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Ecological Consultants



**Appendix C. Coyote Canyon
Natural Resource Management Plan**

Prepared for:

Santa Clara County Parks and Recreation

Department

FINAL

Approved by County of Santa Clara
Board of Supervisors December 10, 2019

Prepared by:

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Section 1. Introduction

The purpose of this Natural Resource Management Plan (NRMP) is to describe the natural resource management program that will be implemented by the Santa Clara County Parks and Recreation Department (Department) for the Coyote Canyon Property (Property). This NRMP describes existing physical and biological conditions on the Property based on (1) focused surveys and assessments conducted along planned roads and trails to connect with Coyote Lake-Harvey Bear County Park, and (2) programmatic assessments of remaining areas of the Property. The existing conditions assessment provides a baseline for the development of ecologically sound management strategies, which are provided in an adaptive management and monitoring program that is designed to maintain viable populations of target species and healthy examples of target communities in the context of near-term plans for the Property.

1.1 Park/Project Overview

The Property is classified by the Department as a Regional Natural Area, which is an area of natural landscape (e.g., ridges, streams, hillsides, and canyons) that is essentially undeveloped and will be maintained in its natural state in order to protect the environment (Department 2003). The Department proposes to convert existing ranch roads to trails and construct new trails to create a network of service roads and trails within the Property that connects with Coyote Lake-Harvey Bear County Park with Anderson Lake County Park. The Property's Natural Resources Management Plan & Interim Access Plan (Plan) identifies three preliminary options for public access; Option Two, which starts and ends along the existing Ed Wilson Trail in Coyote Lake-Harvey Bear County Park, is the recommended public access alignment. The focal survey area for this NRMP includes the other for all three alternatives, which comprise approximately of 7.0 miles of existing ranch roads and 3.4 miles of new trails. All proposed trails will be located southwest of Coyote Creek and Anderson Reservoir and northeast of the "western ridgeline" (the ridgeline that runs roughly from Oak Canyon Drive to the northwest corner of Coyote Lake-Harvey Bear County Park), and one road will extend into Coyote Lake-Harvey Bear County Park. No public use trails, roads, or Department facilities are currently proposed below (west of) the western ridgeline or northeast of Coyote Creek and Anderson Reservoir.

1.2 Management Philosophy (NRMP Intent and Structure/Planning Process)

It is the intention of the Department to acquire, protect, and enhance natural, cultural, historic, and scenic resources in balance with the provision of public access and outdoor experiences. The Department's land management practices promote healthy ecosystems that strengthen the region's resilience to climate change and preserve sensitive species and their habitats.

The Department must continue to lead the way in land conservation and the protection of natural resources. Open space lands and natural systems that surround urban areas of Santa Clara County will sustain residents

with fresh drinking water, clean air, and protect against the earth's rising temperatures. The continued presence of sensitive plant and animal species in these wild places will serve as evidence that the County's ecological infrastructure remains in place, and that the Department is responsibly stewarding the most precious commodity: nature.

1.3 Goals and Objectives of the Property and NRMP

- Demonstrating responsible natural resource stewardship while providing public access and outdoor experiences.
- Within staffing and budget constraints, preserve, conserve, and enhance the natural resources and ecological processes of the Property.
- Manage recreation, development, and land use impacts.
- Identify and define natural resource management zones to guide management programs within different areas of the Property.
- Manage the Property through monitoring and adaptive management strategies.
- Develop guidelines and standards for natural resource management activities.
- Identify and protect any sensitive plant and wildlife species and their habitats in the Property, as well as sensitive land cover types.
- Identify, manage, and control invasive, nonnative species of plants and animals.
- Provide monitoring components to assess the effects of the recommendations and actions of this NRMP.
- Improve, protect, and preserve wildlife habitat.
- Preserve and protect soils and geological features.
- Maintain and/or improve water quality in creeks and streams throughout the Property.

1.4 Role of Department Staff in Implementing this NRMP

Natural Resource Program Staff will work with dedicated park staff to ensure that management and monitoring practices are effective. The roles of park staff are as follows:

- Park Maintenance staff provide clean and safe amenities to the public, are responsible for the maintenance of day-use areas and groups sites throughout the park, and provide safe drinking water and clean restroom facilities. In addition to the public use areas of the park, the Park Maintenance staff maintain the grounds, vegetation, and aesthetics of the park, including maintenance of the trail and service road systems.
- The Park Operations staff focus on public safety, interpretation, and resource management.
- Park Rangers provide a safe environment to allow visitors a memorable day-use and camping experience, enforce County ordinances, and routinely patrol the park to keep a pulse on the activities within the park. Park Rangers also provide Search and Rescue response, medical aide, and fire safety when necessary.
- Park Service Attendants greet visitors coming into the park, collect fees, and provide users with information to enhance the experience.

Park staff collaborate with the Natural Resources Program to preserve, conserve and enhance the park's natural resources and ecological processes. The Natural Resources Program provides park staff with guidance to protect, enhance, or restore the park through effective vegetation, fire, wildlife, riparian, wetland, and exotic species management. The Natural Resources Program also provides direction for implementation of best management practices, Integrated Pest Management, and environmental compliance.

For effective management, it is essential that Park Rangers, maintenance staff, interpretive staff, volunteers, and other park staff act as the eyes and ears of the Park Unit's natural resources. Any unusual sightings of resource problems or any happening that might affect resources in any management zone should be reported to the Natural Resources Program. These include unusual wildlife sightings (e.g., tule elk [*Cervus elaphus*], American badger [*Taxidea taxus*], or mountain lion [*Puma concolor*]), wildlife health (dead corvids might indicate West Nile Virus), presence of Sudden Oak Death, unusual plant life (which may suggest invasion by new nonnative species), evidence of unauthorized recreational activity, and other notable issues.

Section 2. Property Location and Setting

2.1 Location, Setting, and Adjacent Lands

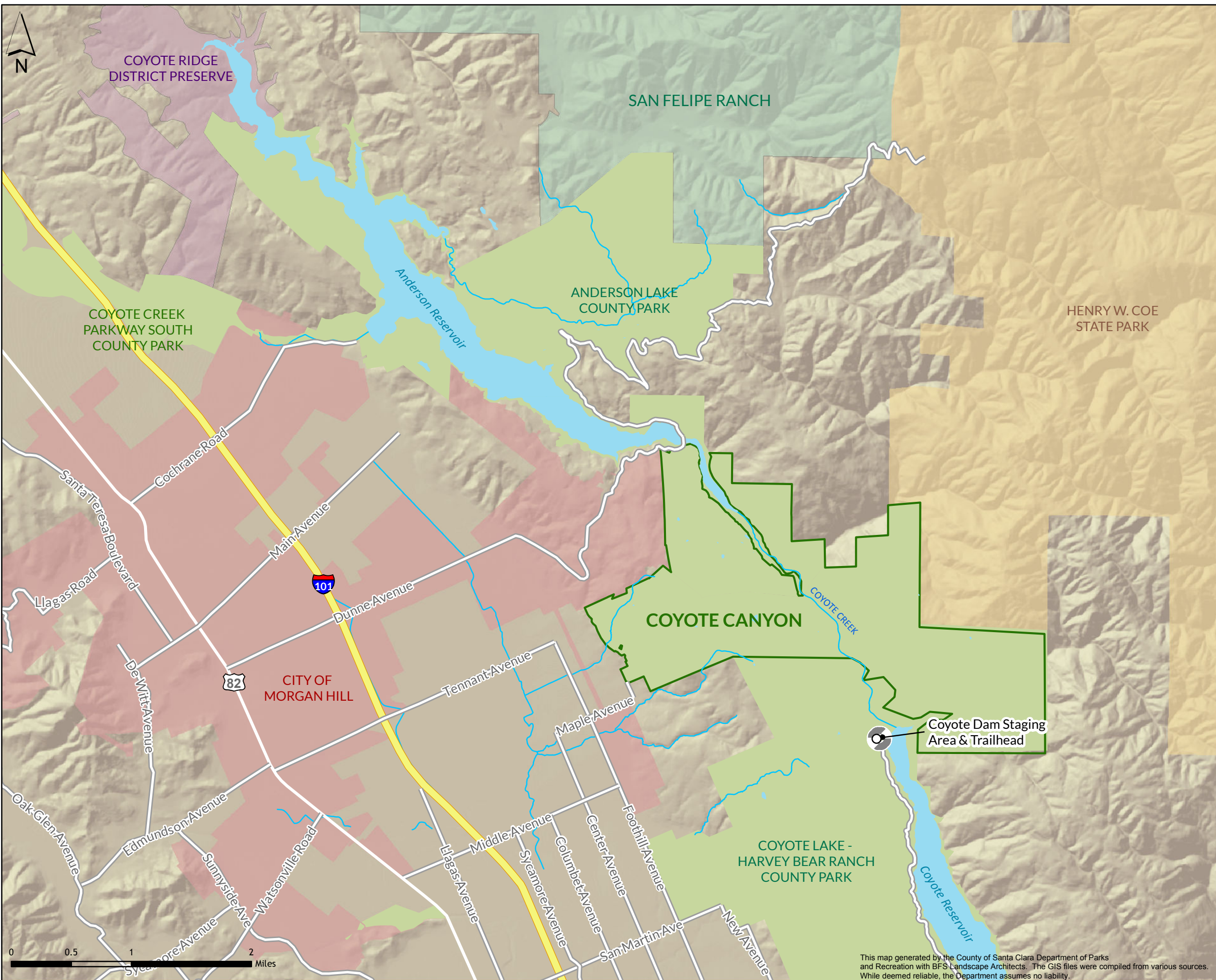
The approximately 2,741-acre Property is located in unincorporated Santa Clara County in the western foothills of the Diablo Range, and is nestled between Anderson Lake County Park to the north, privately held undeveloped land and Henry Coe State Park to the north and northeast, Coyote Lake-Harvey Bear Ranch County Park to the south, and the city of Morgan Hill to the west (Figures 1 and 2).

Lands surrounding the Property include a combination of public and private lands such as ranches, parks, and residences (Figure 2). Several protected open space areas are present in the region surrounding the Property. These are Anderson Lake County Park (1,975 acres) to the north, which surrounds the majority of Anderson Reservoir and abuts the northern boundary of the Property; Coyote Lake-Harvey Bear Ranch County Park (4,473 acres), which surrounds Coyote Reservoir and abuts the southern boundary of the Property; and Henry Coe State Park (87,000 acres), which abuts the northeastern boundary of the Property and extends to the northeast. The remaining properties to the north and east of the Property are owned by private landowners who use those lands for cattle ranching. Anderson Reservoir is excluded from the Property boundary and bisects a portion of the Property, while Coyote Creek flows southeast to northwest within the Property from Coyote Reservoir into Anderson Reservoir.

Land use in the valley to the west is primarily agricultural and residential (Photo 1). Small ranches, homes, and open space are the primary land use in the foothills and mountains. Private residences within the Jackson Oaks residential development are located along the northwestern boundary of the Property along East Dunne Avenue, and low-density residential development and agricultural properties are located west/southwest of the Property.



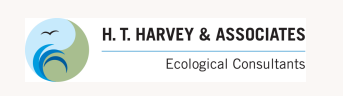
Photo 1. Agricultural and residential lands in the valley adjacent to the Property.

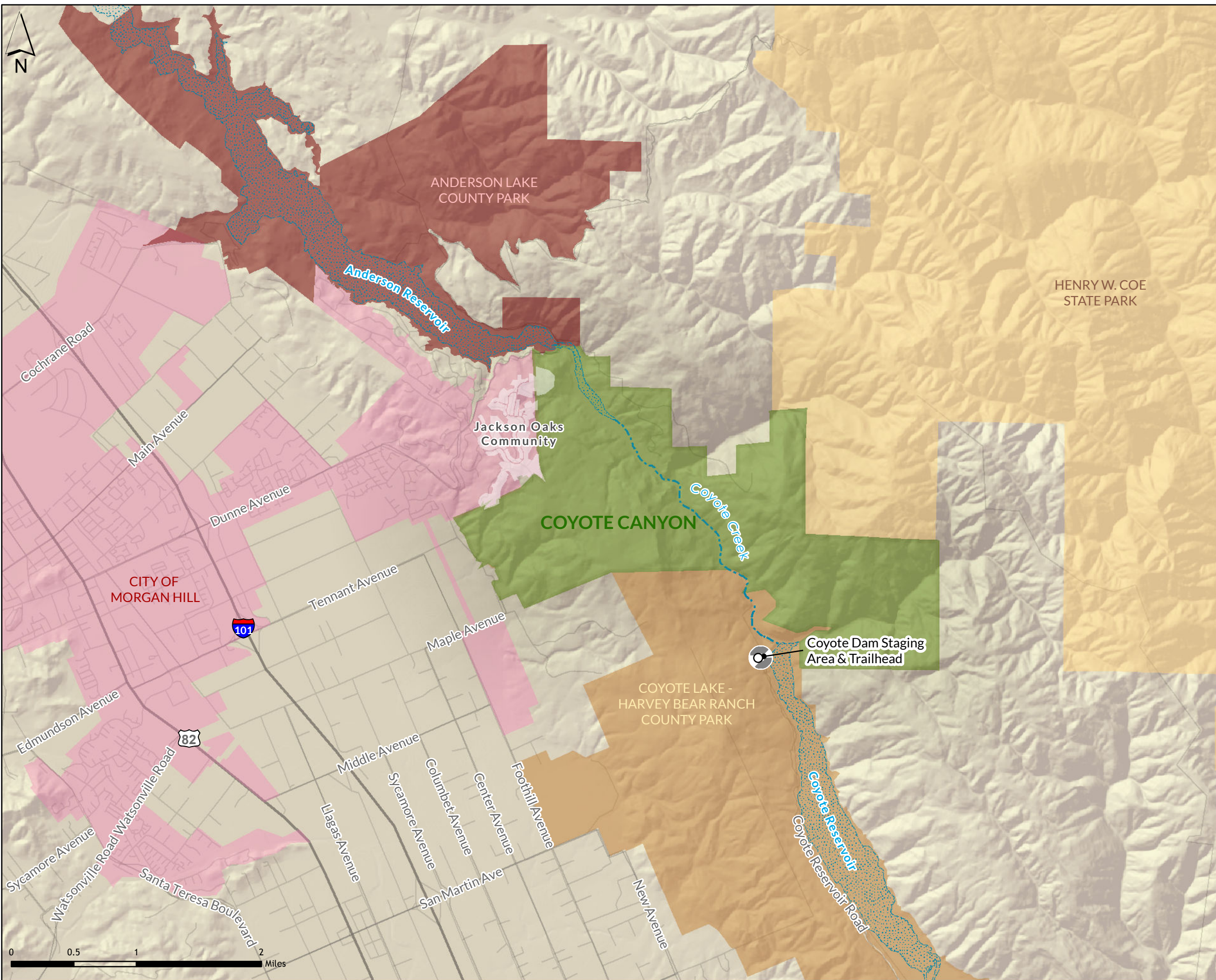


Legend

- Coyote Canyon
- County Parks
- San Felipe Ranch
- State Park
- Coyote Ridge District Preserve
- Morgan Hill

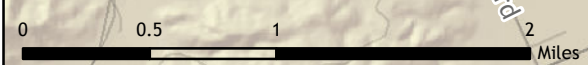
This map generated by the County of Santa Clara Department of Parks and Recreation with BFS Landscape Architects. The GIS files were compiled from various sources. While deemed reliable, the Department assumes no liability.





Legend

- Morgan Hill
- Land Ownership**
- Coyote Canyon
- Anderson Lake County Park
- Henry W. Coe State Park
- Coyote Lake Harvey Bear County Park



Section 3. Methods for Collecting Baseline Natural Resource Information

Information concerning natural resources on the Property was collected from a review of existing sources coupled with field visits to the site by H. T. Harvey & Associates biologists and staff of Bellinger Foster Steinmetz (BFS) Landscape Architects and Balance Hydrologics, Inc. This information was then used to describe existing natural resources, identify natural resource management zones on the Property, and develop management and monitoring strategies for the Property, with the purpose of meeting the goals and objectives provided in, and to inform, the Plan. Details of the project team's background review, survey methods, and development of management zones are provided below, and results are discussed in Section 4.

