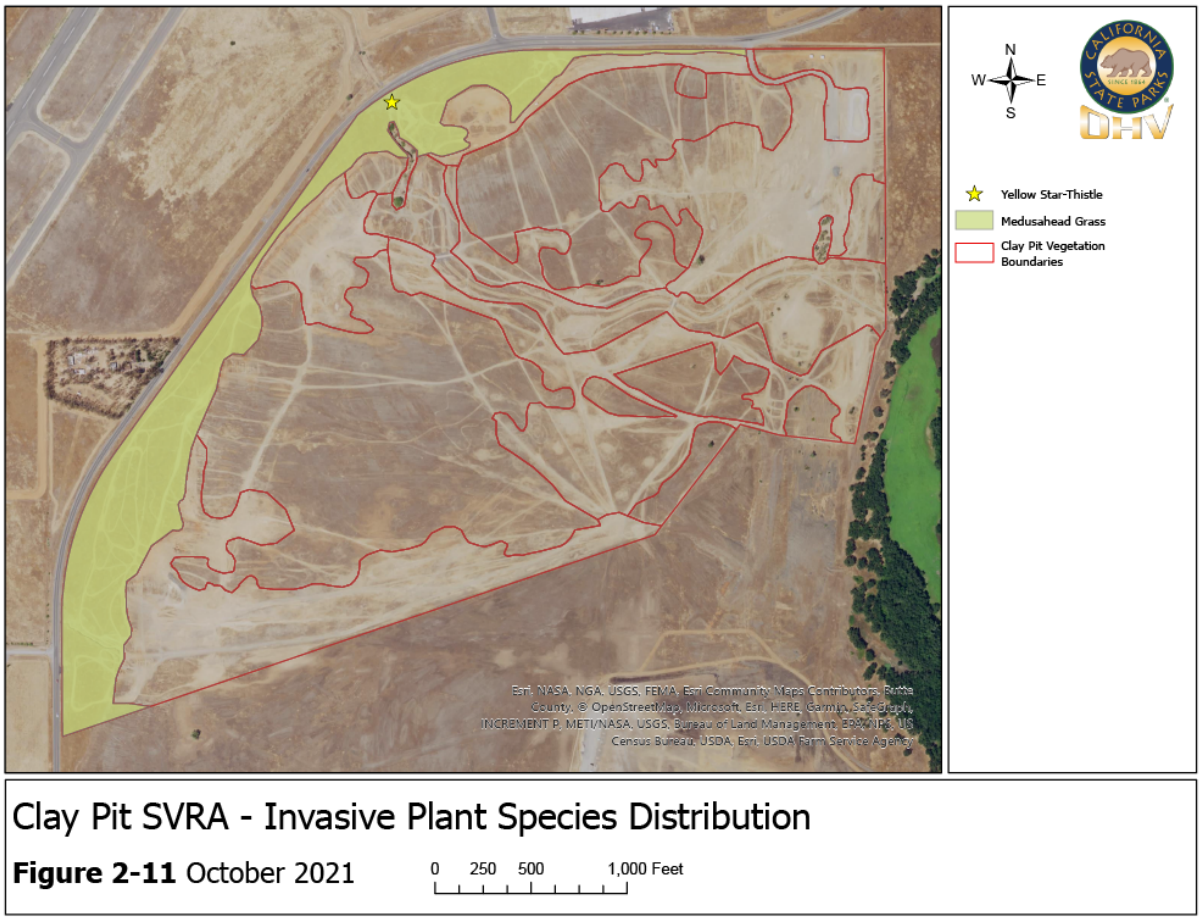

Figure 2-11. Clay Pit SVRA - Invasive Plant Species Distribution Map.

grassland are *Avena spp. – Bromus spp.* Herbaceous Semi-Natural Alliance, *Bromus rubens – Schismus (arabicus, barbatus)* Herbaceous Semi-Natural Alliance, and *Lolium perenne* (also called *Festuca perennis)* Herbaceous Semi-Natural Alliance. Additionally, several perennial grassland alliances are found in small patches throughout the pit area, including the *Grindelia (camporum, stricta)* Provisional Herbaceous Alliance, characterized by *Grindelia camporum*, and the *Eriogonum (elongatum, nudum)* Herbaceous Alliance, characterized by *Eriogonum nudum*. The alliances throughout the pit area are patchy and lack distinctive boundaries. Therefore, they cannot be delineated in the aerial imagery and are combined into a higher hierarchical level, the "California Annual and Perennial Grassland" macro group, as is typical for VegCAMP mapping of herbaceous communities.

Vernal pool species assemblages are present throughout this mapping unit, in both the terraced area and the basin area. The vernal pools at the SVRA are considered northern hardpan vernal pools due to SVRA's location within the Northeastern Sacramento Valley Vernal Pool Region of California and the presence of iron-silica cemented soils on the site. Vernal pools occur throughout the site in small depressions

formed by OHV tires, as well as unnatural depressions formed after excavation of hardpan soils between mounds in the terraced area. Most pools are in the size range of 0-5 meters in diameter and are not large enough to be delineated in the vegetation community map, therefore they have been combined with the surrounding grassland into the Grassland and Vernal Pool matrix mapping unit.

VegCAMP surveys in the vernal pools found the same assemblage throughout the site: the *Lasthenia fremontii- Downingia (bicornuta)* Herbaceous Alliance. At Clay Pit, this alliance is characterized mostly by native species, including *Eryngium castrense*, *Lasthenia fremontii, Downingia bicornuta, Navarretia leucocephala, Psilocarphus brevissimus, Plagiobothrys stipitatus, Deschampsia danthonoides, Eleocharis macrostachya,* and *Alopecurus saccatus.*

California Perennial Grassland

There is a small half-acre stand of the native perennial bunchgrass *Aristida ternipes var. gracilis* on a south-facing slope in the northern part of the park. This species grows in dense, tufted, perennial bunches that are visually distinct from the annual grasses in the rest of the park. This assemblage has not yet been classified at the alliance level, and therefore has been mapped in the California Perennial Grassland group.

Fremont Cottonwood (*Populus fremontii)* Association

There is a small stand (0.4 acres) of Fremont cottonwood (*Populus fremontii)* in the center of the park, with no shrub layer and a similar herb layer to the surrounding grassland. It has been mapped as the *Populus fremontii* Association.

Arroyo Willow (*Salix lasiolepis*) Shrubland Alliance

This narrow stand of shrubs and trees grows along the intermittent drainage near Larkin Road. It consists of a few arroyo willows (*Salix lasiolepis*) and one blue elderberry (*Sambucus nigra ssp. caerulea*).

Developed

This unvegetated mapping unit is designated for the paved road and gravel parking lot.

2.3.2.3 Sensitive Resource Areas

Drainage Management Area Subunit

The DMA Subunit (Figure 2-8) is the only delineated sensitive resource area present within the park's boundaries. The delineation was established to protect the SVRA's central drainage canal from OHV-related impacts. Based on the SVRA's drainage patterns, all its wetland and water features are regarded as being hydrologically

connected to the Feather River and exhibit a “significant nexus” to the Feather River system (AECOM 2012). Because of this, the drainage, although artificial, is under the jurisdiction of several regulatory agencies, including the United States Army Corps of Engineers (USACE) and the Central Valley RWQCB. See *Section 2.2.3 Drainage Management Area Subunit*.

Native Perennial Grassland

A small population of native perennial bunchgrass identified as spidergrass (*Aristida ternipes var. gentilis),* approximately a half-acre in size, is located along the slope of the northern edge of the SVRA. While perennial spidergrass is not a listed species, perennial grasslands are rare in California and this half-acre represents the only native grassland habitat present at Clay Pit SVRA. This area exists within the open riding area of the park and is located between two of the park’s larger informal trails. It is unclear how this population came to exist at the SVRA or why it persisted despite open OHV recreation and several naturalized and invasive grass species. Preserving this small stand from OHV impacts is a priority.

2.3.2.4 Threatened or Endangered Species and Habitats

The following section contains information on the rare or endangered species and known habitats that have been observed to occur within the SVRA. It also discusses threatened or endangered species with a high potential to occur in the SVRA based on habitat characteristics and proximity to nearby occurrences or observations. For more information on the other rare or listed wildlife not discussed in this section, refer to *Appendix 1: Wildlife Species Inventory*.

2.3.2.4.1 Rare and Protected Habitats

Northern Hardpan Vernal Pools & Wetland Habitats

In 2010, Clay Pit SVRA’s wetlands and aquatic habitats were delineated following the USACE’s 1987 *Wetlands Delineation Manual* and its 2008 *Arid West Region: Regional Supplemental Wetland Delineation Manual*. The delineations identified just under 26 acres of potentially jurisdictional wetland habitat at Clay Pit SVRA. Of this, approximately 22.5 acres were considered vernal pool wetlands, with 179 unique vernal pool features and one emergent marsh identified (AECOM 2010). The other approximately 3.5 acres consisted of various other aquatic features, including ditches, a pond, and intermittent and ephemeral drainage. All these aquatic features have been determined to be hydrologically connected (AECOM 2010).

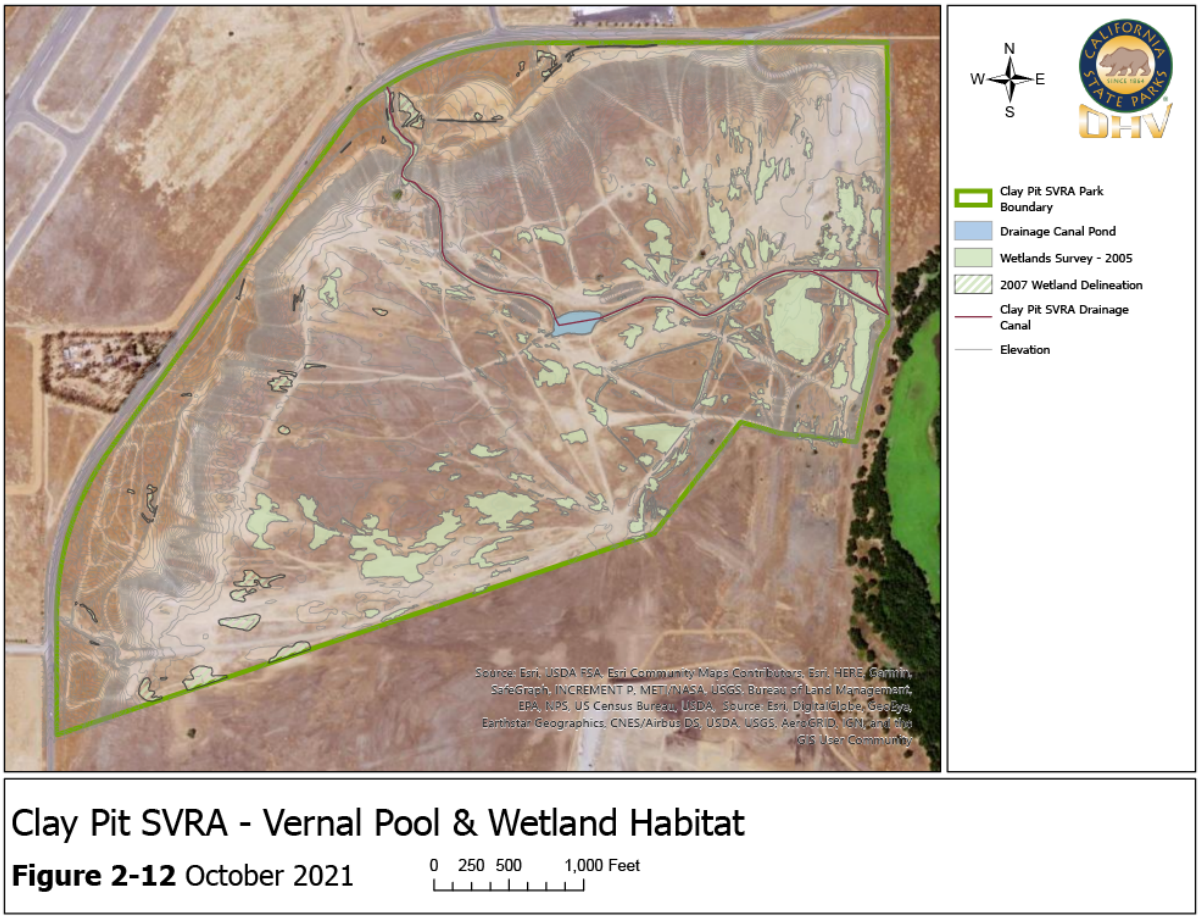

Figure 2-12. Clay Pit SVRA - Vernal Pool and Wetland Habitat Map

Due to the locality of Clay Pit SVRA in the Northeastern Sacramento Valley and the presence of alluvial hardpan and silicate-cemented soils on the site (AECOM 2012), the vernal pools at the SVRA are classified as northern hardpan vernal pools. Northern hardpan vernal pools are a type of vernal pool habitat that occurs in the Northeastern Sacramento Valley Vernal Pool Region of California (USFWS 2005). These pools provide substantial potentially suitable habitat for several native species and many listed plant and wildlife species. Vegetation communities associated with northern hardpan vernal pools are considered sensitive (CDFW 2021). The park's upper terrace along Larkin Road supports the only naturally remnant vernal pool grasslands. The remainder of the vernal pool habitat on the site is the result of unnatural depressions formed by historic mining and current recreation activities. The distribution of these vernal pools within Clay Pit SVRA is variable, with a higher concentration of pools in the excavated pit with fewer scattered pools on the terrace along Larkin Road (Figure 2-12). All these features are considered waters of the U.S. and are subject to USACE jurisdiction under Section 404 of the federal Clean Water Act.

The vernal pool habitat in the excavated basin of the SVRA is unlikely to support any special-status plant species. The area is degraded from historical activities, and little remains of the natural soils, terrain, and topography. While the remnant natural vernal pool grassland on the terrace along Larkin Road provides potential habitat for special-status vernal pool plants, the area is highly disturbed and dominated by non-native and invasive herbs and grasses, including medusahead (*Elymus caput-medusae*) and yellow starthistle (*Centaurea solstitialis*). Despite all this, it is possible that seeds of special-status vernal pool plants from nearby source populations could drift onto the project site through natural seed dispersal mechanisms (e.g., wind, wildlife deposition) and become established.

The northern hardpan vernal pools at Clay Pit SVRA are known to support several invertebrate species, including California fairy shrimp (*Linderiella occidentalis*), California clam shrimp (*Cyzicus californicus*), and the federally listed VPFS (*Branchinecta lynchi*). Additionally, while vernal pool tadpole shrimp (*Lepidurus packardi*), a species federally listed as endangered, has not been observed at the SVRA, northern hardpan vernal pool habitat is considered suitable habitat for this species. The nearest known occurrence of vernal pool tadpole shrimp is approximately 1.5 miles north of the SVRA (CNDDB 2021). Even though vernal pool tadpole shrimp have never been observed on-site, the species cannot be fully excluded from consideration. It is possible, given the park's proximity to known populations (CNDDB 2021), that cysts from other tadpole shrimp populations could enter the site through natural or unnatural dispersal mechanisms (e.g., wind, wildlife deposition, mechanical deposition) and establish sustainable populations. Therefore, the northern hardpan vernal pool habitats are treated as if this species is present.

In addition to providing habitat for large, listed branchiopods, the wetland and vernal pool habitats at Clay Pit SVRA are of ecological significance to many shorebird and waterfowl species. The wetland habitats in the northern Central Valley and Sacramento Valley areas serve as critically important wintering, foraging, and loafing sites to many resident and migratory species as it sits on the southern end of the Pacific Flyway migratory bird route. These habitats attract millions of bird species every year that utilize their resources to rest and feed while progressing on their annual migration routes. While Clay Pit SVRA does not contain the ideal habitat for these species, many waterfowl and shorebird species, including Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), greater yellowlegs (*Tringa melanoleuca*), killdeer (*Charadrius vociferus*), and common goldeneye (*Bucephala clangula*), often frequent and can be observed at the site. The presence of wetland habitat at Clay Pit SVRA likely contributes to the SVRA's avian diversity. Improving wetland habitat quality could improve avian biodiversity and utilization at the park.

Valley Elderberry

One blue elderberry shrub (*Sambucus nigra spp. caerulea*), a host plant for the federally threatened valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*), is present within the northwest end of the DMA Subunit (Figure 2-8). The elderberry is located within the vehicle exclusion zone to prevent any unauthorized use in or near the shrub that could negatively impact it. The nearest known VELB occurrence is along the Feather River, 1.5 miles southwest of Clay Pit SVRA (CNDDB 2021).

2.3.2.4.2 Rare or Endangered Species

Vernal Pool Fairy Shrimp

The VPFS is a small freshwater crustacean belonging to the taxonomic group referred to as *Anostraca*, an order under class *Branchiopoda*. Members of this species can grow up to an inch and a half long, have stalked compound eyes, and possess swimming legs that also function as gills (Eriksen and Belk, 1999). VPFS are endemic to California and have one of the most extensive ranges of any federally listed vernal pool crustacean, ranging between Riverside County and the Coast Ranges, north through the Central Valley grasslands to Tehama County (USFWS 2007; 2017a.). As their name suggests, VPFS are mostly known to exist in vernal pools or other vernal pool-like habitats (e.g., temporary puddles and ponds, vernal swales, etc.). The species does not typically occur in permanent bodies of water as they have a largely ephemeral life cycle that depends on the seasonal inundation and drying of water features and the lack of any anti-predator defense mechanisms. This species is more commonly associated with shallower vernal pools (roughly six inches deep) with relatively short inundation periods (Helm, 1998).

During cold-weather winter storms, when vernal pools begin to accumulate water, eggs (referred to as cysts) hatch and mature into breeding adults. The time from cyst to maturity varies and is dependent on temperature. If conditions remain favorable, adults can reach maturity anywhere between 18-147 days (Helm, 1998). Adults, once mature, persist throughout the rainy season before dying off as pools begin to warm or desiccate. When the temporary pools dry, offspring persist in suspended development as desiccation-resistant embryos in the pool substrate until the return of winter rains and appropriate temperatures allow some of the cysts to hatch (Eriksen and Belk, 1999). Movement through different vernal pools and vernal pool-like features is not uncommon for VPFS. It is dependent on the amount of flooding and the general topographical and hydrological features in each complex. Therefore, populations tend to be defined by the vernal pool complex rather than any single pool.

A total of about 26 acres of suitable VPFS habitat is present within Clay Pit SVRA (Figure 2-9). The amount can vary slightly from year to year, depending on the amount

of rainfall and the site's other abiotic factors. All the vernal pool habitat and hydrological features (e.g., canal, pond, etc.) on-site are considered hydrologically connected and support VPFS habitat. This hydrological connectivity allows individuals to move freely throughout the SVRA's vernal pool complex. VPFS are well-established at Clay Pit SVRA and have continued to persist despite the park's recreational uses. They have been discovered to be ubiquitously distributed throughout the park's hydrologic features (AECOM 2010), even so much as appearing in small temporary pools created by tire ruts and other OHV use of the site.

Vernal Pool Tadpole Shrimp

Vernal pool tadpole shrimp, like VPFS, are small freshwater crustaceans belonging to the taxonomic class *Branchiopoda*. However, unlike VPFS, vernal pool tadpole shrimp belong to the order *Notostraca*. They are distinguished from other vernal pool invertebrates by the large shield-like carapace covering approximately two-thirds of their bodies. Vernal pool tadpole shrimp range in size from 0.5 - 3.0 inches in length (Eriksen and Belk, 1999). Their current range extends across the entirety of California's Central Valley and in some regions of the San Francisco Bay Area (USFWS 2018).

Vernal pool tadpole shrimp have a similar life history account as VPFS. They have a largely ephemeral life and survive in seasonally wetted habitat features such as vernal pools. They hatch from cysts and grow to maturity during portions of the year when pools are filled with water. Reproductive success and age of maturity are dependent on water conditions, such as temperature. Vernal pool tadpole shrimp cysts hatch in as little as four days following inundation. After that, they reach maturity on average around 25 days following inundation and reach their first reproduction at 54 days (Helm, 1998). Females, once mature, can have up to six clutches ranging in size from 32 to 61 cysts per clutch.

While vernal pool tadpole shrimp have never been observed at the SVRA, the northern hardpan vernal pools within the SVRA are considered suitable habitat for this species.

Swainson's Hawk

Swainson's hawks (*Buteo swainsoni*) are seasonal migrants and breeding residents to California's Central Valley. They are listed as threatened by CDFW and belong to the *Buteo* genus of hawks. They are large-sized hawks with broad wings, although their wings are relatively slender and pointed compared to other Buteos. Swainson's hawks nest in various habitats in the central valley, including oak savannah and riparian areas, and are most often found near a water source. They primarily nest in small stands of trees, both native and non-native, that are adjacent to foraging habitats such as open grassland, agricultural fields, and/or other open and sparsely vegetated areas. They primarily feed on small mammals (e.g., squirrels, mice, rats, etc.), amphibians, reptiles, birds, and large insects (CDFW 2006).

Clay Pit SVRA contains suitable Swainson's hawk foraging habitat and limited marginal nesting habitat. Swainson's hawks regularly forage within the SVRA but nesting activity has never been documented. The nearest recorded CNDDB occurrence is a nesting site located along the Feather River, approximately 3.8 miles south of the SVRA.

Cooper's Hawk

The Cooper's hawk (*Accipiter cooperii*) is a year-round and breeding resident raptor species found throughout the wooded portions of the State. It is listed as a CDFW watchlist species and is a slender, medium-bodied hawk with rounded wings and a long tail. Cooper's hawks primarily reside and nest in dense stands of live oak, riparian deciduous trees, or other forest habitats adjacent to or near water resources (CDFW 2004a). They are known to feed and prey upon small birds, mammals, reptiles, and amphibians, and primarily hunt along the edges or breaks in the woodland habitats in which they reside.

Suitable foraging habitat for Cooper's hawk is present in the SVRA. Clay Pit SVRA's boundary abuts the edge of a dense oak woodland located in the Oroville Wildlife Area immediately east of the SVRA, which provides ideal foraging habitat and cover for this species. While no known nests have been reported to CNDDB within the Oroville Wildlife Area, the area contains suitable nesting habitats. Several breeding-age adults have been routinely observed by SVRA staff in the woodland area. The SVRA itself does not provide suitable nesting habitat for this species as on-site trees are too sparsely separated and do not provide sufficient coverage. During avian monitoring surveys, the last recorded observation of a Cooper's hawk in the SVRA was on January 15, 2020; staff observed a single adult individual hunting and preying upon small passerines in the park's cottonwood grove area.

Northern Harrier

The northern harrier (*Circus hudsonius*) is a year-round and breeding resident raptor species found throughout California, including the Central Valley and the Sierra Nevada. It is listed as a Species of Special Concern by CDFW, as the population has declined due to loss of foraging habitat and destruction of nests (CDFW 2008a). Northern harriers are slender, medium-sized raptors with owl-like faces. They exhibit an easily identifiable sexual dimorphism, with mature males being gray and females and immature hawks being brown. They are ground-nesting raptors and will use tall grasses and shrubby vegetation for nesting and roosting cover. Northern harriers are typically distinguishable by their characteristic foraging behavior, which sees them soaring and flying relatively low (3-30 ft) above open ground (CDFW 2008a). Like other raptor species, they primarily prey upon small mammals, birds, amphibians, and reptiles.

Suitable nesting and foraging habitat for northern harriers is present in and on the lands adjacent to Clay Pit SVRA. While no nests have ever been observed, Clay Pit SVRA

contains grassland and wetland habitat features that reasonably could provide suitable nesting habitat. However, the area is highly disturbed by OHV and other recreational activities that would likely deter adults from choosing the site as a nesting location. Northern harriers are frequently observed by resources staff at Clay Pit SVRA; the open terrain of the park mixed with its wetland and grassland habitat provide suitable foraging habitat for these species. The last recorded observation of this species in the SVRA was an incidental observation on March 14, 2021, when a breeding pair was observed foraging along the SVRA's grasslands terraces. According to CNDDB, the closest occurrence was a nest located approximately 3.5 miles west of the SVRA, recorded in 1986.

Osprey

The osprey (*Pandion haliaetus*) is a seasonal migrant, breeding resident large-bodied raptor species found throughout North America. It is listed as a Fully Protected species by CDFW and belongs to the subfamily of diurnal raptors known as *Pandioninae*, which consists exclusively of osprey. Osprey are found throughout California during their breeding season (March – October) and throughout the Central Valley year-round. They are strictly associated with large, fish-bearing waters, such as lakes, bays, reservoirs, and rivers. Nesting habitat consists of large snags, dead-topped trees, cliffsides, human-made structures, and platform nests (CDFW 2004b). Nest locations are typically associated with or close to the open waters where they forage. Osprey feed almost exclusively on fish, swooping down on them from flight or perch.

No suitable foraging or nesting habitat for this species exists within Clay Pit SVRA. The SVRA lacks any large, perennial, fish-bearing waters which are necessary to sustain this species. However, given the park's proximity to several large water bodies (e.g., Thermalito Forebay, the Feather River, Lake Oroville, etc.), the species is regularly observed flying over or through the SVRA. The SVRA contains no suitable nesting habitat as the trees or stands of available trees are regularly disturbed by the park's recreational activities.

Although this species has no suitable foraging or nesting habitat present on-site, the SVRA can also serve as a resting or loafing site for osprey. Additionally, staff has observed several occupied osprey nests near Clay Pit SVRA, some as recent as spring 2021. The nests were located atop artificial nesting platforms along East Hamilton Road, with the closest being approximately two miles southwest of the SVRA and directly adjacent to the Thermalito Afterbay.

White-tailed Kite

The white-tailed kite (*Elanus leucurus*) is a year-round resident breeding raptor found commonly along California's coast and Central Valley. It is listed as a CDFW Fully Protected species. White-tailed kites are a relatively small, pale-colored raptor and tend

to forage in open grassland-type habitats, including agricultural and grazing farmlands. They primarily hunt small mammals but are known to prey on small birds, reptiles, and amphibians (CDFW 2005). White-tailed kite foraging behavior is relatively unique to other California raptor species, as they tend to stop mid-glide/soar and hover in place by rapidly beating their wings downward. Nesting habitat requires dense tree canopies, typically oak, adjacent to open grasslands or agricultural fields (CDFW 2005).

Suitable foraging habitat is present in and adjacent to the SVRA. While no known or reported nests have been observed according to CNDDB, the Oroville Wildlife Area immediately east of Clay Pit SVRA contains suitable nesting habitat. This species has been observed, on occasion, foraging at Clay Pit SVRA. The last recorded observation in the SVRA was on May 1, 2017, during an avian monitoring survey. No suitable nesting habitat exists at Clay Pit SVRA as the trees are too sparsely vegetated or distributed to provide adequate nesting cover for this species.

Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) are a year-round breeding resident bird species found throughout California's Central Valley and coast. Originally a CDFW Species of Special Concern, the tricolored blackbird's conservation status was recently upgraded to Threatened by CDFW due to the loss of suitable wetland foraging and nesting habitats. The tricolored blackbird is a highly colonial bird species, forming large breeding colonies (at least 50 pairs) throughout their range and primarily nesting within the northeastern Central Valley (CDFW 2008b). Colonies will also routinely consist of other blackbird species, including red-winged blackbird (*Agelaius phoeniceus*) and yellow-headed blackbird (*Xanthocephalus xanthocephalus*). Nesting habitat includes thick emergent wetland vegetation such as dense groves of cattails, tule, or thickets of willows or blackberry shrubs (CDFW 2008b). They forage primarily in agricultural lands and along the edges of ponds, and consume insects and cultivated seeds and grains.

Suitable foraging habitat for this species is present in and adjacent to the SVRA; however, no cattails or suitable substrates large enough to support a breeding or nesting colony are available. Large flocks (approximately 300+ individuals) have been observed flying over and, on occasion, foraging in the wetland habitats at Clay Pit SVRA. According to CNDDB, a nesting colony of tricolored blackbirds, approximately one acre in size, is located less than one mile southeast of the SVRA. While Clay Pit SVRA does not have suitable nesting habitat, the site contains suitable foraging habitat within the range of a largely known nesting colony.

Giant Garter Snake

The giant garter snake (*Thamnophis gigas*) are a largely aquatic snake species endemic to California's Central Valley. This species is listed as threatened by USFWS and CDFW, and presumed to be extirpated from over half of its historical range and

very scarce throughout its current range. Giant garter snakes are a relatively large snake species, compared to other garter snakes, with mature adults measuring at least 64 inches in length and weighing between 1-1.5 lbs (USFWS 2017b). Giant garter snake habitat consists primarily of permanent or semi-permanent water features such as marshes, ponds, and sloughs. Still, it will also use slow-moving creeks and agricultural wetlands such as irrigation ditches and canals. They primarily forage along streams and prey upon native and introduced fish and amphibians (CDFW 2014).

Clay Pit SVRA exists within the historical and known ranges for this species, and potentially suitable seasonal habitat can be found within the SVRA's boundaries. While habitat at the park is not ideal for this species, the park floods during the spring and winter seasons when this species becomes active. It can retain a significant amount of surface water well into the early summer months during particularly wet years. Additionally, several creeks, irrigation canals, and other permanent large water features that are more suitable for this species can be found immediately adjacent to or within a few miles of the SVRA. While no individuals have ever been observed within the park's boundaries, the species is highly elusive and, under the right conditions, could enter and temporarily reside within the SVRA. The nearest known documented occurrences, according to CNDDB, were in 2011; one was seen along the water outlet that connects Thermalito Afterbay to the Feather River, approximately 1.5 miles southwest of the SVRA. The other was approximately 1.7 miles southwest along East Hamilton Road, just south of Thermalito Afterbay.

The SVRA's habitat is not ideal for this species as the area is highly disturbed, and there are numerous natural and artificial barriers to entry into the SVRA. Additionally, while the SVRA floods and retains surface water, this is often for brief periods, with water retention lasting into summer only during exceptional rain years and mild summers. The SVRA also lacks the significant aquatic habitat features generally characterized as necessary to contain breeding, healthy, and sustainable giant garter snake populations.

Western Pond Turtle

The western pond turtle (*Actinemys marmorata*) are a mostly-aquatic inhabitant of suitable aquatic habitats throughout most of California, and are listed as a Species of Special Concern by CDFW. Over recent decades, habitat loss and the introduction of larger and more aggressive non-native turtle species like red-eared sliders (*Trachemys scripta elegans*) have continually threatened their population, which can outcompete them for food resources and basking sites. Western pond turtle habitat varies considerably as the species utilizes both permanent or relatively permanent water features and intermittent water features when available. Western pond turtles are considered omnivores and primarily feed on aquatic plant material, insects, fish, and amphibians (CDFW 2000). Females will often migrate significant distances from water, sometimes up to 100 m, to lay their eggs (Nussbaum et al., 1983).

Clay Pit SVRA is within the historic and current range of this species. Potentially suitable habitat can be found in and less than a mile away from the SVRA in the Feather River, Oroville Wildlife Area, and Thermalito Afterbay. Additionally, while none have ever been observed or recorded within the SVRA, according to CNDDB, individuals were observed approximately 1.5 miles southwest of the SVRA in 2016, in Hamilton Slough, directly adjacent to Thermalito Afterbay. The SVRA does contain some habitats suitable for this species. However, there are numerous barriers for entry into the park, and the aquatic habitat lacks the significant habitat features generally characterized as necessary to contain breeding, healthy, and sustainable populations.

Ahart's Dwarf Rush

Ahart's dwarf rush (*Juncus leiospermus var. ahartii*) is a native annual grass-like herb endemic to California. It is part of the *Juncaceae*, or rush, family. While it has no listing status, it has a California Rare Plant Rank of 1B.2, meaning it is rare, threatened, or endangered in California and elsewhere (CNPS 2021). It is also one of the plant species included in the USFWS's 2005 *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon*. Ahart's dwarf rush is a small, annual herb that forms dense clumps of up to 100 hairlike reddish-brown stems no more than 2-6 centimeters tall. Stems are surrounded by a few thready leaves, and the inflorescence appears as a single reddish flower atop each individual stem (USFWS 2005). Ahart's dwarf rush is a vernal pool plant restricted to the mesic edges of seasonal swales or areas within low-elevation vernal pool types, including northern hardpan vernal pool (Ertter, 1986; Sawyer and Keeler-Wolf, 1995; USFWS 2005).

While habitat for this species is present at Clay Pit SVRA, the species has never been observed or documented within the park's boundaries despite numerous rare plant surveys. Recruitment to the site through natural mechanisms is possible as nearby populations can be found immediately upstream of Clay Pit SVRA on the Oroville Municipal Airport property. According to CNDDB, these population were last observed in 2010 and are presumed to be extant.

Dwarf Downingia

Dwarf downingia (*Downingia pusilla*) is a native annual herb found in California and endemic to vernal pool habitats. It is part of the *Campanulaceae*, or bellflower, family. While it has no listing status, it has a California Rare Plant Rank of 2B.2, meaning plants are rare, threatened, or endangered in California, but more common elsewhere (CNPS 2021). It forms along vernal swales, ditches, and pools, and compared to other downingias, the flowers are relatively small, giving it the nickname dwarf downingia. Leaves for this species are short and pointed, and the flowers are white or blue with yellow spots towards its interior structures.