3.1 Background Review

Prior to conducting field work, H. T. Harvey & Associates ecologists reviewed information from a number of sources (see Section 7 *References* below). In addition, for plants, we reviewed all species on current California Native Plant Society (CNPS) California Rare Plant Rank (CRPR) 1A, 1B, 2A, and 2B lists occurring in the Property region, which is defined as the *Mount Sizer* and *Gilroy, California* USGS 7.5-minute quadrangles and surrounding ten quadrangles. We also conducted a search of the CNPS Inventory records for these species occurring in Santa Clara County (CNPS 2018). In addition, we queried the California Natural Diversity Database (CNDDB) (2018) for natural communities of special concern that occur on the Property region, and we perused records of birds reported in nearby areas, such as along Coyote Creek, at Anderson Dam County Park, and at Coyote Lake-Harvey Bear County Park on eBird (Cornell Lab of Ornithology 2018) and on the South-Bay-Birds Listserv (2018).

3.2 Site Visits

To provide detailed information on natural resource conditions in the vicinity of proposed roads and trails on the Property, field surveys by H. T. Harvey & Associates ecologists focused on areas within 200 feet of those proposed roads and trails during vegetation surveys and within 250 feet of those proposed features during wildlife surveys¹. In addition, vegetation types, wildlife habitats, and sensitive species occurrences were also noted in other portions of the Property during reconnaissance-level surveys of broader areas of the Property and as ecologists accessed the focal survey areas. As a result, information on natural resources more than 200 feet (for plants and land cover types) and 250 feet (for animals) from proposed roads and trails should be considered preliminary, although such information is included in this NRMP to facilitate and inform management.

¹ One proposed trail segment was added for consideration after all 2018 field surveys had been completed. That trail segment is depicted on this NRMP's figures without the focal survey area buffer, and the natural resources surveys described in this NRMP for other segments will be conducted prior to construction/use of that trail segment.

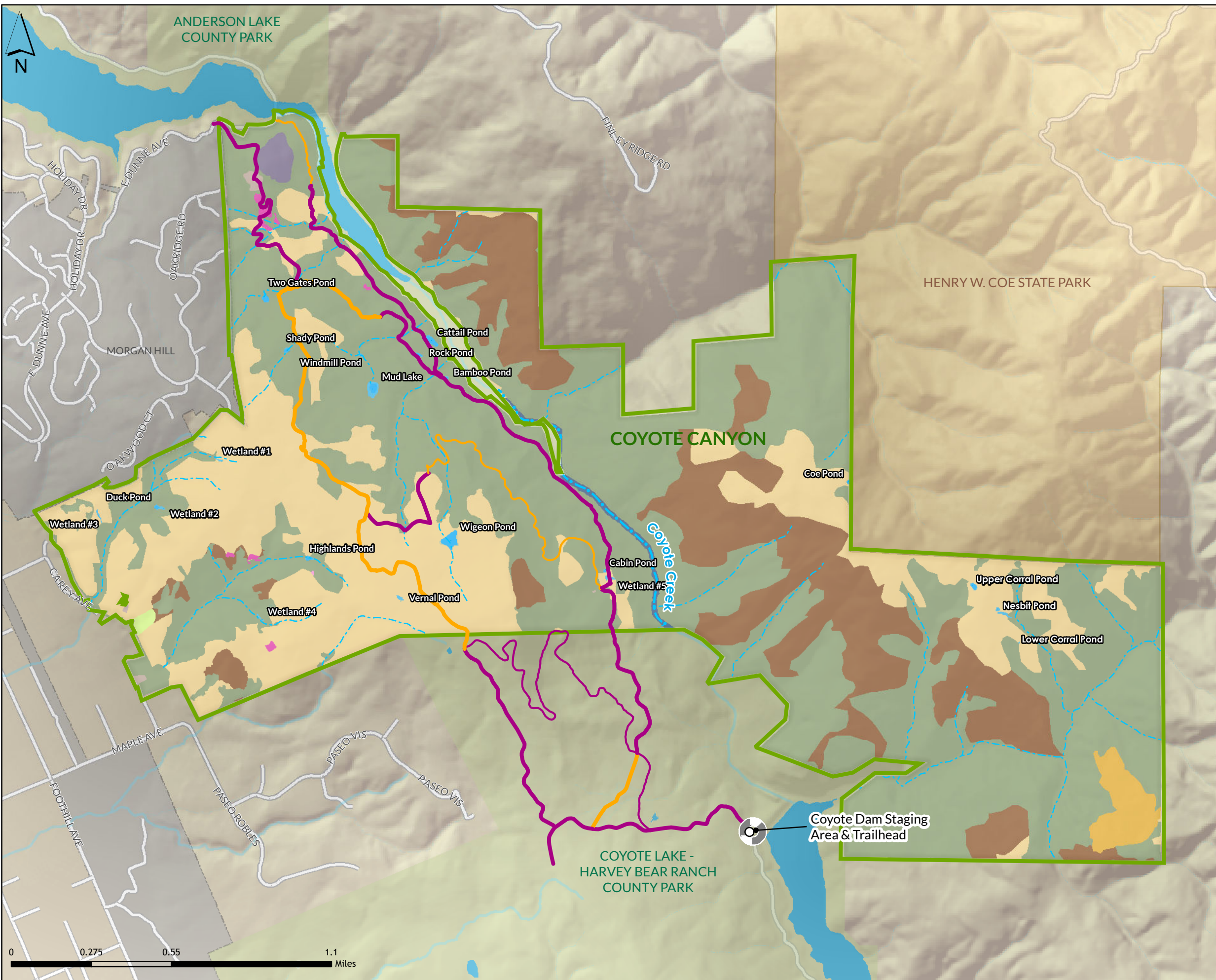
3.2.1 Vegetation Surveys

As noted above, vegetation surveys focused primarily on areas within 200 feet of proposed roads and trails on the Property (i.e., the vegetation survey area), as shown on the Habitat and Land Cover Types figure (Figure 3). Vegetation surveys of the Property were conducted by H. T. Harvey & Associates plant ecologist Matthew Mosher, B.S., on February 27, March 6 and 8, and May 1, 2, 3, and 10, 2018. Surveys were timed based on the flowering periods of most plants covered by the Santa Clara Valley Habitat Plan (Habitat Plan), as feasible². The purpose of the surveys was to (1) ground-truth available Habitat Plan land cover mapping to verify existing conditions and refine this land cover mapping as necessary, (2) look for and map infestations of nonnative/invasive plant species, and (3) identify the locations of sensitive communities and vegetation types (e.g., serpentine-based communities, valley oak woodland, blue oak woodland, native grassland, freshwater wetlands, and riparian woodland and scrub) and sensitive plant species. In addition, M. Mosher examined the Habitat Plan-mapped serpentine areas within 200 feet of the proposed trail alignments to determine (a) if the plant community expressed in the field is actually that of a serpentine plant community, and (b) whether rare serpentine-associated plant species are present. Land cover types were also mapped in the area within and immediately surrounding Anderson Reservoir that bisects the Property, for the sake of continuity, and along an existing road that extends south into Coyote Lake-Harvey Bear County Park.

Outside of the vegetation survey area, known occurrences of sensitive habitats (e.g., areas mapped as serpentine by the Habitat Plan), sensitive plant species (e.g., known CNDDB records), and nonnative/invasive plant species were also visited and mapped, and additional occurrences of these habitats and species that were encountered incidentally were also mapped. No focused vegetation surveys were conducted outside of the vegetation survey area for the purposes of the NRMP. However, we walked many additional areas of the Property southwest of Coyote Creek to place the information collected within 200 feet of roads and trails into a broader, more appropriate context, and all relevant information has been included in this NRMP.

Biotic habitats, sensitive plant species, and invasive plant species were mapped using an iPad with Geographic Information Systems (GIS) Pro and GIS Kit software (Garafa, LLC 2015). Before site surveys were conducted, maps and images of the Property were obtained from several sources and reviewed. These sources included the USGS, National Wetlands Inventory (2018), Nationwide Environmental Title Research (2018), and aerial images available on Google Earth Pro software (Google Inc. 2018).

² Due to the timeline for completion of the NRMP, the early summer plant surveys could not be completed before the NRMP was finalized. The Habitat Plan-covered Loma Prieta hoita (*Hoita strobilina*) and smooth lessingia (*Lessingia micradenia* var. *glabrata*) may not have been detectable during surveys conducted from January through May 2018. Thus, this NRMP includes a habitat assessment for these species (including a description of areas that could potentially support them) in *Section 5.3.3* and *Section 5.3.4*, and includes specific information on occurrence of smooth lessingia from incidental observations in late July 2018.



Legend

- Coyote Canyon Boundaries
- Santa Clara County Parks
- Protected Lands
- Roads
- Existing Infrastructure**
- Road - Width
- Single - Track
- Planned Infrastructure**
- Road - Width
- Single - Track
- Land Cover**
- California Annual Grassland
- Mixed Oak Woodland
- Mixed Riparian Woodland and Forest
- Mixed Serpentine Chaparral/ Serpentine Rock Outcrop
- Northern Coastal Scrub / Diablan Sage Scrub
- Northern Mixed Chaparral / Chamise Chaparral
- Ornamental Woodland
- Pond/Seasonal Wetland
- Reservoir
- Rural Residential
- Serpentine Bunchgrass
- Serpentine Rock Outcrops

3.2.2 Wildlife Surveys

As noted above, wildlife surveys focused primarily on areas within 250 feet of proposed roads and trails on the Property (i.e., the *wildlife survey area*). H. T. Harvey & Associates senior wildlife ecologist and ornithologist Steve Rottenborn, Ph.D., conducted focused ornithological surveys of the Property (as well as general wildlife and plant surveys) on February 11 and 18, March 11, April 7, 8, 21, and 22, May 5, 6, and 26, June 30, and July 28, 2018. The primary purpose of these surveys was to document the presence or absence of sensitive bird species or suitable nesting habitat for these species, although he also assessed vegetation types, looked incidentally for sensitive plants, and noted occurrences of non-avian wildlife during these site visits. He assessed all ponds and riparian areas within the wildlife survey area to determine whether any suitable nesting habitat for the tricolored blackbird (*Agelaius tricolor*) and least Bell's vireo (*Vireo belli pusillus*) is present; the 250-foot wildlife survey area corresponds to the Habitat Plan's required survey area for these two species. Observations of other sensitive species, such as the golden eagle (*Aquila chrysaetos*), white-tailed kite (*Elanus leucurus*), and grasshopper sparrow (*Ammodramus savannarum*), were also recorded. All suitable habitat for sensitive bird species within 250 feet of the potential trail alignments was mapped during the field visits. Any evidence of past nests or nesting colonies was also recorded and mapped.

H. T. Harvey & Associates senior herpetologist Jeff Wilkinson, Ph.D., conducted a focused survey of all ponds and creeks within the wildlife survey area on February 27, 2018 to assess habitat suitability for the western pond turtle (*Actinemys marmorata*), California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), and foothill yellow-legged frog (*Rana boylei*).

H. T. Harvey & Associates senior wildlife ecologist and mammalogist Kim Briones, M.S., conducted a focused survey of habitats within the wildlife survey area on March 4 and 6, 2018 to determine the availability of appropriate habitat for mammals, particularly sensitive mammals such as the pallid bat (*Antrozous pallidus*) and American badger, and the likelihood that sensitive mammal species may inhabit the Property.

Outside of the focal wildlife survey area, known occurrences of sensitive wildlife species (e.g., known golden eagle nesting territories) and their habitats (e.g., all ponds and wetlands located southwest of Coyote Creek) were also visited, and observed occurrences of sensitive wildlife species were mapped. Sensitive wildlife species and their habitats that were encountered incidentally elsewhere on the Property were also mapped. No focused wildlife surveys were conducted outside of the wildlife survey area for the purposes of the NRMP. However, we walked many additional areas of the Property southwest of Coyote Creek to place the information collected within 250 feet of roads and trails into a broader, more appropriate context.

3.2.3 Rangeland Assessment

H. T. Harvey & Associates rangeland ecologists Matt Wacker, M.S., and Kristina Wolf, Ph.D., conducted site visits and general surveys of the Property on June 5, 2018 and February 22, 2018, respectively, to assess overall range conditions and potential or existing management opportunities in grazed areas on the Property. Oak recruitment, areas of concern or requiring special consideration (e.g., evidence of erosion, presence of serpentine soils, patches of invasive plants, feral pig (*Sus scrofa*) damage to soils and vegetation, and evidence of

livestock overuse), and condition of grasslands and grazing-related infrastructure were documented. Proposed grazing management zones were defined based on current infrastructure with input from a meeting with the grazing lessee and Department staff on June 5.

3.2.4 Assessment of Restoration Opportunities

H. T. Harvey & Associates senior restoration ecologists Dan Stephens, B.S., and Matt Quinn, M.S., conducted site visits on February 23, 2018 and March 5, 2018, respectively, to assess areas that might be in need of restoration (e.g., grasslands, oak woodlands, and riparian habitats), protection (particularly sensitive communities, wetlands, ponds, and riparian habitat), and intensive management (e.g., areas subject to erosional issues) on the Property.

Section 4. Existing Natural Resource Conditions

4.1 Habitat and Land Cover Types

Fourteen biotic habitats and land cover types were identified on the Property: mixed oak woodland, California annual grassland, northern coastal scrub/Diablan sage scrub, northern mixed chaparral/chamise chaparral, reservoir, mixed riparian woodland and forest, mixed serpentine chaparral/serpentine rock outcrops, pond, seasonal wetland, serpentine bunchgrass, rural residential, ornamental woodland, serpentine rock outcrops, and stream (Figure 3). Of these land cover types, aquatic features consist of reservoir, pond, seasonal wetland, and stream. A complete list of plant species observed during field surveys can be found in Appendix A.

4.1.1 Non-Sensitive Habitats and Land Cover Types

4.1.1.1 Mixed Oak Woodland

The mixed oak woodland land cover type contains different oak species in varying levels of dominance. Within the focal vegetation survey area, the canopy ranges from closed to open and is dominated by coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), and blue oak (*Quercus douglasii*), as well as scattered grey pine (*Pinus sabiniana*) (Photo 2). Concentration of blue oaks are present in some areas; however, the blue oaks are still intermixed with other oak species and do not constitute more than 25% of the canopy in any particular area (Photo 3). Therefore, these areas were not mapped specifically as blue oak woodland within the survey area, and instead fall under the mixed oak woodland land cover type. In most locations where mixed oak woodland and forest adjoins California annual grassland, the understory contains species typical of the California annual grassland land cover type. Where mixed oak woodland and forest is surrounded by coyote brush scrub or northern mixed chaparral/chamise chaparral and northern coastal scrub/Diablan sage scrub, the understory species from those land cover types occur at the borders of these habitats.



Photo 2. Mixed oak woodland habitat.



Photo 3. Blue oaks.

The mixed oak woodland and forest habitat produces mast crops that are an important food source for many birds as well as mammals, including the California scrub-jay (*Apbelocoma californica*), acorn woodpecker (*Melanerpes formicivorus*) (Photo 4), California quail (*Callipepla californica*), and black-tailed deer (*Odocoileus hemionus*). Small numbers of yellow-billed magpies (*Pica nuttalli*) nest in the crowns of these oaks, particularly in more widely scattered valley oaks. Hollow trees and logs provide denning sites for mammals such as the coyote (*Canis latrans*) and striped skunk (*Mephitis mephitis*), while cavities in mature trees are used by cavity-dwelling species including five species of woodpeckers, chestnut-backed chickadee (*Poecile rufescens*), oak titmouse (*Baeolophus inornatus*), American kestrel (*Falco sparverius*), and white-breasted nuthatch (*Sitta carolinensis*). Bats, such as the California myotis (*Myotis californicus*), may use hollows of larger, older oak trees for roosting. Small numbers of nests of San Francisco dusky-footed woodrats (*Neotoma fuscipes annectens*) were observed (Photo 5); this species occurs in mixed oak woodland habitat where dense understory vegetation provides cover and foraging opportunities, though its abundance on the Property is low. The native deer mouse (*Peromyscus maniculatus*) and California mouse (*Peromyscus californicus*) nest and forage in this habitat as well. Reptiles such as gopher snakes (*Pituophis catenifer*), common garter snakes (*Thamnophis sirtalis*), and western fence lizards (*Sceloporus occidentalis*) occur regularly in this habitat.



Photo 4. Acorn woodpecker on a valley oak snag.



Photo 5. San Francisco dusky-footed woodrat nest (the pile of sticks) in the western part of the Property.

4.1.1.2 California Annual Grassland

The California annual grassland habitat is an herbaceous plant community that is dominated by nonnative annual grasses (Photo 6). Dominant species consist of nonnative grasses such wild oats (*Avena* sp.), foxtail barley (*Hordeum murinum*), ripgut brome (*Bromus diandrus*) and Italian rye grass (*Festuca perennis*). Common nonnative and native forbs include clovers (*Trifolium* spp.), filarees (*Erodium* spp.), bicolored lupine (*Lupinus bicolor*), and California poppy (*Eschscholzia californica*). Several noxious weeds are also common in this habitat, including medusa head (*Elymus caput-medusae*), yellow star-thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), and milk thistle (*Silybum marianum*).

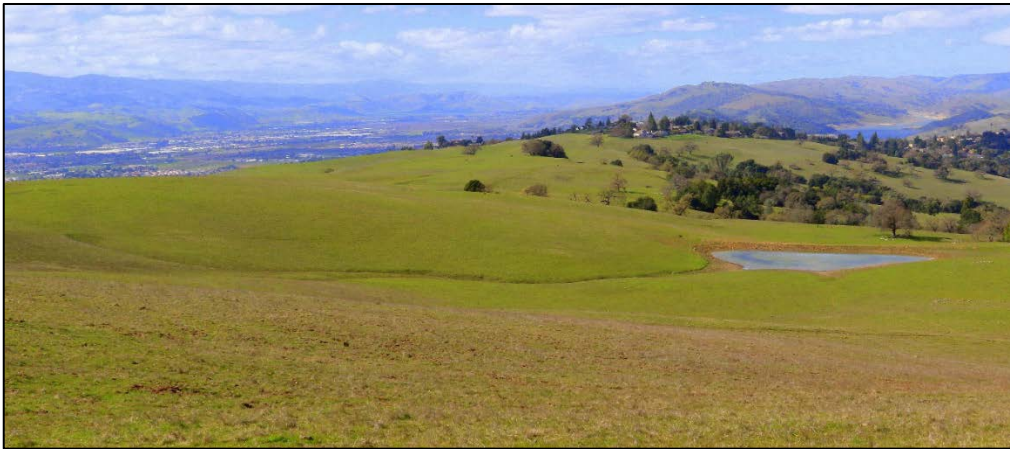


Photo 6. California annual grassland habitat on the Property.

Despite the abundance of nonnative plants in many areas, some areas of California annual grassland, particularly along the western ridgeline, support large stands of native forbs, including goldfields (*Lasthenia* sp.), purple owl's clover (*Castilleja exserta* ssp. *exserta*), miniature lupine (*Lupinus bicolor*), variable leptosiphon (*Leptosiphon parviflorus*), coast larkspur (*Delphinium decorum* ssp. *decorum*), and johnnytuck (*Triphysaria eriantha*) (Photo 7).



Photo 7. A portion of California annual grassland habitat dominated by native forbs.

California ground squirrels (*Otospermophilus beecheyi*) are patchily distributed, particularly in rocky areas and under oaks in the annual grassland habitat; numbers are lower in expanses of annual grasslands that are not rocky, though some concentrations are present (Photo 8). Botta's pocket gophers (*Thomomys bottae*) are fairly widespread in the Property's California annual grassland, and deer mice are likely common throughout this habitat. Black-tailed deer are common browsers throughout the survey area, and other large mammals (e.g., coyotes and bobcats [*Lynx rufus*]) occasionally forage in grasslands throughout the site.



Photo 8. Burrows of California ground squirrels in rocky areas of California annual grassland habitat on the Property.

Areas of grassland vegetation support common grassland-nesting bird species, such as the western meadowlark (*Sturnella neglecta*), as well as small numbers of grasshopper sparrows. Additional bird species that nest in nearby oak woodland, chaparral, or developed habitats and forage within grassland areas during the nesting season include lark sparrows (*Chondestes grammacus*), western bluebirds (*Sialia mexicana*), wild turkeys (*Meleagris gallopavo*), barn swallows (*Hirundo rustica*), violet-green swallows (*Tachycineta thalassina*), and cliff swallows (*Petrochelidon pyrrhonota*). Raptors such as red-tailed hawks (*Buteo jamaicensis*) and white-tailed kites (*Elanus leucurus*) forage for small mammals within grassland habitats. Numerous additional avian species, including the savannah sparrow (*Passerculus sandwichensis*) and American pipit (*Anthus rubescens*), forage in grassland habitats throughout the Property during winter and migration.

Some areas of grassland habitat on the Property provide abundant refugia for reptiles, with numerous large rocks to provide crevices for refuge and hunting. Several reptile species occur in the annual grassland habitats in the survey area, including the western fence lizard, gopher snake, Pacific rattlesnake (*Crotalus oregonus*), and terrestrial garter snake (*Thamnophis elegans*). Burrows of California ground squirrels and Botta's pocket gophers also provide refugia for these reptile species, as well as for common amphibians such as the western toad (*Anaxyrus boreas*) and Pacific tree frog (*Hyla regilla*).

4.1.1.3 Northern Coastal Scrub/Diablan Sage Scrub



Photo 9. Northern coastal scrub/Diablan sage scrub habitat shown in the foreground and on the far slope intermixed with mixed oak woodland.

Northern coastal scrub/Diablan sage scrub (Photo 9) occupies a large portion of the Property, but the majority of this habitat is located on the steep slopes northeast of Coyote Creek, outside of the focal survey area. A small portion of this habitat is located within the focal survey area near the southern boundary of the Property adjacent to Coyote Lake-Harvey Bear County Park. The vegetation and wildlife that characterize the portion of this habitat within the survey area are discussed below.

Northern coastal scrub/Diablan sage scrub habitat generally occurs on dry, exposed slopes with shallow soils. Within the survey area, the dominant shrub species are black sage (*Salvia mellifera*) with scattered California sage (*Artemisia californica*). Interstitial areas between shrub cover are mostly un-vegetated; however, they contain limited occurrences of clarkia (*Clarkia* sp.) and nonnative annual grasses such as ripgut brome and wild oat.

Northern coastal scrub/Diablan coastal scrub habitat in other areas of the Property may have a different vegetation composition

then was observed within the survey area. For example, we noted incidentally that a large component of this land cover type in the eastern areas of the Property is sticky monkeyflower (*Mimulus aurantiacus*), which is mixed in with the black sage and California sage association.

The northern coastal scrub/Diablan sage scrub community in the focal survey area is limited in extent and isolated from larger areas of this habitat to the east by extensive oak woodlands. Thus, the wildlife species that occur within this habitat are heavily influenced by the species that occur in adjacent mixed oak woodland and annual grassland habitats. Nevertheless, the vegetation in this community provides nesting habitat for birds such as the wrentit (*Chamaea fasciata*), California thrasher (*Toxostoma redivivum*), Bewick's wren (*Thryomanes bewickii*), California scrub-jay, California towhee (*Melospiza crissalis*), spotted towhee (*Pipilo maculatus*), and Anna's hummingbird (*Calypte anna*). These species are expected to occur in even greater abundance in the more expansive scrub east of Coyote Creek. Mammal species that use such scrub habitat include coyotes, California mice, San Francisco dusky-footed woodrats, bobcats, and brush rabbits (*Sylvilagus bachmani*). Reptiles that occur here include gopher snakes, northern Pacific rattlesnakes, southern alligator lizards (*Elgaria multicarinata*), and western fence lizards.

4.1.1.4 Northern Mixed Chaparral/Chamise Chaparral

This land cover type occurs in a relatively small area in the southeast corner of the Property, well outside the focal survey area, and was mapped based on prior Habitat Plan land cover mapping. Because this area was not

visited, no site-specific description of this land cover type can be provided. Also, plant species composition, vegetation density, and height vary considerably within this land cover type. In general, northern mixed chaparral/chamise chaparral is characterized by thick-leaved, drought resistant shrubs ranging from very dense with no understory to semi-open stands with variable understory species. Dominant shrubs include manzanita (*Arctostaphylos* spp.), ceanothus (*Ceanothus* spp.), and chamise (*Adenostoma fasciculatum*). Common understory includes poison oak (*Toxicodendron diversilobum*), sticky monkeyflower, and yerba santa (*Eriodictyon californicum*).

Because northern mixed chaparral/chamise chaparral communities are typically dry and provide relatively low and homogeneous structure, wildlife species diversity in these areas is often low. The chaparral habitat on the Property is surrounded by mixed oak woodland and forest, and thus many of the wildlife species associated with this much larger habitat may occasionally make use of the chaparral habitat as well. The scrub-associated wildlife species described for the northern coastal scrub/Diablan sage scrub community above are expected to occur in the northern mixed chaparral/chamise chaparral as well. It is possible that the Bell's sparrow (*Artemisiospiza belli*) and black-chinned sparrow (*Spizella atrogularis*), two species that occur patchily in extensive fields of chamise chaparral in the Diablo Range, may occur in this community as well.

4.1.1.5 Rural Residential

The rural residential land cover type consists of the Otis Brown cabin located near Cabin Pond (within the focal survey area) (Photo 10), the ranch house complex (Photo 11) located near East Dunne Avenue in the northwestern portion of the Property (outside of the focal vegetation survey area), and the Achilles barn near Carey Way (Photo 12). At the Ranch Complex Area, the main residence has been demolished but the area still has three metal Quonset structures (Photo 13) and a wood-framed stable (Photo 14). The vegetation in this area consists of planted ornamental trees such as Peruvian pepper (*Schinus molle*) and nonnative grasses and forbs such as Italian thistle, foxtail barley, and rigput brome. The Achilles barn area includes a stock pen that is currently being used by the grazing lessee to stage cattle for grazing on the Property. A limited and open canopy of mature coast live oak trees also occurs here. The herbaceous layer consists primarily of wild oat and other ruderal grasses in areas which are not completely developed or highly compacted.



Photo 10. The Otis Brown cabin near Cabin Pond.



Photo 11. Overview of the Ranch Complex Area.



Photo 12. The Achilles barn in the western part of the Property.



Photo 13. Metal Quonset structure at the Ranch Complex Area.



Photo 14. Wood-framed stable at the Ranch Complex Area.

The buildings at the Ranch Complex Area provide potential day-roosting or night-roosting habitat for small numbers of crevice-roosting bats such as the California myotis, Yuma myotis (*Myotis yumanensis*), Mexican free-tailed bat (*Tadarida brasiliensis*), and big brown bat (*Eptesicus fuscus*) from early spring into the fall. Signs of bat use (i.e., guano and urine staining) were observed inside the eastern room of the north metal Quonset hut. Signs of roosting by barn owls (*Tyto alba*) were also observed within one of the Quonset structures at the ranch house (Rhoades 2018), and this species may nest or roost in open structures. Other wildlife that may occur at the Ranch Complex Area include common wildlife species that are tolerant of human disturbances. Birds such as the Bewick's wren, house finch (*Haemorhous mexicanus*), and American crow (*Corvus brachyrhynchos*) will nest within man-made structures or associated landscape vegetation. Although not characteristically associated with artificial structures, a canyon wren (*Catherpes mexicanus*) was observed singing from buildings at the Ranch

Complex Area during most spring 2018 visits to that part of the site. Mammals such as the raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginianus*), and striped skunk will forage in these areas, and small mammals such as native deer mice, nonnative house mice (*Mus musculus*), and nonnative roof rats (*Rattus rattus*) may inhabit these areas. Common reptiles such as the western fence lizard and gopher snake will also inhabit rural residential areas.

Signs of bat use were observed inside the southwest room in the Achilles barn along Carey Way. Small numbers of crevice-roosting bats such as the California myotis, Yuma myotis, Mexican free-tailed bat, and big brown bat may also occupy various crevices in the barn from early spring into the fall. Barn owls are not known to nest or roost in the Achilles barn, but the structure is open and provides suitable nesting and roosting sites for this species. Other wildlife that may occur in these areas include common wildlife species that are tolerant of occasional human activity, as described for the rural residential land cover type above.

4.1.1.6 Ornamental Woodland



Photo 15. Eucalyptus-dominated ornamental woodland habitat in the western part of the Property.

The ornamental woodland land cover type occurs on the western edge of the Property, adjacent to residential structures along Carey Way and well outside the focal survey area. The vegetation here consists solely of large blue gum (*Eucalyptus globulus*) trees, relatively evenly spaced with a semi-closed canopy (Photo 15).

The large eucalyptus trees within the ornamental woodland on the site provide habitat for certain wildlife species, especially birds. Resident Anna's hummingbirds and bushtits (*Psaltriparus minimus*) are common in eucalyptus groves, and may nest and forage regularly in these trees. Migrants such as yellow-rumped warblers (*Setophaga coronata*) and ruby-crowned kinglets (*Regulus calendula*) often forage for insects in eucalyptus groves. Raptors such as red-tailed hawks (*Buteo jamaicensis*), red-shouldered hawks (*Buteo lineatus*), and Cooper's hawks (*Accipiter cooperii*) will use eucalyptus groves for nesting. No understory vegetation is present to provide cover for ground-nesting and foraging wildlife, but the bird, mammal, and reptile species that occur within surrounding areas of California annual grassland, mixed oak woodland, and northern coastal scrub/Diablan sage scrub are expected to use this habitat opportunistically.

4.1.2 Sensitive Habitats and Land Cover Types

The California Department of Fish and Wildlife (CDFW) ranks certain rare or threatened plant communities, such as wetlands, meadows, and riparian forest and scrub, as 'threatened' or 'very threatened'. These communities are tracked in the CNDDDB. Impacts on CDFW sensitive plant communities, or any such

community identified in local or regional plans, policies, and regulations, must be considered and evaluated under the California Environmental Quality Act (California Code of Regulations: Title 14, Div. 6, Chap. 3, Appendix G). Furthermore, aquatic, wetland and riparian habitats are also afforded protection under applicable federal, state, or local regulations, and are generally subject to regulation, protection, or consideration by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act, the Regional Water Quality Control Board (RWQCB) under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, and/or the CDFW under Section 1600 of the California Fish and Game Code.

4.1.2.1 Stream

One perennial stream, Coyote Creek, runs through the center of the Property and forms the major geographic divide between its western and eastern halves (Photo 16). Coyote Creek originates to the southeast in the Diablo Range, where it enters Santa Clara Valley at Coyote Reservoir. From Coyote Reservoir, Coyote Creek flows to the northwest, through the Property, and into Anderson Reservoir. From there, Coyote Creek continues to flow northwest through the Santa Clara Valley, before entering the San Francisco Bay at Alviso. Additionally, numerous intermittent (Photo 17) and ephemeral streams occur throughout the Property. These vary from grassy swales with minimal incision and attendant riparian canopy which only run with water during rain events, to intermittent streams which flow consistently during the wet season and support an attendant riparian canopy consisting coast live oak, California sycamore (*Platanus racemosa*), and other trees.



Photo 16. Coyote Creek.