Clay Pit SVRA contains suitable and known habitat for this species. Dwarf downingia was observed in the SVRA on May 22, 2007, during a wetland delineation; however, the location of the sighting was never recorded, and since then, no other observations have been made. According to CNDDB, there are no other nearby recorded occurrences.

Prostrate Vernal Pool Navarretia

Prostrate vernal pool navarretia (*Navarretia prostrata*) is a native annual herb that is endemic to California. It is part of the *Polemoniaceae*, or phlox, family. While it has no listing status, it has a California Rare Plant Rank of 1B.2, meaning it is rare, threatened, or endangered in California and elsewhere (CNPS 2021). The plant is typically found in scattered populations along the transverse ranges between the San Francisco Bay Area to the southern border. It typically sits low to the ground with a single central stem and branches, each radiating in an inflorescence with a cluster of flowers surrounded by leaflike bracts. The flowers are blue or white and just under a centimeter long (Johnson and Porter, 2000).

Clay Pit SVRA contains suitable and known habitat for this species. Prostrate vernal pool navarretia was observed and positively identified within the SVRA's vernal pool and wetland area during a rare plant survey performed during the spring of 2013. The species' distribution and extent within the SVRA has yet to be mapped, as no other specimens have been located. However, the area where this plant was observed is now closed and inaccessible to OHV recreation activities.

2.3.3 Other Resource Assessment Elements

2.3.3.1 Non-native Invasive (Exotic) Species

American Bullfrog

The American bullfrog (*Lithobates catesbeianus*) are the largest frog species in North America. Native to only the eastern states, bullfrogs were introduced to California and other western states in the early 20th century as a viable food source doubling as biological control for insects. However, this species is an opportunistic feeder with a rapacious appetite. It will prey upon and consume anything that it can fit in its mouth, including invertebrates, small mammals, birds, snakes, and other amphibian species. As a result of their introduction and feeding behaviors, American bullfrogs regularly outcompete and/or directly prey upon native frogs and other aquatic species. They are considered one of the main contributors to the decline of California red-legged frog (*Rana draytonii*) and other listed-amphibian populations in California.

A highly aquatic species, the American bullfrog can inhabit a wide variety of aquatic features and habitats. Reproduction tends to occur in semi-permanent to permanent waters, with adults traveling significant distances overland to reach breeding sites. Breeding typically occurs between March and July, with females typically producing only

a single clutch per season; however, a single clutch can contain anywhere between 10,000 and 20,000 eggs (Stebbins, 1972). Tadpoles can reach up to 14 cm (5.5 in) in length and, compared to other amphibian species, can take a significant amount of time (6 months) to develop and transform, sometimes waiting until the next breeding season to fully metamorphose (Treanor and Nicola, 1972).

While Clay Pit SVRA has no known sensitive amphibian resources, American bullfrogs have a direct negative impact on the SVRA's VPFS populations. During storm events, juvenile American bullfrogs will disperse from nearby permanent waterbodies and enter vernal pool complexes, spending several weeks to months maturing. They will actively prey upon and consume vernal pool invertebrates during that time, including vernal pool fairy and tadpole shrimp (USFWS 2007).

Adult and larval American bullfrog forms have been observed at Clay Pit SVRA. Larval forms are only observed during spring after winters with significant amounts of rainfall. Adult forms can be observed any time after significant wet weather events when the park becomes inundated. Given American bullfrogs' ability to travel significant distances from water resources, they can likely access Clay Pit SVRA from other adjacent properties containing permanent or semi-permanent aquatic features such as canals, lakes, and rivers. This behavior makes any control efforts of these species difficult. Even if eradication implementation were to occur, new individuals from nearby existing populations would likely proliferate and re-access the site. No single source for infestations can be pinpointed, and populations have likely spread to every nearby permanent water feature.

Mosquitofish

Mosquitofish (*Gambusia affinis*) are a fish species not native to California used as a biological control to reduce the proliferation of mosquito larvae in both permanent and temporary water sources, including canals, irrigation ditches, and vernal pools (USFWS 2007). The use of mosquitofish to control mosquito larvae and populations and reduce the risk of transmission of dangerous diseases to humans is essential but may also negatively impact vernal pool invertebrate species (USFWS 2007). While mosquitofish-stocking practices typically only occur in waters near human-occupied areas where mosquito larvae have become abundant, introduced mosquitofish will freely disperse and enter vernal pools from nearby permanent waters (Griggs et al., 1991).

Even in small numbers, mosquitofish have proven to significantly impact vernal pool shrimp abundance when introduced to pools with active shrimp species (Leyse et al., 2004). They will often consume active or growing shrimp before they can reproduce or mature. While stocking efforts typically take place in spring after peak shrimp active season, layovers or residual fish from previous years surviving in permanent water features can, during winter storms, be washed into vernal pools and swales during peak shrimp production and activity; this is most likely the case at Clay Pit SVRA.

On several occasions, the resources staff observed mosquitofish within Clay Pit SVRA, occupying the SVRA's central drainage canal. This species is likely entering the site through the drainage culvert under Larkin Road. This culvert, as previously discussed, drains excess stormwater from several aquatic features, including artificial ponds and canals, located on properties situated above Clay Pit SVRA in the watershed. These properties include the Oroville Municipal Airport and Table Mountain Golf Course. Vector control districts likely use mosquitofish as a mosquito control agent in these canals and water features; during storm events, fish are washed downstream into the SVRA's vernal pool complexes. Seasonal drying of the pools will eradicate any populations, but the potential for impact on vernal pool shrimp species exists.

Medusahead

Medusahead (*Elymus caput-medusae)* is a winter annual grass species that is native to the Mediterranean region of Europe and is considered highly invasive in the northwest region of the United States, including Oregon, California, Washington, and Idaho (Kyser et al., 2014). It typically invades disturbed areas, grassland habitats, and openings in chaparral or oak woodlands.

Medusahead is an ecological and management concern because of its ability to outcompete other native or naturalized grasses and forbs, and because it forms a thick, dense layer of thatch after setting seed. This thatch layer persists through subsequent growing seasons, inhibiting germination and growth of other species. (Kyser et al., 2014). This reduces habitat diversity and leads to monotypic stands (Kyser et al., 2014).

Medusahead is the most prevalent invasive plant species of concern at Clay Pit SVRA, though the exact population densities and the extent of its infestation are not known. It is most commonly observed dominating the annual grassland habitats along the SVRA's elevated terrace, but it is not found in significant numbers in the SVRA's lower elevation areas (Figure 2-11). Management of this species is challenging, since recommended management approaches for large stands of medusahead call for deep tilling, grazing, or prescribed burns, all of which are difficult or infeasible at Clay Pit.

Yellow Star-thistle

Yellow star-thistle (*Centaurea solstitialis*) is an early-maturing winter annual herb native to Eurasia that has spread throughout the western United States, including California, Arizona, and New Mexico. It is known to thrive in a variety of habitats, including open woodlands, desert scrub, grasslands, and disturbed environments such as roadsides and agricultural lands (DiTomaso et al., 2006). Yellow star-thistle is a competitively dominant species and regularly outcompetes native plants. It is also a prolific seed producer, and dense stands one acre in size can produce upwards of 50 million seeds (DiTomaso et al., 2006). The plant is distinguishable by its multiple bright yellow flowers surrounded by large spiny bracts.

The known population of yellow star-thistle at Clay Pit SVRA is relatively small, however the population has never been fully mapped and its full extent is unknown. A narrow band occurs along the fence at Larkin Road, and another patch near the drainage (Figure 2-11). Yellow star-thistle is less commonly observed in the lower basin area, which has less favorable conditions for the species, including impervious soils and seasonal flooding. Due to its potential to outcompete and reduce plant species diversity, management of the yellow star-thistle and other invasive weeds will be a priority in vegetation conservation and habitat improvement.

Barb Goatgrass

Barb goatgrass (*Aegilops triuncialis*) is an invasive winter grass species, native to eastern Europe and western Asia, that predominantly grows in the open foothill grasslands of central California. Barb goatgrass, like medusahead, creates thick thatch layers that result in reduced native species diversity (Davy et al., 2008). It prefers dry, well-drained soils, and frequently co-occurs with medusahead.

Barb goatgrass at Clay Pit is common in the annual grassland habitats along the SVRA's elevated terrace, though like the other invasive weeds, its exact distribution and size are currently unknown. Like medusahead, its thatch layer poses a real threat to native plant species populations and habitats at Clay Pit SVRA and can severely reduce native species biodiversity. Similarly to medusahead, it has not been well established in the lower elevation basin area of the park.

2.3.4 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 for 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, river flow etc.) and secondary (e.g., stream hydrology, fire, etc.) 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 caused by climate change as well as by targeted management actions.

3 Conservation and Improvement Goals and Objectives

Setting goals and objectives which identify resource condition targets further clarifies the outcomes to be achieved from the implementation of annual management activities. Several State and Regional Conservation Objectives were reviewed and incorporated into the development of the Clay Pit SVRA WHPP goals and objectives. This 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. This section describes the vision, goals, and objectives developed for Clay Pit SVRA's WHPP.

3.1 State and Regional Conservation Objectives

PRC Section 5090.32(g) requires that WHPPs "be developed in consideration of statutorily required state and regional conservation objectives". Conservation objectives are a central tool in planning and implementing effective resources management. Specifically, they are instrumental in identifying the need for and prioritizing, securing support for, and communicating the successes around ecosystem improvement and conservation (Williams and Madsen, 2013; Carwardine et al., 2009; Margules and Pressey, 2000; Johnson et al., 2009). Table 3-1 and Table 3-2 identify the state and regional conservation plans considered for the WHPP and how they are relevant to Clay Pit SVRA.

Table 3-1. State-wide Documents with Conservation Objectives

Document Type and Title	***Geographical Overlap with the Park***	***Contains Relevant Target Resources***	***Contributes to Conservation Objectives***
State Wildlife Action Plan	X	X	X
California Water Resilience Portfolio	X	*N/A*	X
California Biodiversity Initiative	X	X	X
Safeguarding California Plan	X	*N/A*	X
Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon	X	X	X

Table 3-2. Regional Documents with Conservation Objectives

Document Type and Title	***Geographical Overlap with the Park***	***Contains Relevant Target Resources***	***Contributes to Conservation Objectives***
Butte Regional Conservation Plan	X	X	X
Central Valley Water Quality Control Plan (Basin Plan)	X	X	X
Oroville Recreation Management Plan	X	*N/A*	X
Long Term Management Plan Oroville Wildlife Area D Unit	X	*N/A*	X

3.1.1 State Conservation Objectives

The following section discusses state-level documents, each with their conservation objectives, that were considered when drafting this WHPP. Provided below are brief descriptions of each document considered, followed by a discussion on how their goals and objectives relate to Clay Pit SVRA's own and how they correspond with the WHPP's development.

California Biodiversity Initiative (2018)

Authors: California Natural Resources Agency, California Department of Food and Agriculture, and California's Governor's Office of Planning and Research.

Started by former California Governor Brown and launched by Governor Newsome in 2018, the goal of the California Biodiversity Initiative (CBI) 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.

Clay Pit's WHPP aligns with the conservation objectives outlined in the California Biodiversity Initiative by managing resources based on adaptive management strategies informed by protocol-level monitoring and research. While the CBI may not directly create identifiable or direct biodiversity goals, successful implementation of a WHPP will still indirectly lead to improved biodiversity within Clay Pit SVRA. Additionally, species and taxonomic monitoring identified as part of the adaptive management will lead to increased understanding of the park's biodiversity and associated habitat values.

California Water Resilience Portfolio (2020)

Authors: California Natural Resources Agency, California Environmental Protection Agency (CalEPA), and California Department of Food and Agriculture.

In 2020, in response to Executive Order N-10-19, the California Natural Resource Agency, collaborating with 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 Clay Pit SVRA. Even though Clay Pit SVRA's hydrological features are relatively minor in the scope of this plan, the park is hydrologically connected to the Feather River. By actively conserving vernal pool habitat 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.

Safeguarding California Plan (2018)

Authors: California Natural Resources Agency.

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 CSP, chapter PC-5, and the following recommendations to incorporate climate change in all CSP and conservancy planning and decision-making. The plan identifies the steps to prioritize conservation, protection, and restoration of natural resources in climate change adaptation projects and planning to ensure sustainable recreational opportunities for the public to meet the chapter PC-5 recommendation. Clay Pit SVRA's WHPP can contribute to this plan by sustainably managing recreational opportunities.

State Wildlife Action Plan (2015)

Authors: California Department of Fish and Wildlife.

The State Wildlife Action Plan (SWAP), developed by the California Department of Fish and Wildlife 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 Clay Pit SVRA's WHPP supports SWAP goals by maintaining and improving wildlife habitat over time within the SVRA.

Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (2005)

Authors: United States Fish and Wildlife Service.

This plan, drafted by USFWS, is an ecosystem-level recovery and planning strategy for recovery and conservation of the various vernal pools systems occurring in California

and Southern Oregon. The document works to identify several different plants, animals, and habitat features unique to vernal pools classified in these regions. It also outlines the specific actions considered necessary to conserve the identified sensitive and/or listed resources/species, the estimated time and cost for implementing the recovery measures needed, and the overall delisting criteria. While this document identifies several goals and objectives, the main goals of this recovery strategy are to achieve and protect self-sustaining populations and habitats for each species identified by the recovery plan.

According to this recovery plan, Clay Pit SVRA falls within the Northeastern Sacramento Valley Vernal Pool Region and is located directly between the Oroville (North) and Palermo (South) Core Areas. The habitat and wildlife objectives of the WHPP center around long-term conservation, protection, and improvement of the vernal pool habitats and species that reside within the park. Clay Pit's WHPP will consider the objectives outlined by this document and seek to contribute by continuing to conserve and manage the park's resident vernal pool habitats, vegetation communities, and special status shrimp species populations.

3.1.2 Regional Objectives

The following section discusses regional documents, each with their conservation objectives, considered when drafting this WHPP. Provided below are brief descriptions of each document considered, followed by a discussion on how their goals and objectives relate to Clay Pit SVRA's own and how they correspond with the WHPP's development.

Butte Regional Conservation Plan

Authors: Butte County Association of Governments and California Department of Transportation.

The Butte Regional Conservation Plan (BRCP) is a coordinated effort by local, county, and state entities to preserve important ecological resources in the lowland and foothill regions of Butte County, an area in which Clay Pit SVRA resides. In addition, the BRCP intends to provide a framework that allows for the continued protection of natural resources while streamlining the environmental permitting processes associated with the growth and development of the region. The plan contains several overall planning goals and conservation objectives, the most applicable of which are the conservation and management of the plan's "covered species" and the preservation of aquatic and terrestrial resources within the planning area.

While State Parks is not subject to the BRCP, Clay Pit SVRA does fall within the Oroville Urban Permit Area boundary and is associated as a resource management

area with grasslands and vernal swale complexes. By working to conserve and improve the vernal pool and grassland habitats at Clay Pit SVRA and protect sensitive and listed resources, Clay Pit SVRA's WHPP goals align with those presented in the BRCP. Additionally, the WHPP's adaptive management processes will consider the increased local population expansion and expected rise in the use of the park.

Central Valley Water Quality Control Plan (Basin Plan)

Authors: California Regional Water Quality Control Board, Central Valley Region.

Basin Plans are regional water quality control plans adopted by the State Water Board with the intent to designate the protection of waters and water quality under the Clean Water Act. The Central Valley Basin Plan covers the Sacramento and San Joaquin River drainage basins. It sets forth standards, including the designated beneficial uses of water resources and the narrative and numeric objectives that must be maintained or attained to protect those uses. Narratives include limiting the number of pollutant loads (e.g., sediment, pesticides, etc.) entering water resources that may adversely impact the water bodies' designated and beneficial uses.

Clay Pit SVRA is within the Lower Feather River Hydrological Area of the Central Valley Region (5) Basin Plan. Additionally, the drainage canal within the park has been determined to be subject to the Clean Water Act and is considered to have a "significant nexus" to the Feather River watershed (AECOM 2010). This WHPP will address this issue by adopting and implementing a water quality monitoring plan by 2023 to conserve and improve the SVRA's hydrological features and the park's water quality. The Clay Pit SVRA WHPP complies with and actively aligns with the Central Valley RWQCB's Central Valley Basin Plan.

Oroville Recreation Management Plan

Authors: California Department of Water Resources.

The Oroville Recreation Management Plan (ORMP) is a component of an application by DWR for a new Federal Energy Commission (FERC) License to operate The Oroville Facilities located along the Feather River in Butte County, California. The plan provides a guide to facilitate the management of existing and future recreational resources associated with the Oroville Facilities. It includes discussions of long-term goals and objectives for managing recreational resources. It also includes notable properties and features surrounding and adjacent to Clay Pit SVRA, including, but not limited to, Oroville Wildlife Area, Lake Oroville, and the Thermalito Forebay and Afterbay.

Much like Clay Pit SVRA's 2012 General Plan, the ORMP targets improving and providing meaningful and compatible recreational opportunities to the public without causing any adverse impact to the surrounding environment. The recreation

management plan even discusses Clay Pit SVRA and how it plans to provide information to their other recreational users, direct OHV enthusiasts to the SVRA, and reduce any potential illegal OHV incursions. By providing an accessible and managed legal OHV recreational facility for the public, Clay Pit SVRA provides another local recreational resource in the Oroville Facilities area. The goals and objectives of this WHPP, combined with an adaptive management feedback strategy, will allow the continuation of current and future OHV recreational opportunities in the area, aligning with the recreation goals and objectives outlined in the ORMP.

Long Term Management Plan Oroville Wildlife Area D Unit

Authors: Department of Fish and Wildlife, Oroville Wildlife Area, and Sutter Butte Flood Control Agency.

The OWA D Unit (D Unit) is a CDFW wildlife management area located less than two miles directly south of Clay Pit SVRA. D Unit is an approximately 1,500-acre unit located within the Oroville Wildlife Area and is managed to provide natural resource protection and public recreational opportunities. The D Unit's Management Plan is a guide that directs the management of invasive plant species within the unit. The plan works by adopting an adaptive management approach: identifying goals, treatments, prioritization, and monitoring for the reduction, and, if possible, eradication of the unit's invasive plant species populations.

Like D Unit, Clay Pit SVRA has several invasive plant species that threaten the natural plant community diversity. While many of the invasive species identified in this plan do not occur at Clay Pit SVRA, the WHPP will consider the approaches outlined by the D Unit Invasive Species Management Plan. Specifically, the WHPP will establish invasive species management objectives to identify the extent of infestations, prioritize treatment areas, and identify the various treatment options (e.g., mechanical, chemical, controlled burn, etc.). Clay Pit SVRA's WHPP plans to adopt invasive weed management plans to reduce and prevent the spread of existing weed populations.

3.2 WHPP Goals

The PRC provides the goals to be achieved through the WHPPs. 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". And 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 PRC §5090.35. (c)(1) (*Appendix 4: PRC Requirements*), the fundamental habitat goals of Clay Pit SVRA's WHPP are:

1) the conservation or long-term protection of soils, plants, wildlife, and habitats

2) the improvement or increase in the quality or extent (hereafter, "restoration") of soils, plants, wildlife, and habitats.

3.3 WHPP Objectives

The objectives for this WHPP are tiered out directly from the two goals identified in the section above. While the goals are broader and overarching, objectives must be more defined and identify specific aspects needed to meet the goals for the overarching resource in order to allow for program flexibility. To further assist with the development of objectives and ensure that every aspect of the goals is 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 the two goals identified in *Section 3.2 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 (Figure 3-2), 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.

3.3.1 S.M.A.R.T. Objectives

The objectives identified in the sections below have been designed to follow S.M.A.R.T. format principles (Figure 3-1). These principles' objectives will innately fulfill the best available science and adaptive management tenants. WHPP objectives were also developed to take place over the next five years of the program and are based on the information provided from the *Natural Resource Assessment,* described within *Section 2.3*. The objectives were also designed to be consistent with Clay Pit SVRA's 2012 General Plan and consider the State and Regional Conservation Objectives identified in *Section 3.1 State and Regional Conservation Objectives* above.

To meet the WHPP goals identified above, and to ensure compliance with the SB 249 PRC updates, many resources objectives and their associated monitoring and management programs have either been updated or added to Clay Pit SVRA's existing resources program. Therefore, several of the objectives identified in the sections below do not currently meet all aspects of the S.M.A.R.T. format principles, as the baseline information required to quantify and demonstrate conservation and/or improvement and information necessary to make informed management has not yet been established.

Figure 3-1. S.M.A.R.T. Objectives

Instead, over the first few years of this WHPP, objectives as well as the associated monitoring and management will focus on the establishment and gathering of proper baseline information. It is expected that after two years of baseline monitoring, all programs and WHPP objectives will have the baseline information necessary to meet the S.M.A.R.T. format criteria and be updated accordingly. Updates made this way will be reported on as part of the WHPP's annual reporting process and new objectives will be reviewed by both NRD and OHMVRD staff for WHPP and program compliance before their implementation. More information regarding timetables can be found in the sections and appendices below.

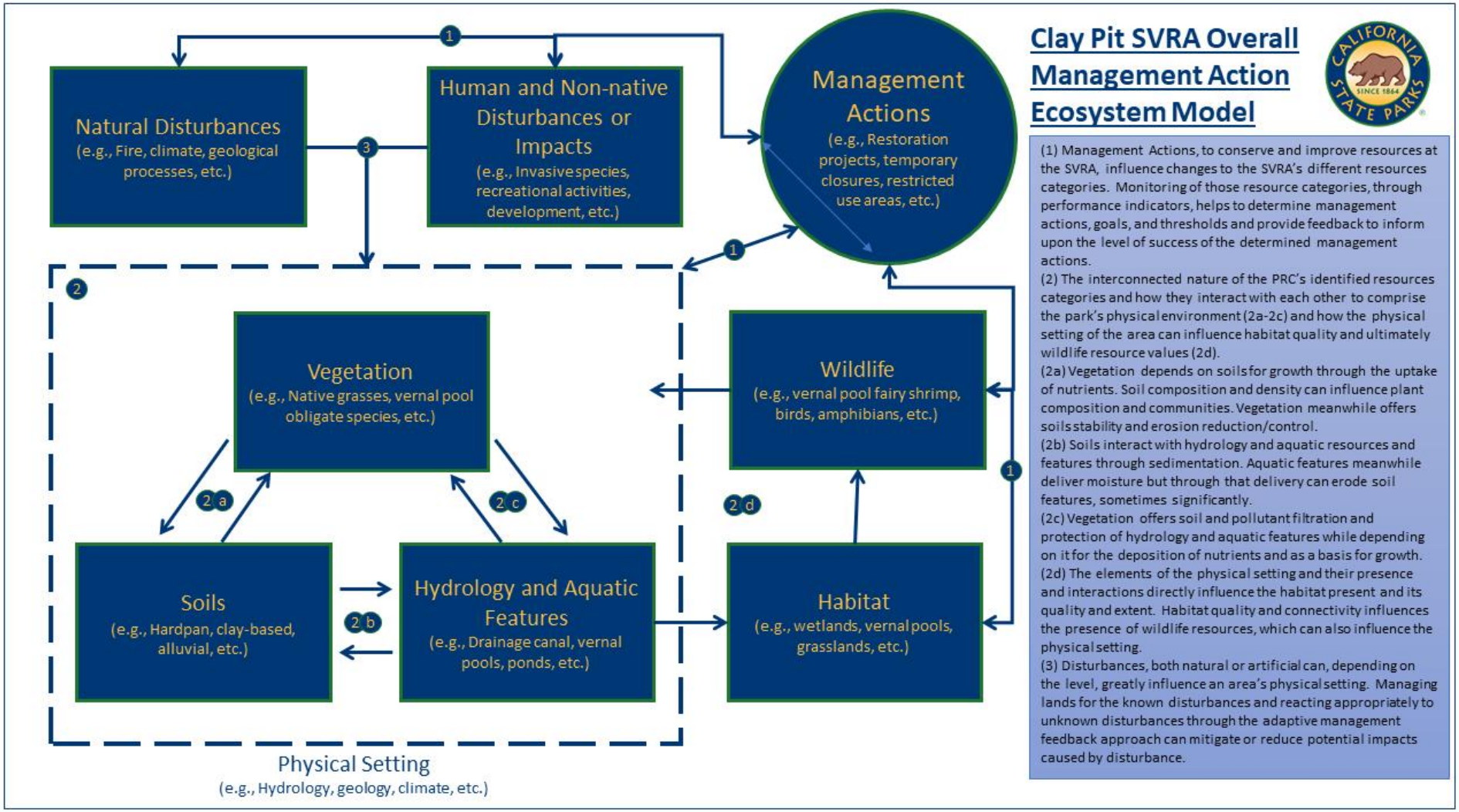

Figure 3-2. Clay Pit SVRA's Overall Resources Program and Ecosystem Conceptual Model

3.3.2 Conservation and Long-term Protection Objectives

The PRC goal of resource "conservation and long-term protection" is achieved through setting resource objectives that target the protection and maintenance of the existing extent and condition of the specific soils, plants, wildlife, and habitats within an SVRA. Meeting these goals is dependent on gathering assessment data that is quantitative, measurable, and spatially explicit. It also requires identifying monitoring metrics that have a clear linkage to the conservation and long-term protection management actions that are employed. Annual monitoring evaluates the efficacy of management actions that seek to achieve this target. Clay Pit SVRA's conservation objectives will seek to understand the current resources and preserve their known extent and condition. See Table 3-3 for a breakdown of the WHPP's goals & objectives and their corresponding management actions and monitoring.

As previously mentioned, a majority of the WHPP objectives and the resources monitoring and management programs outlined within them do not meet the S.M.A.R.T. objectives criteria at this time, as sufficient baseline data to inform and set quantifiable and reasonable objectives has not yet been developed. Over the first few years of the WHPP's implementation, the necessary baseline information will be gathered, and objectives updated to meet these standards. Updates will be made as part of the annual WHPP reporting process identified in *Section 6.1.4 WHPP Reporting*.

Resources Category: Soils

Soils Conservation Objective 1 (SCO1) – Through 2027, manage Clay Pit SVRA's soil resources for sustainable long-term prescribed use that does not degrade or impair the environmental quality or reduce site productivity.

S.M.A.R.T. Targets:

- By June 1, 2023, develop and implement an SCP using OHMVRD's 2020 Soil Conservation Standard and Guidelines.
- By March 31, 2025, using the baseline data gathered from the SCP monitoring and the Soil Assessment Monitoring Program, identify and update soil conservation objectives to meet the S.M.A.R.T. objective criteria related to soils sustainability.

The SCP describes S.M.A.R.T. objectives and associated baseline and target parameters related to soil management practices within the park. The SCP will inform the park's restoration planning by identifying areas where excess soil loss is occurring. The SCP will also indicate high priority areas in need of maintenance, repair, or restoration and where impacts to soils and aquatic resources may occur. By developing and implementing an SCP, the goals of soil conservation and improvement will be met.

Soils Conservation Objective 2 (SCO2) – Through 2027, manage water quality conditions within the SVRA's artificial intermittent drainage canal to meet RWQCB standards.

S.M.A.R.T. Targets:

- By June 1, 2023, develop and implement a Water Quality Monitoring Program.
- By March 31, 2025, using the baseline data gathered from the Water Quality Monitoring Program, identify and update soil conservation objectives to meet the S.M.A.R.T. objective criteria related to sedimentation and water quality.

The Water Quality Monitoring Program will identify objectives and associated baseline and target parameters related to water quality management practices within the Park. It will inform the park's restoration planning by identifying areas where excess sedimentation is occurring and where unnatural erosion is adversely impacting the park's aquatic resources. This program will also indicate high priority areas in need of maintenance, repair, or restoration and where the greatest impacts to aquatic resources impacted by soils and other potential foreign matter are occurring. By developing and implementing a Water Quality Monitoring Program, the goals of soil conservation and improvement will be met.

Conservation and long-term protection of soil resources are paramount at Clay Pit SVRA. The park's "open ride" use policy creates several unnatural erosion and sedimentation issues, within the identified topographical and geological features. Additionally, compared to other SVRAs, Clay Pit SVRA contains a relatively large number of water features proportionate to its size, all of which are identified in the Natural Resource Assessment section as Sensitive Resources Areas and/or Threatened or Endangered Species Habitat. While erosion and sedimentation are natural processes, the addition of unnatural erosion created by the park's recreational activities can adversely impact the SVRA's drainage canal and vernal pools.

Soil conservation objectives will implement two resources programs: an SCP and a Water Quality Monitoring Program. Both programs will inform the park's restoration planning by identifying areas where excess soil loss (erosion and sedimentation) occurs and where unnatural erosion adversely impacts the park's other resources. They will also indicate high priority areas in need of maintenance, repair, or restoration and where the greatest impacts to soils and aquatic resources impacted by soils are occurring.

Over the first two years of both programs (2022 – 2024), Clay Pit SVRA resources staff will work to identify appropriate collection metrics necessary to inform resources adaptive management. Resources staff will also work to gather the data necessary to establish baseline information, which will then be used to identify targets and objectives that meet the S.M.A.R.T. objective criteria.

Resources Category: Vegetation

Vegetation Conservation Objective 1 (VCO1) – Through 2027, maintain and understand the distribution and compositions of Clay Pit SVRA's existing habitats and their associated vegetation communities.

S.M.A.R.T. Targets:

- By March 31, 2025, establish baseline information for vegetative cover throughout the entire SVRA and establish S.M.A.R.T. management objectives related to the SVRA's overall vegetation coverage (Vegetation Communities Monitoring Program).

- Through 2027, continue to conserve the vegetation cover within the existing approximately 20-acre riding exclusion area (DMA Subunit).

Vegetation Conservation Objective 2 (VCO2) – Through 2027, monitor and assess the northern hardpan vernal pool and other wetland vegetation communities and species assemblages currently present at Clay Pit SVRA.

S.M.A.R.T. Targets:

- Annually map the size and extent of northern hardpan vernal pool habitat present at Clay Pit SVRA (Vernal Pool & Wetland Condition Assessments).

- Annually inventory wetland and northern hardpan vernal pool vegetation communities (Vernal Pool & Wetland Condition Assessments).

- By March 31, 2025, using the baseline data gathered from the Vernal Pool & Wetland Condition Assessments, identify and update vegetation conservation objectives to meet the S.M.A.R.T. objective criteria related to the parks existing wetland habitats.

Vegetation Conservation Objective 3 (VCO3) – Through 2027, maintain (prevent the spread) and understand the distribution and compositions of invasive weed populations present at Clay Pit SVRA.

S.M.A.R.T. Targets:

- By March 31, 2025, map the extent and distribution of invasive weed species populations present at Clay Pit SVRA (Invasive Weed Management Program).

- By March 31, 2025, develop an Invasive Weed Management Program for Clay Pit SVRA.

- By March 31, 2025, develop an Early Detection Rapid Response (EDRR) weed management program or other CSP equivalent program for Clay Pit SVRA.

- Through 2027, using either mechanical/hand removal or chemical treatments, destroy or prevent the establishment of any new or incipient invasive weed populations.

Vegetation communities are an important resource at Clay Pit SVRA. As identified in the Natural Resource Assessment section, Clay Pit SVRA contains several native plant communities, including those associated with wetlands and vernal pools. While the vernal pools on site are mostly unnatural and the area is highly disturbed, they do contain several native and endemic California vernal pool plant communities and vernal pool obligate and dominant vegetation species. The first two years of this WHPP will focus on using new survey and monitoring techniques to inventory vegetation cover throughout the SVRA and assessing the vegetation communities present within the various wetland features. Once baseline information has been established through monitoring, resources staff will identify new objectives for the WHPP that focus on vegetation conservation and meet the S.M.A.R.T. objective criteria.

Managing the SVRA's invasive plant populations will help prevent the harmful spread of known exotic species into these native communities. Many of the previously identified exotic species outcompete native species and significantly reduce biodiversity, lowering habitat values. Preventing the spread of, or "maintaining", the SVRA's current populations will prevent these species from potentially entering and negatively impacting the park's limited natural vegetation communities. Maintenance activities will include the treatment of new or incipient populations. Treatment options for invasive weeds vary considerably but include both standard mechanical and chemical removal techniques as well as looking into alternative means, such as controlled burns. To help diagnose early problems and act accordingly to manage future and current infestations, resources staff will, by 2025, draft and implement an Invasive Weed Management Program for the SVRA and an EDRR or equivalent CSP document.

Resources Category: Wildlife

Wildlife Conservation Objective 1 (WCO1) – Through 2027, conserve the distribution and presence of special-status branchiopod species at Clay Pit SVRA.

S.M.A.R.T. Targets:

- Specific targets to be identified after the collection of baseline data.