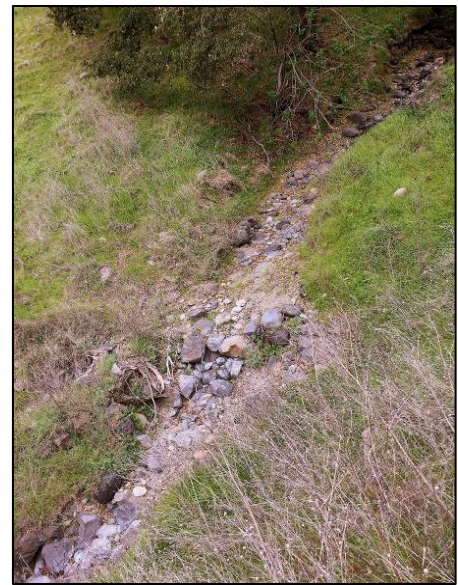


Photo 17. An intermittent stream within the Property.

Fish that occur within the reach of Coyote Creek on the Property include the rainbow trout (*Oncorhynchus mykiss*), Sacramento sucker (*Catostomus occidentalis*), California roach (*Hesperoleucus symmetricus*), and riffle sculpin (*Cottus gulosus*). Amphibians, such as the native western toad, native Pacific tree frog, native California newt (*Taricha torosa*), and nonnative bullfrog (*Litobates catesbeianus*), are present in Coyote Creek on the Property. The

native western pond turtle also occurs in Coyote Creek. Waterbirds such as the Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), wood duck (*Aix sponsa*), common merganser (*Mergus merganser*), green heron (*Butorides virescens*), killdeer (*Charadrius vociferus*), and belted kingfisher (*Megaceryle alcyon*) nest and forage along Coyote Creek. Bats, including the Yuma myotis and big brown bat, forage aerially on insects over Coyote Creek. Terrestrial mammals such as raccoons and bobcats forage and take cover along Coyote Creek, and many mammals drink from this perennial stream.

Intermittent streams on the Property support invertebrates when they contain water, and these invertebrates then attract foraging avian insectivores such as flycatchers and swallows. Birds and mammals will forage along intermittent streams when they contain water, as described for perennial streams above. Pools within these intermittent streams support breeding western toads and Pacific tree frogs if they contain water into late spring.

The ephemeral (short-lived) nature of the ephemeral streams on the Property precludes the presence of fish and aquatic wildlife species, and wildlife use of these streams is similar to that described for surrounding land cover types.

4.1.2.2 Reservoir

The reservoir land cover type consists of the uppermost (south) end of Anderson Reservoir, which is located outside of (but immediately adjacent to) the survey area and Property boundaries. Anderson Reservoir is an artificial lake created by the impoundment of Coyote Creek by Anderson Dam. Currently, the water level in Anderson Reservoir is drawn down and is well below the height of its original design elevation. The exposed shoreline rim is rocky, steeply sloped, and sparsely vegetated. No substantial amounts of emergent vegetation or submerged aquatic vegetation is present in or around Anderson Reservoir adjacent to the Property. The reservoir does not provide particularly sensitive (i.e., rare) habitat, but it is a regulated habitat that would fall under the jurisdiction of the USACE, RWQCB, and CDFW, and it is thus considered a sensitive habitat for the purposes of this NRMP.

In its current drawdown stage, the portion of the reservoir adjacent to the Property contains little to no ponded water; rather, this area consists of the Coyote Creek channel flowing through alluvial materials that have been deposited in the floodplain/reservoir during higher flows. These alluvial materials support a variety of grasses and forbs (Photo 18). In its current condition, this area provides habitat for the same animal species that are present along Coyote Creek, as described in the preceding section.



Photo 18. The south end of Anderson Reservoir, in its drawn-down stage, adjacent to the Property.

Following the completion of the Anderson Dam Seismic Retrofit Project and the re-filling of the reservoir, the nature of this area will change from a creek/floodplain to a permanently impounded lake. Common resident waterbirds that will then occur in and along the shoreline of Anderson Reservoir include the pied-billed grebe (*Podilymbus podiceps*), Canada goose, mallard, American coot (*Fulica americana*), and common merganser, among others. Numerous additional species, such as the northern shoveler (*Anas chrypeata*), lesser scaup (*Aythya affinis*), and bufflehead (*Bucephala clangula*), occur at Anderson Reservoir as nonbreeders, particularly from fall into spring. Shorebirds and wading birds such as the greater yellowlegs (*Tringa melanoleuca*), spotted sandpiper (*Actitis macularius*), great egret (*Egretta alba*), snowy egret (*Egretta thula*), and others forage at the edges of the reservoir during migration and winter.

Double-crested cormorants (*Phalacrocorax auritus*), American white pelicans (*Pelecanus erythrorhynchos*), ospreys (*Pandion haliaetus*), Forster's terns (*Sterna forsteri*), and Caspian terns (*Hydroprogne caspia*) forage for fish in Anderson Reservoir. In addition, a pair of bald eagles (*Haliaeetus leucocephalus*) nests on the northeastern shore of Anderson Reservoir (northwest and well outside of the Property), and forages for fish in Anderson Reservoir; bald eagles moving between Anderson and Coyote Reservoirs were observed during several site visits in the winter and spring of 2018. Amphibian species that may breed in Anderson Reservoir include the western toad, Pacific tree frog, and nonnative bullfrog. Western pond turtles also occur in Anderson Reservoir (CNDDDB 2018).

4.1.2.3 Mixed Riparian Woodland and Forest

Mixed riparian woodland and forest on the Property occurs predominantly along Coyote Creek (Figure 3, Photos 19 and 20). Here, the vegetation consists of a mix of various overstory species, including coast live oak, big leaf maple (*Acer macrophyllum*), California sycamore, and red willow (*Salix laevigata*). Common understory species in the riparian corridor include common snowberry (*Symphoricarpos mollis*) and California blackberry (*Rubus ursinus*). All areas of mixed riparian forest and woodland along Coyote Creek on the Property (i.e., within and outside of the focal vegetation survey area) were mapped via interpretation of aerial imagery using the obvious vegetation signature of red willow and California sycamore versus the surrounding oak woodland. Mixed riparian woodland and forest also occurs along some of the intermittent streams on the Property. However, due to the very narrow nature of riparian habitat occurring along intermittent streams and the large scale of the habitat mapping, these areas are not depicted as riparian on the Habitat and Land Cover Types map and were not mapped in the field.



Photo 19. Mixed riparian woodland and forest habitat along Coyote Creek.



Photo 20. A pool section of Coyote Creek with associated mixed riparian woodland and forest.

Owing to the structural diversity of the mixed riparian woodland and forest habitat on the Property, as well as the presence of water for at least a portion of the year, this land cover type supports a high diversity of animal species. Dense, native riparian forests provide habitat for relatively high densities of native nesting songbirds, such as the song sparrow (*Melospiza melodia*), Pacific-slope flycatcher (*Empidonax difficilis*), black-headed grosbeak (*Pheucticus melanocephalus*), warbling vireo (*Vireo gilvus*), chestnut-backed chickadee, oak titmouse, bushtit, house wren (*Troglodytes aedon*), American robin (*Turdus migratorius*), and dark-eyed junco (*Junco hyemalis*). Oak and sycamore trees also support cavity-nesting bird species such as woodpeckers, American kestrels, wood ducks, and common mergansers. During spring and fall migration, high densities of migrant songbirds forage in these habitats. Several species of reptiles and amphibians occur in riparian habitats on the Property. Leaf litter, downed tree branches, and fallen logs provide cover for the arboreal salamander, slender salamander (*Batrachoseps attenuatus*), western toad, and Pacific tree frog. Several lizards may also occur here, including the western fence lizard, western skink, and southern alligator lizard. Small mammals, such as the ornate shrew

(*Sorex ornatus*), California vole (*Microtus californicus*), and Audubon's cottontail (*Sylvilagus audubonii*) use these riparian habitats as well. Medium-sized mammals, such as the raccoon, striped skunk, and bobcat, also use this habitat.

4.1.2.4 Pond

The pond land cover type includes both seasonal and perennial ponds on the Property. The majority of these ponds are located outside of the focal survey area; however, all ponds southwest of Coyote Creek were visited during the surveys. Ponds on the Property are Two Gates Pond, Shady Pond, Windmill Pond, Mud Lake, Cattail Pond, Rock Pond, Bamboo Pond, Duck Pond, Highlands Pond, Vernal Pond, Wigeon Pond, Cabin Pond, Coe Pond, Upper Corral Pond, Lower Corral Pond, and Nesbit Pond (Figure 3).

Seasonal ponds form during the rainy season, typically in topographically low areas with underlying confining soil layers (generally clays and silts) that prevent water from percolating into the ground. Seasonal ponds also may form on areas with seasonally high groundwater tables. Most of the seasonal ponds on the Property support relatively little aquatic or emergent vegetation; however, once they dry down in the summer they may support a collection of late germinating upland vegetation from the adjacent habitat. Perennial ponds are present in areas where input from creeks or seeps, runoff from a large watershed, and/or a high groundwater table supports year-round ponding during a year of average rainfall. Vegetation in the perennial ponds consists of broadleaf cattail (*Typha latifolia*), which varies from small patches rimming the border of the pond (e.g., in Rock Pond) to large expanses which occupy more than half of the pond (e.g., in Cattail Pond), and a variety of sedges and rushes.

Although observation over multiple years with varying rainfall would be necessary to determine more definitively which ponds are seasonal vs. perennial, observations by Balance Hydrologics, Inc. and H. T. Harvey & Associates during surveys in late winter and spring 2018, coupled with inspection of historical aerial photographs, allowed for preliminary classification of pond hydroperiod as follows:

- Two Gates Pond and Shady Pond are relatively shallow, lack substantial emergent vegetation, and appear to be perennial in most years.
- Mud Lake is shallow and seasonal. In 2018, it was dry in mid-February, possibly due to the paucity of rainfall in early/mid-winter 2017–2018, and was dry again by late July.
- Highlands Pond and Cabin Pond are relatively shallow, lack emergent vegetation, and are seasonal.
- Bamboo Pond and Windmill Pond are shallow; they ponded into June in 2018, but they were dry by late July. These latter two ponds supported some aquatic and emergent vegetation, and mallards and wood ducks were observed in these ponds; western toads and Pacific tree frogs breed in both ponds.
- Vernal Pond is shallow and contained very little water in late March/early April 2018; its bottom was dominated by plants characteristic of the surrounding California annual grassland.

- Rock Pond is dammed and surrounded by infrastructure (i.e., a rock wall), supports emergent vegetation (i.e., cattails) at its upstream end, and appears to be perennial.
- Cattail Pond is completely surrounded by a thick stand of emergent vegetation (i.e., cattails), but is open in the center where the water is too deep to support emergent vegetation. This pond is perennial. A pied-billed grebe was heard calling in this pond, indicating the likely presence of fish or crayfish (*Procambarus clarkii*). Song sparrows and red-winged blackbirds (*Agelaius phoeniceus*) nest in the extensive cattails.
- Wigeon Pond is relatively deep and appears to be perennial, but it supports little emergent vegetation due to trampling and grazing by cattle. Red-eared sliders (*Trachemys scripta elegans*) and several bullfrogs were observed in this pond. Ducks such as mallards, gadwalls (*Mareca strepera*), and American wigeon (*Mareca americana*), as well as other waterbirds such as great blue herons, killdeer, and greater yellowlegs, were observed here.
- Duck Pond is relatively shallow, but it appears to be spring-fed and supports a large stand of cattails, suggesting that it is perennial. California red-legged frog (*Rana draytonii*) egg masses were observed in this pond in 2013 (Rancho Santa Clara Habitat Assessment 2013).

Coe Pond, Upper Corral Pond, Lower Corral Pond, and Nesbit Pond were not visited during 2018 surveys. Based on surveys conducted in 2013 (Rancho Santa Clara Habitat Assessment 2013), Coe Pond does not support emergent vegetation and appears to be perennial (bullfrogs were observed at this pond in 2013); Upper Corral Pond does not support emergent vegetation, and its hydrology is unknown (though possibly perennial). California newt egg masses and California red-legged frogs were observed in this pond in 2013.

No hydrology, vegetative, or species occurrence information is available for Lower Corral Pond or Nesbit Pond, though both are considered likely seasonal based on assessment of historical aerial photos. Photos of all ponds located southwest of Coyote Creek are provided below (Photos 21–32).



Photo 21. Two Gates Pond in April 2018.



Photo 22. Mud Lake in April 2018.



Photo 23. Cabin Pond in April 2018.



Photo 24. Highlands Pond in May 2018.



Photo 25. Shady Pond in April 2018.



Photo 26. Windmill Pond in April 2018.



Photo 27. Bamboo Pond in February 2018.



Photo 28. Rock Pond in February 2018.



Photo 29. Cattail Pond in February 2018.



Photo 30. Wigeon Pond in February 2018.



Photo 31. Duck Pond in February 2018.



Photo 32. Vernal Pond in February 2018.

Seasonal ponds do not support fish species, and do not provide suitable breeding habitat for bullfrogs or crayfish, although these species may travel overland to occupy seasonal ponds when they contain water. These ponds also provide drinking and foraging habitat for mammal species on the Property when they contain water. During the dry season, perennial ponds become more important water sources for mammal species occupying surrounding habitats, while seasonal ponds provide habitat similar to California annual grasslands.

4.1.2.5 Seasonal Wetland



Photo 33. Wetland #2 in the western part of the Property.

Four seasonal wetlands (Wetlands #1–4 on the Habitat and Land Cover Types map) were observed on the Property, and additional seasonal wetlands likely occur outside the focal survey areas. These seasonal wetlands vary in vegetation composition. The drier seasonal wetlands, which only pond water 1–2 inches deep during the wet season or contain saturated soils but no ponding, are typically dominated by rushes (*Juncus* sp.) and rabbitsfoot grass (*Polygomon monspeliensis*) (Photo 33). These types of seasonal wetlands are typically not considered a sensitive habitat by CDFW; however, they do constitute a regulated habitat which would fall under

the jurisdiction of USACE and the RWQCB, and wetlands are thus considered a sensitive habitat for the purposes of this plan.

Seasonal wetlands support limited hydroperiods and areas of open water, and they do not provide suitable habitat for fish, bullfrogs, or crayfish. These wetlands may provide breeding habitat for amphibians such as Pacific tree frogs during years of average or high rainfall if ponded water is present and remains into spring. These wetlands also provide drinking and foraging habitat for mammal species on the Property when they contain water. During the dry season, most seasonal wetlands provide habitat similar to California annual grasslands.

4.1.2.6 Mixed Serpentine Chaparral

Mixed serpentine chaparral occurs in one discrete location on the Property – on a rocky hilltop immediately northeast of the ranch house complex, where chaparral occurs interspersed with serpentine rock outcrops. Mixed serpentine chaparral is defined by the influence of serpentine soils, generally resulting in sparser, stunted vegetation with a large component of native, serpentine-adapted plant species. Sparse tree cover, composed of mature coast live oak and grey pine, occurs here. The shrub layer here is dominated by big berry manzanita (*Arctostaphylos glauca*), with large mature individuals up to 12 feet tall. The shrub layer is fairly open, with a significant component of understory vegetation consisting predominately of wild oat, sticky monkey flower, soap plant (*Chlorogalum pomeridianum*), and white fairy lantern (*Calochorus albus*). Serpentine rock outcrops are distributed throughout this land cover type, and provide habitat for the federally endangered Santa Clara Valley dudleya (*Dudleya abramsii* ssp. *setchellii*).

Chaparral provides habitat for a number of wildlife species associated with dense, low vegetation. Bird species that nest in chaparral habitat include the California thrasher, wrentit, Bewick’s wren, and Anna’s hummingbird. A common poorwill (*Phalaenoptilus nuttallii*) was observed near a rock outcrop and likely breeds here as well.