Wildlife Conservation Objective 2 (WCO2) – Through 2027, maintain avian species diversity and richness at Clay Pit SVRA.

S.M.A.R.T. Targets:

- Annually assess and monitor avian populations at Clay Pit SVRA (Avian Monitoring Program).
- Continue to conserve avian diversity through 2027 (Maintain the current baseline).
- By March 31, 2024, update baseline data to include additional survey information gathered from avian point count surveys between 2017 and 2022.

Wildlife Conservation Objective 3 (WCO3) – Over the next five years, conduct monitoring for identified outstanding taxonomic resources to update species inventories and, if necessary, use monitoring results to update the WHPP's resources objectives.

S.M.A.R.T. Targets:

- By December 31, 2027, conduct inventory surveys and/or presence/absence monitoring for small mammals, bats, amphibians, and rare plant species.

Wildlife resources conservation objectives for Clay Pit SVRA will focus on building an understanding of the park's unknown but potential wildlife resources, managing the current health and distributions of the park's known wildlife resources, and reducing the presence of identified invasive species.

Additionally, several taxonomic groups' (e.g., amphibians, bats, small mammals, etc.) presence and potential distributions were determined by the Natural Resource Assessment to be underrepresented, as no recent monitoring, surveys, or management have been performed for them. Therefore, to cover this gap, various taxonomic group surveys will be performed at Clay Pit SVRA over the next five years to update species inventories and identify any previously unknown resource information that can inform management actions or serve as future indicators of wildlife and habitat resource health for the park.

Resources Category: Habitat

Habitat Conservation Objective 1 (HCO1) – Through 2027, maintain the existing size, function, and condition of the northern hardpan vernal pool habitat and other wetland habitats present at Clay Pit SVRA.

S.M.A.R.T. Targets:

- On an annual basis, map the extent of wetland habitats and inventory their condition (Vernal Pool & Wetland Condition Assessments).

- Attain no net loss of functions and values for wetlands, including vernal pools, through 2027. (Current baseline is 25.7 acres with 180 features.)

Habitat Conservation Objective 2 (HCO2) – Through 2027, conserve the existing VELB critical habitat present at Clay Pit SVRA.

S.M.A.R.T. Targets:

- Attain no net loss of potential VELB habitat through 2027. (Current baseline is one elderberry shrub.)

Habitat conservation objectives center around preserving and maintaining sensitive wildlife habitats identified in the Natural Resource Assessment. The active conservation of the soil, vegetation, and wildlife resources present at Clay Pit SVRA, as shown in *Figure 3-2. Clay Pit SVRA's Overall Resources Program and Ecosystem Conceptual Model*, correlates with and directly influences habitat conditions and values. By monitoring these resources, evaluations and determinations of the condition of Clay Pit SVRA's habitat resources can be extrapolated. Because of this, habitat conservation monitoring and management actions identified for other resources categories will also directly benefit and inform the conservation of habitat resources and values.

3.3.3 Restoration Objectives

The PRC goal of "restoration" is achieved through setting objectives that target the improvement of degraded conditions or re-establishment of the specific soils, plants, wildlife, and habitats within an SVRA. Setting objectives for restoration requires an analysis to quantitatively identify areas where degraded conditions exist or where resources have been lost from the landscape. This analysis is based on the elements of the Natural Resource Assessment, which describes resource conditions and identifies acres of habitat to be restored or enhanced through management actions. Annual monitoring evaluates metrics that clearly link to the restoration management actions.

Restoration objectives for this WHPP revolve around improving the conditions of the four identified resources categories. Restoration will focus primarily on those resources within the DMA Subunit and resources categories outside the DMA Subunit that directly influence the quality of the resources within it.

The first few years of this WHPP (2022-2024) will focus on conducting monitoring and accumulating data necessary to establish a reasonable baseline for the current condition of Clay Pit SVRA's identified resources. Once those baselines have been determined, each restoration objective will then be updated, following the S.M.A.R.T. objective criteria, with more robust and quantifiable management targets and thresholds, which will cover the second half of the WHPP's identified timeline (2025-2027).

Restoration Category: Soils

Soil Restoration Objective 1 (SRO1) – Through 2027, improve the water quality conditions of Clay Pit SVRA's artificial intermittent drainage canal.

S.M.A.R.T. Targets:

- By March 31, 2025, using the baseline data gathered from the Water Quality Monitoring Program _Ref94261209, identify and update soil restoration objectives to meet the S.M.A.R.T. objective criteria related to sedimentation and water quality.

Soil Restoration Objective 2 (SRO2) – Over the next five years, reduce the overall acreage of exposed soils/bare ground present within the DMA Subunit.

S.M.A.R.T. Targets:

- By March 31, 2025, using the baseline data gathered from the SCP monitoring and Soil Assessment Monitoring Program, identify and update soil restoration objectives to meet the S.M.A.R.T. objective criteria related to soils sustainability.

- By March 31, 2025, using accumulated SCP and Water Quality Monitoring data, identify the sizes (acres) and locations of gaps in the DMA Subunit's vegetative filter where excess sediment is entering the drainage canal and draft S.M.A.R.T. objectives to begin meeting the restoration of these areas.

Despite being entirely closed to OHV recreation since 2017, many of the areas in the DMA Subunit still contain large expanses of exposed bare ground. Due to both recent and historical impacts, the plant communities present at Clay Pit SVRA have been unsuccessful in passively revegetating this area. This has left significant breaks or gaps in the protective vegetative cover meant to protect and separate the intermittent drainage canal from excess OHV-related sedimentation and other foreign matter deposition.

The establishment of an SCP and a Water Quality Monitoring Program will allow resources staff to identify areas within the DMA Subunit where restoration activities will most effectively work to improve soil resources conditions within the park. The establishment of these programs will provide the necessary background data that can then be used to allow for more targeted and meaningful soil restoration objectives and activities. Soil restoration goals identified following the establishment of baseline data will likely focus on vegetating areas within the DMA Subunit in areas where soil compliance is not being met or addressing other resource compliance issues.

Restoration Category: Vegetation

Vegetation Restoration Objective 1 (VRO1) – Over the next five years, manage landscapes to increase the overall vegetative ground cover present at Clay Pit SVRA.

S.M.A.R.T. Targets:

- By March 31, 2025, establish baseline information for vegetative cover throughout the entire SVRA and establish S.M.A.R.T. restoration management objectives related to the SVRA's overall vegetation coverage (Vegetation Communities Monitoring Program).

Vegetation Restoration Objective 2 (VRO2) - Over the next five years, manage landscapes to reduce invasive plant species cover present at Clay Pit SVRA.

S.M.A.R.T. Targets:

- By March 31, 2025, establish baseline information for invasive weeds throughout the entire SVRA and establish S.M.A.R.T. management objectives related to the SVRA's invasive weed populations (Invasive Weed Management Program).
- By March 31, 2025, map the extent and distribution of invasive weed species populations present at Clay Pit SVRA (Invasive Weed Management Program).
- By March 31, 2025, develop an Invasive Weed Management Program for Clay Pit SVRA.
- By March 31, 2025, develop an Early Detection Rapid Response (EDRR) weed management program or other CSP equivalent program for Clay Pit SVRA.

Overall, the target is to increase the quality of habitat and vegetation communities present within Clay Pit SVRA. The current goal is to increase the health of the vegetation communities, increase the amount of vegetative ground cover, and improve the herb layer coverage. These objectives will be accomplished through active and passive restoration of exposed areas within the DMA Subunit that are devoid of vegetation. Additionally, actively reducing the presence of highly competitive and dominant invasive weeds will improve the richness and quality of vegetative communities present. All of these objectives will improve the overall quality and functionality of the habitat in general, and benefit the wildlife, soils, and hydrology of Clay Pit SVRA.

Restoration Category: Wildlife

Wildlife Restoration Objective 1 (WRO1) – Through 2027, improve the quality of wildlife habitat within Clay Pit SVRA's DMA Subunit.

S.M.A.R.T. Targets:

- By March 31, 2025, using the baseline data gathered from the various monitoring programs, identify and update wildlife restoration objectives to meet the S.M.A.R.T. objective criteria.

Over the first few years of the program, resources staff will monitor and evaluate the conditions of various taxonomic groups and the habitat present at Clay Pit SVRA. Once sufficient baseline data is present and the various monitoring programs have become established, resources staff will use them to reevaluate goals and establish more targeted wildlife restoration objectives that focus on improvement for these species.

Restoration Category: Habitat

Habitat Restoration Objective 1 (HRO1) - Through 2027, improve the quality of the vernal pool and other wetland habitats present within the DMA Subunit.

S.M.A.R.T. Targets:

- By March 31, 2025, using the baseline data gathered from the various monitoring programs, identify and update habitat restoration objectives to meet the S.M.A.R.T. objective criteria.

Improving the extent and condition of wetland habitats is an important component of managing, conserving, and improving the SVRA's resources categories. Wetlands at the SVRA, though artificial, still represent the most significant habitat resource available for wildlife at the SVRA. Their presence and health contribute significantly to the richness and diversity of the SVRA. They are the only habitats available at the park that can support several of its identified and potentially sensitive and non-sensitive wildlife species.

See Table 3-3 for a breakdown of all the objectives and their associated monitoring and management actions.

Table 3-3. Goals, Objectives, and the Corresponding Management Actions and Monitoring for Clay Pit SVRA.

Goal from PRC 5090.35(2)I(1)	Resource Category	Objectives	Management Actions (*Appendix 2*)	Monitoring (*Appendix 3*)
Conservation and long-term protection	Soils	Through 2027, manage Clay Pit SVRA's soil resources for sustainable long-term prescribed use that does not degrade or impair the environmental quality or reduce site productivity. Through 2027, manage water quality conditions within the SVRA's artificial intermittent drainage canal to meet RWQCB standards.	Develop & Implement a Soil Conservation Plan for Clay Pit SVRA by June 1, 2023. Develop & Implement a Water Quality Monitoring Plan by June 1, 2023. Implement the Best Management Practices (BMP) identified in the OHV BMP Manual for Erosion and Sediment Control during and following any project activities. Prevent any OHV use or development of unauthorized trails within the DMA Subunit.	Soil Assessment Monitoring Program Water Quality Monitoring Program
	Vegetation	Through 2027, maintain and understand the distribution and compositions of Clay Pit SVRA's existing habitat and their associated vegetation communities. Through 2027, monitor and assess the northern hardpan vernal pool and other wetland vegetation communities and species assemblages currently present at Clay Pit SVRA. Through 2027, maintain and understand the distribution and compositions of non-native invasive weed populations present at Clay Pit SVRA.	Prevent any OHV use or development of unauthorized trails within the DMA Subunit. Develop and implement an Invasive Weed Management Program by March 31, 2025. Conduct protocol-level special status plant surveys prior to the start of any project-related activities. Temporarily exclude riding in any areas where listed plant species are found.	Vegetation Communities Monitoring Program Vernal Pool and Wetland Condition Assessments Invasive Weed Management Program

Goal from PRC 5090.35(2)I(1)	Resource Category	Objectives	Management Actions (*Appendix 2*)	Monitoring (*Appendix 3*)
Conservation and long-term protection	Wildlife	Through 2027, Establish baseline information for and annually assess and monitor the distributions and presence of special-status branchiopod species at Clay Pit SVRA. Through 2027, conserve avian species diversity and richness at Clay Pit SVRA. Over the next five years, conduct monitoring for identified outstanding taxonomic resources to update species inventories and, if necessary, use monitoring results to update the WHPP's resources objectives.	If monitoring documents a decline in the conditions of a special-status shrimp species (relative to baseline), develop new adaptive management strategies. Establish and enforce OHV use in designated areas that are located outside of known occurrences of special-status species and habitat. Use interpretive/educational signage and fencing in some areas to inform visitors and protect particularly sensitive areas. Temporarily or permanently close portions of the SVRA. Coordinate internally (i.e., NRD and OHMVRD) and with USFWS regarding additional appropriate management measures. Prevent any OHV use or development of unauthorized trails within the DMA Subunit. Protect and preserve avian wading, foraging, and loafing habitat within the DMA Subunit Develop and implement new Monitoring and Management Actions if previously undetected special-status species are identified or determined to be present at the SVRA. Update Clay Pit SVRA's wildlife inventory if any new species are detected due to new taxa monitoring.	Listed Large Branchiopod Monitoring Program Avian Monitoring Program Inventory Update and Scientific Research Program

Goal from PRC 5090.35(2)I(1)	Resource Category	Objectives	Management Actions (*Appendix 2*)	Monitoring (*Appendix 3*)
	Habitats	Through 2027, maintain the existing size, function, and condition of the northern hardpan vernal pool habitat and other wetland habitats present at Clay Pit SVRA. Through 2027, conserve the existing valley elderberry longhorn beetle (VELB) critical habitat present at Clay Pit SVRA.	Continue to prevent any OHV use or development of unauthorized trails within the DMA Subunit. All projects or related activities, to the extent feasible, will avoid sensitive biological areas and habitats. Avoid any projects impacts that could potentially impact the existing VELB habitat present at the SVRA. Continue to enforce the exclusion buffer around the park's potential VELB habitat.	All identified Soil, Vegetation, and Wildlife Monitoring
Improvement or increase in the quality or extent	Soils	Through 2027, improve the water quality conditions of Clay Pit SVRA's artificial intermittent drainage canal. Over the next five years, manage landscapes to reduce the overall acreage of exposed soils/bare ground present at Clay Pit SVRA.	Repair or improve hill climb areas where erosional features (e.g., rilling, gullying, scouring, etc.) identified by the SCP are causing excess sedimentation or soil loss. Install and/or repair new or existing soil and erosion control features (e.g., drainage culverts, creek crossings, etc.). Active restoration in the DMA Subunit where past OHV activities have prevented the establishment of a protective vegetative filter.	Soil Assessment Monitoring Program Water Quality Monitoring Program Vegetation Communities Monitoring Program

Goal from PRC 5090.35(2)I(1)	Resource Category	Objectives	Management Actions (*Appendix 2*)	Monitoring (*Appendix 3*)
	Vegetation	Over the next five years, manage landscapes to increase the overall vegetative ground cover present at Clay Pit SVRA. Over the next five years, manage landscapes to reduce invasive plant species cover present at Clay Pit SVRA.	• Active restoration in the DMA Subunit where past OHV activities have prevented natural vegetation communities from reestablishing. • Improve vegetation cover percentages within Clay Pit SVRA's open riding area. • Use local native plants or plant materials for any identified projects requiring restoration or plantings. • Invasive species plant treatments in high-priority infestation areas.	• Vegetation Communities Monitoring Program • Vernal Pool and Wetland Condition Assessments • Invasive Weed Management Program
Improvement or increase in the quality or extent	Wildlife	Through 2027, improve the quality of wildlife habitat within Clay Pit SVRA's DMA Subunit.	• Active restoration in the DMA Subunit where past OHV activities have prevented natural vegetation communities from reestablishing.	• All Monitoring Programs

Goal from PRC 5090.35(2)I(1)	Resource Category	Objectives	Management Actions (*Appendix 2*)	Monitoring (*Appendix 3*)
	Habitats	Through 2027, improve the quality of the vernal pool and other wetland habitats present within the DMA Subunit.	• Repair or improve hill climb areas where erosional features (e.g., rilling, gullying, scouring, etc.) identified by the SCP are causing excess sedimentation or soil loss • Install or repair new or existing soil and erosion control features (e.g., drainage culverts, creek crossings, etc.). • Active restoration in the DMA Subunit where past OHV activities have prevented natural vegetation communities from reestablishing. • Improve vegetation cover percentages within Clay Pit SVRA's open riding area. • Use local native plants or plant materials for any identified projects requiring restoration or plantings.	• All identified Soil, Vegetation, and Wildlife Monitoring.

4 Management Actions

The goals and objectives of the WHPP are meant to guide the management of natural resources at Clay Pit 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.

By following the adaptive management process, SVRA resources managers are allowed flexibility in their natural resources management. Actions can be adjusted as uncertainties about the resources or program become better understood or as the resources' conditions change. Adaptive management actions will allow staff to incorporate a range of previously agreed-upon alternatives in response to any new developments or changes in the program. The resources monitoring program will inform the effectiveness or need to implement these actions, which will track the necessary information. This process will incorporate a feedback loop that links implementation and monitoring to a decision-making process that results in the appropriate changes to the SVRA's resources management.

Listed below are the management actions Clay Pit SVRA resources staff will be taking to meet the goals and objectives identified in previous sections of this WHPP. For additional reasonably feasible management actions not listed or discussed in this section, see *Appendix 2: Management Actions*, which provides a comprehensive list of management actions that are being used or could feasibly be applied at Clay Pit SVRA over the lifetime of this WHPP.

4.1 Management Actions Related to Ongoing Resources Management

4.1.1 Exclusion of OHV Recreation in the Drainage Management Area Subunit

Management Action

Prevent any OHV use or development of unauthorized trails within the DMA Subunit.

Management Triggers

- When DMA Subunit fencing is damaged or in disrepair to the point that it is no longer effective at preventing or excluding OHV activity within the DMA Subunit. For example, when there are gaps or breaks in the perimeter fencing that are large enough for OHV vehicles to access the area.

- The presence of new unauthorized OHV activity (e.g., OHV tread marks) within the DMA Subunit.

Management Responses

If exclusion fencing is found damaged or in disrepair, staff will erect temporary barriers to prevent access until District crews can come out and make repairs. Any new OHV incursions and the extent of their impact will be mapped using a GPS device.

If significant unauthorized incursions and damage from incursions are observed and continue to occur, park management will identify additional methods that may be taken to prevent further incursions and reduce their frequency. These methods include but are not limited to increased law enforcement presence, erecting additional barricades (rocks, cross-fencing, etc.) at identified entrance points, temporary barricades around damaged areas to allow for passive regeneration, and active restoration of the damaged areas.

Monitoring and Evaluation Metrics

To meet this goal, continued inspections and maintenance of the DMA Subunit perimeter exclusion fencing will be performed annually in the Soil Assessment Monitoring Program. Staff will inspect the entire fence line for any damage or breaks in the exclusion fencing and any new trails or tread marks created by unauthorized OHV access. Detections and minor inspections may also occur during visits to the park by staff or during regular day-to-day work activities. Monitoring performed as part of this program will directly trigger any necessary management response.

Evaluations through the Vegetation Communities Monitoring Program will also be used to evaluate any significant changes or damages to the vegetation present in the DMA Subunit. Cross-referencing mapped incursions with imagery data will prioritize areas for management response.

Clay Pit SVRA's Vegetation Communities Monitoring Program will inform this management action. Assessments and imagery of the park will be performed annually and will inform the effectiveness of the management action and treatments taken.

4.1.2 Responses to Declines in Vernal Pool Fairy Shrimp Conditions

Management Action(s)

Metrics for measuring and determining declining conditions will be developed over the first few years of the Listed Large Branchiopod Monitoring Program, depending on the presence of suitable climatic survey conditions. Following that, if long-term monitoring (i.e., more than two years in a row) documents a decline in conditions relative to accumulated baseline information, the management actions below may be implemented based on the location, type, and severity of the decline observed.

The ability to perform surveys for VPFS and other large listed branchiopod species at Clay Pit SVRA on an annual basis will be dependent upon seasonal climactic and abiotic conditions within a given survey year. Since VPFS and other large-listed branchiopods are highly sporadic breeders that require exceptionally specific conditions to hatch and mature, certain habitat criteria must be met before surveys can be initiated.

Due to the highly specific criteria, the ability to survey every pool or system of pools within a given year will depend on the variation within a given year's weather. These variances will most likely result in survey years where significant portions of the vernal pool habitat on site will be unable to be surveyed. This will likely lead to potential gaps within data collection and can potentially obscure or limit the SVRA's management response. Therefore, climactic conditions (i.e., precipitation frequency, total precipitation, average temperature, etc.), in addition to survey data, will be assessed and taken into consideration before determining if declines in the condition of VPFS and VPFS habitat are occurring and before any implementation of management responses or decisions.

Specific potential Management Actions that may be taken in response to a documented decline in VPFS populations at Clay Pit SVRA include:

(1) Establish and enforce OHV use in designated areas that are located outside of known occurrences of special-status species and habitat.

(2) Use interpretive/educational signage and fencing in some areas to inform visitors and protect particularly sensitive areas.

(3) Temporarily or permanently close portions of the SVRA.

(4) Coordinate internally (i.e., NRD and OHMVRD) and with USFWS regarding additional appropriate management measures.

Triggers and metrics for these management actions will be developed following the establishment of baseline conditions.

Management Triggers, Responses, and Monitoring and Evaluation Metrics

To be consistent with the Clay Pit SVRA 2010 General Plan, detailed monitoring methodology of vernal pool branchiopods is currently being developed through an interagency contract with DWR. Baseline data collection is anticipated to begin winter 2022/23. Management triggers, management response, and monitoring and evaluation metrics will be developed after baseline data is collected. See *Section 5.6 Listed Large Branchiopod Monitoring Program* for more detail on the monitoring program.

4.1.3 Detection of Special Status Plant Species

Management Action

If protocol-level special status plant surveys determine the presence of a listed or sensitive plant species, implement protection measures in the location where the plant was found until new adaptive management strategies/measures can be identified.

Management Triggers

Detection of a sensitive or listed plant species at Clay Pit SVRA.

Management Response

If a sensitive plant species or population is detected at Clay Pit SVRA, resources staff will do the following:

- Map the location, boundaries, and/or extent of the sensitive plant species population present using a GPS device.
- Inventory and document the number of individuals present as counted (if the population is small) or estimated (if the population is large).
- Document site-specific characteristics such as habitat, microhabitat, soil type, and surface hydrology.
- Take digital images of the special status or listed plant species present.

If the population is within the open riding area, resources staff will temporarily close the area and work with department staff to confirm the sighting and identify new feasible and appropriate management measures. Any detections of rare plant species or changes in WHPP management, as a result, will be discussed and reported as part of the annual WHPP reporting program.

Monitoring and Evaluation Metrics

To be developed upon assessing the special status plant species and population detected. Detections may occur during rare plant surveys and botanical inventories of the park, which are set to occur every five years; however, detections may also occur due to other monitoring or survey work.

4.1.4 Drainage Management Subunit Area Restoration and Sedimentation Reduction

Management Action

Treat areas in the DMA Subunit where past OHV activities have prevented the establishment of a protective vegetative filter. Treatments have yet to be completely identified, but options include active restoration and planting of native vegetations.

Management Triggers

To be established by 2025. Management triggers will be updated once baseline information has been accumulated and the Clay Pit SVRA Water Quality Monitoring Plan is developed. They will also be discussed and reported as part of the park's annual WHPP reporting requirements.

Management Response

Using information and data from the Water Quality Monitoring Program, identify and prioritize areas within the SVRA's DMA which significantly contribute to the sedimentation and increased turbidity of the SVRA's drainage canal. Areas identified will be assessed and prioritized for treatment. Treatment options are still variable, but options include active restoration of areas with diminished vegetation, installation of check dams or rock weirs, and/or continued passive restoration of vegetation communities. Areas will be prioritized for treatment based on areas where sedimentation and soil loss are identified to be most prominent. Assessments will be performed annually.

Monitoring and Evaluation Metrics

This management action will be informed by Clay Pit SVRA's Water Quality Monitoring Program. Assessments of the park's turbidity at various stages in the canal, including areas visually observed to be contributing sediment, will be performed annually.

4.1.5 Treatment of Invasive Weed Populations

Management Action

Treat both existing and incipient invasive weed species within Clay Pit SVRA.

Management Triggers

The proliferation of existing or the detection of new invasive weeds populations. Appropriate methods and treatment options will be based on the Invasive Weed Management Program's identified treatment option (e.g., chemical, mechanical, hand pulling, biocontrol, etc.) to eradicate new incursions and control existing populations.

Management Response

Using information and data from the Invasive Weed Management Program, identify and prioritize areas within the SVRA where new or incipient weed populations have been located or existing populations have expanded. Areas identified will be assessed and prioritized for treatment. Treatment options are still variable, but include chemical treatments, mechanical removal, hand pulling, mowing, and prescribed burning. Any chemical treatments or herbicides utilized to treat invasives at Clay Pit SVRA will be labeled for aquatic and semi-aquatic ecosystems.

Areas will be prioritized for treatment based on where new incursions or isolated populations are identified to be most prominent. Treatments will also discuss control and, if possible, eradication and/or reduction of existing populations. Assessments will be performed annually starting in 2024.

Monitoring and Evaluation Metrics

This management action will be informed by Clay Pit SVRA's Invasive Weed Management Program. Assessments of the park's invasive populations and the effectiveness of treatments will be performed annually.

4.2 Recreation and Facilities Maintenance Activities

4.2.1 Hill Climb Area Repair and Restoration

Management Action

Repair locations in hill climb areas where erosional features (e.g., rilling, gullying, scouring, etc.), identified by the Soil Conservation Plan, may be causing excess sedimentation, soil loss, or erosion.

Management Triggers

To be established by 2025. Management triggers will be updated once the Clay Pit SVRA Soil Conservation Plan is developed, and baseline information has been accumulated. It will also be discussed and reported as part of the park's annual WHPP reporting requirements.

Management Response

Using information and data from the Soil Assessment Monitoring Program, identify and prioritize areas along the SVRA's transitional grade and designated hill climb areas which significantly contribute to the SVRA's erosion and sedimentation. Treatment is identified as temporarily closing and actively regrading and revegetating portions of the SVRA's designated hill climb areas. Prioritize hill climbs and transitional grade areas

where sediment loss and erosion are most prominent. Assessments will be performed on an annual basis. To avoid impact to recreation and overburdening of resources staff, closures will be limited in size and scope.

Monitoring and Evaluation Metrics

This management action will be informed by Clay Pit SVRA's Soil Assessment Monitoring Program. Assessments of the park's transitional grade and hill climb areas will be performed annually and will inform the effectiveness of the management actions and treatments taken.

Additionally, the Vegetation Communities Monitoring Program can evaluate vegetation cover and the effectiveness of treatment and measure the success of restoration and revegetation of hill climb areas.

4.2.2 Erosion Control Feature Installation and/or Repair

Management Action

When necessary, install or repair new or existing soil and erosion control features (e.g., drainage culverts, creek crossings, etc.).

Management Triggers

To be established by 2023. Management triggers will be updated once the Clay Pit SVRA Soil Conservation Plan is developed. It will also be discussed and reported as part of the park's annual WHPP reporting requirements.

Management Response

Using information and data from the Soil Assessment Monitoring Program, assess, identify and, if necessary, install, repair, or maintain soil and erosion control features. Identified areas in need of maintenance, repair, or installation of erosion control devices will be assessed and prioritized. Areas identified will be prioritized based on need or impact to soil erosion, the extent of damage, Project Evaluation Form analysis (if necessary), and availability of maintenance equipment and staff.

Monitoring and Evaluation Metrics

This management action will be informed by Clay Pit SVRA's Soil Assessment Monitoring Program. Assessments of the park's erosion control features will be performed annually.

4.3 Policy, Regulation Compliance, and Administrative Management Actions

- Develop and implement a Clay Pit SVRA Soil Conservation Plan by 2023.
- Develop and implement a Clay Pit SVRA Water Quality Monitoring Program by 2023.
- Develop and implement a Clay Pit SVRA Invasive Weed Management Program by 2025.

Reference Table 4-1 below for a breakdown of each management action and its corresponding WHPP objectives and monitoring programs

Table 4-1. Summary of Clay Pit SVRA WHPP Management Actions.

Management Action Category	Potential Management Action	Management Triggers	Monitoring and/or Evaluation Programs	Associated WHPP Objectives	Location (Management Unit)
Management Actions Related to Ongoing Resources Management	Prevent OHV recreation and the development of unauthorized trails within the DMA Subunit and rehabilitate and/or restore occurrences.	(1) DMA Subunit perimeter fencing that is no longer effective at preventing or excluding unauthorized OHV access. (2) Presence of new unauthorized OHV activity (e.g., OHV tread marks) within the DMA Subunit.	Soil Assessment Monitoring, Vegetation Communities Monitoring.	SCO1, SCO2, VCO1, VCO2, VCO3, WCO1, WCO2, HCO1, & HCO2	DMA Subunit
	(1) Establish and enforce OHV use in designated areas that are located outside of known occurrences of special-status species and habitat. (2) Use interpretive/educational signage and fencing in some areas to inform visitors and protect particularly sensitive areas. (3) Temporarily or permanently close portions of the SVRA. (4) Coordinate internally (i.e., NRD and OHMVRD) and with USFWS regarding additional appropriate management measures.	If long-term monitoring (i.e., more than two years in a row) documents a decline in the conditions of a special-status shrimp species (relative to baseline).	Listed Large Branchiopod Monitoring, Vernal Pool & Wetland Condition Assessments	WCO1	All MUs
	Maintain and improve vegetation cover percentages within Clay Pit SVRA's open riding area.	To be established by 2023 as part of the Soil Conservation Plan.	Vegetation Communities Monitoring.	VCO1, VCO2, VRO1, & HRO1	Clay Pit MU
	Detection of Special Status Plant Species within SVRA and their associated exclusion measures.	Detection of a sensitive or listed plant species at Clay Pit SVRA.	Incidental Sightings, Rare Plant Surveys, Botanical Inventories.	VCO1 & VCO2	All MUs
	Treatment, control, and removal of invasive wildlife species. Working with local Vector Control District and adjacent neighbors.	Presence of mosquitofish and American bullfrog within the vernal pool areas.	Incidental Sightings, Amphibian Monitoring	HCO4	All MUs

Management Action Category	Potential Management Action	Management Triggers	Monitoring and/or Evaluation Programs	Associated WHPP Objectives	Location (Management Unit)
Management Actions Related to Ongoing Resources Management *(continued)*	Treatment and removal of invasive weed populations.	Presence or occurrence of new or incipient invasive weed populations	Invasive Weed Management.	VCO3 & VRO2	All MUs
Recreation and Facilities Maintenance Activities	Restoration and rehabilitation of the DMA Subunit.	To be established by 2023 as part of the Water Quality Monitoring Plan.	Soil Assessment Monitoring, Water Quality Monitoring.	SRO1, SRO2, VRO1, WRO1, & HRO1	DMA Subunit
	Erosion control feature installation, maintenance, and/or repair.	To be established by 2023 as part of the Soil Conservation Plan.	Soil Assessment Monitoring.	SRO1 & HRO1	All MUs
	Hill climb repair, restoration, and rehabilitation.	To be established by 2023 as part of the Soil Conservation Plan.	Soil Assessment Monitoring, Vegetation Communities Monitoring.	SRO1, SRO2, HRO1	Clay Pit MU
Policy, Regulation Compliance, and Administrative Management Actions	Develop and implement a Soil Conservation Plan.	n/a	To be developed and implemented by 2023.	SCO1	All MUs
	Develop and implement a Water Quality Monitoring Plan.	n/a	To be developed and implemented by 2023.	SCO2	All MUs
	Develop and implement an Invasive Weed Management Program.	n/a	To be developed and implemented by 2025.	VCO3	All MUs

5 Monitoring Program

The Natural Resource Assessment is the initial assessment and first step in a monitoring program. It outlines an area's physical and biological setting and documents the resources and information necessary to establish a successful monitoring program. It details baseline conditions and threats to and shortcomings of the program and identifies what indicators can be monitored to assess the effectiveness of treatments and prescribed management actions. For this document, the monitoring program evaluates the different resource categories. It includes identifying and documenting different sets of performance indicators for each one that demonstrates progress and achievement. Performance indicators will be evaluated at regular intervals (e.g., annually), and results will be used in the adaptive management approach to inform future management of targeted resources.

This section includes a list of all resource monitoring administered at Clay Pit SVRA in response to and to meet the requirements of the new PRC legal mandates. This section will only include information on what is being monitored, the goal of the monitoring, how it informs management decisions, and how it helps determine whether the objectives of the WHPP are being met. See *Appendix 3: Monitoring Methodologies* for more detail about specific monitoring activities, including data collection protocols, monitoring site selection, type of surveys performed, sampling design, and data analysis methodology.

5.1 Water Quality Monitoring Program

Water quality monitoring will be performed annually, starting in 2023, as part of Clay Pit SVRA's Water Quality Monitoring Plan. The monitoring will focus on studying the condition and quality of water entering and leaving the SVRA and assessing areas of the drainage canal for future land treatments. The monitoring will take standardized measurements for several yet-to-be-determined water quality indicators, including dissolved oxygen, pH, temperature, turbidity, suspended solids, and contaminant levels, including petroleum-derived compounds. There are several goals of this monitoring:

- Assess the quality of the water as a measure of the quality of aquatic habitat and identify impacts to it caused by SVRA-related activities, including pollutant and sediment deposition created by natural and unnatural erosion.
- Identify and prioritize areas where restoration and land treatments will reduce sedimentation and pollutant deposition into the drainage canal.
- Document defensible and standardized measurements and data that comply with regulatory agency standards, including RWQCB.

- Determine and evaluate if upstream areas are contributing to water quality-related issues within Clay Pit SVRA.

This monitoring will inform SVRA resources staff where to prioritize restoration in the DMA Subunit. It will identify areas where excess sedimentation occurs in the drainage canal and where restoration needs to occur to restore the vegetative buffer. It will also identify areas of the park's watershed contributing to the increased erosion and sediment deposition. Monitoring the water quality of the drainage canal will track the progress of aquatic habitat quality and soil compliance goals outlined by this WHPP and directly inform their respective adaptive management feedback loops.

5.1.1 Performance Indicators: Water Quality Monitoring Program

Expectation

Reduce the overall turbidity of the drainage canal and improve the water quality exiting the SVRA by identifying areas where OHV-related activities are actively contributing sediments and other foreign matter related to water quality directly into the drainage canal.

Metrics

Nephelometric Turbidity Units (NTU) are used to measure the turbidity of a fluid or the presence of suspended particles in water. This metric will be updated and evaluated annually as part of the Annual WHPP Report to OHMVRD.

Other metrics related to water quality (e.g., dissolved oxygen, pH, temperature, etc.) will also be evaluated, measured, and reported annually. Over the first few years, surveys will review several water quality parameters and determine which, if any, are best at determining and/or capturing water quality conditions. If other suitable metrics are determined, they will be added to the WHPP as additional water quality performance indicators.

Baseline

To Be Established by 2025. The Water Quality Monitoring Program will require an established baseline prior to providing meaningful information for resources management at Clay Pit SVRA. The program's first two years (2023 & 2024) will focus on gathering information, refining survey methodology, analyzing results, and identifying other potential additional metrics/performance indicators. This information will be conveyed through the annual WHPP reporting process. The information gathered will be used to establish a complete and comprehensive baseline from which a more refined target can be identified.

Targets

To Be Established by 2025. Overall, the target is to improve the quality and conditions by reducing the turbidity of water exiting the site relative to water entering the site via the artificial intermittent drainage canal. The current goal is to achieve no increase in turbidity from soil loss within the SVRA. Further refinement of the target will be made after establishing a baseline and will be communicated in compliance with annual WHPP reporting requirements.

5.2 Soil Assessment Monitoring Program

Soil assessments will be performed annually, starting in 2023, as part of the SVRA's SCP soil compliance monitoring. Surveys will specifically look at the SVRA's different structures and recreational facilities and ensure they meet the 2020 Soil Standard and Guidelines requirements. Assessment includes in-person evaluations and assessments of the current conditions, the effectiveness of erosion control features, and whether they are working as designed. The goal of this monitoring will be to examine if these structures are operating as intended and are not contributing to sedimentation issues. Specific erosion control features that will be monitored include drainage culverts, hardened creek crossings, weirs, and other erosion control devices, as well as the park's existing facilities and other infrastructure.

The monitoring of these efforts will establish severity-based criteria that will help prioritize the maintenance of these areas, tackling larger problem areas first. Evaluations over time will identify areas that routinely require maintenance and establish a consistent maintenance plan while also identifying areas in need of improved erosional features. These regular assessments and evaluations will help meet many of the objectives identified by the WHPP. This monitoring is a standard step for soil compliance and implementation of the 2020 Soil Standard and Guidelines at the SVRA. Regular inspections and maintenance or installation of structures will ensure that they operate effectively and as intended to reduce erosion and soil loss created by the park's recreational activities.

5.2.1 Performance Indicators: Soil Assessment Monitoring Program

Expectation

Demonstrate compliance with CSP's 2020 Soil Conservation Standard and Guidelines by identifying and reducing the assorted factors present in Clay Pit SVRA that contribute to the overall amount of sedimentation, erosion, and soil loss related to the presence of the park's OHV recreation activities.

Metrics

These metrics will be updated and evaluated annually as part of the Annual WHPP Report to OHMVRD:

- The number of acres that are treated or temporarily closed and/or restored.
- Percentage of designated hill climb areas treated/rehabilitated. Treatment is identified as temporarily closing and actively regrading and revegetating portions of the SVRA's designated hill climb areas. Efforts will be made to prioritize hill climb areas where sediment loss and erosion are most prominent.
- Number of erosion control features (e.g., culvert crossings, weirs, drains, etc.) and other facilities (fencing) inspected for damages and continuing to operate as intended.

Baseline

To be Established by 2025. To meet the new PRC criteria, the soil program has begun to implement new monitoring, which will require an established baseline prior to providing meaningful information for resources management at Clay Pit SVRA. The first years of the program (2023 & 2024) will focus on gathering information, refining survey methodology, and identifying other potential metrics/performance indicators. This information will be conveyed through the annual WHPP reporting process. The information gathered will be used to establish a complete and comprehensive baseline from which a more refined target can be identified.

Targets

To Be Established by 2025. Overall, the target is to reduce the number of factors contributing to soil loss, sedimentation, and erosion within the SVRA.

- The first two years will ascertain specific and achievable quantitative target acreages of vegetation and bare ground parkwide. Increase the acreage of vegetative cover in the SVRA relative to the acreage of bare ground cover.

By 2027, treat (temporarily close, regrade, and revegetate) at least 20% of the SVRA's identified hill climb features.

- 100% of erosion control features and other facilities will remain fully functional and continue operating as intended.

- Further refinement of the above Target (1) will be made after establishing a baseline and communicated in compliance with annual WHPP reporting requirements.

5.3 Vegetation Communities Monitoring Program

5.3.1 Vegetation Communities Monitoring Program

Vegetation Communities Monitoring surveys will be performed on an annual basis. Monitoring will involve using either drones or satellites to collect high-resolution aerial imagery of the entire park. Imagery collected will then be uploaded and assessed using a Normalized Difference Vegetation Index (NDVI) analysis. NDVI analysis is a tool available to resources managers to evaluate and obtain valuable quantitative data regarding vegetation growth. It can be used as an indicator to measure the photosynthetically active biomass of vegetation within a given area or system. NDVI, as a tool, helps differentiate vegetation from other land cover types (e.g., developed areas) and visually separate vegetated areas based on their productivity and growth. This analysis, especially on an annual basis, would allow resources management to map, separate, and visualize vegetative areas based on health and distinguish them completely from non-vegetative regions (e.g., bare ground). It would also allow for the early detection of any abnormal changes in an area's growth, production, or health.

An additional benefit of the NDVI analysis is the ability to see vegetative biomass over time and distinguish vegetation coverage from other bare ground or exposed areas. Using this, staff could identify areas of the park where sufficient vegetation is lacking. Based on the assessment, locations within the SVRA can be identified and prioritized for rehabilitation, restoration, or other treatments, varying in degree based on the location and setting. Using this monitoring program, evaluations over time will identify areas that routinely require treatment, assist staff with future planning efforts, and benefit all four resources categories.

5.3.2 VegCAMP Surveys

VegCAMP surveys will also be performed every five years as part of this program. VegCAMP classifies vegetation according to the hierarchical classification of vegetation types identified in NVCS, with alliance and association at the finest scale. The information obtained from these surveys is intended to provide a baseline spatial inventory for vegetation communities throughout the park, provide information about wildlife habitat, and inform management decisions regarding conservation, restoration, monitoring needs, invasive species management, and other management needs and goals. Subsequent VegCAMP surveys will also help resources managers assess the effectiveness of management techniques, including restoration and invasive plant species treatments, and whether WHPP goals and objectives regarding the management of plant communities have been met.

5.3.3 Performance Indicator: Vegetation Communities Monitoring Program

Expectation

Maintain, improve, and understand the distribution and compositions of Clay Pit SVRA's existing habitats and their associated vegetation communities.

Metrics

These metrics will be updated and evaluated annually as part of the Annual WHPP Report to OHMVRD:

- Vegetation coverage percentage within MU.
- NDVI analysis of Clay Pit SVRA's vegetation.

These metrics will be updated and evaluated every five years as part of the new WHPP and its update processes and reviewed by OHMVRD and NRD:

- Acres of treated, revegetated, or restored habitat communities within Clay Pit SVRA.
- Acres of habitat and associated vegetation communities present at Clay Pit SVRA.
- Grassland and Vernal Pool herbaceous cover percentages within VegCAMP polygons.

Baseline

To be Established by 2025. The Vegetation Communities Monitoring Program will require an established baseline prior to providing meaningful information for resources management at Clay Pit SVRA. The program's first years (2023 & 2024) will focus on gathering information, equipment, and other resources needed to conduct surveys and analyze data. After initial surveys are performed, data collected will be analyzed and used to establish refined targets and baseline information. This information will be conveyed through the annual WHPP reporting process.

- Acres of habitat communities treated or restored set to zero as of 2021.
- Acres of habitat types from the 2021 VegCAMP dataset by CSP.

Grassland and vernal pool matrix herbaceous cover percentage from the 2021 VegCAMP dataset by CSP.

Table 5-1 Clay Pit SVRA Habitat Types and Acreage.

Habitat Type	**Herb Cover %**	**Baseline Acres (2021 VegCAMP)**
Arroyo Willow	N/A	0.56
California Perennial Grassland	N/A	0.51
Fremont Cottonwood	N/A	0.39
Developed (non-vegetated)	N/A	1.87
Grassland and Vernal Pool Matrix	< 2%	37.96
Grassland and Vernal Pool Matrix	2-9%	68.76
Grassland and Vernal Pool Matrix	10-39%	83.07
Grassland and Vernal Pool Matrix	40-59%	26.99
Total Grassland and Vernal Pool Matrix Acres	N/A	**216.78**
Total SVRA Acres	N/A	**220.11**

Targets

To Be Established by 2025. Overall, the target is to increase the quality of habitat and vegetation communities present within Clay Pit SVRA. The current goal is to increase the health of the vegetation communities, increase the amount of vegetative ground cover, and improve the herb layer coverage, all of which will improve the overall quality and functionality of the habitat in general and benefit the wildlife, soils, and hydrology of the SVRA. Monitoring, such as NDVI analysis and comparing vegetation coverage throughout multiple years, will identify the level of success of management and which treatments or actions worked. The bare minimum target for the park is no net loss or a decrease in any of the identified metric categories after the baseline is established.

The program's first years (2023 & 2024) will ascertain specific and achievable quantitative targets relative to each identified metric. These targets will include management thresholds and triggers that will implement adaptive management. Further

refinement of the targets will be made after establishing a baseline and communicated in compliance with annual WHPP reporting requirements.

5.4 Vernal Pool and Wetland Condition Assessments

Vernal Pool Assessments will be performed annually at Clay Pit SVRA. These surveys will be used to document and assess the condition and extent of the vernal pool features at Clay Pit SVRA. These assessments will document several aspects of the vernal pool that serve as an indicator of the health of the habitat. These aspects will include the level of impact to the pool, the vegetation communities present, vegetation distributions, and changes in the extent of pools. The overall goal of this monitoring is to monitor the extent of the SVRA's approximately 26-acres of vernal pool habitat and ensure that the appropriate management occurs if that extent is compromised. The mapping of these pools and vegetation communities will conserve and improve the areas' sensitive resource and habitat features.

5.4.1 Performance Indicators: Vernal Pool and Wetland Condition Assessments

Expectation

Conserve and maintain the extent and present conditions of wetland habitats, including northern hardpan vernal pools, present at Clay Pit SVRA.

Metrics

These metrics will be updated and evaluated annually as part of the Annual WHPP Report to OHMVRD:

- Acreage of wetland habitats, including northern hardpan vernal pools, present at Clay Pit SVRA.

Vernal pool and wetland condition assessments elements. These elements are identified as those that impact or indicate the health and condition of the vernal pool and wetland habitat features. These metrics include the following:

- Vegetation Presence, Type, Composition, and Distribution
- Level of Disturbance
- Pool Size (Surface Area)

Baseline

To be Established by 2025. The vernal pool and wetland vegetation assessment monitoring program will require an established baseline prior to providing meaningful

information for resources management at Clay Pit SVRA. The program's first year will focus on gathering information, refining survey methodology, analyzing results, and identifying other potential additional metrics/performance indicators. This information will be conveyed through the annual WHPP reporting process. The information gathered will be used to establish a complete and comprehensive baseline from which a more refined target can be identified.

Acreage of the wetland identified by the ACE's "Delineation of Waters of the United States, Including Wetlands" was measured at Clay Pit SVRA by AECOM in 2010.

Table 5-2 Clay Pit SVRA Wetland Habitat Type and Acreage.

Wetland Type	Size (Acres)
Vernal Pool	22.54
Canal	1.24
Pond	0.75
Ditch	0.60
Intermittent Drainage	0.48
Ephemeral Drainage	0.05
Emergent Wetland	0.03
Total	**25.69**

Targets

To Be Established by 2025. Overall, the target is to maintain the current quality and conditions of the vernal pool and wetland habitats present on-site. The overall goal is no loss of acreage or deterioration of the current health and conditions. Further refinement of the targets will be made after establishing a baseline and will be communicated in compliance with annual WHPP reporting requirements.

5.5 Invasive Weed Management Program

Invasive weed monitoring will be performed annually at Clay Pit SVRA. During these surveys, identified exotic weed populations will be mapped, and the park will be surveyed for any previously unknown or incipient incursions. The mapped areas will also document the percent cover of invasives relative to other species, which will allow for the identification of the levels of infestation and priority areas. The goal of the

monitoring is to understand the extent of the invasive weed species populations. With this information, resource managers will be able to apply more suitable treatment options and target new incursions before they become established. Reducing and managing invasive weed species will help preserve Clay Pit SVRA's existing vegetation communities and reduce the invasive species compositions throughout the SVRA.

5.5.1 Performance Indicators: Invasive Weed Management Program

Expectation

Map the extent of invasive weed populations at Clay Pit SVRA while establishing different weed detection and control programs to treat and, if possible, reduce the presence and distribution of invasive weed species within the SVRA.

Metrics

These metrics will be updated and evaluated annually as part of the Annual WHPP Report to OHMVRD:

- Acres of habitat within Clay Pit SVRA where invasive weeds species are present.
- Acres of habitat within Clay Pit SVRA treated for invasive weeds.

Baseline

To be Established by 2025. The invasive weed management program will require an established baseline prior to providing meaningful information for resources management at Clay Pit SVRA. The program's first years (2023 & 2024) will focus on gathering information, refining survey methodology, analyzing results, and identifying other potential additional metrics/performance indicators. This information will be conveyed through the annual WHPP reporting process. The information gathered will be used to establish a complete and comprehensive baseline from which a more refined target can be identified.

Targets

To Be Established by 2025. Overall, the target is to improve the quality and conditions of native or naturalized habitats present at Clay Pit SVRA by managing for and preventing the spread of existing or the introduction of new invasive vegetation populations. The program's current goal is to map invasive weed population distributions completely and, from there, achieve no increase in the extent of those identified populations. Further refinement of the target will be made after establishing a baseline and will be communicated in compliance with annual WHPP reporting requirements.

5.6 Listed Large Branchiopod Monitoring Program

Annual surveys for listed branchiopods, including vernal pool fairy shrimp and vernal pool tadpole shrimp, will be performed at Clay Pit SVRA. Survey methodology will follow the implementation of an amended version of the wet season survey methods consistent with those identified in *Section IV, subsection c. Wet Season Survey Sampling Method of the United States Fish and Wildlife Services' (USFWS) Survey Guidelines for the Listed Large Branchiopods (2017)*.

The goals of this survey monitoring efforts are as follows:

- Understand and identify changes to the species composition (i.e., inventory) of the invertebrate communities using aquatic habitats within Clay Pit SVRA.
- Understand and identify changes to the presence and distribution of special-status shrimp species within Clay Pit SVRA.
- Understand and identify changes within the vernal pool habitat location and condition within Clay Pit SVRA.

The proposed survey methodology is intended to demonstrate the presence of listed branchiopod species within a given survey area. Baseline surveys will be conducted during the peak season for the first two surveyable wet seasons, anticipated to be winter 2022/23 and 2023/24, and will consist of surveys of all the SVRA's vernal pools to monitor the presence and distribution of special-status shrimp species. For each season, all pools will be visited at least once. This concentrated effort will establish more consistent baseline information to guide management of the park. Following the first two survey seasons, annual wet season surveys will be performed for a sub-set of vernal pools, during the peak season, determined by the information gathered about conditions, populations, and species distributions during the first two survey seasons. The monitoring activity outlined above will use resource condition, presence, distribution, and density to measure changes within the special-status shrimp species populations over time.

The USFWS Survey Guidelines for the Listed Large Branchiopods (2017) protocol recommends survey intervals every 14 days following inundation. This is for the overall purpose of detecting the presence and/or absence of a species within a given survey location. However, because the species is already assumed present throughout the park, it is not the goal of our baseline surveys to determine the absence or presence vernal pool fairy shrimp, but instead to identify the distribution and density of breeding populations within Clay Pit SVRA. Additionally, surveying at regular 14-day intervals would require extensive labor and survey effort. Therefore, instead of following this 14-day interval, surveys will be timed to occur once or twice a year when identifiable breeding adults are present. It is acknowledged that because surveys are not re-

occurring at the protocol-recommended interval, baseline data collected may underrepresent the true distribution and estimated abundance of the special-status shrimp species.

The data from the baseline survey effort is still anticipated to be comprehensive and informative for our purpose of guiding management of the park. Baseline data and subsequent surveys will still be able to detect population trends over time and document if a decline in the presence or distribution is observed. Annual surveys following the baseline data collection will follow the same protocol but focus only on the monitoring of a random subset of pools instead of every pool onsite. The monitoring protocol will be reviewed and updated, as needed, based on data needs and/or consultation with USFWS.

Listed branchiopods are one of the few sensitive wildlife resources known to be present at Clay Pit SVRA. Understanding and closely monitoring and managing this species is key to preserving and protecting the resources present at Clay Pit SVRA and meeting the WHPP's wildlife management goals.

5.6.1 Performance Indicators: Listed Large Branchiopod Monitoring Program

Expectation

Maintain the current presence, distribution, health, and extent of VPFS populations within Clay Pit SVRA.

Metric, Baseline(s), and Target(s)

Metrics, baselines, and targets will be established after baseline data is obtained; anticipated 2025.

Past surveys conducted in 2005 and 2007 were performed at Clay Pit SVRA and focused primarily on the presence/absence of VPFS and other listed branchiopods within the SVRA's various wetland features. Updated baseline data is needed to further develop a metric and target for this monitoring program. Over the next two surveyable wet seasons, anticipated to be 2022/23 and 2023/2024, surveys following a modified version of the USFWS' 2017 Survey Guidelines for Large Listed Branchiopods will be performed. See *Section 9.3.6 Listed Large Branchiopod Monitoring Program* for more details.

These surveys will be used to evaluate the current baseline of listed branchiopods at Clay Pit SVRA, as well as determine which metrics are able to provide the level of assessment necessary the maintain and evaluate the health and condition of VPFS populations at Clay Pit SVRA. Surveys will likely evaluate several potential defining metrics, including but not limited to: 1) branchiopod population densities relative to pool

size and/or survey effort; 2) abiotic pool features (e.g., temperature, depth, surface area, turbidity, etc.); and 3) wetland condition and habitat values (e.g., habitat type, vegetation present, other invertebrate species present, OHV presence, etc.). Survey results will be evaluated, measured, and reported annually.

5.7 Avian Monitoring Program

Avian monitoring surveys will be performed biannually, with multiple surveys (two/season) occurring during both the winter (December – February) and spring (March – May). Given the ease of detectability and the importance of the site to avian species, these surveys are valuable when it comes to assessing the health of avian species and their compositions, which serve as adequate indicators to assess the health of the habitats present on-site. Surveys will identify, from predetermined plots, the different species, number of individuals, habitat type, distance from the viewer, wind speed, temperature, and general weather conditions. The goals of this monitoring effort are as follows:

- Understand and identify changes to the species composition (i.e., inventory) of the avian communities within Clay Pit SVRA relative to species compositions outside the SVRA.

- Understand and identify changes in the conditions of avian species' wetland and grassland habitats within Clay Pit SVRA.

Avian species are excellent indicators of habitat health and condition. With their high mobility, birds are one of the most highly visible indicators of habitat disturbance as they respond relatively quickly to habitat loss or change (Spellerberg, 1998). Avian diversity and distributions throughout Clay Pit SVRA can be used to make inferences on the status, health, and condition of the avian foraging and resting habitat present. Long-term avian monitoring trends can inform the level of success of restoration objectives and other management decisions.

5.7.1 Performance Indicators: Avian Monitoring Program

Expectation

Maintain the current avian species assemblages at Clay Pit SVRA relative to baseline data and similar species diversity index comparisons of OHV survey locations relative to non-OHV survey locations.

Metrics

These metrics will be updated and evaluated annually as part of the Annual WHPP Report to OHMVRD:

- Avian species richness between OHV and non-OHV survey locations.
- Avian species evenness (Shannon-Weiner Diversity Index) between OHV and non-OHV survey locations.

Baseline

Avian species richness (number of species observed) and evenness (proportion of species relative to other species present) measurements were taken from avian point count surveys at Clay Pit SVRA from 2013-2016 and evaluated by The Institute for Bird Populations and National Audubon Society in 2019 Avian Indicators of Habitat Conditions and Disturbance Effects to Natural Resources at Clay Pit State Vehicular Recreation Area. Baseline data for all metrics will be updated by 2024 using surveys performed between 2017-2021 and reported on as part of the annual WHPP reporting program.

Targets

Maintain current avian diversity (abundance, richness, and evenness) within Clay Pit SVRA's OHV areas relative to baseline and non-OHV areas.

5.8 Scientific Research Program

For this WHPP, scientific research is those monitoring efforts that do not provide a direct nexus with the effect of management actions on natural resources. These efforts are largely exploratory research areas to ensure that all necessary avenues for managing the SVRA's resources have been explored and that other taxonomic groups and species inventories are kept current. Listed below are the monitoring efforts that will take place for this WHPP. While not part of the SVRA's formal annual monitoring program, if these surveys identify new or previously undetected resources present at Clay Pit SVRA, resources staff will use this information to reassess the WHPP and determine if the current adaptive management strategy is sufficient to account for this new resource.

5.8.1 Small Mammal Trapping

Small mammal trapping at Clay Pit SVRA will occur for two consecutive years, followed by one survey every 3-5 years. This monitoring is for both exploratory and stewardship purposes, as Clay Pit SVRA does not exist within the known range of any listed small mammal species. Small mammal surveys have not been performed at the park since 1994.

Small mammals are species commonly modeled to assess and understand the ecological effects of anthropogenic activities. Changes in anthropogenic activities

directly and indirectly influence populations in habitat heterogeneity, fragmentation, and resource availability (Germano et al., 2012). Small mammals also serve as a valuable prey source for many predator species, including many listed raptors, and their ability to create burrows can provide shelter for several native amphibian species. Small mammal trapping efforts will assess the viability of this monitoring as an indicator of habitat health. It will also serve as an opportunity to expand the SVRA's resources background and wildlife inventory.

5.8.2 Acoustic Bat Monitoring

Acoustic monitoring of bats will be performed at Clay Pit SVRA once every 3-5 years. Like small mammal trapping, this monitoring is for exploratory and stewardship purposes. However, unlike small mammals, three bat species, Townsend's big-eared bat (*Corynorhinus townsendii*), western mastiff bat (*Eumops perotis californicus*), and silver-haired bat (*Lasionycteris noctivagans*), are designated by CDFW as Species of Special Concern and were identified as a part of the Natural Resource Assessment section.

While Clay Pit SVRA itself contains no suitable roosting habitat for this species, the adjacent properties do. Additionally, the SVRA is mesic and contains water sources and foraging habitats that these bats can utilize. Therefore, monitoring will serve as a survey to detect the presence or absence of species at the site and frequency detected. These measurements 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 resources background and wildlife inventory.

5.8.3 Amphibian Nocturnal Visual Encounter Surveys

Nocturnal visual encounter surveys for amphibians will be performed annually. This monitoring is for exploratory and stewardship purposes as a result of the Natural Resource Assessment, which discovered three potential sensitive or listed amphibian species that have the potential to occur within the SVRA: foothill yellow-legged frog (*Rana boylii*), California red legged-frog (*Rana draytonii*), and western spadefoot (*Spea hammondii*). While their potential to occur in the SVRA is low, suitable habitat for these species is present on-site or immediately adjacent to the park. The SVRA's aquatic features, including the canal, pond, and vernal pools, are suitable breeding habitats for this species.

Therefore, this monitoring will serve as a survey to detect the presence or absence of these species at the site. If any detections are made of any of these species, new management actions will be implemented immediately, and additional monitoring methods will be implemented to assess the health and distribution of potential populations. It will also serve as an opportunity to inform the SVRA's limited resources background and wildlife inventory.

5.8.4 Rare Plant Surveys/Botanical Inventories

Protocol-level rare plant surveys will be performed every five years as part of the vegetation community surveys and will update the SVRA's botanical and wildlife inventories. Due to the presence of suitable habitat that can support listed plant species and the possibility of recruitment to the site through natural mechanisms from local populations, listed-plant species can never be fully precluded from establishing at Clay Pit SVRA. These surveys will document the presence of any observed rare or listed species as well as inventory the plant species and assemblages present. 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 and listed species and habitat protection.

5.8.5 Invasive Wildlife Species Management

American bullfrog and mosquitofish, as discussed in the Natural Resource Assessment section, are invasive wildlife species known to occur at Clay Pit SVRA and can directly negatively impact the overall health and condition of vernal pool obligate species, including VPFS. Over the life of this WHPP, Clay Pit SVRA resources staff will look to explore different options for managing, monitoring, treating, and reducing the presence of these invasive wildlife species.

Currently, the biggest issue facing the successful management of invasive wildlife species at Clay Pit SVRA is that many of these species enter the SVRA seasonally from source populations that are located outside the SVRA's boundaries. This means that annual treatments, including removal or eradication of the park's seasonal invasive wildlife populations, will likely have no lasting impacts or reduction on invasive species impacts, as on successive years more individuals from local source populations will likely reoccupy the SVRA. Despite this, full management of American bullfrog and mosquitofish has never been implemented at Clay Pit SVRA and the reduction of annual predation pressures on VPFS and other vernal pool obligate species will likely prove beneficial. Current proposed management options to explore over the next five years include the following:

- Creation of an Invasive Wildlife Species Management Protocol for Clay Pit SVRA, which will outline timing and methodologies for implementing invasive wildlife species management.

- After obtaining the proper regulatory permits, conduct annual surveys targeted at the management and removal of invasive American bullfrog.

- Contact, and if possible, work with adjacent landowners and neighboring agencies to identify and treat areas within their properties where American bullfrogs are reproducing.

- Contact and work with Butte County Mosquito & Vector Control District to identify and implement potential solutions or management that can be taken to reduce mosquitofish presence within aquatic habitats at Clay Pit SVRA.

5.8.6 Performance Indicators: Scientific Research Program

Expectation

Over the next five years (2022-2027), conduct taxonomic resource surveys to explore potential gaps in the monitoring and adaptive management program and to update the park's species inventory.

Metrics

These metrics will be updated and evaluated annually as part of the Annual WHPP Report to OHMVRD:

- The number of different taxonomic resources surveys performed over the next five years of the program.

- The number of different taxonomic resources surveyed.

Baseline

Not Applicable.

Targets

Conduct and implement the following taxonomic resource monitoring by 2027:

- Small mammal surveys are performed for two consecutive years (2023 & 2024), followed by a single survey every 3-5 years after that.

- Amphibian survey monitoring is performed annually, starting in 2024.

- Acoustic bat monitoring surveys are performed every 3-5 years.

- Rare plant and floristic inventory studies are performed every five years.

6 Evaluate and Adapt

6.1 Decision Making and Reporting

This section discusses and recognizes the command structures, identifies decision-making thresholds and approval pathways, and details the WHPP's review and reporting requirements.

6.1.1 District Command Structure

Clay Pit SVRA is a park unit located within the Department's Northern Buttes District. Direct decision making and reporting for the natural resources management at Clay Pit SVRA will follow the Department's chain-of-command structure identified in the Department Operation Manual (DOM) 0202. However, due to the park unit's classification as an SVRA, reporting, changes, and approval of WHPPs and WHPP decisions must also undergo subsequent approval and review by OHMVRD and NRD, as defined by the PRC.

Northern Buttes District follows a slightly modified Department's Standard District Structure identified in DOM 0202 (Figure 6-1). The SVRA's natural resources management is performed directly by Northern Buttes District's natural resources staff and reported to the District Services Manager. OHMVRD resources staff assist district resources staff in the direct management of Clay Pit SVRA. Any work performed for Clay Pit SVRA by OHMVRD resources staff is reported directly to the District Services Manager.

The park district is responsible for the physical management of resources and WHPP implementation. Staff at Northern Buttes District, along with assistance from OHMVRD, are responsible for overseeing and implementing the adaptive management strategy, monitoring, and management actions outlined in this WHPP.

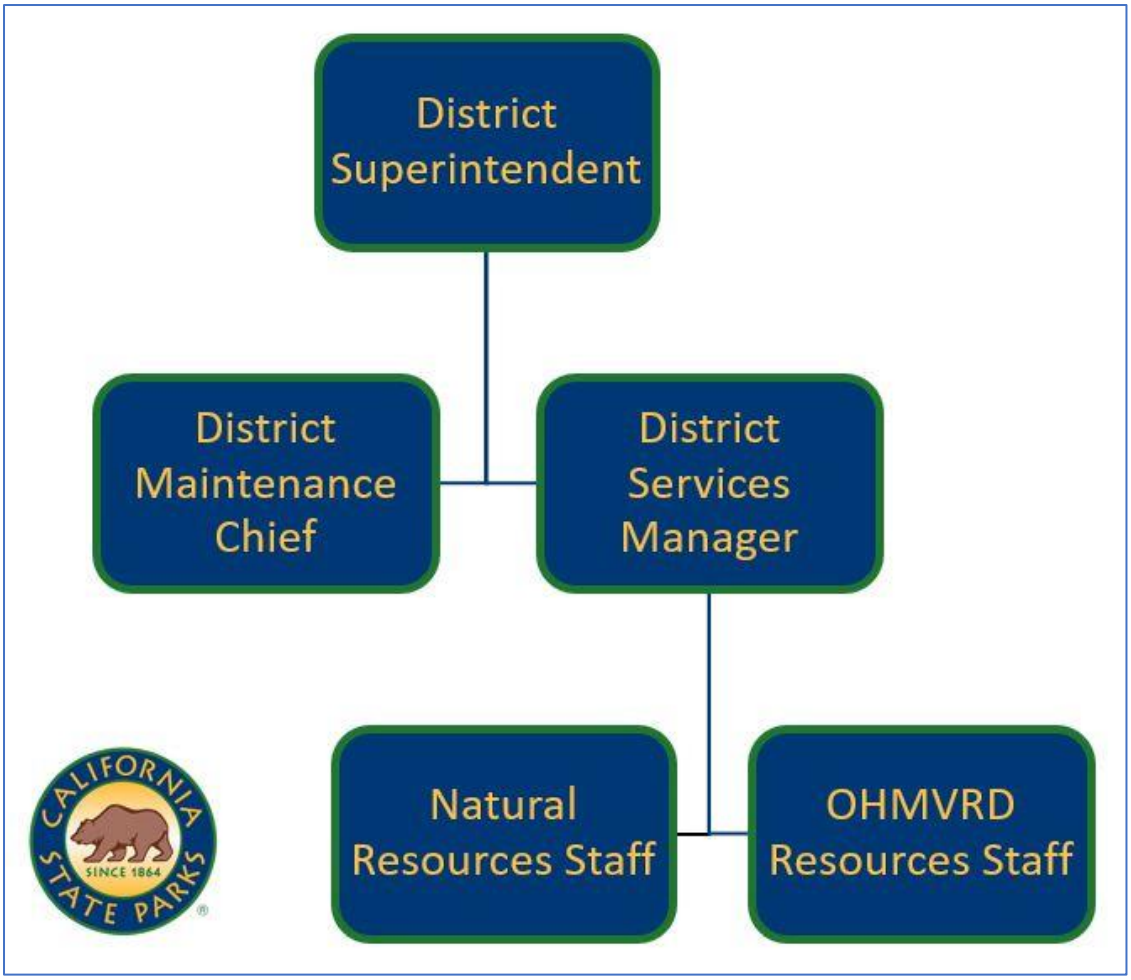

Figure 6-1. Northern Buttes District Chain-of-Command Structure

OHMVRD & Natural Resources Staff: Resources staff are responsible for conducting and implementing the direct resources monitoring and management actions identified in the WHPP. They are also responsible for drafting the park's various resources reports, including WHPPs, WHPP annual reports, and other SVRA resources management materials.

District Services Manager: The District Services Manager is responsible for overseeing the entire District's resources management programs comprised of all natural and cultural resources staff. In addition, they are responsible for carrying out and leading the district's ongoing natural resource maintenance, natural resource management, and stewardship programs. They also perform an environmental review and other duties as required. This person is the front-line supervisor for resources staff at Clay Pit SVRA and ensures the implementation of the WHPP at the park. This position reports directly to the District Superintendent.