Mammal species that occur in chaparral habitat include the black-tailed deer, mountain lion, coyote, California mouse, and brush rabbit. Suitable habitat for San Francisco dusky-footed woodrats also occurs in this habitat, but no nests were observed during site visits, suggesting this species is present here in very low numbers, if at all. Reptiles in this habitat include the gopher snake, Pacific rattlesnake, alligator lizard, and western fence lizard.

4.1.2.7 Serpentine Rock Outcrops

Serpentine rock outcrops are present in a few limited areas, though all are outside of the focal survey area. As noted in the preceding section, serpentine rock outcrops are scattered throughout the hilltop where mixed serpentine chaparral is located northeast of the Ranch Complex Area (Photo 34). In addition, we visited a rock outcrop (Photo 35) on the western part of the Property because an occurrence of Santa Clara Valley dudleya had been previously reported in the vicinity of this outcrop (CNDDDB 2018). These serpentine rock outcrops are limited to areas of exposed bedrock interspersed throughout serpentine substrate. Vegetation is limited on the serpentine rock outcrops; although Santa Clara Valley dudleya were found in the outcrops near the Ranch Complex Area, none were found at the outcrop on the western part of the Property. This land cover type is considered a sensitive natural community by the CDFW.



Photo 34. Serpentine rock outcrops near the Ranch Complex Area.



Photo 35. Rock outcrops on the western part of the Property.

The serpentine rock outcrops on the Property do not provide especially valuable habitat for wildlife species due to their extremely limited extent. Reptiles such as the Pacific rattlesnake, gopher snake, and western fence lizard bask, forage, and find refuge within this habitat. Birds, especially raptors, may use rock outcrops as perches. The crevices in the rock outcrops on the Property likely do not provide day-roosting habitat for bats, as temperatures in these crevices are expected to be too cool to provide appropriate thermal conditions for bats.

4.1.2.8 Serpentine Bunchgrass



Photo 36. Serpentine bunchgrass grassland on the Property.

The serpentine bunchgrass land cover type, which occurs in limited areas in the western part of the Property outside the focal survey area, is differentiated from California annual grassland by possessing a larger native plant component, containing specific serpentine indicator species, and having lower overall vegetative cover. On the Property, these areas are dominated by native purple needlegrass (*Stipa pulchra*) and forb species such as many-stemmed California gilia (*Gilia achilleifolia* ssp. *multicaulis*), California poppy, California plantain (*Plantago erecta*), blue dicks (*Dichelostemma capitatum*), most beautiful jewelflower (*Streptanthus albidus* ssp. *peramoenus*), popcorn flower (*Plagiobothrys* sp.), and cream cups (*Platystemon californicus*) (Photo 36). This land cover type is considered a sensitive natural community by the CDFW.

The areas of serpentine bunchgrass habitat on the Property are limited in size and lack topographic heterogeneity. They therefore do not support invertebrates such as the Bay checkerspot butterfly (*Euphydryas editha bayensis*) that are associated with larger, more diverse occurrences of serpentine grassland. Rather, the wildlife community of the serpentine bunchgrass on the Property is similar to that of the much larger expanses of adjacent California annual grassland described above.

We mapped one large east-facing grassland slope, located immediately to the southeast of the ranch house complex, as California annual grassland despite the presence of small serpentine rocks littered across the grassland and despite soils mapping indicating that this area should be serpentine-dominated. Our mapping was based on the dominance and vigor of plants commonly associated with California annual grassland, predominantly Italian rye grass, wild oat, and arroyo lupine (*Lupinus succulentus*), and the complete absence of any serpentine indicator species. Evidently, the underlying serpentine bedrock is not influencing the vegetation composition of this habitat (possibly due to the depth of soil at this location).

4.2 General Wildlife Use

4.2.1 Amphibians and Reptiles

The diverse habitats and topography of the Property support relatively high diversity of amphibians and reptiles. Native amphibian species observed on the Property during 2018 surveys include the Pacific tree frog, western toad, and California newt (Photo 37), which may breed in some of the ponds and wetlands on the Property, as well as the slender salamander, which occurs in leaf litter and under debris in forested areas. The California red-legged frog has been reported breeding in Duck Pond (CNDDDB 2018) and Upper Corral Pond (Rancho Santa Clara Habitat Assessment 2013) and may also breed in other ponds on the Property. The California tiger

salamander has not been recorded on the Property, but it has been recorded nearby (as discussed in Section 4.4.1) and may breed in ponds on the Property. The arboreal salamander (*Aneides lugubris*) and ensatina (*Ensatina eschscholtzii*) are also expected to occur here. Native reptile species observed in upland areas of the Property include the western fence lizard, western skink (*Plestiodon skiltonianus*), western whiptail (*Aspidoscelis tigris*), southern alligator lizard (Photo 38), gopher snake, and northern Pacific rattlesnake (Photo 39), and the ring-necked snake (*Diadophis punctatus*), common sharp-tailed snake (*Contia longicaudae*), racer (*Coluber constrictor*), striped racer (*Masticophis lateralis*), common kingsnake (*Lampropeltis getula*), and western terrestrial garter snake are also expected to occur in upland portions of the Property. California red-sided garter snakes (*Thamnophis sirtalis infernalis*) (Photo 40) were observed in wetter areas along Coyote Creek. Although no western pond turtles were seen during 2018 surveys, this species has been recorded in Anderson Reservoir (CNDDDB 2018), and it was observed along Coyote Creek just inside the boundary of the Property during a survey for a separate project by H. T. Harvey & Associates in 2016; it could potentially occur in on-site ponds as well.



Photo 37. A California newt near Cabin Pond.



Photo 38. A southern alligator lizard near Two Gates Pond.



Photo 39. A Pacific rattlesnake near Rock Pond.



Photo 40. A California red-sided garter snake along Coyote Creek.



Photo 41. A bullfrog in Wigeon Pond.

present. During 2018 surveys, more than 135 species were observed, and additional survey effort performed throughout the year would likely detect another 30-40 or more regularly occurring species. The habitat descriptions above include summaries of representative birds that use the various habitats on the Property, and discussions of sensitive bird species are provided in Section 4.4.3. This section focuses on how species occurrence changes on the Property by season.

Many of the birds that use the Property are present year-round. Examples of these permanent residents include the common merganser, chestnut-backed chickadee, band-tailed pigeon (*Patagioenas fasciata*), white-tailed kite, golden eagle, American kestrel, yellow-billed magpie, acorn woodpecker, Hutton's vireo (*Vireo huttoni*), dark-eyed junco, and many others (Photos 42-45).

Nonnative species of amphibians and reptiles observed on the Property include the bullfrog, which was observed in Wigeon Pond and Coe Pond in 2013 (Rancho Santa Clara Habitat Assessment 2013) and in Wigeon Pond and Mud Pond in 2018 (Photo 41), and the red-eared slider, two of which were observed in Wigeon Pond during 2018 surveys.

4.2.2 Birds

The Property supports high bird diversity due to the diverse nature and high quality of habitat types



Photo 42. A female common merganser with young in Coyote Creek.



Photo 43. A chestnut-backed chickadee carrying nesting material in oak woodland.



Photo 44. Band-tailed pigeons roosting in a valley oak.



Photo 45. A white-tailed kite near its nest in a valley oak.

Others, such as the American pipit, Lincoln's sparrow (*Melospiza lincolni*), golden-crowned sparrow (*Zonotrichia atricapilla*), fox sparrow (*Passerella iliaca*), merlin (*Falco columbarius*), red-breasted sapsucker (*Sphyrapicus ruber*), and varied thrush (*Ixoreus naevius*), occur here only during the nonbreeding season, being present during spring and fall migration and wintering on the site. Still others occur on the site only during migration and the breeding season; these species, which nest on the Property, include the ash-throated flycatcher (*Myiarchus cinerascens*), Pacific-slope flycatcher (*Empidonax difficilis*), Cassin's vireo (*Vireo cassinii*), warbling vireo (*Vireo gilvus*), violet-green swallow (*Tachycineta thalassina*), black-throated gray warbler (*Setophaga nigrescens*), blue-gray gnatcatcher (*Poliophtila caerulea*), black-headed grosbeak (*Pheucticus melanocephalus*), and lazuli bunting (*Passerina amoena*). Finally, there is a group of bird species that occurs on the Property while migrating between wintering and breeding areas; examples of these passage migrants include the greater yellowlegs (*Tringa melanoleuca*), rufous hummingbird (*Selasphorus rufus*), MacGillivray's warbler (*Geothlypis tolmiei*), and Nashville warbler (*Oreothlypis ruficapilla*).

4.2.3 Mammals

Mammals that occur on the Property include herbivorous species such as black-tailed deer and a number of rodents; insectivores such as voles and bats; and larger predators, such as mountain lions, bobcats, coyotes, and badgers. Native mammal species observed on the Property during 2018 surveys include the coyote (Photo 46), black-tailed deer (Photo 47), California ground squirrel (Photo 48), bobcat, California deer mouse, Botta's pocket gopher, striped skunk, brush rabbit, and black-tailed jackrabbit (*Lepus californicus*). Other native mammal species expected to occur on the Property include the gray fox (*Urocyon cinereoargenteus*), California vole, and western harvest mouse (*Reithrodontomys megalotis*), among others. Mountain lions and American badgers occur on the Property vicinity in low densities, and therefore they occur in lower numbers and/or less frequently on the Property. Tule elk are uncommon in the region, but they are known to occur in the Diablo Range as close as the hills east of Anderson Reservoir, so it is possible that they may be an infrequent visitor to the Property.



Photo 46. A coyote in California annual grassland.



Photo 47. A black-tailed deer in California annual grassland.



Photo 48. A California ground squirrel uncharacteristically taking refuge in a valley oak cavity.

Signs of bat presence (i.e., guano and urine staining) were observed inside the eastern room of the north metal Quonset at the Ranch Complex Area and in the southwest room in the Achilles barn at 15470 Carey Avenue. No bats or sign of bats was observed in other structures on the Property. Buildings throughout the Property may provide day-roosting or night-roosting habitat for small numbers of crevice-roosting bats such as the California myotis, Yuma myotis, Mexican free-tailed bat, and big brown bat from early spring into the fall. Big brown bats have been observed in the Coyote Lake-Harvey Bear Ranch County Park to the south (Rana Creek Habitat Restoration 2004). Numerous trees on the site, especially large, old trees with cavities, heart rot, or woodpecker holes, also support crevices that provide potential day-roosting habitat for these common crevice-roosting bat species, which may roost in the day either singly or in maternity colonies. Trees on the Property also provide habitat for the foliage-roosting hoary bat (*Lasiurus cinereus*), which have been observed in the Coyote Lake-Harvey Bear Ranch County Park to the south (Rana Creek Habitat Restoration 2004), and the western red bat (*Lasiurus blossevillii*). However, these species do not likely raise young in the region (Cryan 2003).

Nonnative mammals observed on the Property during 2018 surveys were the feral pig (*Sus scrofa*) and fox squirrel (*Sciurus niger*). Others, such as the house mouse and roof rat, may occur as well, particularly around buildings.

4.3 Sensitive Plants

For purposes of this analysis, “sensitive” plants are considered plant species that are:

- Listed under the Federal Endangered Species Act as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under the California Endangered Species Act (CESA) as threatened, endangered, rare, or a candidate species.
- Listed by the CNPS as CRPR 1A, 1B, 2, 3, or 4.
- Covered under the Habitat Plan (although all such species already meet one or more of the criteria above).

A list of 54 sensitive plants thought to have some potential for occurrence on the Property was compiled using CNPS and CNDDB data, and other sources, as described in Section 3.1 Background Review above; these species were assessed for their potential to occur on the Property. Sensitive plants that can potentially occur elsewhere on the Property are addressed in Appendix B, and a list of all plants observed during 2018 surveys is provided in Appendix A. The 2018 vegetation surveys detected five sensitive plant species, which are discussed in detail below. In addition, one Habitat Plan-covered species (Loma Prieta hoita [*Hoita strobilina*]) that has the potential to occur in the vegetation survey area but was not at an identifiable stage of phenology at the time of the focused vegetation surveys is discussed below. Owing to the high diversity in habitat types, topography, elevation, aspect, and soils, additional sensitive plant species may occur on the Property in areas that were not covered by the 2018 surveys within the focal vegetation survey area (or otherwise observed incidentally during 2018 surveys). As a result, additional sensitive plant species may be detected during more comprehensive surveys.

4.3.1 Santa Clara Valley Dudleya



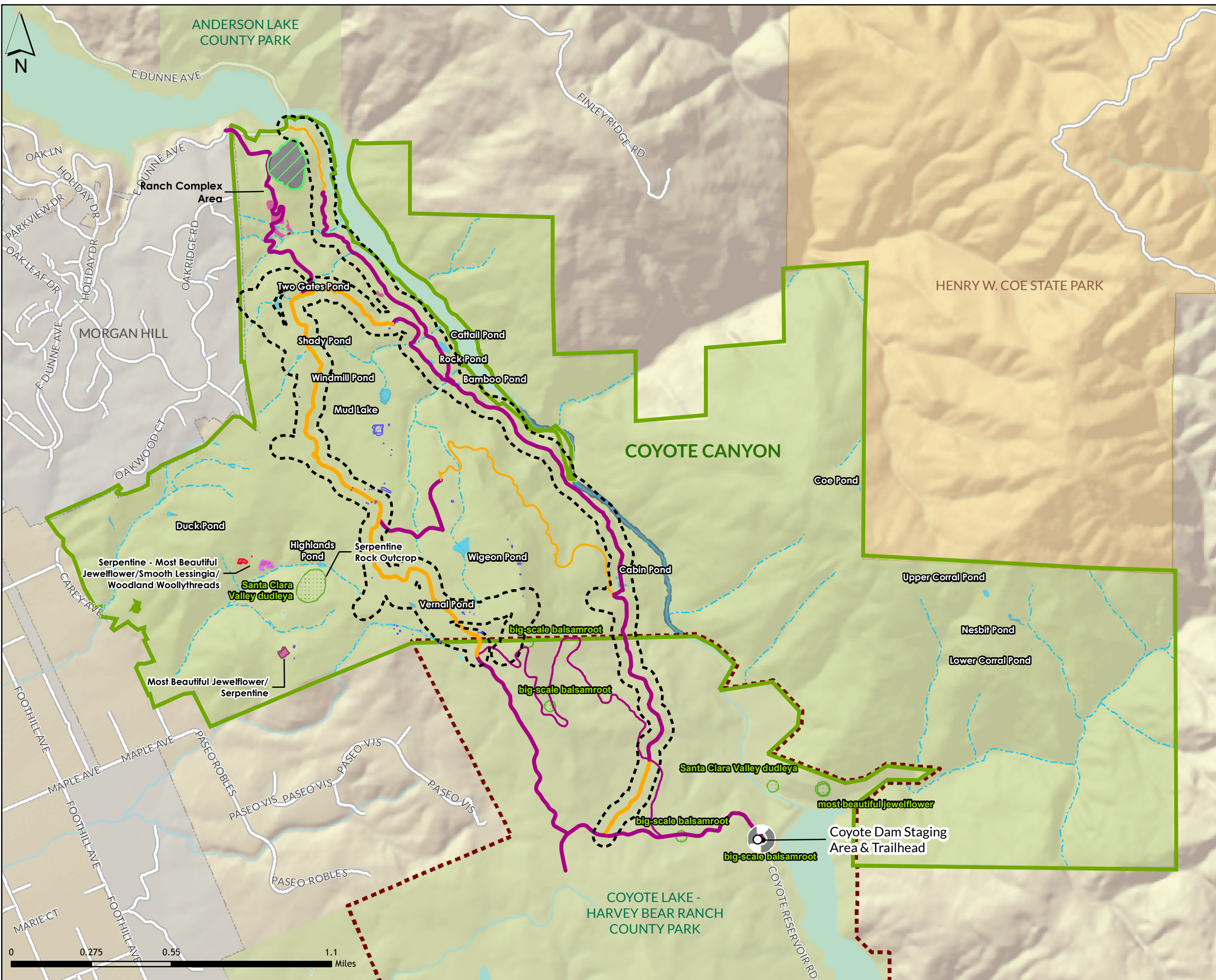
Photo 49. Santa Clara Valley dudleya in serpentine rock outcrops east of the Ranch Complex Area.