District Maintenance Chief: The District Maintenance Chief, while not a direct member of the resources program, is responsible for overseeing the maintenance of the district's park units. The District Maintenance Chief will oversee and assign crews to maintain the park's various infrastructure (e.g., drainage culverts, DMA fencing, etc.) and perform any SVRA 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.

6.1.2 Department Command Structure

The Department's command structure for an SVRA is slightly different than the standard command structure identified for other park units within the district. Instead of reporting solely up the Department's standard command structure (Districts to Department Headquarters). Northern Buttes District's resources staff, because Clay Pit is an SVRA, must also report to OHMVRD (Figure 6-1) for any management or decisions relating to the park.

WHPPs and WHPP-related documents further complicate this reporting and approval command structure. The PRC charges both OHMVRD and the Department with separate responsibilities in administering the WHPP and WHPP-related management. To address this, OHMVRD and NRD have collaborated to create a WHPP Technical Review Team (Figure 6-2). While both divisions will complete their technical reviews, a final review will be done by a combined resources team of NRD and OHMVRD resources staff. This group will provide a single technical review and response to the district. The review team will incorporate feedback and approvals for both OHMVRD and NRD on any WHPP or natural resources-related changes made to Clay Pit SVRA's program.

OHMVRD is responsible for SVRA resources compliance and ensuring that WHPP goals and objectives are met. The main goal of OHMVRD's OHV Compliance Section is to ensure resource monitoring is being performed and appropriate management is applied in a timely fashion. While NRD's review is similar, it focuses on the reasoning and development behind the WHPP and whether the strategy and science are sound in their feasibility and implementation. Despite all this, there is considerable overlap in the review responsibilities of both divisions, and coordination between SVRA resources staff and both divisions is vital to the WHPP's success.

While Figure 6-2 is outlined specifically for the WHPP review process, any natural resources documents or management implications for Clay Pit SVRA will follow this

route. Receiving feedback from one technical review team comprised of both Divisions will remove any communication confusion between the district and the two Divisions.

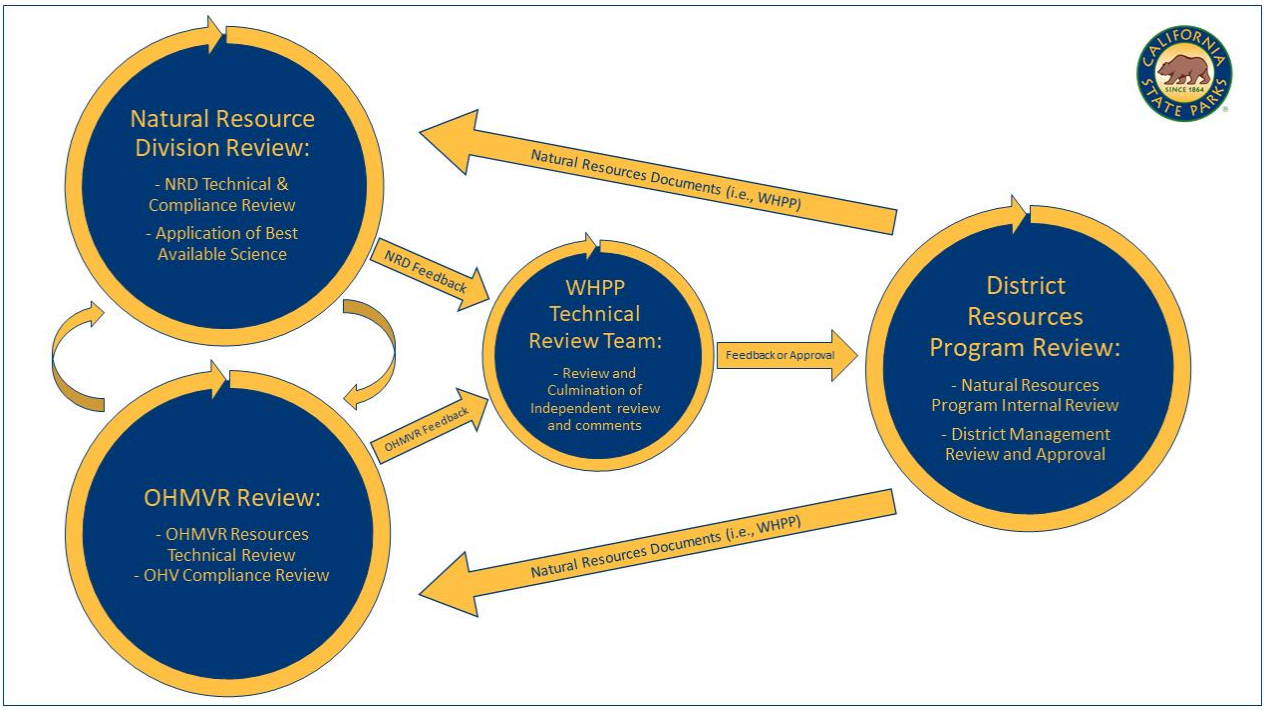

Figure 6-2. Department Resources Management and WHPP Review and Approval Process

6.1.3 Approval Process

The process of getting approval for adaptive management decisions will be influenced by whether the management or action in question is included in the approved WHPP currently being implemented in the SVRA. As part of the WHPP's adoption process within Northern Buttes District, it will be reviewed by the district's core management, including the District Superintendent. Review and approval by the District Superintendent is a necessary step in the Clay Pit SVRA WHPP's adoption process as that will ensure the range of management actions identified by the WHPP can be administered effectively and without any unnecessary delays.

Adoption of the WHPP, as previously indicated, will also require OHMVRD and NRD technical reviews. The inclusion of these Divisions, while mandated, would still be performed as it ensures that the WHPP and its management actions will have prior approval from and meet the natural resources management standards of the Department.

6.1.4 Approval for Existing Management Actions

With the prior reviews and approvals of the WHPP by the District, Divisions, and Department, implementation of the adaptive management approach identified in the WHPP will be approved by the district's Services Manager and reported up the district's command structure to the District Superintendent. Management actions implemented will also be captured in annual WHPP reports, which will follow the same review pathways identified for the WHPP.

6.1.4.1 Approval for New or Modifying Existing Management Actions

Adaptive management actions or decisions not outlined and approved by the WHPP will follow different review and implementation processes than those already approved. The addition and implementation of any new management actions or modification of existing management actions or decisions will depend on the severity or level of change to the current WHPP and resources program. Management action additions and modifications will be divided into low-level and high-level management actions.

Low-level management actions are adaptive management decisions that can be performed with little to no impact on the SVRA's recreation activities. Implementation of low-level management decisions will only require approval of the District Services Manager but will be reported to the District Superintendent as soon as possible. Any low-level management actions taken will also be reported in the WHPP annual report. The use of low-level management actions allows for resources staff to act and respond quickly to changes in the adaptive management strategies of their parks. Examples of low-level actions include such activities as closing a gate or removing incipient invasive plants.

High-level management actions are adaptive management decisions that require more thought, approval, and implementation and may negatively impact the park's recreation activities. High-level management decisions will require approval of the District Services Manager and the District Superintendent or their position equivalents. These management decisions will also be reported to NRD and OHMVRD as soon as possible and included in the WHPP annual report. Examples of high-level management decisions include such activities as closing sections of the SVRA for restoration or starting a new management program (e.g., grazing, controlled burn, etc.).

6.1.5 WHPP Reporting

6.1.5.1 Annual WHPP Reports

Annual WHPP Reports will be used to capture the full natural resources program over the previous year, including adaptive management decisions, project implementation, and monitoring results. Annual WHPP Reports serve as a review of the application of the habitat management strategy and adaptive management approach of the SVRA.

Reports at a minimum will include the following:

- The resources, goals, and objectives for the prior year.
- An analysis and review of the preceding year's monitoring data results.
- The SVRA's management triggers from the prior year.
- All management action decisions implemented during the past year and a review of their level of success and ability to inform management decisions.
- Plans, goals, and objectives for monitoring and management within the coming year.

Annual reports will provide a "snapshot" of current resource conditions and describe the management actions implemented by natural resource management staff in the previous year. The report will also discuss plans for next year's resource management program. The OHMVRD will use annual reports to evaluate the SVRA's WHPP program.

6.1.5.2 Annual Report Review Process

WHPP Annual Reports are to be reviewed at many different levels within State Parks' Chain of Command. These levels include SVRA, District, Division, and Department. After review at the SVRA and District levels, WHPP Annual Reports are to be sent to OHMVRD and NRD technical team staff for review to determine if the goals and objectives established by the SVRA's 2022 WHPP are being met (Figure 6-2).

6.1.5.3 Annual Report Timing

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

7 Constraints

Constraints are factors that may limit the ability of resources staff to achieve management objectives to 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, which limit the implementation of the WHPP.

7.1 Stochastic Events

Stochastic events, or random natural catastrophic events, are actions outside of human control that would impact the land or draw resources that would otherwise be directed towards management. These events could be natural or constructed. Examples of stochastic events at Clay Pit SVRA can include but are not limited to wildfire, flooding, and large-scale hazardous material releases.

7.2 Annual Weather Cycles

Adaptive management strategies at Clay Pit SVRA depend on annual weather cycles. 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. Many of the area's native annual flowering plants and vernal pool invertebrates, including VPFS, depend on cold winter storms to complete their life history/cycle and remain dormant for years until the right conditions present themselves. This weather dependency could sometimes make it hard or impossible to accurately monitor these populations if the right conditions are not present.

Additionally, management effectiveness monitoring of restoration projects, performed to reduce erosion in the canal, could be prolonged during years when not enough substantial rainfall occurs to flood the park's hydrological features.

7.3 Staffing

Staff is required to implement every aspect of Clay Pit SVRA's WHPP. In the past, management and staffing levels for Clay Pit have been inconsistent due to the park having changed management several times throughout the SVRA's creation. Now that it is under a new program at Northern Buttes District, this WHPP was written with the currently available staffing efforts provided with Northern Buttes and OHMVRD resources staff in mind. However, there is always the possibility that staffing levels drop or other events (e.g., stochastic events) in the district may pull from the SVRA's current staffing needs. To avoid this, if current dedicated Clay Pit SVRA resources 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 Clay Pit SVRA will look to OHMVRD's support contracts and agreements for assistance.

7.4 Legal or Regulatory Obligations

Existing or new legal obligations could become a constraint when they redirect staff, funds and/or other resources towards one monitoring or management action, preventing others from occurring. In addition to the Soil Standard and California Public Resources

Code, natural resources are subject to various federal and state regulations and laws. These include:

- Federal Endangered Species Act
- California Endangered Species Act
- Migratory Bird Treaty Act
- Sections 404 and 401 of the Clean Water Act
- Porter-Cologne Water Quality Control Act
- California Fish and Game Code (regarding fully protected species, protection of bird nests, and streambed alteration agreements)
- California Rare Plant Rank species designations

These laws also play a significant part in resource management and shape and change project development meaningfully. Many potential projects identified by this WHPP may be limited or delayed as a result of meeting these regulations.

Additionally, while Clay Pit SVRA currently has no regulatory or legally obligated monitoring or management, there is always the possibility that new mandated resources monitoring could come down and shift staff prioritizations. If this occurs, Clay Pit SVRA resources staff will call upon OHMVRD and NRD resources staff for additional assistance to complete the monitoring and management identified by the WHPP in addition to any new legal mandates.

7.5 DWR Ownership & Land Rights

As noted in Section 2.1.2, the 1981 *Agreement for Transfer to Department of Parks and Recreation of the Impervious Materials Borrow Area at Oroville Division* reserves DWR's right to modify the area known as Clay Pit SVRA for State Water Project needs. Clause 3 of the agreement reads:

> Water Resources reserves, however, the use of such real property for the construction, reconstruction, repair, operation, or maintenance of the Oroville Division of the State Water Project, including, but not limited to, the removal of materials by Water Resources from such real property and the inundation by Water Resources of such real property.

When drafting this WHPP, there have been no discussions related to implementing this clause. That said, it should be acknowledged that this is a known constraint that, if

implemented, would require significant modifications to this WHPP and overall management of Clay Pit SVRA.

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9 Appendices

9.1 Appendix 1: Wildlife Species Inventory

Table 9-1. Clay Pit SVRA Wildlife Inventory.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Amphibians	*Rana boylii*	foothill yellow-legged frog	None	Endangered	BLM-S, CDFW-SSC, ICUNT-NT, USFS-S	Habitat is generally characterized as partly-shaded, shallow, perennial rivers and streams with a low gradient and rocky substrate that is at least cobble-sized. However, the use of intermittent and ephemeral streams by post-metamorphic Foothill Yellow-legged Frogs may not be all that uncommon. The range and type of habitats vary greatly.	Low	No	The SVRA exists within the range of this species, and potentially suitable habitat for it can be found less than a mile away from the SVRA in the Feather River and Oroville Wildlife Area (East) and Thermalito Afterbay (Northwest); however, no populations have ever been detected in these areas. The nearest known occurrences that are not extirpated, according to CNDDB, are approximately 6.5 miles north of the SVRA in Coal Canyon, last detected in 1950, and 9.5 miles northeast of the SVRA in Lake Oroville, last detected in 2001.
Amphibians	*Rana draytonii*	California red-legged frog	Threatened	None	IUCN-VU, CDFW-SSC	Lowlands and foothills in near-permanent deep-water sources (Greater than two feet) with dense, shrubby, or emergent riparian vegetation. They also frequently breed in artificial impoundments such as stock ponds.	Low	No	The SVRA exists within the historical range of this species and potentially suitable habitat for it can be found both in and less than a mile away from the SVRA in the Feather River and Oroville Wildlife Area (East) and Thermalito Afterbay (west and southwest); however, no populations have ever been recorded within a five-mile radius of the SVRA (CNDDB, 2021). The nearest known documented occurrences, according to CNDDB, were in 2007 and are approximately 20 miles northeast of the SVRA near Lake Oroville

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Amphibians	*Spea hammondii*	western spadefoot	None	None	BLM-S CDFW-SSC IUCN-NT	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Grasslands with shallow temporary pools are optimal habitats for the western spadefoot.	Low	No	Suitable habitat for Western Spadefoot can be found both in Clay Pit SVRA and its adjacent properties; however, no populations, according to CNDDB, have ever been detected in these areas. The nearest known occurrence, according to CNDDB, is approximately 3.3 miles north of the SVRA, where the Feather River enters the Thermalito Forebay and is last detected in 1978. Additionally, while the SVRA does contain habitat suitable for this species, the area contains several barriers to entry, including commercial businesses and paved roadways, is disturbed by the SVRA's recreational activities, and includes several known predators, including crayfish & bullfrog, all of which can influence the establishment of healthy sustainable populations within the SVRA.
Amphibians	*Rana sierrae*	Sierra Nevada yellow-legged frog	Endangered	Threatened	CDFW-WL IUCN-EN USFS-S	Typical habitat includes lakes, ponds, marshes, meadows, and streams at high elevations— typically ranging from about 4,500 to 12,000 feet but can occur as low as about 3,500 feet in the northern portions of their range.	None	No	Clay Pit SVRA exists well outside the known ranges for this species. Additionally, the SVRA is well below the elevation this species is found at, and no habitat suitable for this species is present in or near the SVRA's boundaries. The nearest known occurrences, according to CNDDB, are almost 50 miles northeast in the Sierra Nevada Mountains.
Birds	*Accipiter cooperii*	Cooper's hawk	None	None	CDFW-WL IUCN-LC	Woodland, chiefly of open, interrupted, or marginal type.	**High**	Yes	Suitable foraging habitat is present in and adjacent to the SVRA. The Oroville Wildlife Area, immediately east of CPSVRA, contains oak woodland, which is suitable nesting habitat; however, according to CNDDB, no known or reported occurrences are present nearby. The last recorded observation in the SVRA was on 1/15/2020; during avian point count surveys, a single individual has observed hunting and preying upon small passerines.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Birds	*Circus hudsonius*	northern harrier	None	None	CDFW-SSC IUCN-LC	Coastal salt & freshwater marsh. Nest and forage in grasslands, from salt grass in the desert sink to mountain cienagas.	**High**	Yes	Suitable nesting and foraging habitats for this species are present in and in the lands adjacent to the SVRA; however, no nesting activity has ever been observed within the park's boundaries. According to CNDDB, the closest recorded occurrence was a nest located approximately 3.5 miles west of the SVRA, recorded in 1986. The last recorded observation for this species in the SVRA was an incidental observation on March 14, 2021; a breeding pair was observed foraging in the park's open grasslands.
Birds	*Agelaius tricolor*	tricolored blackbird	None	Threatened	BLM-S CDFW-SSC IUCN-EN NABCI-RWL USFWS-BCC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Nest in colony sites in freshwater marshes. Forage in grasslands and agricultural fields with low-growing vegetation	**High**	Yes	Suitable foraging habitat for this species is present within the SVRA; however, no cattails or other substrates suitable for nesting are present. Known and suitable nesting and foraging habitat are present in lands adjacent to the SVRA. The nearest CNDDB occurrence for this species is a colony reported to be approximately one acre in size, located less than one mile southeast of the SVRA. It was reported originally in 1978 but was updated as recently as 2014 and is still presumed to be extant. Several other reported colonies also exist approximately four miles west of the SVRA. The species was last recorded in the SVRA on 5/1/2017, during avian point count surveys.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Birds	*Numenius americanus*	long-billed curlew	None	None	CDFW-WL IUCN-LC CDFW-WL NABCI-YWL USFWS-BCC	Breeds from April to September in wet meadow habitat in northeastern California in Siskiyou, Modoc, and Lassen counties. July to early April along most of the California coast and in the Central and Imperial valleys, where the largest flocks occur	Low	No	The SVRA falls outside the typical range for this species; however, it exists between wintering and migratory locations and has a suitable loafing and foraging habitat for this species. According to CNDDB, there are no nearby recorded occurrences. This species has never been observed or recorded within the SVRA's boundaries.
Birds	*Carduelis lawrencei*	Lawrence's goldfinch	None	None	IUCN-LC NABCI-YWL USFWS-BCC	Habitats include valley foothill hardwood, valley foothill hardwood-conifer, and, in southern California, desert riparian, palm oasis, pinyon-juniper, and lower montane habitats.	Low	No	No nesting habitat suitable for this species exists within the boundaries of the SVRA, and the SVRA exists just outside the known range of this species; however, suitable nesting and foraging habitat is present in the adjacent Oroville Wildlife Area located along the eastern boundary of the SVRA.
Birds	*Coccyzus americanus*	yellow-billed cuckoo	Threatened	Endangered	BLM-S NABCI-RWL USFS-S USFWS-BCC	Valley foothill and desert riparian habitats in scattered locations in California.	Low	No	No habitat suitable for this species exists within CPSVRA. The area is disturbed by recreational activities and contains few densely foliated trees or willows. The adjacent Oroville Wildlife Area contains some suitable habitat; however, according to CNDDB, no records or occurrences of this species had ever been reported within a 9-quad search of this area. This species has never been observed within the boundaries of the SVRA.
Birds	*Aechmophorus clarkii*	Clark's grebe	None	None	USFWS-BCC	Winter along the west coast in saltwater and brackish bays and other estuarine habitats. Nests on large freshwater lakes and marshes with dense emergent vegetation such as reeds and rushes.	Low	No	No suitable nesting habitat exists for this species within CPSVRA; however, suitable, and adequate loafing and foraging habitat is present with the park's Drainage Management Area (DMA) Subunit. Suitable nesting and foraging habitat are present in the adjacent properties. This species has never been observed at CPSVRA, and, according to CNDDB, there are no known nearby occurrences.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Birds	*Setophaga petechia*	yellow warbler	None	None	CDFW–SSC USFWS-BCC	Riparian plant associations near water. Also nests in montane shrubbery in open conifer forests in the Cascades and Sierra Nevada.	Low	No	Suitable foraging habitat is present within the SVRA and in the lands immediately adjacent to the SVRA. Specifically, the Oroville Wildlife Management Area, immediately east of CPSVRA, contains scattered oak and cottonwood trees which contain suitable nesting habitats. According to CNDDB, the closest known occurrence was a breeding pair in Gold Run Creek in 2002, approximately 7.2 miles north of the SVRA. Despite this, the species has never been observed or reported within the SVRA's boundaries.
Birds	*Limosa fedoa*	marbled godwit	None	None	USFWS-BCC	A common to abundant migrant and winter visitant from mid-August to early May in estuarine habitats the length of the state, but generally rare elsewhere in the state's interior. Habitat includes estuarine mudflats, sandy beaches, open shores, saline emergent wetlands, and adjacent wet upland fields	Low	No	The SVRA falls outside the typical range for this species; however, it exists between wintering and migratory locations and has a suitable loafing and foraging habitat for this species. According to CNDDB, there are no nearby recorded occurrences. This species has never been observed or recorded within the SVRA's boundaries.
Birds	*Limnodromus griseus*	short-billed dowitcher	None	None	USFWS-BCC	Common to abundant during spring (late March to mid- May) and fall (mid-July to October) migration along the entire coast of California, where it typically occurs on intertidal mudflats of estuarine habitats.	Low	No	The SVRA falls outside the typical range for this species; however, it does exist between wintering and migratory locations and has a suitable loafing and foraging habitat for this species. According to CNDDB, there are no nearby recorded occurrences. This species has never been observed or recorded within the SVRA's boundaries.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Birds	*Numenius phaeopus*	whimbrel	None	None	USFWS-BCC	coastal habitats, forages on rocky intertidal and sandy beach marine habitats, on the intertidal mudflats of estuarine habitats, and wet meadow and pasture habitats adjacent to the immediate coast. Inland prefers flooded fields, wet meadows, croplands, and the margins of riverine and lacustrine habitats	Low	No	CPSVRA falls outside the typical range for this species; however, it exists between wintering and migratory locations and has a suitable loafing and foraging habitat for this species. According to CNDDB, there are no nearby recorded occurrences. This species has never been observed or recorded within the SVRA's boundaries.
Birds	*Geothlypis trichas sinuosa*	common yellowthroat	None	None	CDFW-SSC USFWS-BCC	Mostly breeds and winters in a wet meadow, fresh emergent wetland, and saline emergent wetland habitats; also breeds in valley foothill riparian, and occasionally in desert riparian, annual grassland, and perennial grassland habitats.	Low	No	Suitable foraging habitat is present in and adjacent to the SVRA. The Oroville Wildlife Management Area, immediately east of CPSVRA, contains suitable nesting habitat; however, according to CNDDB, no known nearby occurrences of this species have been recorded. This species has never been observed or reported within the SVRAs boundaries.
Birds	*Aquila chrysaetos*	golden eagle	None	None	BLM-S CDF-S CDFW-FP CDFW-WL IUCN-LC USFWS-BCC	Habitat is typically rolling foothills, mountain areas, sage-juniper flats, deserts.	Low	No	Suitable foraging habitat present within the SVRA. Additionally, suitable nesting habitat is present in lands adjacent to the SVRA; however, no suitable nesting habitat is present within the SVRA itself. According to CNDDB, there are no nearby recorded observations of this species. Additionally, this species has never been observed or recorded within the boundaries of the SVRA.
Birds	*Laterallus jamaicensis coturniculus*	California black rail	None	Threatened	BLM-S CDFW-FP IUCN-NT NABCI-RWL USFWS-BCC	Inhabits freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays.	Low	No	No nesting habitat suitable for this species exists within CPSVRA; however, properties adjacent to the SVRA do contain suitable nesting and foraging habitat. According to CNDDB, the closest recorded occurrence is a year-round resident breeding population located approximately 3.6 miles north of the SVRA; and was last updated in 2008.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Birds	*Tringa semipalmata*	willet	None	None	USFWS-BCC	Estuarine habitats, saline emergent wetlands, and salt ponds along the entire California coast. Intertidal mudflats are a very important winter-feeding habitat.	Low	No	CPSVRA falls outside the typical range for this species; however, it exists between wintering and migratory locations and has a suitable loafing and foraging habitat for this species. According to CNDDB, there are no nearby recorded occurrences. This species has never been observed or recorded within the SVRA's boundaries.
Birds	*Haliaeetus leucocephalus*	bald eagle	Delisted	Endangered	BLM-S CDF-S CDFW-FP IUCN-LC USFS-S USFWS-BCC	Permanent resident, and uncommon winter migrant, now restricted to breeding mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity counties. Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within one mile of water.	Low	No	While none have ever been observed within the park's boundaries, the surrounding areas, and adjacent properties (Thermalito, the Feather River, Oroville Lake, etc.) contain suitable foraging and nesting habitat. According to CNDDB, the nearest species occurrence is a nest, last reported in 2010, located approximately 8.8 miles south of the SVRA along the Feather River. Despite this, CPSVRA lacks any suitable Bald Eagle nesting or foraging habitat, and this species has never been observed within the SVRAs boundaries.
Birds	*Vireo bellii pusillus*	least Bell's vireo	Endangered	Endangered	IUCN-NT NABCI-YWL	A summer resident of Southern California in low riparian in the vicinity of water or dry river bottoms; below 2000 ft.	Low	No	Suitable foraging habitat is present within the SVRA and nesting and foraging habitat in the lands immediately adjacent to the SVRA; however, according to CNDDB, the closest known occurrence was in the town of Nelson in 1906, approximately 8.1 miles northeast of the SVRA and the area has since been converted to agricultural lands. Additionally, this species has never been observed or reported within the SVRA's boundaries.
Birds	*Antigone canadensis tabida*	greater sandhill crane	None	Threatened	BLM-S CDFW-FP USFS-S	Nests in wetland habitats in northeastern California; winters in the Central Valley.	Low	No	No suitable nesting habitat exists for this species within CPSVRA; however, suitable, and adequate loafing and foraging habitat is present with the park's Drainage Management Area (DMA) Subunit. While the SVRA can be used as a foraging and loafing site, no known communal roost sites currently exist within four miles of the SVRA. The nearest occurrence of the species, according to CNDDB, is approximately 7.8 miles southwest of the SVRA and was reported in 1924. This species has never been recorded or observed within the boundaries of CPSVRA.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Birds	*Lanius ludovicianus*	loggerhead shrike	None	None	CDFW-SSC IUCN-LC USFWS-BCC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub & washes.	Low	No	Suitable foraging habitat is present in and adjacent to the SVRA. The Oroville Wildlife Management Area, immediately east of CPSVRA, contains suitable nesting habitat. According to CNDDB, the nearest recorded occurrence is a nesting location, located approximately 7.1 miles north of the SVRA, reported on 05/29/2002. This species has never been observed or reported within the SVRA's boundaries.
Birds	*Pica nuttalli*	yellow-billed magpie	None	None	IUCN-LC NABCI-YWL USFWS-BCC	Oak savannah, riparian woodland, pastures, and croplands with trees.	Low	No	Suitable nesting and foraging habitats for this species are present in and in the lands adjacent to the SVRA; however, no nesting activity has ever been observed within the park's boundaries. According to CNDDB, the species has no recorded occurrences in the area. This species has never been recorded or observed within the SVRA's boundaries.
Birds	*Toxostoma redivivum*	California thrasher	None	None	USFWS-BCC	A common resident of foothills and lowlands in cismontane, California. Occupies moderate to dense chaparral habitats and, less commonly, extensive thickets in young or open valley foothill riparian habitat.	Low	No	No habitat suitable for this species exists within CPSVRA; however, properties adjacent to the SVRA do contain suitable nesting and foraging habitat. According to CNDDB, there are no known occurrences in the nearby areas. This species has never been observed within the boundaries of the SVRA.
Birds	*Melanerpes lewis*	Lewis's woodpecker	None	None	IUCN-LC NABCI-YWL USFWS-BCC	Suitable habitat includes open, deciduous, and conifer habitats with brushy understory and scattered snags and live trees for nesting and perching	Low	No	Suitable foraging habitat is present within the SVRA and in the lands immediately adjacent to the SVRA. Specifically, the Oroville Wildlife Management Area, immediately east of CPSVRA, contains scattered oak and cottonwood trees which contain suitable nesting habitats. According to CNDDB, no occurrences have been recorded in the nearby area.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Birds	*Riparia*	bank swallow	None	Threatened	BLM-S IUCN-LC	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Low	No	Suitable foraging habitat is present within the SVRA and in the lands immediately adjacent to the SVRA. Specifically, the Feather River, located approximately two miles east and south of CPSVRA, contains verticle banks suitable enough for nesting habitat. According to CNDDB, all known nesting colonies in the area are located south of the SVRA along the Feather River, with the closest being approximately 4.6 miles away and was last reported in 2010. Despite this, the species has never been observed or reported within the SVRA's boundaries.
Birds	*Athene cunicularia*	burrowing owl	None	None	BLM-S CDFW-SSC IUCN-LC USFWS-BCC	Open, dry annual or perennial grasslands, deserts, and scrublands are characterized by low-growing vegetation.	Low	No	Suitable foraging habitat exists in and on the lands adjacent to the SVRA; however, the area is heavily disturbed, and the site lacks any significant small mammal burrows or colonies, most notably those of the California ground squirrel, on which the species primarily depends on for its subterranean nesting. The nearest CNDDB occurrence was approximately 1.5 miles northwest of the SVRA, reported in 2006, it is still presumed to be extant.
Birds	*Selasphorus rufus*	rufous hummingbird	None	None	IUCN-LC NABCI-YWL USFWS-BCC	Found in a wide variety of habitats that provide nectar-producing flowers; uses valley foothill hardwood, valley foothill hardwood-conifer, riparian, and various chaparral habitats in both northward and southward migration; montane riparian, aspen, and high mountain meadows (to the tree line and above) used in southward migration.	Low	No	Suitable nesting and foraging habitats for this species are present in and in the lands adjacent to the SVRA; however, no nesting activity has ever been observed within the park's boundaries. According to CNDDB, there are no nearby recorded observations of this species. This species has never been observed or reported within the SVRA's boundaries.
Birds	*Falco mexicanus*	prairie falcon	None	None	CDFW-WL IUCN-LC USFWS-BCC	Distributed from annual grasslands to alpine meadows but associated primarily with perennial grasslands, savannahs, rangeland, some	Low	No	Suitable foraging habitat is present in and adjacent to the SVRA; however, no suitable nesting habitat is known to occur in or adjacent to the SVRA. Additionally, according to CNDDB, no known nearby occurrences have been recorded. This species has never been

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
						agricultural fields, and desert scrub areas.			observed or recorded within the park's boundaries.
Birds	*Buteo regalis*	ferruginous hawk	None	None	CDFW-WL IUCN-LC USFWS-BCC	Frequents open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys, and fringes of pinyon-juniper habitats.	Low	Yes	Suitable foraging habitat is present within the SVRA and around the SVRA; however, no suitable nesting habitat is present within the SVRA itself. Suitable nesting habitat is present in lands adjacent to the SVRA. According to CNDDB, there are no nearby recorded observations of this species. This species was last observed in the SVRA in 2010, during a site an assessment performed by UC Davis.
Birds	*Melospiza melodia*	song sparrow	None	None	CDFW-SSC USFWS-BCC	A common resident of most of California but avoids higher mountains and occurs only locally in southern deserts. In winter, most leave montane habitats, more abundant and widespread than in lowlands and deserts. At all seasons, prefers riparian, fresh or saline emergent wetland, and wet meadow habitats. Breeds in riparian thickets of willows, other shrubs, vines, tall herbs, and fresh or saline emergent vegetation.	Low	Yes	While this species has been detected and suitable habitat is present within, and adjacent to the SVRA, this listing status only refers to the "Modesto" population of sparrows. The SVRA exists within the northeastern most edge of the range for this specific population. According to CNDDB, no sensitive population of song sparrow, including the "Modesto" population, has been reported in the surrounding area. Song sparrows were last observed at the SVRA on 5/1/2012 during an avian point count survey.
Birds	*Baeolophus inornatus*	oak titmouse	None	None	USFWS-BCC	Live mostly in warm, open, dry oak or oak-pine woodlands. Many will use scrub oaks or other brushes if woodlands are nearby.	**Moderate**	Yes	Suitable nesting and foraging habitat exist in the SVRA and on the lands adjacent to the SVRA; however, the few cavity-nesting trees available within the SVRA's boundaries are often dominated by other cavity-nesting species including, European starling (*Sturnus vulgaris)*, who are known invasive species that compete with other cavity-nesting bird species, and tree swallows (*Tachycineta bicolor)*. Oak titmice were last recorded in the SVRA on 5/18/2015, during an avian point count survey.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Birds	*Elanus leucurus*	white-tailed kite	None	None	BLM-S CDFW-FP IUCN-LC	Resident in coastal and valley lowlands; rarely foundaway from agricultural areas. Inhabits herbaceous and open stages of most habitats, mostly in cismontane California.	**Moderate**	Yes	Clay Pit SVRA contains suitable and known habitat for this species. Dwarf Downingia was observed in the SVRA on May 22, 2007, during a wetland delineation; however, the location of the sighting was never recorded, and since then, no other observations of it have been made. According to CNDDB, there are no other nearby recorded occurrences. Given that it has been observed at Clay Pit SVRA in the past and that portions of the park are not permanently closed to OHV activity, it is likely that this plant can recruit to the site and, given the right conditions establish reproductive populations.
Birds	*Pandion haliaetus*	osprey	None	None	CDF-S CDFW-WL IUCN-LC	Ocean shore, bays, freshwater lakes, and larger streams. Associated strictly with large, fish-bearing waters, primarily in ponderosa pine through mixed conifer habitats.	**Moderate**	Yes	No habitat suitable for this species exists within CPSVRA; however, properties adjacent to the SVRA do contain suitable and known nesting and foraging habitat (the Feather River & Thermalito Fore and Afterbay). According to CNDDB, the closest recorded occurrence is a known nesting location located approximately 5.7 miles northeast of the SVRA along the Feather River; and was last updated in 2005. While this species has no suitable foraging or nesting habitat present within the site, it is worth noting that staff has observed an occupied osprey nest in spring 2021 located atop a power pole along East Hamilton Rd, approximately three miles southwest of the SVRA, adjacent to Thermalito Afterbay. The last recorded species occurrence in the SVRA was on 6/3/2016, during an avian point count survey.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Birds	*Buteo swainsoni*	Swainson's hawk	None	Threatened	BLM-S IUCN-LC USFWS-BCC	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees.	**Moderate**	Yes	Suitable foraging habitat is present in and adjacent to the SVRA; however, while no suitable nesting habitat is present within the SVRA, the Oroville Wildlife Area, immediately east of CPSVRA, contains scattered large trees, which border the park and can serve as suitable nesting habitat. According to CNDDB, the nearest recorded occurrence is a nesting site along the Feather River, approximately 3.8 miles south of the SVRA, and was last observed on 07/16/2015. This species was last observed in the SVRA on 5/1/2017, during an avian point count survey.
Birds	*Chamaea fasciata*	wrentit	None	None	USFWS-BCC	California chaparral habitat. Also frequents shrub understory of coniferous habitats from the coast to lower regions of mountains throughout cismontane California.	None	No	No habitat suitable for this species exists within the SVRA or the adjacent lands. Additionally, CPSVRA falls outside the typical range for this species. According to CNDDB, there are no nearby reported or recorded occurrences. This species has never been observed or recorded within the SVRA's boundaries.
Birds	*Calypte costae*	Costa's hummingbird	None	None	IUCN-LC USFWS-BCC	Primary habitats are a desert wash, edges of desert riparian and valley foothill riparian, coastal scrub, desert scrub, desert succulent shrub, lower-elevation chaparral, and palm oasis.	None	No	Clay Pit SVRA exists well outside the known ranges for this species. There is no likely scenario where this species would be observed within the SVRA's boundaries.
Birds	*Carpodacus cassinii*	Cassin's finch	None	None	USFWS-BCC	Prefers tall, open coniferous forests, in lodgepole pine, red fir, and subalpine conifer habitats, particularly in the breeding season. Most numerous near wet meadows and grassy openings.	None	No	No habitat suitable for this species exists within the SVRA or the adjacent lands. Additionally, CPSVRA falls outside the typical range for this species. According to CNDDB, there are no nearby reported or recorded occurrences. This species has never been observed or recorded within the SVRA's boundaries.
Birds	*Contopus cooperi*	olive-sided flycatcher	None	None	CDFW-SSC IUCN-NT NABCI-YWL USFWS-BCC	summer resident in a wide variety of forest and woodland habitats below 2800 m (9000 ft) throughout California, exclusive of the deserts, the Central Valley, and	None	No	No habitat suitable for this species exists within the SVRA or the adjacent lands. Additionally, CPSVRA falls just outside the known range of this species. According to CNDDB, there are not nearby reported or recorded occurrences. This species has never been observed or recorded within the SVRA's boundaries.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
						other lowland valleys and basins.			
Birds	*Pipilo maculatus clementae*	San Clemente spotted towhee	None	None	CDFW-SSC USFWS-BCC	Found in chaparral and other shrub habitats and open stands of riparian, hardwood, hardwood-conifer, and lower-elevation conifer habitats.	None	No	While this species has suitable habitat present within and adjacent to the SVRA, this listing status only refers specifically to the San Clemente population. The SVRA exists well outside the known ranges for this specified sub-population. According to CNDDB, no sightings of this species have been reported in the surrounding area.
Fish	*Oncorhynchus mykiss irideus pop.11*	steelhead - Central Valley DPS	Threatened	None	AFS-TH	Populations in the Sacramento and San Joaquin rivers and their tributaries.	None	No	No habitat suitable for this species is present in or near the SVRA: however, the Feather River, located approximately 1-2 miles east and south of the SVRA, according to CNDDB, contains recorded populations that migrate through and spawn in these areas. While the creek that bisects the site does empty into adjacent wetlands and a remnant oxbow of the Feather River, the surface water at these sites is not considered to be hydrologically connected to the main river channel. Therefore, activities at the site have no potential to negatively impact the water quality of the river or its fish populations.
Fish	*Oncorhynchus tshawytscha pop. 11*	chinook salmon - Central Valley spring-run ESU	Threatened	Threatened	AFS-TH	Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps >27 C are lethal to adults.	None	No	No habitat suitable for this species is present in or near the SVRA: however, the Feather River, located approximately 1-2 miles east and south of the SVRA, according to CNDDB, contains recorded populations that migrate through and spawn in these areas. While the creek that bisects the site does empty into adjacent wetlands and a remnant oxbow of the Feather River, the surface water at these sites is not considered to be hydrologically connected to the main river channel. Therefore, activities at the site have no potential to negatively impact the water quality of the river or its fish populations.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Fish	*Hypomesus transpacificus*	delta smelt	Threatened	Endangered	AFS-TH IUCN-EN	Endemic to California, but only occurs in the San Francisco Estuary.	None	No	No habitat suitable for delta smelt exists in or near the SVRA: however, the Feather River, located approximately 1-2 miles east and south of the SVRA. The Feather river is a tributary to the Sacramento River, which according to CNDDB, contains recorded populations. While the creek that bisects the site does empty into adjacent wetlands and a remnant oxbow of the Feather River, the surface water at these sites is not hydrologically connected to the main river channel. Therefore, activities at the site have no potential to negatively impact these populations even during major flooding or extreme rain events.
Invertebrates	*Branchinecta lynchi*	vernal pool fairy shrimp	Threatened	None	IUCN-VU	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools.	**High**	Yes	Suitable and known habitat for vernal pool fairy shrimp is present at Clay Pit SVRA. Approximately 26-acres of the park contains hydrologically connected seasonally flooded northern hardpan vernal pool and other wetland habitats that support robust vernal pool fairy shrimp populations. Surveys for listed branchiopods in the park's boundaries have occurred on several occasions, the most recent of which found VPFS in all surveyed pools and that abundant populations were present on site. According to CNDDB, in addition to the mapped Clay Pit SVRA populations, seven other known population occurrences, presumed to be extant, exist within a 5-mile radius buffer of the SVRA. Annual surveys and monitoring of the populations within the park will continue to occur and will inform future management of the SVRA.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Invertebrates	*Branchinecta conservation*	conservancy fairy shrimp	Endangered	None	IUCN-EN	Inhabits vernal pool habitats throughout a large portion of the Central Valley and southern coastal regions of California.	Low	No	Suitable habitat for conservancy fairy shrimp is present within the SVRA. Approximately 26-acres of the park contains hydrologically connected seasonally flooded vernal pool and other wetland habitats that could support populations of conservancy fairy shrimp; however, while the habitat present is suitable and the SVRA is within the historical range of this species, surveys for listed branchiopods in the park have occurred on multiple occasions, and conservancy fairy shrimp has never been documented or recorded. According to CNDDB, the closest known occurrences of this species are approximately 27 miles north of SVRA along Rock Creek and Hwy 99 in northern Butte County. These populations were first observed in 1981 and were resurveyed as recently as 2011 and are still presumed to be extant.
Invertebrates	*Linderiella occidentalis*	California linderiella	None	None	IUCN-NT	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions.	Low	No	Suitable habitat for California linderiella is present within the SVRA. Approximately 25-acres of the park contains hydrologically connected seasonally flooded northern hardpan vernal pool and other wetland habitats that could support populations of this species; however, while the habitat present is suitable and the SVRA is within the historical range of this species, surveys for listed branchiopods in the park have occurred on multiple occasions, and California linderiella has never been documented or recorded. According to CNDDB, the closest known occurrences of this species are approximately 0.4 miles northwest of SVRA in the Oroville Municipal Airport. These populations were first observed in 2005 and are still presumed to be extant. While no known populations currently exist within the SVRA, it is possible that this species may enter the area from nearby known or unknown populations and establish themselves within the park's vernal pool habitat.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Invertebrates	*Lepidurus packardi*	vernal pool tadpole shrimp	Endangered	None	IUCN-EN	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water.	**Moderate**	No	Suitable habitat for vernal pool tadpole shrimp is present within the SVRA. Approximately 25-acres of the park contains hydrologically connected seasonally flooded northern hardpan vernal pool and other wetland habitats that could support populations of this species; however, while the habitat present is suitable and the SVRA is within the historical range of this species, surveys for listed branchiopods in the park have occurred on multiple occasions. Vernal pool tadpole shrimp has never been documented or recorded. According to CNDDB, the closest known occurrences of this species are approximately 1.5 miles north of SVRA along Grand Avenue, just south of Thermalito Forebay. These populations were first observed in 2005 and presumed to be extant. While no known populations currently exist within the SVRA, it is possible that this species may enter the area from nearby known or unknown populations and establish themselves within the park's vernal pool habitat.
Invertebrates	*Desmocerus californicus dimorphus*	valley elderberry longhorn beetle (VELB)	Threatened	None	None	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus mexicana)*.	Low	No	The only known suitable habitat available to this species within the SVRA's boundary is a lone blue elderberry (*Sambucus mexicana)* present along the creek within the northern end of the DMA Subunit. According to CNDDB, the nearest known population occurrence is located approximately 1.5 miles southwest along the Feather River. This population was last recorded in 1991 and is still presumed extant (CNDDB, 2021). Despite this information, it is highly unlikely that VELB is present at the site. VELB has very limited dispersal ability and requires many elderberries in reasonably sized patches to support sustainable populations. The park has one known suitable plant.
Invertebrates	*Gonidea angulata*	western ridged mussel	None	None	None	Primarily creeks & rivers & less often lakes. Originally in most of the state, now extirpated from Central & Southern Calif.	None	No	No habitat suitable for this species is present in or near the SVRA: however, the Feather River, located approximately 1-2 miles east and south of the SVRA, according to CNDDB, contains recorded populations of this species. Clay Pit SVRA contains no permanent aquatic features, which this species needs to survive.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Mammals	*Erethizon dorsatum*	North American porcupine	None	None	IUCN-LC	Forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges.	Low	No	No habitat suitable for this species exists within the boundaries of the SVRA; however, suitable habitat is present in the lands adjacent to the SVRA, specifically the Oroville Wildlife Area located east of the park. This adjacent property contains mixed woodland habitat with a suitable canopy and understory requirements. Despite this, the areas in and around the wildlife management area and SVRA have been developed, and connection linkages between this habitat and other potential habitats contain significant barriers to entry, including highways, cities, farms, and other developed areas. Therefore, it is highly unlikely that this species would ever enter these areas. Additionally, the nearest recorded occurrence, according to CNDDB, was in 1976, approximately 7.9 miles southwest of the SVRA in the town of Gridley, CA, but is still presumed to be extant.
Mammals	*Corynorhinus townsendii*	Townsend's big-eared bat	None	None	BLM-S CDFW-SSC IUCN-LC USFS-S	Throughout California, in a wide variety of habitats. Most common in mesic sites.	Low	No	No suitable roosting habitat for this species exists within the SVRA; however, the SVRA is mesic and contains suitable foraging habitats and water sources. Additionally, areas immediately adjacent to the SVRA contain buildings, farms, and other structures that could support suitable roosting habitats. According to CNDDB, the nearest occurrence is in a few specimens caught in 1990 in the City of Oroville, approximately 2.5 miles northeast of the SVRA. They are still presumed to be extant.
Mammals	*Eumops perotis californicus*	western mastiff bat	None	None	BLM-S CDFW-SSC	Many open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub, grasslands, chaparral, etc.	Low	No	This species has no suitable roosting habitat within the SVRA; however, the SVRA contains suitable foraging habitats and water sources. Additionally, areas immediately adjacent to the SVRA contain buildings, farms, large trees, and other structures that could support suitable roosting habitats. According to CNDDB, the nearest occurrence is in a few specimens caught in 1998 in the City of Oroville, approximately 2.5 miles northeast of the SVRA. They are presumed to be extant.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Mammals	*Lasionycteris noctivagans*	silver-haired bat	None	None	IUCN-LC	Primarily a coastal and montane forest dweller, feeding over streams, ponds & open brushy areas.	Low	No	This species has no suitable roosting habitat within the SVRA; however, the SVRA contains suitable foraging habitats and water sources. Additionally, areas immediately adjacent to the SVRA contain buildings, farms, large trees, and other structures that could support suitable roosting habitats. According to CNDDB, the nearest occurrence is of a few specimens caught in 1992 in the City of Oroville, approximately 2.5 miles northeast of the SVRA. However, more recent observations from 2004 have been added to the initial observations. They are presumed to be extant.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Reptiles	*Phrynosoma blainvillii*	Blainville's horned lizard	None	None	BLM-S CDFW-SSC IUCN-LC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Occurs in valley foothill hardwood, conifer, and riparian habitats, as well as in pine-cypress, juniper, and annual grassland habitats.	Low	No	While suitable habitats for this species exist within the SVRA, the species has never been observed or detected within the park's boundaries. Additionally, the area lacks the suitable habitat features necessary to sustain healthy and viable populations. The clay-based hardpan soil that the sight is known for and the compaction of these soils by the presence of OHV activity prevent the establishment of loose soils necessary for predator prevention and thermoregulation of this species. The SVRA also lacks significant amounts of small mammal burrows and the scattered bushes and shrubbery typically associated with habitat suitable for this species. According to CNDDB, the nearest known occurrence of this species is from 2002 and is approximately 8.8 miles northeast of the SVRA in the Table Mountain area; presumed to be extant.
Reptiles	*Actinemys marmorata*	western pond turtle	None	None	BLM-S CDFW-SSC IUCN-VU USFS-S	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	**Moderate**	No	The SVRA exists within the historical range of this species and potentially suitable habitat for it can be found both in and less than a mile away from the SVRA in the Feather River and Oroville Wildlife Area (East) and Thermalito Afterbay (west & southwest); however, no individuals have ever been observed or recorded within the SVRA. The nearest known documented occurrences, according to CNDDB, were in 2016, at Hamilton Slough approximately 1.5 miles southwest of the SVRA and directly adjacent to Thermalito Afterbay. Additionally, while the SVRA does contain some habitat suitable for this species, there are numerous barriers for entry to the park including, businesses, farms, agriculture, and paved roadways. The water in the area dries out during the summer and lacks the significant aquatic habitat features generally characterized as necessary to contain breeding and healthy sustainable populations.

Wildlife type	Scientific Name	Common Name	Federal Status	State Status	Other Status	General Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Reptiles	*Thamnophis gigas*	giant garter snake	Threatened	Threatened	IUCN-VU	Marsh & swamp, Riparian scrub Wetland. Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches.	**Moderate**	No	The SVRA exists within the historical range of this species and potentially suitable habitat for it both in and less than a mile away from the SVRA in the Feather River and Oroville Wildlife Area (East) and Thermalito Afterbay (west & southwest); however, no individuals have ever been observed or recorded within the SVRA. The nearest known documented occurrences, according to CNDDB, were in 2011, one was along the water outlet that connects Thermalito Afterbay to the Feather River, approximately 1.5 miles southwest of the SVRA. The other was approximately 1.7 miles southwest along East Hamilton Road, just south of Thermalito Afterbay. While the SVRA contains some suitable habitat for this species, there are numerous barriers enter the park including, businesses, farms, agriculture, paved roadways. The water in the area dries out in summer and lacks significant aquatic habitat features necessary to contain breeding and sustainable populations.

Table 9-1 Key: BCC=Bird of Conservation Concern, EN=Endangered, FP=Fully Protected, LC=Least Concern, NT=Near Threatened, RWL=Red Watchlist, S=Sensitive, SSC=Species of Special Concern, TH=Threatened, VU=Vulnerable, WL=Watchlist, YWL=Yellow Watchlist

Table 9-1 Notes: List generated based on a nine USGS 7.5' Quadrangle buffer around the SVRA footprint. Reports were generated using CNDDB, CNPS, and IPac. Reports Generated on April 21, 2021

Table 9-2. Clay Pit SVRA Plant Species Inventory

Scientific Name	Common Name	Federal Status	State Status	Rare Plant Rank	Other Status	Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Astragalus pauperculus	depauperate milk-vetch	None	None	4.3	None	Chaparral, Cismontane woodland, Valley, and foothill grassland	Low	No	While suitable habitat exists in the SVRA, this species has never been observed or detected within the park's boundaries. This species has the potential to recruit to the site; however, the SVRA and surrounding areas are heavily disturbed by human activities. The nearest known populations exist in the OROVILLE and SHIPPEE quads immediately north and northwest of the SVRA (CNPS).
Astragalus tener var. ferrisiae	Ferris' milk-vetch	None	None	1B.1	None	Meadows and seeps (vernally mesic), Valley and foothill grassland (subalkaline flats)	Low	No	While suitable habitat exists in the SVRA, this species has never been observed or detected within the boundaries of the park. This species has the potential to recruit to the site; however, the SVRA and surrounding areas are disturbed continually by human activities. The nearest known populations exist in the BIGGS quad immediately west of the SVRA (CNPS).
Azolla microphylla	Mexican mosquito fern	None	None	4.2	None	Marshes and swamps (ponds, slow water)	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected within the park's boundaries. This species does have the potential to recruit to the site; however, the SVRA and surrounding areas are disturbed by human activities. The nearest known populations exist in the same quad as the SVRA (PALERMO), as well as in the surrounding BIGGS (West), LOMA RICA (Southeast), and OROVILLE (North) quads (CNPS).

Scientific Name	Common Name	Federal Status	State Status	Rare Plant Rank	Other Status	Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Balsamorhiza macrolepis	big-scale balsamroot	None	None	1B.2	BLM-S USFS-S	Chaparral, valley and foothill grassland, cismontane woodland.	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected in the park. This species has the potential to recruit to the site; however, the site and surrounding areas are disturbed, and the nearest known population is approximately 8.4 miles northwest of the SVRA (CNDDB). These population observations were last updated on 01/13/2011 and are presumed to be still extant (CNDDB).
Brodiaea rosea ssp. vallicola	valley brodiaea	None	None	4.2	None	Valley and foothill grassland (swales), Vernal pools	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected within the park's boundaries. This species does have the potential to recruit to the site; however, the SVRA and surrounding areas are heavily disturbed by human activities. The nearest known populations exist in the surrounding HONCUT (South) and SHIPPEE (Northwest) quads (CNPS).
Brodiaea sierrae	sierra foothills brodiaea	None	None	4.3	None	Chaparral, Cismontane woodland, Lower montane coniferous forest	None	No	While nearby populations of this species are present in adjacent quads, no habitat suitable for this species exists within the boundaries of the SVRA. Additionally, the park and surrounding area are disturbed and consist mostly of compacted clay-based soils and substrates, making it difficult for plants to recruit to the site. The nearest known populations exist in the surrounding LOMA RICA (Southeast), Oroville (North), and OROVILLE DAM (Northeast) quads (CNPS).

Scientific Name	Common Name	Federal Status	State Status	Rare Plant Rank	Other Status	Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Bryum chryseum	brassy bryum	None	None	4.3	None	Chaparral (openings), Cismontane woodland, Valley, and foothill grassland	None	No	While nearby populations of this species are present in adjacent quads, no habitat suitable for this species exists within the boundaries of the SVRA. Additionally, the park and surrounding area are disturbed and consist mostly of compacted clay-based soils and substrates, which make it difficult for plants to recruit to the site. The nearest known populations exist in the adjacent SHIPPEE quad located northwest of the SVRA (CNPS).
Bulbostylis capillaris	thread- leaved beakseed	None	None	4.2	None	Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	None	No	While nearby populations of this species are present in adjacent quads, no habitat suitable for this species exists within the boundaries of the SVRA. Additionally, the park and surrounding area are disturbed and consist mostly of compacted clay-based soils and substrates, making it difficult for plants to recruit to the site. The nearest known populations exist in the nearby OROVILLE quad located north of the SVRA (CNPS).
Calycadenia oppositifolia	Butte County calycadenia	None	None	4.2	None	Chaparral, Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley, and foothill grassland. openings; volcanic, granitic, or serpentinite	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected within the park's boundaries. This species does have the potential to recruit to the site; however, the SVRA and surrounding areas are heavily disturbed by human activities. The nearest known populations exist in the surrounding OROVILLE and OROVILLE DAM quads located north and northeast of the SVRA (CNPS).

Scientific Name	Common Name	Federal Status	State Status	Rare Plant Rank	Other Status	Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Castilleja rubicundula var. rubicundula	pink creamsacs	None	None	1B.2	BLM-S	Chaparral, cismontane woodland, meadows and seeps, valley, and foothill grassland. Openings in chaparral or grasslands.	Low	No	While suitable habitat exists in the SVRA, this species has never been observed or detected within the park's boundaries. This species has the potential to recruit to the site; however, the SVRA and surrounding areas are heavily disturbed by human activities. The nearest known populations exist approximately 4.7 miles northeast of the SVRA (CNDDB). These population observations were updated on 10/23/2002 and are presumed to be still extant (CNDDB).
Chamaesyce hooveri	Hoover's spurge	Threatened	None	1B.2	None	generally, grows in relatively large, deep vernal pools among the rolling hills, remnant alluvial fans, and depositional stream terraces at the base of the Sierra Nevada foothills	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected within the park's boundaries. This species does have the potential to recruit to the site; however, the SVRA and surrounding areas are disturbed by human activities. No known populations exist in the surrounding nine quads (CNDDB & CNPS).
Clarkia biloba ssp. brandegeea e	Brandegee's clarkia	None	None	4.2	None	Chaparral, cismontane woodland, lower montane coniferous forest.	None	No	While nearby populations of this species are present in adjacent quads, no habitat suitable for this species exists within the boundaries of the SVRA. Additionally, the park and surrounding area are disturbed and consist mostly of compacted clay-based soils and substrates, making it difficult for plants to recruit to the site. The nearest known populations are located approximately 8.2 miles northeast of the SVRA (CNDDB). This population observation was last updated on 7/7/2006 and is presumed to still be extant (CNDDB).

Scientific Name	Common Name	Federal Status	State Status	Rare Plant Rank	Other Status	Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Clarkia mosquinii	Mosquin's clarkia	None	None	1B.1	BLM-S USFS-S	Cismontane woodland, lower montane coniferous forest.	None	No	While nearby populations of this species are present in adjacent quads, no habitat suitable for this species exists within the boundaries of the SVRA. Additionally, the park and surrounding area are disturbed and consist mostly of compacted clay-based soils and substrates, making it difficult for plants to recruit to the site. The nearest known populations exist in the Oroville Dam area, approximately 11.8 miles northeast of the SVRA (CNDDB). These population observations were updated on 7/17/2007 and are presumed to still be extant (CNDDB).
Cryptantha rostellata	red-stemmed cryptantha	None	None	4.2	None	Cismontane woodland, Valley, and foothill grassland	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected within the park's boundaries. This species does have the potential to recruit to the site; however, the SVRA and surrounding areas are disturbed by human activities. The nearest known populations exist in the adjacent HONCUT quad located south of the SVRA (CNPS).
Delphinium recurvatum	recurved larkspur	None	None	1B.2	BLM-S	Chenopod scrub, valley and foothill grassland, cismontane woodland.	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected within the park's boundaries. This species does have the potential to recruit to the site; however, the SVRA and surrounding areas are continually disturbed by human activities. The nearest known population exists approximately 7.1 miles west of the SVRA (CNDDB). This population observation was last updated on 04/08/2011 but is presumed to be extirpated from the area (CNDDB).

Scientific Name	Common Name	Federal Status	State Status	Rare Plant Rank	Other Status	Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Downingia pusilla	dwarf downingia	None	None	2B.2	None	Valley and foothill grassland (mesic) and Vernal pools. Endemic to vernal pools and similar seasonal wetlands in California	**Moderate**	Yes	Suitable habitat exists within the SVRA, and this species has been observed within the SVRA's wetland and vernal pool areas. However, the areas where this plant was observed are now closed to and inaccessible to OHV recreation activities. This species was last observed at the site during a wetland delineation survey performed on May 22, 2007.
Erythranthe glaucescens	shield- bracted monkeyflowe r	None	None	4.3	None	Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley, and foothill grassland	Low	No	While suitable habitat exists in the SVRA, this species has never been observed or detected within the boundaries of the park. This species has the potential to recruit to the site; however, the SVRA and surrounding areas are disturbed continually by human activities. The nearest known populations exist in the surrounding LOMA RICA, HONCUT, and OROVILLE DAM quads located southwest, south, and northwest of the SVRA (CNPS).
Fritillaria eastwoodiae	Butte County fritillary	None	None	3.2	USFS-S	Chaparral, cismontane woodland, lower montane coniferous forest (openings).	None	No	No habitat suitable for this species exists within the boundaries of the SVRA. Additionally, the park and surrounding area are disturbed and consist mostly of compacted clay-based soils and substrates. The nearest known populations exist approximately eight miles northeast of the SVRA around the Lake Oroville area (CNDDB). These population observations were last updated on 3/7/2008 and are presumed to be extant (CNDDB).
Fritillaria pluriflora	adobe-lily	None	None	1B.2	BLM-S	Chaparral, cismontane woodland, valley, and foothill grassland. Usually on clay soils; sometimes serpentine. 45-945 m.	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected within the park's boundaries. However, this species does have the potential to recruit to the site. The nearest known population exists approximately 8.2 miles north of the SVRA (CNDDB). This population observation was last updated on 5/15/2001 and is still presumed to be extant (CNDDB).

Scientific Name	Common Name	Federal Status	State Status	Rare Plant Rank	Other Status	Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Hesperevax caulescens	hogwallow starfish	None	None	4.2	None	Valley and foothill grassland (mesic, clay), Vernal pools (shallow)	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected in the park. This species has the potential to recruit to the site; however, the site and surrounding area is disturbed, and the nearest known population is in the SHIPPEE quad located northwest of the SVRA (CNPS).
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	None	None	1B.2	None	Marshes and swamps (freshwater). Moist, freshwater-soaked riverbanks & low peat islands in sloughs; can also occur on riprap and levees. In California, known from the Delta watershed. 0-155 m.	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected within the park's boundaries. However, this species does have the potential to recruit to the site. The nearest known populations exist approximately 6.5 miles north of the SVRA (CNDDB). This population observation was last updated on 8/11/1989 and is presumed to be still extant (CNDDB).
Juncus leiospermus var. ahartii	Ahart's dwarf rush	None	None	1B.2	None	Valley and foothill grassland (mesic). Restricted to the edges of vernal pools in grassland. 30- 100 m.	**Moderate**	No	While suitable habitat exists in the SVRA, the species has never been observed or detected within the park's boundaries. This species does have the potential to recruit to the site. The nearest known population exists immediately north of the SVRA in the Oroville Municipal Airport runway area (CNDDB). This population observation was last updated on 5/18/2010 and is presumed to be extant (CNDDB).
Juncus leiospermus var. leiospermus	red bluff dwarf rush	None	None	1B.1	BLM-S USFS-S	Chaparral, valley and foothill grassland, cismontane woodland, vernal pools, meadows, and seeps. Vernally mesic sites. Sometimes on the edges of vernal pools. 30-1255 m.	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected within the park's boundaries. However, this species does have the potential to recruit to the site. The nearest known population exists approximately 6.1 miles north of the SVRA (CNDDB). This population observation was last updated on 4/07/2003 and is presumed to be extant (CNDDB).

Scientific Name	Common Name	Federal Status	State Status	Rare Plant Rank	Other Status	Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Lilium humboldtii ssp. humboldtii	Humboldt lily	None	None	4.2	None	Chaparral, Cismontane woodland, Lower montane coniferous forest	None	No	No habitat suitable for this species exists within the boundaries of the SVRA. Additionally, the park and surrounding area are disturbed and consist mostly of compacted clay-based soils and substrates. The nearest known populations exist in the OROVILLE and OROVILLE DAM quads north and northeast of the SVRA (CNPS).
Limnanthes floccosa ssp. californica	Butte County meadowfoam	Endangered	Endangered	1B.1	None	Vernal pools, valley, and foothill grassland (mesic). Wet or flowing drainages & depressions; often not in discrete vernal pools; soils are usually Redding clay with rocks. 35-370 m.	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected within the park's boundaries. However, this species does have the potential to recruit to the site. The nearest known populations exist approximately four miles northwest of the SVRA (CNDDB). These populations observations were last updated on 10/02/2003 and are still presumed to be extant (CNDDB).
Limnanthes floccosa ssp. floccosa	woolly meadowfoam	None	None	4.2	None	Chaparral, Cismontane woodland, Valley and foothill grassland, Vernal pools	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected within the park's boundaries. However, this species does have the potential to recruit to the site. The nearest known populations exist within the same quad (PALERMO) as the SVRA (CNPS).
Microseris sylvatica	sylvan microseris	None	None	4.2	None	Chaparral, Cismontane woodland, Great Basin scrub, Pinyon and juniper woodland, Valley, and foothill grassland.	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected in the park. This species can recruit to the site; however, the site and surrounding areas are disturbed, and the nearest known population is in the OROVILLE DAM quad located northeast of the SVRA (CNPS).

Scientific Name	Common Name	Federal Status	State Status	Rare Plant Rank	Other Status	Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Navarretia heterandra	Tehama navarretia	None	None	4.3	None	Valley and foothill grassland (mesic), Vernal pools	Low	No	While suitable habitat exists in the SVRA, this species has never been observed or detected within the boundaries of the park. This species has the potential to recruit to the site; however, the SVRA and surrounding areas are disturbed continually by human activities. The nearest known populations exist in the SHIPPEE quad located northwest of the SVRA (CNPS).
Navarretia leucocephal a ssp. bakeri	Baker's navarretia	None	None	1B.1	None	Cismontane woodland, meadows and seeps, vernal pools, valley, and foothill grassland, lower montane coniferous forest.	Low	No	While suitable habitat exists in the SVRA, this species has never been observed or detected within the boundaries of the park. This species has the potential to recruit to the site; however, the SVRA and surrounding areas are disturbed continually by human activities. The nearest known populations exist approximately 14.5 miles southwest of the SVRA (CNDDB). These population observations were last updated on 09/12/2011 and are presumed to be extant (CNDDB).
Navarretia nigelliformis ssp. nigelliformis	adobe navarretia	None	None	4.2	None	Valley and foothill grassland vernally mesic, Vernal pools sometimes	Low	No	While suitable habitat exists in the SVRA, this species has never been observed or detected within the boundaries of the park. This species has the potential to recruit to the site; however, the SVRA and surrounding areas are disturbed continually by human activities. The nearest known populations exist in the SHIPPEE, and BIGGS quads located northwest and west of the SVRA (CNPS).

Scientific Name	Common Name	Federal Status	State Status	Rare Plant Rank	Other Status	Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Navarretia prostrata	prostrate vernal pool navarretia	None	None	1B.1	None	Coastal scrub, Meadows and seeps, Valley, and foothill grassland (alkaline), and Vernal pools (Mesic)	**Moderate**	Yes	Suitable habitat exists within the SVRA, and this species has been observed within the SVRA's wetland and vernal pool areas. The distribution and extent of this species within the SVRA have yet to be mapped since no other specimens have been located; however, the area where this plant was observed is now closed and inaccessible to OHV recreation activities. This species was last observed at the site during a rare plant survey performed in the Spring of 2013.
Orcuttia pilosa	hairy orcutt grass	Endangered	Endangered	1B.1	None	Vernal pools in open grasslands.	Low	No	While suitable habitat exists in the SVRA, this species has never been observed or detected within the boundaries of the park. This species has the potential to recruit to the site; however, the SVRA and surrounding areas are disturbed continually by human activities. There are no known populations within the SVRA and its surrounding quads (CNPS & CNDDB)
Orcuttia tenuis	slender orcutt grass	Threatened	Endangered	1B.1	None	Vernal pools. Often in a gravelly substrate. 25 1755 m.	Low	No	While suitable habitat exists in the SVRA, this species has never been observed or detected within the boundaries of the park. This species has the potential to recruit to the site; however, the SVRA and surrounding areas are disturbed continually by human activities. The nearest known populations exist approximately 2.7 miles south of the SVRA (CNDDB). These population observations were last updated on 04/17/2013 and are still presumed to be extant (CNDDB).