Santa Clara Valley dudleya is listed as federally endangered, listed by the CNPS as CRPR 1B.1, and covered under the Habitat Plan. It is a low-growing, succulent, perennial herb in the stonecrop family (Crassulaceae) that blooms during May and June. This dudleya is endemic to the ultramafic formations (serpentinite and peridotite) of the Santa Clara Valley, and is largely restricted to the serpentine areas surrounding Coyote Valley. Populations occur on relatively barren rock outcrops within serpentine grasslands and cismontane woodlands from 197 to 1493 feet in elevation.

One occurrence of several hundred individual Santa Clara Valley dudleya was observed on the Property during the 2018 surveys (Photo 49). This occurrence is located in the serpentine rock outcrop land cover type just east of the ranch house complex (Figure 4). Here, dudleya are present in crevices within rock outcrops at scattered locations all over the hilltop. Because this area is located outside of the focal vegetation survey area, a comprehensive survey was not performed, and it is likely that this occurrence is larger than was observed. The population appeared to be in good health on high-quality habitat, and no immediate threats to

the continued existence of this population are expected from the proposed management activities.

Santa Clara Valley dudleya CNDDDB occurrence #6 is mapped as occurring within the western part of the Property (Figure 4). Outcrops in the vicinity of this mapped occurrence were briefly surveyed on several occasions from February to May 2018, and no dudleya were observed. However, no comprehensive surveys could be performed in this area in 2018 to avoid disturbance of an active golden eagle nest nearby. Therefore, this occurrence may still be extant somewhere near its CNDDDB-mapped location.



Legend

- Coyote Canyon Boundaries
- Coyote Lake-Harvey Bear County Park
- Vegetation Survey Area

- Existing Infrastructure**
- Road - Width
- Single - Track
- Planned Infrastructure**
- Road - Width
- Single - Track
- Mapped Occurrences of Sensitive Plant Species**
- Big-scale Basalmroot
- Most Beautiful Jewelflower
- Santa Clara Valley Dudleya
- Smooth Lessingia
- Woodland Woollythreads
- Sensitive Habitats**
- Mixed Riparian Woodland and Forest
- Mixed Serpentine Chaparral/ Serpentine Rock Outcrops
- Pond/Wetland
- Reservoir
- Serpentine Bunchgrass
- Serpentine Rock Outcrops
- Stream

- CNDDDB Records**
- Plants**
- Specific Location
- Approximate Location
- General Area

4.3.2 Most Beautiful Jewelflower



Photo 50. Most beautiful jewelflower in serpentine grassland on the western part of the Property.

Most beautiful jewelflower is listed by the CNPS as CRPR 1B.2 and covered under the Habitat Plan. It is an annual herb in the mustard family (Brassicaceae) that usually blooms between April and September. This subspecies is indigenous to thin, rocky serpentine (Montara series) soils and serpentinite rock outcrops. It occurs in chaparral, cismontane woodland, and valley and foothill grassland habitats at elevations from approximately 308 to 3281 feet.

Two occurrences of most beautiful jewelflower were observed on the Property, both on the western part of the Property, in May 2018 (Photo 50; Figure 4). Approximately 150 individuals were observed in an area of thin serpentine soils on the north side of the largest canyon on the western part of the Property, and approximately 200 were in a small patch of serpentine grassland, also on very thin serpentine-based soils, farther south (Figure 4). Neither of these occurrences is within the focal vegetation survey area along proposed trails.

4.3.3 Smooth Lessingia

Smooth lessingia (*Lessingia micradenia* var. *glabrata*) is listed by the CNPS as CRPR 1B.2 and covered under the Habitat Plan. It is an erect annual herb in the sunflower family (Asteraceae). This species occurs in areas of approximately 400 to 1400 feet in elevation, and it is endemic to serpentine outcrops in Santa Clara County. It is a delicate, many-branched plant with thread-like leaves along the stem and small, white-to-lavender flowers that bloom from July through November.

Due to the timing of focused sensitive plant surveys, smooth lessingia was not yet flowering and could not be positively identified within the focal survey areas. However, vegetative plants that appeared to be smooth lessingia were found growing in both of the serpentine grassland locations that supported most beautiful jewelflower (Figure 4), and incidental observations in late July confirmed the presence of 2,000–3,000 individual smooth lessingia in the serpentine grassland on the north side of the main canyon on the western part of the Property. Neither of these locations are within the focal vegetation survey area along proposed trails.

4.3.4 Loma Prieta Hoita

Loma Prieta hoita is listed by the CNPS as CRPR 1B.1 and covered under the Habitat Plan. It is a perennial herb in the legume family (Fabaceae) that blooms from May to October. It typically grows in mesic areas with

serpentinite features in chaparral, cismontane woodlands, and riparian woodlands at elevations between 98 and 2822 feet (CNPS 2018).

Due to timing of focused sensitive plant surveys, Loma Prieta hoita was not yet flowering and could not be positively identified on the Property when focused vegetation surveys were conducted. While no plants resembling Loma Prieta Hoita were observed, potential habitat is present in chaparral, woodlands, and riparian habitats in and near mapped serpentine soils on the Property. Surveys would need to be conducted during the flowering period (June–July) to determine if this species is present within or adjacent to the proposed trail alignments (or elsewhere on the Property).

4.3.5 Big-Scale Balsamroot



Photo 51. Big-scale balsamroot observed on the Property.

Big-scale balsamroot (*Balsamorhiza macrolepis*) is listed by the CNPS as CRPR 1B.2. It is a robust and showy perennial herb in the sunflower family (Asteraceae) that is endemic to California (Photo 51). It has a bloom period from March through June. It occurs in openings in chaparral, cismontane woodland, and valley and foothill grassland. It can occur on serpentine soil, though it is not a strict serpentine obligate and it occurs on other soil types as well.

The observed occurrence of big-scale balsamroot on the Property totals at least 1,775 individuals (Figure 4). Only the focal vegetation survey area was searched comprehensively for this species (and several patches were detected within this survey area); areas outside of this survey area were only investigated if the plants were visible from within the survey area. Based on the large extent of the observed occurrence, it is very likely that the species is more abundant and occurs more extensively than we detected, and further comprehensive surveys would result in the expansion

of the mapped occurrence and the addition of many more individuals to the total count. The occurrence of this species on the Property represents an expansion of the known, previously mapped big-scale balsamroot occurrences in Coyote Lake-Harvey Bear Ranch County Park to the south (CNDDDB occurrences #51, #50, and #4). While these occurrences are far enough apart to constitute different occurrences based on CNDDDB mapping standards (i.e., at least 0.25 mile apart), these numerous occurrences likely form a single ecologically connected metapopulation where gene flow occurs between discrete patches due to pollen dispersal by insect pollinators.

The metapopulation of big-scale balsamroot that occurs on the Property and at Coyote Lake-Harvey Bear Ranch County Park is likely important on a state-wide scale. The only currently known population of big-scale balsamroot which possibly exceeds the size of the one on the Property occurs in Alameda County, just southwest of Lake Chabot (CNDDDB occurrence #2). Previous surveys of this occurrence listed its size as

between 10,000 to 100,000 individuals, although complete counts have not been conducted since 1991 (CNDDDB 2018). However, the spatial extent of the Alameda County occurrence is severely restricted by oak woodland habitat and Lake Chabot on its northern and eastern boundaries, and by development along its western and southern boundaries. That site is privately owned and has been proposed as a housing development in the past, so the preservation of the population is not guaranteed. The population which occurs on the Property is relatively unrestricted by the development and limited habitat compared to the Alameda County occurrence, and covers a substantially larger spatial area which would allow for expansion of the population. Additionally, this population will be protected in perpetuity due to its location on the Property, and it is not threatened by the possibility of development. Therefore, the population on the Property and in Coyote Lake-Harvey Bear Ranch County Park likely represents one of the most important population centers for conservation of this rare plant species.

4.3.6 Woodland Woollythreads



Photo 52. Woodland woollythreads on the western part of the Property.

Woodland woollythreads (*Monolopia gracilens*) is listed by the CNPS as CRPR 1B.2. It is an annual herb in the sunflower family (Asteraceae) that is endemic to California. It has a bloom period from March through July, occasionally blooming as early as February. It occurs in openings in broadleaf upland forest, chaparral, cismontane woodland, north coast coniferous forest, and valley foothill and grassland. Although it typically occurs on serpentine soil, it is not a strict serpentine obligate and can occur on other soil types as well.

Two occurrences of woodland woollythreads, neither of which is within the focal vegetation survey area along proposed trails, were observed on the Property (Photo 52, Figure 4). The first occurrence is in the serpentine bunchgrass grassland located approximately 0.3 mile south of the ranch house complex, on a steep eroding slope above an intermittent creek. Approximately 50 individuals were observed here during the May 1, 2018 survey. The habitat consists of eroded, bare mineral soil and patches of California poppy and nonnative annual grasses such as wild oat and foxtail barley. The second occurrence spanned several patches of serpentine bunchgrass grassland on the western part of the Property; there, approximately 200 individuals were observed during the May 6, 2018 survey on shallow serpentine soils on the north side of the largest canyon on the western part of the Property. The observation of a single individual on a gravel bar along Coyote Creek, within the bed of the drawn-down reservoir, was in an atypical habitat location and suggests that this species occurs more widely on the Property than surveys indicated.

4.4 Sensitive Animals

For purposes of this analysis, “sensitive” animal species are considered animal species that are:

- Listed under the Federal Endangered Species Act as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under CESA as threatened, endangered, or a candidate threatened or endangered species.
- Designated by the CDFW as a California species of special concern.
- Listed in the California Fish and Game Code as fully protected species (fully protected birds are provided in Section 3511, mammals in Section 4700, reptiles and amphibians in Section 5050, and fish in Section 5515).
- Listed in the California Fish and Game Code as a specially protected mammal in Section 4800.
- Covered under the Habitat Plan (although all such species already meet one or more of the criteria above).

A number of sensitive animal species are known to occur or could potentially occur on the Property. These include the Habitat Plan-covered California tiger salamander, California red-legged frog, foothill yellow-legged frog, western pond turtle, burrowing owl (*Athene cunicularia*), and tricolored blackbird. The least Bell’s vireo (*Vireo bellii pusillus*) is not expected to occur in or near the Property, but it is addressed in detail below because a focused habitat assessment (required by the Habitat Plan) was conducted on the Property at the Department’s request. Many additional sensitive animal species have been observed on the Property, or could potentially occur on the Property based on the presence of suitable habitat and/or documented occurrences nearby. These are the golden eagle, bald eagle, white-tailed kite, yellow warbler (*Setophaga petechia*), grasshopper sparrow, pallid bat, western red bat, San Francisco dusky-footed woodrat, American badger, ringtail (*Bassariscus astutus*), and mountain lion. All of these potentially occurring species are discussed in detail below. Appendix C provides a list of additional sensitive animal species that occur in the region, but have been determined to be absent from the Property due to a lack of suitable habitat or because the Property is outside the species’ range.

4.4.1 Amphibians

4.4.1.1 California Tiger Salamander

The California tiger salamander is listed as state and federally threatened and is covered under the Habitat Plan. Suitable breeding habitat for California tiger salamanders consists of temporarily ponded environments (e.g., vernal pool, ephemeral pool, or human-made pond) that hold water for a minimum of 3–4 months and are surrounded by uplands that support small mammal burrows. California tiger salamanders will also utilize perennial ponds if aquatic vertebrate predators (e.g., fish and bullfrogs) are not present. Suitable ponds provide

breeding and larval habitat, while burrows of small mammals such as California ground squirrels and Botta's pocket gophers in upland habitats provide refugia for juvenile and adult salamanders during the dry season.

There are no known occurrences of California tiger salamanders on the Property, and no critical habitat for this species has been designated by the U.S. Fish and Wildlife Service (USFWS) on the Property. However, no focused surveys (e.g., larval surveys) have been conducted on the Property. Ponds and wetlands on the Property that provide potentially suitable breeding habitat for California tiger salamanders are Two Gates Pond, Shady Pond, Windmill Pond, Mud Lake, Vernal Pond, and Wigeon Pond. Bamboo Pond, Highlands Pond, and Cabin Pond may also provide breeding habitat for California tiger salamanders if their hydroperiod extends from early/mid-winter through May during an average or above-average rainfall year; however, these ponds were dry during the surveys in February of 2018 (a below average rainfall year). Rock Pond likely does not provide suitable habitat for California tiger salamanders because it is located along a flowing stream and may contain fish. Cattail Pond and Duck Pond may not provide high-quality breeding habitat for California tiger salamanders due to the extensive amount of emergent vegetation in the ponds, and for Cattail Pond, the possible presence of fish and/or crayfish. Coe Pond, Upper Corral Pond, Nesbit Pond, and Lower Corral Pond were not visited as part of the 2018 surveys, and whether or not these ponds may provide suitable breeding habitat for California tiger salamanders is currently unknown.

In the vicinity of the Property, California tiger salamanders are known to occur in the hills east of Anderson Reservoir, at the Institute Golf Course approximately 1.5 miles to the south, and in the hills west of Anderson Reservoir approximately 2.1–2.4 miles to the northwest (CNDDDB 2018). California tiger salamanders can potentially disperse from off-site ponds to the northwest, east, or south to reach the Property by dispersing through the intervening grasslands.

On the Property, extremely steep slopes, thick vegetation (such as chaparral), and incised creek banks represent impediments to dispersal in many areas (especially east of Coyote Creek), and such areas may provide relatively low-quality habitat for this species. Nevertheless, the open grassland areas on the site provide connectivity throughout the Property, and there is potential for California tiger salamanders to occur anywhere on the Property. However, small mammal burrows are patchily distributed on the Property, and only provide refugia for dispersing tiger salamanders in certain areas. Focused larval surveys would be necessary to determine whether and where the species breeds on the Property, and therefore where upland habitat is most important to the species as refugial and dispersal habitat.

4.4.1.2 California Red-Legged Frog

The California red-legged frog is listed as federally threatened, is a California species of special concern, and is covered under the Habitat Plan. California red-legged frogs inhabit perennial freshwater pools, streams, and ponds throughout the Central California Coast Range as well as isolated portions of the western slopes of the Sierra Nevada (Fellers 2005). Their preferred breeding habitat consists of deep perennial pools with emergent vegetation for attaching egg clusters (Fellers 2005), as well as shallow benches to act as nurseries for juveniles (Jennings and Hayes 1994). Nonbreeding frogs may be found adjacent to streams and ponds in grasslands and

woodlands, and may travel up to 2 miles from their breeding locations across a variety of upland habitats (Bulger et al. 2003, Fellers and Kleeman 2007).

California red-legged frogs have previously been documented in two of the 16 ponds on the Property: Duck Pond and Upper Corral Pond. California red-legged frog egg masses were observed in Duck Pond, and a pair of adult California red-legged frogs was observed in amplexus in Upper Corral Pond in March 2013 (Rancho Santa Clara Habitat Assessment 2013). Focused surveys of the remaining ponds on the Property have not been performed, and it is unknown whether California red-legged frogs occur in other ponds. Additional ponds on the Property that provide suitable habitat for California red-legged frogs are Rock Pond, Cattail Pond, Wigeon Pond, Two Gates Pond, and Shady Pond. Other ponds west of Coyote Creek are currently considered too shallow, with hydroperiod too brief, to provide suitable breeding habitat for California red-legged frogs. Coe Pond, Nesbit Pond, and Lower Corral Pond were not visited as part of the 2018 surveys, and whether or not these ponds may provide suitable breeding habitat for California red-legged frogs is unknown. Critical habitat for this species has been designated by the USFWS in the eastern half of the Property (Figure 5; USFWS 2010).