Scientific Name	Common Name	Federal Status	State Status	Rare Plant Rank	Other Status	Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Paronychia ahartii	Ahart's paronychia	None	None	1B.1	BLM-S	Valley and foothill grassland, vernal pools, cismontane woodland. Stony, nearly barren clay of swales and the higher ground around vernal pools. 45-500 m.	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected within the park's boundaries. This species does have the potential to recruit to the site. The nearest known population exists approximately 1.7 miles north of the SVRA in the Thermalito Forebay (CNDDB). This population observation was last updated on 8/14/2007 and is still presumed to be extant.
Plagiobryoides vinosula	wine-colored tufa moss	None	None	4.2	None	Cismontane woodland, Mojavean desert scrub, Meadows and seeps, Pinyon and juniper woodland, Riparian woodland	None	No	While nearby populations of this species are present in adjacent quads, no habitat suitable for this species exists within the boundaries of the SVRA. Additionally, the park and surrounding area are disturbed and consist mostly of compacted clay-based soils and substrates. The nearest known populations exist in the nearby BIGGS quad located to the west of the SVRA (CNPS).
Polygonum bidwelliae	Bidwell's knotweed	None	None	4.3	None	Chaparral, Cismontane woodland, Valley, and foothill grassland	Low	No	While suitable habitat exists in the SVRA, this species has never been observed or detected within the boundaries of the park. This species has the potential to recruit to the site; however, the SVRA and surrounding areas are disturbed continually by human activities. The nearest known populations exist in the SHIPPEE quad located northwest of the SVRA (CNPS).
Sagittaria sanfordii	Sanford's arrowhead	None	None	1B.2	BLM-S	Marshes and swamps (assorted shallow freshwater). In a standing or slow-moving freshwater ponds, marshes, and ditches. 0-605 m.	Low	No	While suitable habitat exists in the SVRA, the species has never been observed or detected in the park. This species has the potential to recruit to the site; however, the area is heavily disturbed, and the nearest known population, located in DWR's Thermalito Afterbay, is approximately 2.2 miles west of the SVRA (CNDDB). These populations observations were last updated on 09/26/2007 and are presumed to still be extant (CNDDB).

Scientific Name	Common Name	Federal Status	State Status	Rare Plant Rank	Other Status	Habitat	Potential to Occur within SVRA	Known to Occur within SVRA	Justification
Senecio layneae	Layne's butterweed	Threatened	Rare	1B.2	None	The species grows on dry pine or oak woodland, on serpentine soil. Chaparral and Cismontane woodland	None	No	No habitat suitable for this species exists within the boundaries of the SVRA. Additionally, the park and surrounding area are disturbed and consist mostly of compacted clay-based soils and substrates. No populations are known to exist within the surrounding nine quad area.
Trifolium jokerstii	Butte County golden clover	None	None	1B.2	BLM-S	Valley and foothill grassland, vernal pools (Mesic). Mesic sites in grassland. 45- 400 m.	Low	No	While suitable habitat exists in the SVRA, this species has never been observed or detected within the boundaries of the park. This species has the potential to recruit to the site; however, the SVRA and surrounding areas are disturbed by human activities. The nearest known populations exist approximately 3.7 miles north of the SVRA (CNDDB). These population observations were last updated on 05/06/2020 and are presumed to be extant (CNDDB).
Tuctoria greenei	Greene's tuctoria	Endangered	Rare	1B.1	None	Vernal pools in open grasslands. 25-1325 m.	Low	No	While suitable habitat exists in the SVRA, this species has never been observed or detected within the boundaries of the park. This species has the potential to recruit to the site; however, the SVRA and surrounding areas are disturbed continually by human activities. The nearest known populations exist approximately 3.5 miles west of the SVRA (CNDDB). These population observations were last updated on 04/22/2013 but are presumed to be extirpated from the area (CNDDB).

Table 9-2 Notes: List generated based on a nine USGS 7.5' Quadrangle buffer around the SVRA footprint. Reports were generated using CNDDB, CNPS, and IPac. Reports Generated on April 21, 2021

9.2 Appendix 2: Management Actions

The goals and objectives of the WHPP are meant to guide the management of natural resources at Clay Pit 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. Listed below is a comprehensive list of management actions that will currently be used or could feasibly be applied 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.

9.2.1 Management Actions Related to Ongoing Resources Management

(1) Prevent and exclude riding within the Drainage Management Area (DMA) Subunit.

a. DMA Subunit fencing that is damaged or in disrepair to the point that it is no longer effective at preventing or excluding OHV activity within the DMA Subunit.

b. Presence of new unauthorized OHV activity (e.g., OHV tread marks) within the DMA Subunit.

(2) Maintain and improve vegetation cover percentages within Clay Pit SVRA's open riding area.

(3) Implement new adaptive management strategies if monitoring detects a decline in the condition of VPFS present at Clay Pit SVRA.

(4) If protocol-level special status plant surveys determine the presence of a listed or sensitive plant species, implement protection measures in the location where the plant was found until new adaptive management strategies/measures can be identified.

(5) Treat areas in the DMA Subunit where past OHV activities have prevented the establishment of a protective vegetative filter.

(6) Treat areas within the SVRA where new incursions of invasive weed species have been detected.

9.2.2 Management Actions Related to Recreation and Facilities Activities

(1) Repair locations in hill climb areas where erosional features (e.g., rilling, gullying, scouring, etc.), identified by the Soil Conservation Plan, may be causing excess sedimentation, soil loss, or erosion.

(2) When necessary, install or repair new or existing soil and erosion control features (e.g., drainage culverts, creek crossings, etc.).

9.2.3 Policy, Regulation Compliance, and Administrative Management Actions

(1) Develop and implement a Clay Pit SVRA Soil Conservation Plan by 2023.

(2) Develop and implement a Clay Pit SVRA Water Quality Monitoring Program by 2023.

(3) Develop and implement a Clay Pit SVRA Invasive Weed Management Program by January 1, 2025.

(4) Projects implemented at Clay Pit State Vehicular Recreation Area (SVRA) will follow soil and erosion control best management practices (BMPs) identified in CSP's *OHV BMP Manual for Erosion and Sediment Control* (2007).

(5) Projects implemented at Clay Pit SVRA will follow and select project BMPs based on the information outlined in the above manual, and those BMPs identified for a project will be implemented in a way that they do not contribute to erosion, soil loss, or sedimentation of the park's soils or drainage canal.

(6) Ensure all projects comply with state and federal regulatory policies and oversight.

a. Continued use of CSP's Project Evaluation Forms to perform project impact and CEQA analysis.

b. Evaluate and identify any additional CEQA, mitigation, monitoring, and/or regulatory permitting (e.g., SWPPP) required for projects.

c. Conduct pre-construction survey work, including but not limited to surveys of nesting birds and special status plant and animal species, prior to the start of project activities.

d. If necessary, have onsite resources monitors present during construction activities.

e. If possible, avoid project implementation during the nesting season (March 1st – August 31st).

    i. If projects are implemented during the nesting season, protocol-level nesting bird surveys will be performed prior to any project activities.

ii. Protection and avoidance measures will be implemented if any nesting birds are found.

f. If possible, avoid project implementation during the “wet” season (October 15th – April 15th).

i. If projects are implemented during the “wet” season, erosion and sedimentation protection and avoidance measures will be implemented.

g. All projects or related activities, to the extent feasible, will avoid sensitive biological areas and habitats.

h. If areas are unavoidable, projects will undergo the necessary mitigation and/or avoidance measures to limit project impacts.

(7) If, because of species inventory monitoring, previously unknown wildlife species (sensitive and non-sensitive) are detected, reassess the WHPP’s adaptive management strategy and implement new monitoring and management actions if found to be necessary.

(8) If opportunities present themselves, reach out to and/or work with adjacent land and property owners to develop approaches to improving regional resources conditions.

(9) Nighttime Closures – The SVRA is only open during daylight hours (sunrise to sunset). This closure is a safety precaution and a measure to protect nocturnal wildlife resources from vehicle collisions.

(10) Flooding Closures – Occasionally, following large storm events and especially wet winters, the park’s basin will fill with water, flooding most of the park. During these events, the park is closed as recreational features are inaccessible. This flooding creates safety hazards for park visitors and can lead to excessive erosion and water quality problems.

9.3 Appendix 3: Monitoring Methodologies

9.3.1 Water Quality Monitoring Program

9.3.1.1 Performance Indicators

Basis for Selection

Turbidity is a consistently recognized contributor to water quality and aquatic habitat degradation. Often created by increases in siltation or sedimentation during seasonal storm events, it is a known source for adversely and negatively impacting habitat quality, recreational values, and ecological productivity of aquatic systems and hydrological resources. The increase or higher concentrations of suspended particulate matter in the water column can drastically reduce light penetration and disrupt the photosynthetic processes, curbing the level of primary production and the overall productivity a system can support. This lapse in primary production can adversely influence the quality of habitat and limit the availability of resources to support other wildlife organisms.

Hydrological resources and aquatic habitats are prevalent at Clay Pit SVRA and contain most of the SVRA's sensitive natural resources and habitat features. Roughly 26 of the park's 220 acres (≈ 12%) are covered in jurisdictional waters that comprise not only the drainage canal but sensitive wetland habitats, including both emergent wetlands and northern hardpan vernal pools (AECOM 2010). Due to the topography of the SVRA, these features will regularly flood following winter storms, occasionally inundating the entire pit area and hydrologically connecting the canal to the surrounding wetland habitats. Monitoring and improving the water quality conditions and limiting OHV-related sedimentation of the drainage canal will directly benefit most of the park's aquatic wildlife resources and improve the overall habitat conditions of the park.

The drainage canal itself funnels the entirety of the region's watershed (≈ 1,315 acres). Many of the properties' terrains above Clay Pit SVRA in the watershed have been heavily altered to the point where little natural hydrology or topography remains. Instead, water on these properties is drained off through a series of manufactured drainage canals that link to the culvert that enters Clay Pit's drainage canal. This water collection and redirection makes the water in the drainage canal extremely channelized and "flashy," with water flow and amounts increasing rapidly shortly after the onset of precipitation events, stirring up channel sediments, and eroding away canal edges. This channelization has resulted in the cutting of a deeply incised channel in the SVRA's terrace where the Larkin Road culvert enters the property.

Aquatic habitats at Clay Pit SVRA host and support several of the park's sensitive and non-sensitive wildlife resources. The canal and wetlands, when inundated, are considered suitable habitat that supports the federally listed Vernal Pool Fairy Shrimp

(*Branchinecta lynchi*) and may support Vernal Pool Tadpole Shrimp (*Lepidurus packardi*), and other non-listed invertebrate species. Wetland and vernal pool habitats at Clay Pit SVRA are also of ecological significance to many shorebird and waterfowl species. The wetland habitats in the northern, Central, and Sacramento Valleys serve as critically important wintering, foraging, and loafing sites to many resident and migratory species. Many waterfowl often frequent the park units' wetlands during inundation periods, likely using it to rest and recharge before continuing their annual migrations. Improvement of water quality will directly benefit these species and provide them with more ideal and quality habitat.

Additionally, because of its "significant nexus" to the nearby Feather River system, the drainage canal and wetland habitats at Clay Pit are considered jurisdictional under Section 404 of the Clean Water Act and Section 1602 of the California Fish and Game Code. Clay Pit SVRA falls within the Lower Feather River Watershed, within the Sacramento Valley hydrological region, which is regulated by the Central Valley Regional Water Quality Control Board (RWQCB). While manufactured and no longer connected to the main Feather River channel through surface waters, water discharging from the site is still subject to the regulations of this district. A water quality monitoring plan, especially Surface Water Ambient Monitoring Program (SWAMP) comparable, would be the first step to ensuring compliance with these regulatory agencies.

Improving the water quality within the drainage canal is an important component of managing, conserving, and improving the SVRA's resources categories. Turbidity and other water quality measurements can assist resource protection by prioritizing and identifying areas needing focused resource management where excess OHV-related sedimentation is occurring. It will also provide an easily measurable and quantitative assessment of aquatic habitat quality in the SVRA and inform resource managers of the efficacy of other management actions and strategies, such as vegetation restoration projects. It will also help the park meet and comply with regulatory water quality requirements and standards, especially if measurements taken follow guidance from the RWQCB and their SWAMP comparability standards.

Due to these factors, conservation and improvement of the water quality of the drainage canal is a priority target for resources management at Clay Pit SVRA. Implementing this program should greatly benefit and improve current resource conditions at the park while still providing meaningful recreation to its users.

9.3.1.2 Methods

Target Methods

Survey methodologies will be finalized and refined over the program's first two years (2023 & 2024). Clay Pit SVRA resources staff are currently working with a consulting group on creating a Water Quality Monitoring Plan that will be updated and refined as

surveys progress, identifying key metrics, equipment, timing, methodology, strategy, and other aspects of the program. This program is intended to be SWAMP comparable, and water quality measurements will be taken in compliance with the RWQCB's regulations, standards, and practices.

The methodology will likely consist of multiple static collection locations located throughout the entire drainage course as it progresses through different sections of the SVRA. The exact number of static collection locations has yet to be determined, however at the very minimum, collections will be made directly at the drainage canal's ingress and egress corridors. Multiple (3) grab samples of water will be taken from the mid-water column at each collection location. Measurements of each sample will be collected and data will be recorded based on the program's identified metrics.

In addition to static collection locations, surveyors will also walk the channel and identify areas where excess sedimentation is observed to be occurring. When one of these areas is identified, upstream and downstream measurements, like the static collection location measurements, will be taken to identify the level of increase in turbidity and other water quality metrics. The measurements will identify and prioritize areas as a potential site needing increased management attention or restoration. If restoration or other management occurs, measurements will be taken in the same locations the following survey year to evaluate the level of success and effectiveness. The target number of surveys are at least three/year but the actual number can vary based on the amount of precipitation, the number of high flow events, and staff's availability and ability to reach the park during these events.

9.3.1.3 Data Sources

Primary Data Sources

- National Weather Service (NWS), NOAA Online Weather Data. Oroville Municipal Airport (KOVE) Weather Station. National Oceanic and Atmospheric Administration (NOAA).
- Content: Hourly/Daily/Monthly/Annual past weather data and forecast information. Precipitation information will determine survey timing and thresholds for when the canal flows. Data was collected by surveyors and field equipment during water quality monitoring surveys. No specific equipment has been selected as the primary tool for evaluating and analyzing water quality conditions.
    - Content: Turbidity (NTU) and other selected water quality parameters.

9.3.1.4 Reporting

Data Collection and Assessment

WHPP reports will be submitted annually to OHMVRD Division's OHV Compliance Section for review. In these reports, Clay Pit SVRA resources staff will update Division staff on the performance measure with:

- Final and draft Water Quality Monitoring Plans, shared with Division and Department resources staff for review (Years 1 & 2).
- The 2025 WHPP report, which will include updated target, baseline, and metric information.
- Calculations of the ratios/differences in various water quality metrics and the identified survey locations as well as the net difference in turbidity over an annual basis and against the baseline.
- Analysis of survey results on an annual basis (year to year) and compared to the baseline, once established.
- Updated baselines every five years with each new WHPP.
- Maps showing turbidity gradient through the channel as it moves downstream through the SVRA, emphasizing areas where there are significant differences (positive or negative) in water quality metrics compared to the baseline.
- Maps showing the number of acres and locations of areas actively or passively treated to reduce soil loss and/or sedimentation into the channel.

Program Risks and Uncertainties

The target number of sampling days is currently set at three surveys per year. However, several factors may limit the ability of resources staff to reach this predetermined minimum survey amount:

Flow events, significant enough to create flow in the channel, might not occur frequently enough during relatively dry winters or significant droughts. Drought years and the fluctuation between El Nino and La Nina events can limit the size and number of storms, possibly preventing any surveys from being performed. The "Flashy" nature of the channel only provides a brief window into when data can be collected. Resources staff must keep constant tabs on weather conditions, and even mistiming visits by a few hours can lead to a missed survey. It is difficult to predict when precipitation will occur. Forecasts typically only give somewhat reliable and accurate weather data approximately 7–10 days in advance, and those forecasts can often change, sometimes

daily. This uncertainty makes it difficult to plan surveys in advance or pre-schedule survey days, as the staff performing them are headquartered offsite. Storms may occur on days when staff are unavailable, including holidays and weekends. Resources staff for Clay Pit SVRA work five days a week (Monday – Friday) and may be unable or unavailable to survey on weekends and holidays, possibly missing storm events.

Additionally, because this program is new to the management of the SVRA, there is expected to be a learning curve in finalizing the methodology, timing, and techniques for the surveys and accumulating and analyzing the information and data. It is possible to consider that methods, equipment, and techniques may not be suitable after a few initial surveys, and the approach will need to be changed or adapted to meet these potential roadblocks.

9.3.2 Soil Assessment Monitoring Program

9.3.2.1 Performance Indicators

Basis for Selection

Clay Pit SVRA, according to the USDA, is underlain by a Tertiary-aged Laguna Formation. This formation generally consists of interbedded alluvial deposits comprising poorly graded gravel with silt, clay, sand and cobbles, silty gravel, and clayey gravel (USDA 2021). Consistency and relative density of the Laguna Formation varies because of variations in weathering, cementation, and deposition but is generally stiff/dense to hard/very dense (AECOM 2011). Due to the presence of these cemented clay-based soils at the surface of the site, the topsoil layer is relatively impervious to water absorption. This retention of surface water, rather than absorption, results in a perched water table, which seasonally inundates the park's various pools and park's lower topographical features. In particularly exceptional rain years, the park's pit will flood with backflow from the adjacent oxbow lake and become inaccessible to recreation.

Given these soil features and the open-riding nature of the park, management of soils and erosional features caused by OHV recreation can be challenging. The park's open riding area, while having some widely used informal trails and hill climbs, has relatively little restrictions on where and what type of OHV activity can occur in any given section of the unit, thus creating an issue from year to year of locating and planning erosion repairs and restoration. Combined with the park's bowl-like topography, which on its own creates erosional features along with the transition grades between the upper terrace and pit, you have an ever-changing erosional environment with issues that are difficult to pinpoint.

Managing Clay Pit SVRA's soil resources for sustainable long-term prescribed use is a priority for the park's resources program. Sustainable prescribed use is defined as

managing a facility to meet the soil conservation standard for a minimum service life of 25 years (CSP 2020). Because of the park's recreational use type and setting, standard survey methods, such as trail evaluations, and traditional erosion control features, such as rolling dips, are likely to be less effective at detecting or preventing OHV-related soil loss. Therefore, implementing different management strategies targeting sections of the open riding area and use types is key to meeting the standards of soil compliance and ensuring the SVRA's soil resources sustainability.

Routine management, inspection, and repair of the park's existing erosion control features are paramount to maintaining soil compliance. Many features, such as the rock weir and hardened creek crossings, prevent direct loss of sediment and control sediment in the park's hydrological features. Annual maintenance, inspections, and repairs performed annually will ensure these features continue to operate and function as intended and protect soil resources.

9.3.2.2 Methods

Target Methods

Survey methodologies will be finalized and refined over the first year of the program (2023 & 2024) to develop and implement Clay Pit SVRA's Soil Conservation Plan. Clay Pit SVRA resources staff are currently drafting this plan, which will be updated and refined as surveys progress, identifying key metrics, equipment, timing, methodology, strategy, and other aspects of the program. This Soil Conservation Plan will meet compliance standards outlined by the 2020 Soil Conservation Standard and Guidelines.

Annual assessments of Clay Pit SVRA's transitional grade and hill climb areas will be performed to identify areas where excess soil loss and erosion is occurring. Evaluations will identify, prioritize, and map areas and units that contain numerous features contributing to soil loss or erosion (rilling, gullying, scouring, etc.). The identification and prioritization process's specifics have not yet been determined but will be included in the SVRA's Soil Conservation Plan and included in the annual WHPP report. As part of the SVRA's Annual Soil Assessment Monitoring, all the park's erosion control features will be inspected to ensure they are working as intended. Inspections will focus on looking at the functionality and ability of the feature to perform its intended duty. Surveys will focus on visual inspections of these features and noting any issues or damages that need to be addressed.

9.3.2.3 Data Sources

Primary Data Sources

- United States Department of Agriculture (USDA), Web Soil Survey. Natural Resources Conservation Service.

- Content: Background information on regional soil complexes and compositions. Includes mapped features, tools, and downloadable soil data and information.

- Environmental Systems Research Institute (ESRI), ArcGIS Online.

- Imagery data and tools including NDVI analysis, historical and current imagery information, and other databases that can be used to analyze and potentially determine baseline vegetation cover and growth information for Clay Pit SVRA. Vegetation Communities Monitoring Program, Clay Pit SVRA. California State Park's Off-Highway Motor Vehicle Recreation Division.

    - Content: Will include high-resolution imagery captured via drone. SVRA resources staff can analyze the level of success of park resources efforts to influence or improve native vegetation coverage in the open riding area.

9.3.2.4 Reporting

Data Collection and Assessment

WHPP reports will be submitted annually to OHMVRD's OHV Compliance Section for review. In these reports, Clay Pit SVRA resources staff will update Division and Department resources staff on the performance measure with:

- Final and draft Soil Conservation Plans, which will be shared with Division and Department resources staff for review (Year 1).

- The 2025 annual WHPP report, which will include updated target, baseline, and metric information.

- Maps showing the number of acres of the SVRA that have been treated, restored, and/or allowed to revegetate.

- Maps showing the ratios and percent cover of vegetation to the bare ground throughout the SVRA.

- Maps showing the acreage and areas of the transitional grade and informal hill climb areas regraded and revegetated.

- Analysis of survey results on an annual basis (year to year) and compared to the baseline, once established.

- Updated baselines every five years with each new WHPP.

Program Risks and Uncertainties

As with any new program, there are expected to be a few learning curves and growing pains as this program and monitoring are implemented. Methodologies may change or be adapted as different methodologies and techniques are incorporated. Any changes made to the program will be included and discussed as part of the annual WHPP reporting process.

There are some foreseeable risks or uncertainties regarding passively or actively revegetating open or exposed areas of Clay Pit SVRA. As previously discussed, most of the park comprises relatively hard, compacted soils due to the absence of a topsoil layer that was excavated and removed as part of the SVRA's historic mining activities. This absence of topsoil, especially in the pit area, makes it difficult for vegetation to grow even if allowed a break from riding disturbances. The ground is impenetrable and lacks nutrients, and it is difficult for seeds or plants to take root and thrive. On top of that, much of the pit area regularly inundates during the winter. During exceptional rain years, the park's pit will flood entirely, removing or killing any plants not suited or adaptable to these conditions.

Additionally, even when areas are actively revegetated, it may take considerable time and effort to receive minimal results. Areas can potentially take years to revegetate, and revegetation efforts may be so unimpactful on the system that the changes can be negligible or immeasurable on an annual basis, especially once recreation is allowed to resume in an area. The SVRA, as it currently stands, also lacks any wells or access to water on site to irrigate any plantings properly. Many would require driplines or other watering devices to help sustain them through hot and dry summer months.

The regulatory setting is also worth consideration as a program risk or uncertainty. The SVRA has numerous vernal pools that contain and support habitat for known federally listed species and are considered jurisdictional waterways and wetlands. Any projects or efforts that may potentially lead to changes or distributions in vernal pool habitat will have to undergo reviews and processes outlined by regulators.

9.3.3 Vegetation Communities Monitoring Program

9.3.3.1 Performance Indicators

Basis for Selection

Vegetative cover is often a typically identified factor in assessing habitat health's overall quality and condition. Vegetation presence, in general, is greatly beneficial to several resource categories; it benefits soils by reducing erosion, sedimentation, and soil loss. Vegetation intercepts precipitation before it hits the ground, decreasing the overland flow of water and suspended particulates, filters and inhibits overland soil movement, and improves surface water infiltration and runoff into the soil. Vegetation cover also directly correlates to and is positively related to species richness (Grace et al., 2016).

Functions of vegetation within an ecosystem, such as primary productivity and ground cover, provide positive benefits to species populations, diversity, and richness (Isbell et al., 2015). The presence of vegetation also increases a system's resistance to climate events and disturbances, such as flooding or drought (Wright et al., 2017). Actively monitoring and working to improve the vegetative cover of the SVRA is a direct method in which resources management can benefit several resource categories at the SVRA and improve the overall quality of the park's natural resources.

In addition to vegetation presence and cover, evaluation of the health of the vegetative is also valuable when it comes to resources management. Vegetation health directly correlates to overall habitat health and condition. This factor is where NDVI analysis comes in. NDVI is an indicator used to measure the photosynthetically active biomass of vegetation within a given area. NDVI, as a tool, helps differentiate vegetation from other land cover types (e.g., developed areas) and visually separate vegetated areas based on their productivity and growth. This analysis, especially on an annual basis, would allow resources management to map, separate, and visualize vegetative areas based on health and distinguish them completely from non-vegetative regions (e.g., bare ground). It would also allow for the early detection of any abnormal changes in an area's growth, production, or health.

Improving vegetation communities and habitats is an important component of managing, conserving, and improving the SVRA's resources categories. By actively monitoring and analyzing these metrics, Clay Pit SVRA resources staff will be able to accurately direct restoration, treatment, and management response efforts and improve the conditions of the overall resource at the SVRA. These metrics will provide an easily measurable and quantitative assessment of the park's vegetative coverage and health.

Due to these factors, conservation and improvement of the habitat and vegetation communities is a priority target for resources management at Clay Pit SVRA. Implementing this program should greatly benefit and improve current resource conditions at the park, while still providing meaningful recreation to its users.

9.3.3.2 Methods

Target Methods

Survey methodologies will be finalized and refined over the program's first years (2023 & 2024). Clay Pit SVRA resources staff are working with CSP's Strategic Planning and Recreation Services Division's GIS specialists to identify the appropriate equipment and analysis software necessary to meet these monitoring objectives.

The methodology will likely use drones to collect high-resolution aerial imagery of the entire park unit annually. Drone surveys will likely occur during the spring (March – May) when vegetative growth is at its peak. Imagery collected will then be uploaded through

software such as ArcMap, and using the available tools, an NDVI analysis will be run on the imagery. Staff will then analyze that NDVI data and map vegetation coverage within the SVRA and analyze the vegetation communities' health.

Analysis methodology will involve subdividing the open riding area into smaller predetermined units, roughly 5 - 10 acres in size. These units will be individually evaluated, and units that do not meet management criteria will be identified and prioritized for management response. Units that trigger this management response will undergo visual evaluations using drone imagery and site visits. Locations within high-priority units will then undergo treatment to varying degrees based on the location and setting.

9.3.3.3 Data Sources

Primary Data Sources

- VegCAMP Survey Data – Clay Pit SVRA 2021. California State Parks' Off-Highway Motor Vehicle Recreation Division.
    - Content: The VegCAMP data set has the baseline taxonomy for vegetation communities at Clay Pit SVRA.
- Update Frequency: Every five years. Currently set to update again in 2027. Environmental Systems Research Institute (ESRI), ArcGIS Online.
    - Content: Imagery data and tools including NDVI analysis, historical and current imagery information, and other databases that can be used to analyze and potentially determine baseline vegetation cover and growth information for Clay Pit SVRA.

9.3.3.4 Reporting

Data Collection and Assessment

WHPP reports will be submitted annually to OHMVRD's OHV Compliance Section for review. In these reports, Clay Pit SVRA resources staff will update Division and Department resources staff on the performance measures with:

- Maps showing the ratios and percent cover of vegetation to the bare ground throughout the SVRA.
- Maps showing the number of acres of the SVRA treated, restored, and/or allowed to revegetate.

- Maps of the health of the vegetation and habitat communities at Clay Pit SVRA, using NDVI analysis.
- Analysis and discussion of survey results on an annual basis (year to year) compared to the baseline.
- Baselines which will be updated after the first survey year, then every five years after, with each new WHPP.

Program Risks and Uncertainties

As with any new program, there are expected to be a few learning curves and growing pains as this program and monitoring are implemented. Methodologies may change or be adapted as different methodologies and techniques are incorporated. Any changes made to the program will be included and discussed as part of the annual WHPP reporting process.

Even with high-resolution imagery, the biggest hurdle with vegetation analysis is that vegetation growth, on an annual basis, is highly susceptible to and affected by weather and seasonal conditions. Climate factors, such as precipitation, temperature, and sunlight, heavily influence vegetation cover and vary tremendously from year to year. For example, years or multiple years with tremendous drought will be considered, and often detect, lower levels of vegetative growth than in years where an area receives average rainfall.

While NDVI is a valuable and advanced vegetation monitoring tool, it cannot distinguish diminished plant health or growth based on climatic conditions. Due to this, it is possible that annual results, on their own, can be misinterpreted or lead to false negatives and false positives when assessing the efficacy of management actions and treatments. Therefore, when considering the data collected, it will be important to consider the climatic conditions that occurred in the year prior to the survey before rendering a conclusion.

The other uncertainty or risk with the program is access to the equipment and staff trained to operate it. Currently, drones and equipment can gather high-resolution imagery, and the staff qualified and trained to operate them are in limited supply. Securing staff and equipment on an annual basis may prove difficult and potentially lead to gap years in survey data or scheduling surveys outside of the preferred survey period, both of which could affect the ability to manage the property effectively.

9.3.4 Vernal Pool & Wetland Condition Assessments

9.3.4.1 Performance Indicators

Basis for Selection

Aquatic habitats are a prominent feature at Clay Pit SVRA. About 25.5 acres of the park's 220 acres (≈ 12%) are covered in jurisdictional waters that comprise several sensitive wetland habitats, including emergent wetlands and northern hardpan vernal pools (AECOM 2010). These wetland areas host and support several of the park's sensitive and non-sensitive wildlife resources, including the federally listed Vernal Pool Fairy Shrimp (*Branchinecta lynchi*). Additionally, these wetland and vernal pool habitats at Clay Pit SVRA are of ecological significance to many shorebird and waterfowl species. Many waterfowl often frequent the parks' wetlands during inundation periods, feed on the invertebrates in the pools, and rest and recharge before continuing their annual migrations.

Monitoring and maintaining the extent and condition of wetland habitats is an important component of managing, conserving, and improving the SVRA's resources categories. Wetlands at the SVRA, though artificial, still represent the most significant habitat resource available for wildlife at the SVRA. Their presence and health contribute significantly to the richness and diversity of the SVRA. They are the only habitats available at the park that can support several of its identified and potentially sensitive and non-sensitive wildlife species.

By measuring the various vernal pool and wetland habitat assessment elements, resources staff will be able to gauge and evaluate not only the habitat's extent or distribution, but the relative health of the vernal pools present at Clay Pit SVRA. Measurements such as those focusing on vegetation distributions are meant to gauge plant species diversity, which in vernal pool habitats is often positively correlated with higher species diversity and overall habitat quality (Lopez and Fennessy, 2002). By looking at vegetation community type and species assemblages, evaluations, and analysis of the diversity of individual pools and the entire system itself can be determined.

Other measurements such as pool depth and size, while only physical aspects, have also been linked to species richness and diversity within the vernal pool habitat. Greater depth and surface area directly benefit branchiopods and other vernal pool invertebrate diversity (King et al., 1996). Measurements of pool size can be used to determine the capacities of the pool to support species and identify priority areas to protect, conserve, and, if possible, improve. Negative correlating factors such as disturbance levels are also important to measure. Direct disturbance to pools can reduce vernal pool habitat quality and cause direct negative impacts to vernal pool habitat, vegetation, and wildlife.

Due to these factors, conservation of the wetland habitat at Clay Pit SVRA is an important resource management goal. Implementing this program should greatly improve understanding of current resource conditions at the park and preserve important resource values.

9.3.4.2 Methods

Target Methods

Surveys will be performed on an annual basis. Field surveys will be timed to occur during the spring (March – June) when standing water is no longer present, but spring vernal pool vegetation has begun to emerge and flower to assess the condition and extent of Clay Pit SVRA's vernal pool and wetland habitats.

The methodology will include resources staff locating, identifying, and visiting every mapped vernal pool and wetland feature within Clay Pit SVRA. Vernal pools and wetlands, once located, will be assessed for various habitat condition assessments, including those metrics that were previously identified. Surveys will focus on identifying vegetation community type, disturbance level, presence of any invasive species (e.g., mosquitofish, American bullfrog), pool size, depth, and any other relevant notes or information. In addition, staff will establish photo points for each pool and will take photos following the assessment.

Because each aquatic feature is different in terms of depth, shape, and inundation period, if a pool is found to be flooded during a survey, surveyors will note that and revisit the feature later. If the wetland feature remains flooded past June, surveyors will note that the pool remained ponded and could not be fully surveyed.

The extent of each vernal pool, based on the vegetation community and perceived inundation level, will be mapped using ESRI's Field Maps application or a Trimble JUNO GPS device. Surveys methodology and data will be finalized and refined over the program's first years (2023 & 2024).