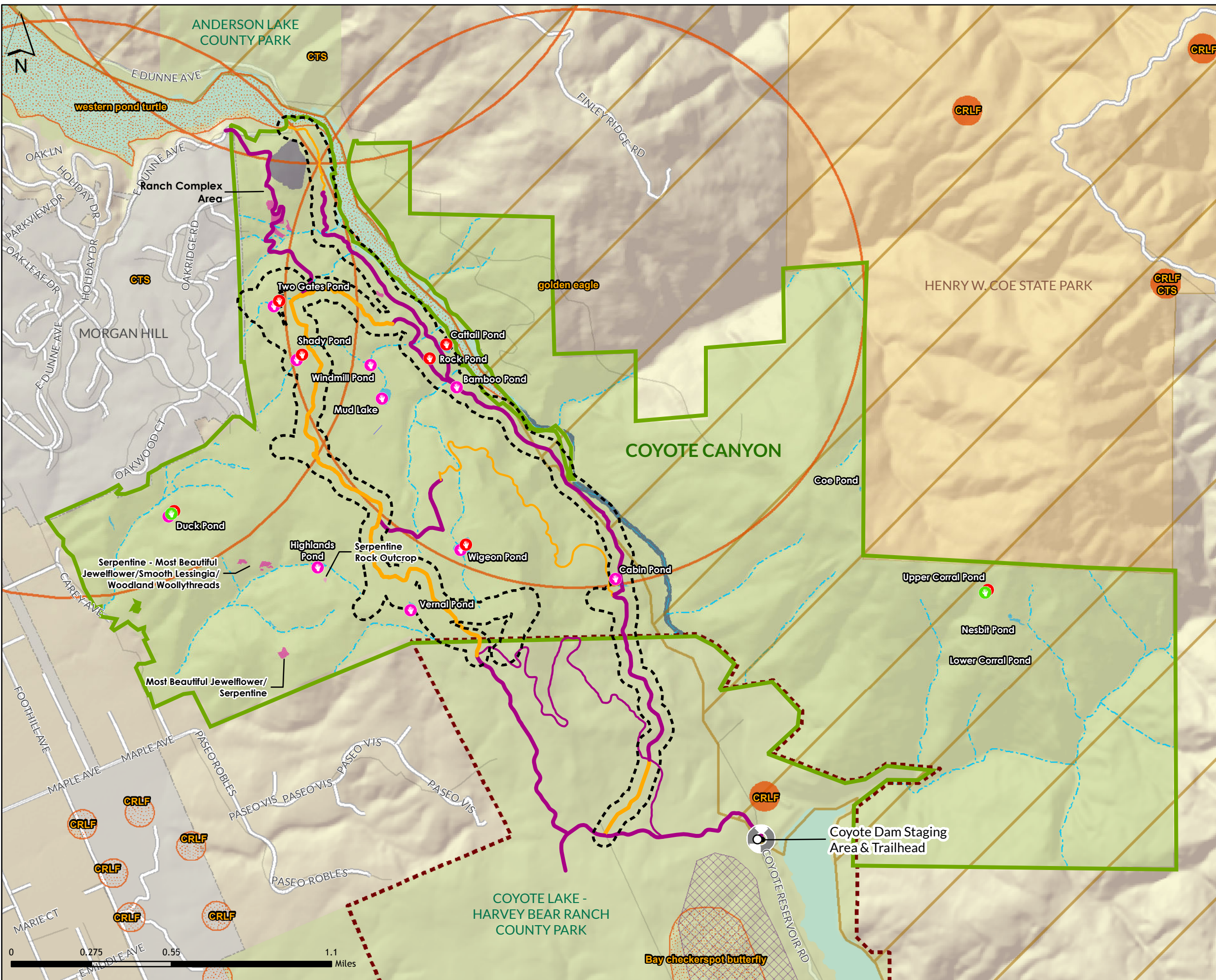
In nearby areas surrounding the Property, California red-legged frogs are also known to occur in the spillway pond below Coyote Dam approximately 0.7 mile south of the Property, at the Institute Golf Course approximately 0.6 mile south of the Property, in the hills to the east approximately 0.4 mile east of the Property, and in the hills above Anderson Lake approximately 2.4 mile northwest of the Property (CNDDDB 2018). California red-legged frogs can potentially disperse from off-site ponds to the northwest, east, or south to reach the Property by crossing the intervening grasslands. The distribution of observations on and surrounding the Property suggests that the local California red-legged frog population may be able to utilize all of the ponds on the Property, as well as Coyote Creek, for dispersal and foraging, and, if appropriate aquatic habitat is present, for breeding.

On the Property, extremely steep slopes, thick vegetation (such as chaparral), and incised creek banks represent impediments to dispersal in many areas (especially east of Coyote Creek), and such areas may provide relatively low-quality habitat for the species. Nevertheless, the open grassland areas on the site provide connectivity throughout the Property, and there is potential for California red-legged frogs to occur anywhere on the Property.

4.4.1.3 Foothill Yellow-Legged Frog

The foothill yellow-legged frog is a California species of special concern and a candidate for listing under CESA, and is covered under the Habitat Plan. Ideal habitat for the foothill yellow-legged frog consists of streams with riffles and cobble-sized rocks, with slow water flow (Jennings and Hayes 1994). The breeding ecology of the foothill yellow-legged frog requires consistently slow-moving flows, as well as the presence of upland areas surrounding breeding locations for use as nonbreeding habitat.

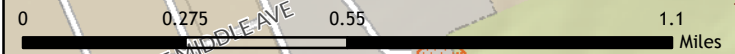
Foothill yellow-legged frogs are not known to occur on the Property. The species is present along Coyote Creek and its tributaries above Coyote Reservoir approximately 5.2 miles to the southeast, and farther upstream along Coyote Creek in the hills approximately 2.5 miles to the east (CNDDDB 2018, Gonsolin 2010, H. T. Harvey &



Legend

- Coyote Canyon Boundaries
- Coyote Lake-Harvey Bear County Park
- Vegetation Survey Area
- Existing Infrastructure**
 - Road - Width
 - Single - Track
- Planned Infrastructure**
 - Road - Width
 - Single - Track
- Mapped Occurrences of Sensitive Wildlife Species and Habitat**
 - Potentially Suitable CTS Ponds
 - Potentially Suitable CRLF Ponds
 - Known Occurrences of CRLF
- USFWS Designated Critical Habitat**
 - Bay checkerspot butterfly
 - California red-legged frog
- Sensitive Habitats**
 - Mixed Riparian Woodland and Forest
 - Mixed Serpentine Chaparral/ Serpentine Rock Outcrops
 - Pond/Wetland
 - Reservoir
 - Serpentine Bunchgrass
 - Serpentine Rock Outcrops
 - Stream
- CNDDDB Records Wildlife**
 - Specific Location
 - Approximate Location
 - General Area

Note: CTS = California Tiger Salamander, CRLF = California Red-legged Frog



Associates 1999, H. T. Harvey & Associates 2002). The reach of Coyote Creek included on the Property supports shallow, slow-flowing water with at least some pebble and cobble substrate, pebble/cobble river bars along both riffles and pools, moderately vegetated backwaters, and isolated pools. The stretches of shallow riffles and deeper pools with adjacent boulders and pebble/cobble river bars provide suitable dispersal and foraging habitat for foothill yellow-legged frogs, and the shallow pools containing cobble substrate and boulders provide ostensibly suitable breeding habitat. However, no yellow-legged frogs were observed in Coyote Creek or in the lower reaches of the creek in Otis Canyon (a tributary of Coyote Creek entering from the eastern portion of the Property) during focused surveys conducted by H. T. Harvey & Associates for a separate project on August 18, and 22, 2016, nor during 2018 surveys (which focused on these creeks on May 26 and June 30). Populations of foothill yellow-legged frogs often disappear from creek reaches below dams (Kupferberg et al. 2012), and due to the presence of Coyote Reservoir and the flow regime associated with the management of Coyote Dam, it is our opinion that foothill yellow-legged frogs are unlikely to be present within the reach of Coyote Creek below Coyote Reservoir. In addition, both nonnative fish and crayfish are present within this reach of Coyote Creek, which may reduce the likelihood of successful breeding by yellow-legged frogs and contribute to the low probability that this species is present. No other streams on the Property provide potentially suitable habitat for this species.

4.4.2 Reptiles

4.4.2.1 Western Pond Turtle

The western pond turtle is a California species of special concern and is covered under the Habitat Plan. Ponds or slack-water pools with suitable basking sites (such as logs) are an important habitat component for this species, and western pond turtles do not occur commonly along high-gradient streams. Females lay eggs in upland habitats, in clay or silty soils in unshaded (often south-facing) areas up to 0.25 mile from aquatic habitat (Jennings and Hayes 1994). Juveniles feed and grow in shallow aquatic habitats (often creeks) with emergent vegetation and ample invertebrate prey. Nesting habitat is typically found within 600 feet of aquatic habitat (Jennings and Hayes 1994), but if no suitable nesting habitat can be found close by adults may travel overland considerable distances to nest.

Western pond turtles are known to occur in Anderson Reservoir immediately adjacent to the Property, and were observed along Coyote Creek just inside the boundary of the Property during a survey for a separate project by H. T. Harvey & Associates in 2016. The species is also present along Coyote Creek and its tributaries above Coyote Reservoir, approximately 2.5 miles east of the Property. Ponds on the Property that provide suitable habitat for western pond turtles (i.e., basking, hiding, and foraging opportunities) are Rock Pond, Cattail Pond, and Wigeon Pond. Relatively deep pools within Coyote Creek that contain slack water with exposed and subsurface woody debris, exposed rocks, rooted or undercut banks, emergent vegetation and branches at the water surface also provide habitat for this species. Pond turtles will utilize upland areas surrounding these ponds and pools where exposed or lightly vegetated compact soil to dig nests and lay eggs. Two Gates Pond, Shady Pond, and Mud Lake were either dry or relatively shallow at the time of the February 2018 survey, and would only be used by western pond turtles if they contained water at depths that provide foraging and escape

opportunities for the species (typically 4 feet deep or greater). Coe Pond, Upper Corral Pond, Nesbit Pond, and Lower Corral Pond were not visited as part of the 2018 surveys, and whether or not these ponds provide suitable habitat for western pond turtles is unknown.

4.4.3 Birds

4.4.3.1 Golden Eagle

The golden eagle (Photo 53) is a California fully protected species that breeds in a range of open habitats, including desert scrub, foothill cismontane woodlands, and annual or perennial grasslands. Golden eagle nesting habitat is characterized by large, remote patches of grassland or open woodland; a hilly topography that generates lift; an abundance of small mammal prey; and tall structures that serve as nest platforms and hunting perches. Once a breeding pair establishes a territory, they may build a number of nests in tall structures such as tall trees or snags, cliffs, or utility towers (Zeiner et al. 1990a, Kochert et al. 2002), only one of which is used in any given year. The eagle breeding season begins in late January and continues through August (California Department of Fish and Game 2008). In the South Bay, golden eagles breed widely in the Diablo Range (Bousman 2007a). Nesting on the Santa Clara Valley floor and the Santa Cruz Mountains occurs more sparingly.



Photo 53. A golden eagle within the Property.



Photo 54. Golden eagle nest used on the western part of the Property in 2018.

The Property supports at least two nesting pairs of golden eagles. A pair was detected nesting in a coast live oak along the northernmost of the two drainages (the Fischer Creek drainage) in the western part of the Property in 2012 (H. T. Harvey & Associates 2012a). In 2018, a single nest was present in the western part of the Property, in a coast live oak south of the largest canyon on that part of the site (Photo 54). A second pair of eagles nested in a ponderosa pine (*Pinus ponderosa*) east of Coyote Creek in 2018. A number of the larger trees throughout the Property, such as coast live oaks, valley oaks, California sycamores, grey pines, and ponderosa pines, provide potential nesting sites for golden eagles, and golden eagle nest sites may change from year to year. Golden eagles forage in open habitats, particularly California annual grassland, throughout the Property.

4.4.3.2 Bald Eagle

The bald eagle is listed as endangered under CESA. Ideal habitat for bald eagles is composed of remote, forested landscape with old-growth or mature trees and easy access to an extensive and diverse prey base. Bald eagles forage in fresh and salt water where their prey species (fish) are abundant and diverse. They build nests in tall, sturdy trees at sites that are in relatively close proximity to aquatic foraging areas and isolated from human activities. The bald eagle breeding season extends from January through August (Buehler 2000).

A single pair of bald eagles has nested on the northeastern shore of Anderson Reservoir approximately 3 miles northwest of the Property since at least 2010, and possibly in several prior years, while another pair has nested on the west side of Coyote Reservoir, approximately 1 mile south of the Property, over the same span. These two pairs forage throughout their respective reservoirs, and on the Property. During 2018 surveys, adults and subadults were observed on a number of occasions, usually over the Coyote Creek area. Although they usually appeared to be moving between the two reservoirs, bald eagles may forage along Coyote Creek or at the southern end of Anderson Reservoir, or in grassland virtually anywhere on the Property. Bald eagles are not currently known to nest on the Property, although there is some possibility that a pair of bald eagles could nest on the Property in future years. Nonbreeding individuals will occur on the Property as occasional foragers, especially during winter and migration.

4.4.3.3 White-Tailed Kite

The white-tailed kite is a California fully protected species. In California, white-tailed kites can be found in the Central Valley and along the coast, in grasslands, agricultural fields, cismontane woodlands, and other open habitats (Zeiner et al. 1990a, Dunk 1995, Erichsen et al. 1996). White-tailed kites are year-round residents of the state, establishing nesting territories that encompass open areas with healthy prey populations, and snags, shrubs, trees, or other nesting substrates (Dunk 1995).

White-tailed kites are common residents in the region where open grassland, ruderal, or agricultural habitats are present. Based on observations during 2018 surveys, 2–3 or more pairs likely nested on the Property. Trees throughout the Property provide suitable sites for nesting by white-tailed kites, and this species may forage in open habitats throughout the Property year-round.

4.4.3.4 Burrowing Owl



Photo 55. A wintering burrowing owl observed in California annual grassland near the southern edge of the Property.

The burrowing owl is a California species of special concern and is covered under the Habitat Plan. This species prefers annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies. In California, burrowing owls are found in close association with California ground squirrels; owls use the abandoned burrows of ground squirrels for shelter and nesting. Burrowing owls were present in the Coyote Valley, Morgan Hill, and Evergreen areas into the late 1990s, but they have been infrequently recorded in either area in recent years (Trulio 2007). The species is still occasionally recorded in Coyote

Valley and in grasslands at higher elevations, such as on Coyote Ridge, but it seems to occur in such areas only during the nonbreeding season. Recent surveys for breeding burrowing owls conducted for the Habitat Plan (Albion Environmental 2008) found no owls breeding in southern Santa Clara County. There are no other recent (i.e., post-2000) breeding records from the Morgan Hill/San Martin area in the CNDDDB (CNDDDB 2018) or in eBird (Cornell Lab of Ornithology 2018). Small numbers of burrowing owls are still recorded in the vicinity (e.g., on Coyote Ridge or northern Coyote Valley) during the nonbreeding season (CNDDDB 2018, Cornell Lab of Ornithology 2018). Thus, although burrowing owls nested in southern Santa Clara County historically, they are currently known to occur there only as scarce nonbreeders.

Burrows of California ground squirrels present in grassland areas of the Property provide roosting habitat for overwintering burrowing owls that may occur during winter and migration, and such owls may forage in more extensive areas of grassland habitat, particularly on the western part of the Property and just east of the western ridgeline. During surveys in late winter and early spring 2018, a single burrowing owl was present in extensive grassland along the western ridgeline, and two individuals were in burrows on a rocky grassland slope near the southern edge of the Property (Photos 55 and 56). Given that no comprehensive surveys for wintering burrowing owls were conducted, it is likely that additional individuals winter on the Property. However, none of these owls lingered beyond April 7, indicating that they did not attempt to breed on the Property.