9.3.4.3 Data Sources

Primary Data Sources

- Clay Pit SVRA Wetland Delineation Survey Data, 2010. AECOM
    - Content: Baseline information for the distribution and extent of jurisdictional wetland habitats present at Clay Pit SVRA.

9.3.4.4 Reporting

Data Collection and Assessment

WHPP reports will be submitted annually to OHMVRD Division's OHV Compliance Section for review. In these reports, Clay Pit SVRA resources staff will update Division and Department resources staff on the performance measures with:

- Maps showing the distribution, location, and extent of the wetland habitats and features at Clay Pit SVRA relative to those mapped in 2010.
- Calculations of total acres of wetland habitat present at Clay Pit SVRA relative to baseline information.
- Analysis and discussion of survey results on an annual basis (year to year) compared to the baseline.
- Baselines which will be updated after the first survey year, then every five years after, with each new WHPP.

Program Risks and Uncertainties

Methodologies may change or be adapted as different methodologies and techniques are incorporated. Any changes made to the program will be included and discussed as part of the annual WHPP reporting process.

The biggest hurdle with vegetation analysis is that vegetation growth and abundance are highly susceptible to and affected by weather and seasonal conditions annually. Climate factors, such as precipitation, temperature, and sunlight, heavily influence vegetation cover, distribution, presence, and growth and can vary tremendously from year to year. During drought years, several vernal pool and wetland obligate species will remain dormant and wait for suitable or more ideal conditions before emerging. When assessing survey results, this variation in growth from year to year could give the illusion or misinterpretation that habitat conditions have degraded. Therefore, it will be important to consider the climatic conditions that occurred the year before the survey before rendering any conclusions or management decisions when considering the data collected.

9.3.5 Invasive Weed Management Program

9.3.5.1 Performance Indicators

Basis for Selection

Invasive species are defined as those organisms that cause ecological or economic harm in a new environment where they are not native and can significantly impact or harm natural resources in an ecosystem. They can out-compete native organisms, cause extinctions of native plants and animals, reduce biodiversity, and completely alter habitats. In California, many of those invasive species come in the form of invasive weeds. Invasive weeds, to varying degrees, can be very detrimental to an environment. In a relatively short amount of time, they very often move into habitat and quickly begin to spread, often outgrowing and outcompeting native species for soil, sunlight, and water resources. If left untreated or unmanaged, most invasive weed species create

habitat monocultures, greatly reducing vegetative biodiversity and heavily altering soil composition and nutrients (Bugiel et al., 2018). Within Clay Pit SVRA, there are three invasive weed species of concern, medusahead (*Elymus caput-medusae)*, Barb goatgrass (*Aegilops triuncialis*), and yellow star-thistle (*Centaurea solstitialis*).

Medusahead and barb goatgrass are invasive winter annual grass species that have spread along the northwest region of the United States, including Oregon, California, Washington, and Idaho. These species typically invade disturbed areas and grassland habitats and openings in chaparral or oak woodlands. The main issue with these species, especially medusahead, is the thick dense layer of dead plant, or thatch, left behind after the plant sets its seed. This thatch layer often persists well after the plant expires, inhibiting or altogether preventing the germination of native plant seeds or species and preventing smaller plants from being able to shoot through the thatch layer (Kyser et al., 2014). This persistence of the thatch layer reduces the biodiversity of desirable vegetation communities and leads to monotypic stands in areas where natives would normally establish themselves (Kyser et al., 2014).

Medusahead, specifically, is the most prevalent invasive plant species at Clay Pit SVRA. Its thatch layer is widespread and dominates most of the annual grassland habitats along the SVRA's elevated terrace, with only a few incursions into the grassland habitats present in the SVRA's pit. Medusahead poses a substantial threat to native plant species populations and habitats at Clay Pit SVRA. Similarly, barb goatgrass is synonymous with medusahead populations on-site, though its presence is not nearly as dominant.

Yellow star-thistle is an early maturing winter annual herb native to Eurasia that has spread throughout the western United States including, California, Arizona, and New Mexico. It is known to thrive throughout a variety of habitats, including open woodlands, desert scrub, grasslands, and disturbed environments such as roadsides and agricultural lands (USDA 2014). Yellow star-thistle is a competitively dominant species and regularly outgrows and outcompetes native plants for soil, light, water, and nutrients and effectively reduces the diversity of desirable species. It is also a prolific seed producer, and dense stands of one acre can produce upwards of 50 million seeds (USDA 2014).

The population of yellow star-thistle at Clay Pit SVRA is relatively small. The few incursions that the park has exist on the elevated terrace, with most species dominating the areas between the park's boundary fence and the roadside and along the cobble substrate within the ephemeral drainage canal. Yellow star-thistle is not as commonly observed in the lower pit area, most likely due to the SVRA's soils' impervious nature. Combined with the SVRA's seasonal flooding, these features have likely limited or slowed the expansion of current yellow star-thistle populations throughout the rest of the SVRA.

Due to the nature of these species to outcompete and reduce plant species diversity, management of these species is a priority for conserving and improving vegetation at Clay Pit SVRA. Active treatment, mapping, and managing current populations are necessary to prevent the further spread of these species into sensitive habitat areas such as the park's wetland and vernal pool habitats.

9.3.5.2 Methods

Target Methods

Surveys methodology will be finalized and refined over the program's first two years (2023 & 2024) to develop a weed management strategy for Clay Pit SVRA. Clay Pit SVRA resources staff are under the current understanding that CSP's Natural Resources Division is working on updating the current department-wide invasive management program. Once this program is established, the methodology, metrics, and other aspects of this weed monitoring program may be altered to meet policies, recommendations, or requirements outlined by the department-wide program.

Surveys for identifying and mapping invasive weed populations will occur biennially. Surveys will occur during the spring when these species are more easily detected. The methodology will consist of resources staff walking 10-meter transects in areas of the park where invasive species have been observed or known to occur. Using ESRI's Field Maps application or a Trimble Juno GPS Device, staff will plot points for individual plant occurrences and draw polygons or lines for thick patches or areas where the plants are thickly congregated. Surveyors will be sure to note density and percent cover for any areas where detections are made.

Once the data is collected, staff will upload it to ArcGIS Online and evaluate species occurrence ratios and densities. Using mapping tools, staff will then draw polygons around the extent of the mapped plant populations, including a 5-meter buffer to account for any errors in the mapping technology. Using this data, staff will identify and prioritize areas for treatment: target smaller populations or individual occurrences outside of the thick established occurrence thresholds.

Treatment methods will be identified as part of the park's planned Invasive Weed Management Program. Current treatment options vary greatly but include mechanical removal, hand pulling of weeds, biocontrol agents, prescribed burning, and chemical treatment. If any treatment option is selected or used, it will be discussed as part of the WHPP's annual reporting process. Once areas are treated, they will be visited during the following survey to assess the effectiveness of the treatment and remap the extent. If chemical treatments are chosen, only those that are identified as wetland-friendly will be utilized to treat invasive weeds at Clay Pit SVRA.

9.3.5.3 Data Sources

Primary Data Sources

- Environmental Systems Research Institute (ESRI), ArcGIS Online.
- Imagery data and tools used to survey, map, analyze invasive vegetation cover and growth information for Clay Pit SVRA. VegCAMP Survey Data – Clay Pit SVRA 2021. California State Parks' Off-Highway Motor Vehicle Recreation Division.
    - Content: The VegCAMP data set has information regarding vegetation communities at Clay Pit SVRA and the occurrence of invasive species and relative cover percentages.
    - Update Frequency: Every five years. Currently set to update again in 2027.

9.3.5.4 Reporting

Data Collection and Assessment

WHPP reports will be submitted annually to OHMVRD Division's OHV Compliance Section for review. In these reports, Clay Pit SVRA resources staff will update Division and Department resources staff on the performance measures:

- Once drafted, the Invasive Weed Management Program will be shared with CSP's OHMVRD and Natural Resources Divisions' resources staff for review (2023 & 2024).
- The 2025 WHPP report will include updated target, baseline, and metric information based on this plan and mapped features.
- Maps showing the extent and associated densities of different invasive weed populations throughout Clay Pit SVRA.
- Maps showing areas treated for invasive weeds occurrences will be shared.
- Analysis and discussion of survey results on an annual basis (year to year) compared to the baseline. Baselines will be updated, after the first survey year, then every five years after, with each new WHPP. Discussions will include treatment implementation, methodology, and effectiveness.

Program Risks and Uncertainties

Methodologies may change or be adapted as different methodologies and techniques are incorporated. Any changes made to the program will be included and discussed as part of the annual WHPP reporting process.

The regulatory setting and the presence of sensitive habitats, including waterways and wetlands, are potential risks or uncertainty to the program. While proven effective at eradicating weeds, many of the treatment options may have aspects that can be potentially detrimental to these sensitive habitat areas, including negatively impacting some of the native flora present. Due to this, available treatment methods may be restricted or require regulatory authorization and training before implementation. These environmental conditions may limit available treatment options available to staff to prevent the spread or reduce current populations as the program intends.

9.3.6 Listed Large Branchiopod Monitoring Program

9.3.6.1 Performance Indicators

Basis for Selection

VPFS are the only listed or special status species known and observed to reside within the boundaries of Clay Pit SVRA. Listed as threatened under the Federal Endangered Species Act (ESA), VPFS are a rare species that has lost most of their native vernal pool and associated wetland habitats to urban and agricultural development (USFWS 2005). Approximately 26 acres of suitable VPFS habitat are present within Clay Pit SVRA. However, this can vary slightly from year to year depending on the amount of rainfall and other abiotic factors sites. All vernal pool habitat and hydrological features (e.g., canal, pond, etc.) on-site are considered hydrologically connected and support the vernal pool fairy shrimp habitat. This hydrological connectivity allows individuals to move freely throughout the SVRA's vernal pool complex. Vernal pool fairy shrimp are well-established at Clay Pit SVRA and have continued to persist despite the park's recreational uses. They have been discovered to be ubiquitously distributed throughout the park's hydrologic features (AECOM 2010), even so much as appearing in small temporary pools created by tire ruts and other OHV use of the site (TRA 2007). Due to the sensitive nature of this species and the type of recreation occurring in and around its habitat, it is important to continue monitoring, conserving, and managing this population.

9.3.6.2 Methods

Proposed Methodology

Annual surveys for listed branchiopods, including vernal pool fairy shrimp and vernal pool tadpole shrimp, will be performed at Clay Pit SVRA. Surveys will be performed on an annual basis after the initial inundation of the site following winter/spring storm events. After initial storm events, surveyors will visit sites to determine when known or potential listed large branchiopod habitat has become adequately inundated.

Appropriate habitat is considered inundated when it holds greater than three cm of standing water 24 hours after a rain event. During each wet season survey, representative portions of each aquatic feature's bottom, edges, and vertical water column shall be adequately sampled using a seine, dip net, or aquarium net appropriate for the size of the feature. Organisms collected as part of the survey will be identified, and information will be collected.

Information to be collected is consistent with the USFWS protocol and includes for each survey day: Site Name, County, Quad, Township, Range, Name, and Role of all Surveyors, Lead Surveyor's Permit Number, Date, Time, and Weather Conditions. Information to be collected for each pool: Feature ID#, UTM, Air Temp (°C), Water Temp (°C), Average Pool Depth (cm), Est. Max. Pool Depth (cm), Present Pool Surface Area (m x m), Est. Max Pool Surface Area (m x m), Presence of Crustaceans (Anostracans, Notostracans, Copepods, Ostracods, and Cladocera), Presence of Insects (Coleoptera, Hemiptera, Diptera Culicidae, and Diptera Chironomidae), Presence of Flatworms (Platyhelminths), Habitat Condition, and Notes. Data will be collected via Collector, or Field Maps, a web-based map tool for data collection.

The first two surveyable wet seasons, anticipated to be 2022/23 and 2023/24, will focus on mapping and surveying every single vernal pool or wetland feature within the SVRA that meets survey requirements and is capable of supporting listed large branchiopods. By doing this, resources staff will be able to establish a reliable species baseline and identify the various vernal complexes within the SVRA, as well as how they might be changing or shifting over time.

Following baseline surveys, a map of the vernal complexes and features will be established based on their proximity, surface water retention and connection, depth, and flood patterns. Subsequent survey years will then, instead of surveying every vernal pool, randomly select and survey a subset of pools from every established complex to represent those features. Continual surveys of the pool complexes where no VPFS have been detected will then be repeated at 14-day intervals until conditions no longer exist to support fairy shrimp or a positive VPFS identification is made.

9.3.6.3 Data Sources

Primary Data Sources

- Clay Pit SVRA Wetland Delineation Survey Data, 2010. AECOM
    - Content: Baseline information for the distribution and extent of jurisdictional wetland habitats present at Clay Pit SVRA.

9.3.6.4 Reporting

Data Collection and Assessment

WHPP reports will be submitted annually to OHMVRD's OHV Environmental Compliance Section for review. In these reports, Clay Pit SVRA resources staff will update Division and Department resources staff on the performance measures with:

- Maps showing the distribution, locations, and presence or absence of VPFS and their associated aquatic habitats.
- Maps showing pools where VPFS were present, absent, or unable to be surveyed.
- Analysis and discussion of monitoring results as well as any management actions being implemented.
- Baseline data which will be updated after the first two survey years, then every five years after, with each new WHPP.

During the baseline update, special-status shrimp populations and conditions will be assessed to determine if they are declining relative to the previous baseline. Assessments will be made using collected monitoring and management data, which will be evaluated to determine the source of the decline. If it is determined that OHV-related impacts are the cause of baseline condition decline, WHPP objectives and management will be updated and amended with a focus on returning the park's current populations and resources back to their previous baseline conditions. If resources are declining based on other factors outside the control of management (e.g., climactic change, stochastic events, etc.) resources staff will work both internally and with USFWS to revise baseline as well as devise and develop new management strategies that are sufficient at sustaining and preserving the conditions of the SVRA's current VPFS resources.

Program Risks and Uncertainties

There are some foreseeable risks or uncertainties when surveying for and determining the presence of VPFS at Clay Pit SVRA. The first is that the ability to survey depends heavily on suitable climatic conditions, specifically precipitation. Vernal pools at Clay Pit SVRA require significant amounts of winter and spring storms to inundate the SVRA enough to initiate surveys. It is reasonable to predict that in drought years or winters with little precipitation, most of the pools, if not all of them, will fail to meet the survey initiation criteria. This possibility would likely leave significant (multiple-year) gaps in survey data for some pools.

The other program risk is the ability to obtain regulatory training and permits necessary to perform these VPFS surveys annually. Permits for this species require individuals with multiple years of experience participating in surveys and receiving in-class and field training from an authorized instructor. Currently, for the first two years (2023 & 2024) of the surveys, Clay Pit SVRA resources staff will be performing surveys under trained and permitted individuals that work for the Department of Water Resources. During that time, resources staff will look to complete the training and obtain the field hours necessary to continue annual survey work post-2024. However, obtaining permits alone takes significant time, and there is no guarantee staff will be approved by permit regulators.

9.3.7 Avian Monitoring Program

9.3.7.1 Performance Indicators

Basis for Selection

Avian diversity and abundance can serve as a valuable indicator of habitat or ecological disturbance within a given system (Canterbury et al., 2000). Highly mobile and sensitive to change, birds will often move and/or respond quickly to adjustments in habitat condition (Spellerberg, 1998). In addition to this, birds are also one of the most prominent, visible, and easily identifiable taxonomic groups in California and can be surveyed or monitored with relative ease. They also represent a wide diversity of species that occupy a variety of ecological niches and habitats. All of this makes them excellent indicators of habitat health and condition (Greenwood, 2004). This makes birds capable of providing valuable assessments to resources management.

By continuing to systematically measure and monitor avian populations at Clay Pit SVRA, it will be possible to determine if species are increasing, maintaining, or decreasing in abundance within the park over time. This information, as it is accrued, can eventually be used to assess and monitor habitat health and condition within the SVRA. This information, when used in conjunction with other monitoring, can inform growth or declines in environmental conditions. Additionally, because of their rapid response to change, bird survey data can be a valuable early indicator and assessment tool for habitat condition declines within the park and preemptively trigger resource management response.

Due to these factors, conservation of current avian communities and the use of monitoring data as an assessment tool and indicator of habitat health will be carried over from the SVRA's former WHPP and Habitat Monitoring System. While there are current gaps in survey data due to changes in management throughout the years, continued implementation of this monitoring effort should still greatly benefit analysis of current resource conditions at the park unit.

9.3.7.2 Methods

Target Methods

Avian monitoring will be performed in the form of point count surveys. Four surveys, two in the winter (December – February) and two in the Spring (March – May), will be performed annually. The basis of the protocol used at Clay Pit SVRA is Ralph's point count method (Ralph et al., 1995). Each survey will consist of two surveyors, one observer and one recorder, visiting each of the eight avian monitoring plots: four located in the SVRA (OHV Plots) and four located outside the SVRA in similar habitat (Non-OHV Plots). Plots will be visited between sunrise and 10:00 am, when birds are typically the most active.

At each plot, surveyors will conduct a point count survey. Surveyors approach the plot and stand silently for one minute to allow any birds flushed by surveyors entering the area to reenter the site. The team then conducts a 7-minute survey – tabulating all species observed (visually and/or audibly). For each individual observed, the species, number of individuals, and distance of the bird from the plot center are recorded, as well as whether the distance was estimated or a rangefinder was used. It is noted whether the observation was visual, auditory, or both. Breeding status and behavior are indicated using the codes on the data collection sheet. It is also noted if the observation was a fly-over bird and an adult or juvenile if known.

Rangefinders are used to measure the observer's distance to the bird accurately. If a bird flushes in response to the observer, the distance to the point from which it flushed is recorded. Surveys are not performed in weather conditions that reduce detectability (e.g., high winds, heavy fog, or steady rain). Observers must be familiar with the vocalizations and plumage characteristics of adult and juvenile birds that are expected to occur at Clay Pit SVRA.

In addition to these survey methods, Clay Pit SVRA resources staff have begun to work with The Institute for Bird Populations in field testing Autonomous Recording Units (ARU). These units can be easily deployed to record ambient sound, including bird calls, and can be used in lieu of a second surveyor. Recording can then be analyzed by a trained surveyor or bird call software analysis programs like BirdNET. While this methodology has both positives and negatives associated with it, future survey efforts may begin to include these survey devices to either augment or replace in-person surveys. Any additions of ARUs or other changes to the survey methodology will be included and discussed in the annual WHPP report.

9.3.7.3 Data Sources

Primary Data Sources

- Shannon-Weiner Diversity Index of Accumulated Avian Monitoring Survey Data.
    - Content: Measure of Diversity that combines species richness and their relative abundances and can be used to compare diversity between different areas or treatments will be updated annually.

9.3.7.4 Reporting

Data Collection and Assessment

WHPP reports will be submitted annually to OHMVRD Division's OHV Compliance Section for review. In these reports, Clay Pit SVRA resources staff will update Division and Department resources staff on the performance measures with:

- Tables of annual species Shannon-Weiner Diversity Index and Species Richness. Tables will show the overall baseline, 3-year averages, 5-year averages, and annual averages of both identified metrics.
- Analysis and discussion of survey results on an annual basis (year to year) compared to the baseline.
- Baselines which will be updated after the first survey year, then every five years after, with each new WHPP.

Program Risks and Uncertainties

Currently, the number of avian monitoring points at Clay Pit SVRA is limited to eight plots. This small number of plots leads to the issue of a limited sample size, where the sampling effort is too limited to capture a consistent pattern used to analyze bird populations and accurately evaluate the associated habitat conditions. Clay Pit SVRA is looking to expand and create two additional plots, but this may not be enough to solve this issue. Another avenue to expand survey effort and combat limited sample size at Clay Pit is the possible use of ARUs, which can be deployed and stationed remotely and record several more surveys per year without requiring additional staff effort. This method would likely increase the sample size; however, units could be subject to theft and vandalism if not properly protected. Additionally, to install and survey off-site (non-OHV plots), permission would need to be acquired from their associated landowners, who would likely decline given these are in sensitive habitat areas. More work will be done to assess these challenges and combat this flaw in the survey methodology throughout this WHPP.

Another issue with this survey methodology for Clay Pit SVRA is the possibility of sampling bias. Though the habitats off-site are similar to those habitats found at Clay Pit SVRA (e.g., annual vernal pool grasslands, swales), Clay Pit SVRA is immediately adjacent to a significantly forested wildlife area. During surveys in the past, species that tend to use or prefer partially forested habitat (e.g., black-headed grosbeak, oak titmouse, woodpeckers, etc.) were often recorded at Clay Pit SVRA, but never at the off-site survey plots. This difference in detections likely means species diversity at Clay Pit SVRA, relative to off-site plots, could be driven up due to surrounding habitat differences and not the presence of OHV activity, biasing the sample and survey data. More frequent sampling may solve this issue, as occupancy modeling would likely be able to account for some of the imperfect detection rates of these species and more accurately display species assemblages present at OHV plots. More work will be done to assess these challenges and combat this flaw in the survey methodology throughout this WHPP.

9.3.8 Inventory Update and Scientific Research Program

9.3.8.1 Performance Indicators

Basis for Selection

As part of the Clay Pit SVRA's WHPP wildlife inventory update, desktop research was performed in the form of database searches (e.g., CNDDB, IPaC, etc.) and reviews of historical monitoring data. This review identified several potential gaps in the current monitoring and management program at Clay Pit SVRA, including relatively little to no data on numerous species and taxonomic groups and significant lapses in time where no meaningful inventory monitoring had been performed. The desktop research also revealed a considerable number of recent and relatively close sightings of several sensitive wildlife resources that, while never previously observed at the SVRA, have the potential to occur there.

Small Mammal Surveys

Clay Pit SVRA has not been surveyed for small mammals since spring 1993 as part of the park's first WHPP and wildlife inventory development. Sherman-live trapping was performed by biologists from the University of California, Davis, and occurred over three days (Anderson and Hogan, 1994). Thirty-five traps were set per night, and only a single small mammal species, Deer Mouse (*Peromyscus maniculatus*), was captured. While no sensitive mammal resources were identified to occur within the Clay Pit SVRA area, this lapse in survey coverage for four years means resources management staff have little knowledge or background about the small mammal species and population assemblages currently present at Clay Pit SVRA.

Additionally, small mammals are species commonly modeled to assess and understand the ecological effects of anthropogenic activities. Changes in anthropogenic activities directly and indirectly influence populations in habitat heterogeneity, fragmentation, and resource availability (Germano et al., 2012). They also serve as a valuable prey source for many predator species, including many listed raptors, and their ability to create burrows can provide shelter for many native amphibian species. Small mammal trapping efforts will assess the viability of this monitoring as an indicator of habitat, wildlife, and overall ecosystem health. It will also serve as an opportunity to expand the SVRA's resources background and wildlife inventory, as deer mice are still the only small mammal species confirmed to be present at the SVRA.

Amphibian Surveys

Like small mammals, Clay Pit SVRA has not been surveyed for amphibians since spring 1993. Surveys in 1993 consisted of dipnet sampling at approximately five-foot intervals from the edge of deeper channels and pools and walking through the center of the pools (Anderson and Hogan, 1994). The surveys yielded adults and tadpoles of two species, Pacific tree frog (*Pseudacris regilla*) and American bullfrog (*Lithobates catesbeianus*). While the surveys found no sensitive species, a local search of Clay Pit SVRA and the surrounding areas revealed several sensitive amphibian and aquatic reptile species within proximity to the SVRA (CNNDB 2021). This lapse in survey coverage, combined with the presence of wetland habitat and nearby recorded occurrences of sensitive species, suggests that there is a potential that sensitive wildlife resources may be unaccounted for by the WHPP. To cover this gap and better understand the amphibian and aquatic reptile resources at Clay Pit SVRA, resources staff will look to implement annual surveys to identify potentially unaccounted for resources and expand upon the park's wildlife inventory.

Acoustic Bat Surveys

Clay Pit SVRA has never been surveyed or inventoried for bat species or populations. This lack of survey effort is likely because technology has only recently reached a point where efforts to survey bats are feasible and relatively low-cost compared to past survey methods. While Clay Pit SVRA itself contains no suitable bat roosting habitat, the adjacent properties do. The SVRA is also mesic and seasonally contains standing water sources and foraging habitat, which are critically important for supporting several bat species. A local search of Clay Pit SVRA and the surrounding areas revealed several sensitive bat species are known to occur within proximity to the SVRA (CNNDB 2021).

Due to the nature of the site as a possible water resource and foraging site for these species, Clay Pit SVRA resources staff must gather information around bat presence and use of the SVRA. This absence of survey coverage, combined with the presence of suitable foraging habitats, suggests that there is a potential that sensitive wildlife

resources may be unaccounted for by the WHPP. To cover this gap and gain a better understanding of the bat resources at Clay Pit SVRA, resources staff will look to implement acoustic surveys to identify potentially unaccounted for resources and expand upon the park's wildlife inventory.

Rare Plant Surveys and Botanical Inventories

Due to the presence of suitable habitat that can support listed plant species and the possibility of recruitment to the site through natural mechanisms from local populations, listed-plant species can never be fully precluded from establishing at Clay Pit SVRA. These surveys will locate and document the presence of any observed rare or listed species and inventory the plant species and assemblages present at the site. The information provided through these surveys will work in tandem with VegCAMP survey data to inform native and invasive species locations and compositions and update the SVRA's plant species inventories.

9.3.8.2 Methods

Target Methods

Survey methodologies will be finalized and refined over the life of this WHPP program (2022-2027). Clay Pit SVRA resources staff are currently drafting protocols and working towards applying for collection and regulatory permits that would allow them to conduct the proposed survey activities. However, the methodology for each of the groups identified above will likely consist of the following:

Small Mammal Surveys

Small mammal surveys at Clay Pit SVRA will occur for two consecutive years (2023 & 2024) and one survey every 3-5 years after. Surveys will likely occur during the late spring or early summer (March – June) and use baited Sherman-live traps to capture any small mammal species present at the SVRA. Survey specifics such as trap location, number of traps, number of plots, etc., have yet to be determined but will be discussed as part of the annual WHPP reporting requirements. Protocols for the surveys will follow the survey methodology outlined in the U.S. Fish and Wildlife Service's *Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats* (2013). Sherman live traps will be placed in grids of 5 x 5 traps per grid. All traps will be individually numbered, and their location documented using a GPS device. Traps will be baited using peanut butter and bird millet seed and supplied with a wadded up unbleached paper towel for bedding material. Traps will be set at dusk when the SVRA closes and checked the following morning, an hour before sunrise.

At the start and end of each trap check, the time the trap was initially set, air temperature, and wind speed will be recorded. When small mammals are captured, the

animal will be released into a clean, clear 1-gallon size plastic bag, replaced as needed, or into a reusable cloth bag. The animal will then be "scruffed" behind the neck and identified to species. Age, sex, and any apparent reproductive status will be ascertained with a visual inspection, gentle abdominal palpation (females), and extrusion of the penis via lifting with an instrument like a pencil (males), if necessary. All species trapped and the animal's location (trap number) are recorded.

Additional measurements include the following: the bag, including the animal and any incidental seed, will be weighed to the nearest gram using a Pesola scale (seed is not forced from seed pouches before weighing, but full pouches are noted when weighed). The hindfoot (to the longest claw), the ear length, the head length will be measured with digital calipers, and the length at the base of the tail and at the tail tip (last vertebrae) is measured using a ruler.

Prior to the release of each animal captured, the animal will be marked by making a unique mark with a non-toxic felt-tipped marker on the abdomen. This marking will allow identification as a "recapture" during subsequent capture events. If an individual is recaptured, no additional marks are added. The remaining bag and seed will be weighed for a tare weight once each animal is released. If animals are obviously stressed, they will be released before collecting all the above measurements. Paper towel fragments are removed from occupied traps and are replaced with a fresh paper towel and more seed prior to resetting the trap that evening.

Amphibian Surveys

Amphibian surveys at Clay Pit SVRA will occur annually throughout this WHPP. Survey timing will be between late fall and early spring (November – March) and will depend heavily on the amount of rainfall and other climatic conditions present. Surveys will consist of nocturnal visual encounter surveys and daytime egg mass surveys following Fellers and Freel’s binocular scanning and visual search protocol (1995).

Resources staff will survey the area by walking the site and inspecting the area's pools and wetlands for evidence of amphibian activity, occasionally pausing to listen for any amphibian vocalizations. Before approaching larger water bodies, surveyors will wait 5-10 minutes and methodically scan the water’s edge to survey the areas before approaching visually. Visual surveys will be performed by foot using binoculars, headlamps, and flashlights to scan at waters’ edges to search for amphibian eyeshine. Any vocalizations or observations from binoculars or the naked eye will be recorded. During the day, surveyors will survey the ponds and pool areas and inspect them for the presence of any amphibian egg masses.

Survey staff will also look to implement and obtain the permits necessary to perform hand and/or dipnet surveys of the SVRA to survey amphibian larvae or tadpoles. If this

survey technique is implemented, its methodology will be discussed as part of the annual WHPP reports.

Acoustic Bat Surveys

Acoustic bat monitoring will require the expertise of a trained specialist outside the SVRA's resources staff. Resources staff are currently acquiring help within the department or from OHMVRD's consulting contract. However, the methodology will likely consist of installing one or two microphones and sound monitoring equipment at locations in the SVRA identified to possibly be of significant resource value to bats. The microphones will then record ambient noise during specified hours, likely dusk to dawn when bats are most active. Recordings will then be analyzed by a trained specialist and software program to analyze any calls and potentially identify any species present and their frequency at the site.

Rare Plant Surveys and Botanical Inventories

Inventories and surveys for rare plants will occur at Clay Pit SVRA every five years as part of the WHPP update process. Surveys will follow those protocols outlined in the California Department of Fish and Wildlife's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (2018) and the California Native Plant Society's *CNPS Botanical Survey Guidelines* (2001). The methodology will require database searches of local sensitive plants and multiple surveys will be performed and timed, so potential sensitive species are more evident, identifiable, and likely to be detected.

9.3.8.3 Data Sources

Primary Data Sources

- CNDDB. BIOS. California Department of Fish and Wildlife. Rare Plant Inventory Database. California Native Plant Society.

9.3.8.4 Reporting

Data Collection and Assessment

WHPP reports will be submitted annually to OHMVRD Division's OHV Compliance Section for review. In these reports, Clay Pit SVRA resources staff will update Division and Department resources staff on the performance measure with:

- Maps showing areas of the SVRA trapped for small mammals and trap locations.
- Maps of any ponds, pools, or locations where sensitive amphibian resources, if any, were identified.

- Maps of any identified sensitive plant species populations located by the survey effort.

- Analyzation and discussion of survey methodology and results annually and any changes in the WHPP or management due to these survey efforts.

Program Risks and Uncertainties

Methodologies may change or be adapted as different methodologies and techniques are incorporated. Any changes made to the program will be included and discussed as part of the annual WHPP reporting process.

Staff availability and resources might limit the ability of this program. In the past, management and staffing levels for Clay Pit have been inconsistent due to the park having changed management several times throughout the SVRA's indoctrination. Now that it is under a new program at Northern Buttes, this WHPP was written with the currently available staffing efforts provided with Northern Buttes and OHMVRD resources staff in mind. However, there is always the possibility that staffing levels drop or other monitoring or events take up staff priorities. To avoid this, if current dedicated Clay Pit SVRA resources staff find themselves unavailable to do all the work, as described in the WHPP, they will reach out to OHMVRD and NRD for resources staff for additional assistance and expertise. If neither agency is available or able to assist, then Clay Pit SVRA will look to OHMVRD's support contracts and agreements for assistance.

The other program risk is obtaining regulatory training and permits necessary to perform these surveys. Permits are required for some identified survey techniques, and staff do not currently own these permits. During the program's first few years, resources staff will look to complete any training necessary to obtain the permits required to complete this work. If permits are unable to be obtained, staff will reach out to OHMVRD and NRD for resources staff for additional assistance and expertise. If neither agency is available or able to assist, then Clay Pit SVRA will look to OHMVRD's support contracts and agreements for assistance.

9.4 Appendix 4: PRC Requirements

Statutory requirements as outlined in the PRC:

> **PRC §5090.32. (g)**, the division shall 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.
>
> **PRC §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 which 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. (2) If the division determines that the wildlife habitat protection plan is not being met in any portion of any state vehicular recreation area, the division shall close the noncompliant portion temporarily until the wildlife habitat protection plan is met. (3) If the division determines that the wildlife habitat protection plan cannot be met in any portion of any state vehicular recreation area, the division shall close and restore the noncompliant portion pursuant to Section 5090.11.
>
> **PRC §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.
>
> **PRC §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. (b) Nothing in this chapter relieves the division from compliance with state and federal laws and regulations, including permit requirements.

PRC §5090 also provides language on conserving and improving natural resources within SVRAs, which further informs the scope and purpose of WHPPs:

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. (f) The division shall protect natural, cultural, and archaeological resources within the state vehicular recreation areas.

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 can withstand 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 as 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 uses 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.