Photo 56. A wintering burrowing owl observed on a rocky, grassy slope near the southern edge of the Property.

4.4.3.5 Yellow Warbler

The yellow warbler is a California species of special concern. In Santa Clara County, small numbers of yellow warblers nest in riparian habitats along a number of creeks, and they are known to nest on the Property vicinity (Bousman 2007b). Ideal nesting habitat for yellow warblers consists of riparian corridors with dense, shrubby understory and open canopy (Lowther et al. 1999, Cain et al. 2003, Heath 2008).

The mixed riparian woodland and forest habitat along Coyote Creek on the Property provides suitable nesting habitat for yellow warblers. However, none were recorded singing in this area during spring 2018 surveys, so the number of breeders is expected to be low. Nonbreeding individuals occur on the site in the spring and fall, when the species is an abundant migrant throughout the region.

4.4.3.6 Grasshopper Sparrow

The grasshopper sparrow is a California species of special concern. In southern Santa Clara County, the grasshopper sparrow nests primarily in the interiors of large expanses of grassland in hills on either side of the Santa Clara Valley. Extensive areas of open grassland, particularly on the western part of the Property and just east of the western ridgeline, provide potential nesting and foraging habitat for this species, and up to three singing males per visit were detected during spring 2018 surveys. This species is scarce as a winter resident in

Santa Clara County grasslands, and one bird detected in February 2018 indicates that small numbers winter on the Property as well.

4.4.3.7 Tricolored Blackbird

The tricolored blackbird is listed as threatened under CESA and is a covered species under the Habitat Plan. Tricolored blackbirds are found primarily in the Central Valley and in central and southern coastal areas of California. The tricolored blackbird is highly colonial in its nesting habits, and forms dense nesting colonies that, in some parts of the Central Valley, may consist of up to tens of thousands of pairs. Tricolored blackbirds form large, often multi-species flocks during the nonbreeding period and range more widely than during the nesting season.

At the Department's request, H. T. Harvey & Associates performed a focused nesting habitat survey for the tricolored blackbird per Habitat Plan requirements. As described in the Habitat Plan (ICF International 2012), suitable tricolored blackbird nesting habitat includes flooded, thorny, or spiny vegetation dominated by cattails or bulrushes, as well as willows, blackberries, thistles, and nettles, usually near extensive open areas such as marshes, grasslands, or agricultural lands that provide foraging habitat. The Habitat Plan's Geobrowser designates tricolored blackbird survey areas on the Property at Two Gates Pond, Mud Lake, and Wigeon Pond, as well as along the lower portion of a drainage on the western part of the Property. To determine whether suitable habitat for nesting tricolored blackbirds is present on the Property, S. Rottenborn conducted a field assessment of all ponds west of Coyote Creek, as well as all riparian areas, to determine whether any suitable habitat for this species is present on the Property. Because multiple surveys were conducted through June 2018, Rottenborn also looked for tricolored blackbirds during spring 2018 surveys.

In Santa Clara County, tricolored blackbirds have most often been recorded nesting in emergent vegetation within and around ponds, borrow pits, and perennially wet detention basins (Rottenborn 2007b). They have also been recorded nesting in emergent vegetation on deltas where streams enter larger reservoirs and on islands within ponds and reservoirs, as well as in large patches of thistles, usually near water. Although some tricolored blackbird colonies in Santa Clara County have been located in areas where young willows and cottonwoods intermix with herbaceous emergent vegetation, these colonies have been abandoned once the woody plants have grown to become dominant. As a result, Santa Clara County tricolored blackbird colonies have not been observed in areas that would be identified by the Habitat Plan as willow riparian forest and scrub or mixed riparian woodland.

No tricolored blackbirds were observed on the Property during surveys, and there are no prior records (e.g., in CNDDDB) of this species nesting in or very close to the Property. No riparian habitat on the Property provides suitable nesting habitat, as all riparian areas are either dominated by mature trees and shrubs or consist of swales with little to no emergent vegetation. Furthermore, the vast majority of ponds on the Property do not provide nearly enough emergent vegetation to support a colony of tricolored blackbirds. The only pond that is even potentially suitable for nesting by this species is Cattail Pond, whose extensive cattails could possibly be used by nesting tricolored blackbirds. However, no tricolored blackbirds nested at this pond in 2018, and given that this pond is hemmed in fairly closely by woodland and forest, the likelihood that tricolored blackbirds will ever

nest at this pond is low. Nonbreeding tricolored blackbirds may forage with other blackbird species in grasslands or near concentrations of cattle on the Property, though large numbers are not expected to occur here.

4.4.3.8 Least Bell's Vireo

The least Bell's vireo is listed as endangered under FESA and CESA and is a covered species under the Habitat Plan. It nests in heterogeneous riparian habitat, often dominated by cottonwoods and willows. In Santa Clara County, there have been only four records of least Bell's vireos in recent years. In southern Santa Clara County, a pair was present in April and May 1997 along Llagas Creek between Highway 152 and the confluence with the Pajaro River, just east of Gilroy, well south of the Property. This pair built a nest, but the nesting attempt was unsuccessful. At the same location, one or two singing males were reported in May 2001 (Rottenborn 2007a), but they did not linger. A single male was heard singing along Coyote Creek near the Coyote Creek Golf Course in June 2006 (H. T. Harvey & Associates 2007), but this bird was not present for more than a day and was likely a migrant. Another migrant was noted in unsuitable breeding habitat in Alviso on May 23, 2016 (R. Jeffers, pers. comm.).

According to Habitat Plan Condition 16, if site conditions indicate that a project site is within 250 feet of any riparian land cover types within the Pajaro River watershed, a qualified biologist must conduct a field investigation to determine whether suitable least Bell's vireo nesting habitat is present on or within 250 feet of the project site and map any suitable habitat that is detected. At the Department's request, H. T. Harvey & Associates performed a focused nesting habitat survey for the least Bell's vireo per Habitat Plan requirements. Because this species has nested in Santa Clara County only in the extreme southern portion of the county, the Habitat Plan requires nesting habitat surveys for this species only in riparian habitat along creeks within the Pajaro River watershed; therefore, no surveys were necessary along Coyote Creek and its tributaries. The Habitat Plan's Geobrowser designates the lower portion of a drainage on the western part of the Property site as a survey area for the least Bell's vireo. Therefore, to determine whether suitable habitat for this species is present in the portions of the Property draining to the Pajaro River, S. Rottenborn conducted a field assessment of all riparian habitats on the western part of the Property site to determine whether any suitable habitat for this species is present. We assessed habitat suitability by searching for vegetative and structural components typical of areas where least Bell's vireos regularly nest (i.e., southern California). Vegetation was considered to be potentially suitable for use by least Bell's vireos if it contained dense shrub or understory growth extending vertically to a height of 6 to 10 feet, relatively few large-diameter trees (e.g., greater than 3.1 inches diameter at breast height) in the canopy, and an open canopy (Kus 2002, Sharp and Kus 2006, Kus et al. 2010). Because multiple surveys were conducted through June 2018, Rottenborn also looked and listened for this species during spring 2018 surveys.

No suitable breeding habitat for the least Bell's vireo is present on the Property. Riparian vegetation is too mature or lacks sufficiently dense understory or ground cover to be suitable for use by nesting least Bell's vireos. Given that the southern edge of Santa Clara County represents the northern limits of this species' breeding

range along the California coast, and that no suitable breeding habitat is present on the Property, the least Bell's vireo is not expected to occur on the Property.

4.4.4 Mammals

4.4.4.1 Pallid Bat

The pallid bat is a California species of special concern. Pallid bats are most commonly found in oak savannah and in open dry habitats with rocky areas, trees, buildings, or bridge structures that are used as day roosts (Zeiner et al. 1990b, Ferguson and Azerrad 2004). Night roosts often occur in open buildings, porches, garages, highway bridges, and mines. Colonies can range in size from a few individuals to over a hundred (Barbour and Davis 1969), and usually consist of at least 20 individuals (Wilson and Ruff 1999). Pallid bats typically winter in canyon bottoms and riparian areas. After mating during the late fall and winter, females leave to form maternity colonies, often on ridge tops or other warmer locales (Johnston et al. 2006).

The closest known occurrence to the site consists of a maternity colony of 60 pallid bats in a barn approximately 2.7 miles northwest of the Property, near Anderson Dam; this colony is currently active and has been active for more than a decade (CNDDDB 2018, Johnston 2018). Focused surveys (i.e., acoustic monitoring, netting, or daytime inspections when bats would be detectable in the summer) to determine presence of this species have not been performed on the Property. The north metal Quonset structure at the Ranch Complex Area, Achilles barn at 15470 Carey Avenue, and many large, live and dead trees with suitable cavities (e.g., woodpecker holes, rot holes, or other tree hollows) provide potentially suitable day and/or night-roosting habitat for this species. Based on their known presence in the region and the presence of suitable roost habitats, pallid bats could form maternity colonies and non-maternity colonies on the Property, and they may forage in grasslands and other habitats throughout the Property. However, more focused surveys would be necessary to determine whether/where they are present, and their abundance on the Property.

4.4.4.2 Western Red Bat

The western red bat is a California species of special concern. Western red bats are strongly associated with intact cottonwood and sycamore valley riparian habitats at low elevations (Pierson et al. 2006). Both day and night roosts are usually located in the foliage of trees; red bats in the Central Valley show a preference for large trees and extensive, intact riparian habitat (Pierson et al. 2006). Day roosts are often located along the edges of riparian areas, near streams, grasslands, and even urban areas (Western Bat Working Group 2005).

Although the breeding status of this species is poorly understood in California, it is not currently known to rear young in the Bay Area (Cryan 2003, Pierson et al. 2006); thus, breeding females are not expected to occur on the Property. However, individual male and female western red bats may occur as migrants in the spring and fall, and as winter residents. Likewise, nonbreeding individual males may occur during the summer. Western red bats may roost in the foliage in trees virtually anywhere on the Property but they are expected to roost primarily in larger trees with dense foliage in wooded riparian areas (i.e., along Coyote Creek).

4.4.4.3 San Francisco Dusky-Footed Woodrat



Photo 57. San Francisco dusky-footed woodrat nest near the Otis Cabin.

The San Francisco dusky-footed woodrat is a California species of special concern. Woodrats prefer riparian and oak woodland forests with dense understory cover, or thick chaparral habitat (Lee and Tietje 2005). Dusky-footed woodrats build large, complex nests of sticks and other woody debris, which may be maintained by a series of occupants for several years (Carraway and Verts 1991).

Active woodrat stick houses (i.e., houses with fresh vegetation and tunnels) were observed in the mixed oak woodland habitat on the western

part of the Property in 2012 (H. T. Harvey & Associates 2012a) and during 2018 surveys. These nests were located on the ground where suitable understory cover was present; however, where the understory was thin we observed woodrat nests in trees, typically in large coast live oaks or valley oaks. Additionally, small numbers of woodrat houses were observed in mixed oak woodland between the western ridgeline and Coyote Creek (Photo 57), and one woodrat house was observed in the outhouse behind the small west Quonset in 2018. Woodrats are likely present in fairly low densities throughout the oak woodland and chaparral habitats on the Property, although the relatively low numbers of nests detected suggests that the species is not abundant here.

4.4.4.4 American Badger

The American badger is a California species of special concern. Badgers can have large territories, up to 21,000 acres in size, with territory size varying by sex and by season. They are strong diggers and feed primarily on other burrowing mammals, such as ground squirrels. In central California, American badgers typically occur in annual grasslands, oak woodland savannas, semi-arid shrub/scrublands, and any habitats with stable ground squirrel populations or other fossorial rodents (i.e., ground squirrels, gophers, kangaroo rats, and chipmunks [Zeiner et al. 1990b]). While varying with season and by sex, home ranges for badgers have been found to be in the general range of 400–600 acres (Messick and Hornacker 1981), and badgers are capable of long-distance dispersal.

No badgers, evidence of badgers (e.g., excavated small mammal burrows), or badger dens were observed on the Property during the mammal surveys in 2018. The DeAnza College Wildlife Corridor Stewardship Team (unpublished data) has monitored wildlife use in Coyote Valley (located 6 or more miles northwest of the Property) since 2007, and has documented the occurrence of mammals in the area. Their monitoring of mammal activity in Coyote Valley has documented the occurrence of American badgers foraging in and moving through agricultural fields in the Valley, as well as occurrence in the foothills on both sides of the Valley. Several road-killed badgers have been observed, and badgers have been observed denning in hills near IBM north of

Bailey Road and along Laguna Avenue north of the Property. H. T. Harvey & Associates biologists found a dead badger approximately 300 feet north of the intersection of McKean Road and Bailey Avenue in San José, California. In addition, a badger was observed at Freeman Quarry in 2010, and an active badger den was detected adjacent to the quarry in 2012 (H. T. Harvey & Associates 2012b). These observations indicate that badgers occur in foothills adjacent to, and occasionally within, portions of the Santa Clara Valley.

Grasslands on the Property provide suitable denning, foraging, and dispersal habitat for badgers. Based on the locations of badgers detected within and adjacent to the Santa Clara Valley, the high mobility of this species, and the suitability of grasslands on the Property for denning and foraging, badgers could potentially occur on the Property as breeders, foragers, or dispersers (albeit at low densities or relatively infrequently).

4.4.4.5 Ringtail

The ringtail is a California fully protected species. Ringtails are distributed throughout much of California, occurring in forests and shrubland, often in close association with rocky areas or riparian habitats. This species nests in rock recesses, hollow trees, logs, snags, abandoned burrows, or woodrat nests; young are usually born between May and June (Walker et al. 1968).

Although the status of ringtails in Santa Clara County is not well known, the Property supports suitable habitat for this species. Ringtails have been recorded near Lexington Reservoir and near Little Arthur Creek west of Gilroy and near the confluence of Carnadero Creek and the Pajaro River, and it is likely that ringtails are present in small numbers in less developed, wooded areas elsewhere in the County. Rock outcrops and riparian habitats on the Property provide ostensibly suitable denning, foraging, and dispersal habitat for ringtails. Based on the locations of reported occurrences in the southern portion of the County and the suitability of riparian habitats on the Property for denning, foraging, and dispersal, ringtails could potentially occur on the Property in low numbers.

4.4.4.6 Mountain Lion

The mountain lion is a specially protected mammal under the California Fish and Game Code. The mountain lion is a solitary mammal and only females with young live in groups. The mountain lion is a wide-ranging carnivore that occurs in a variety of forested habitats, especially those that support black-tailed deer populations. Oak woodland and riparian habitats on the site provide suitable foraging, movement, and denning habitat for this species. Within these habitats, den sites are typically located in rocky terrain or dense vegetation (Pierce and Bleich 2003).

No lions, or evidence of lions (e.g., scat or potential dens), was observed on the Property during the mammal surveys or other field surveys in 2018. However, several organizations are monitoring mountain lions in the Bay Area (e.g., Bay Area Puma Project and The Santa Cruz Puma Project) and this species has been documented throughout the Santa Cruz and Diablo Ranges, including in Coyote Valley. Likewise, the DeAnza College Wildlife Corridor Stewardship Team (unpublished data) has documented mountain lions in the Coyote Valley during their long-term camera trapping studies, and mountain lions are occasionally seen in the Jackson Oaks

and Holiday Lake Estates residential areas immediately north of the Property. Home ranges for mountain lions vary greatly, but typically range from about 30 square miles to over 200 square miles, depending on the sex of the animal, and habitat and prey availability (Allen 2014, Dickson and Beier 2002). Based on their documented occurrence in the region and the presence of suitable habitat and prey base on the Property, mountain lions are expected to occur on the Property in low densities.

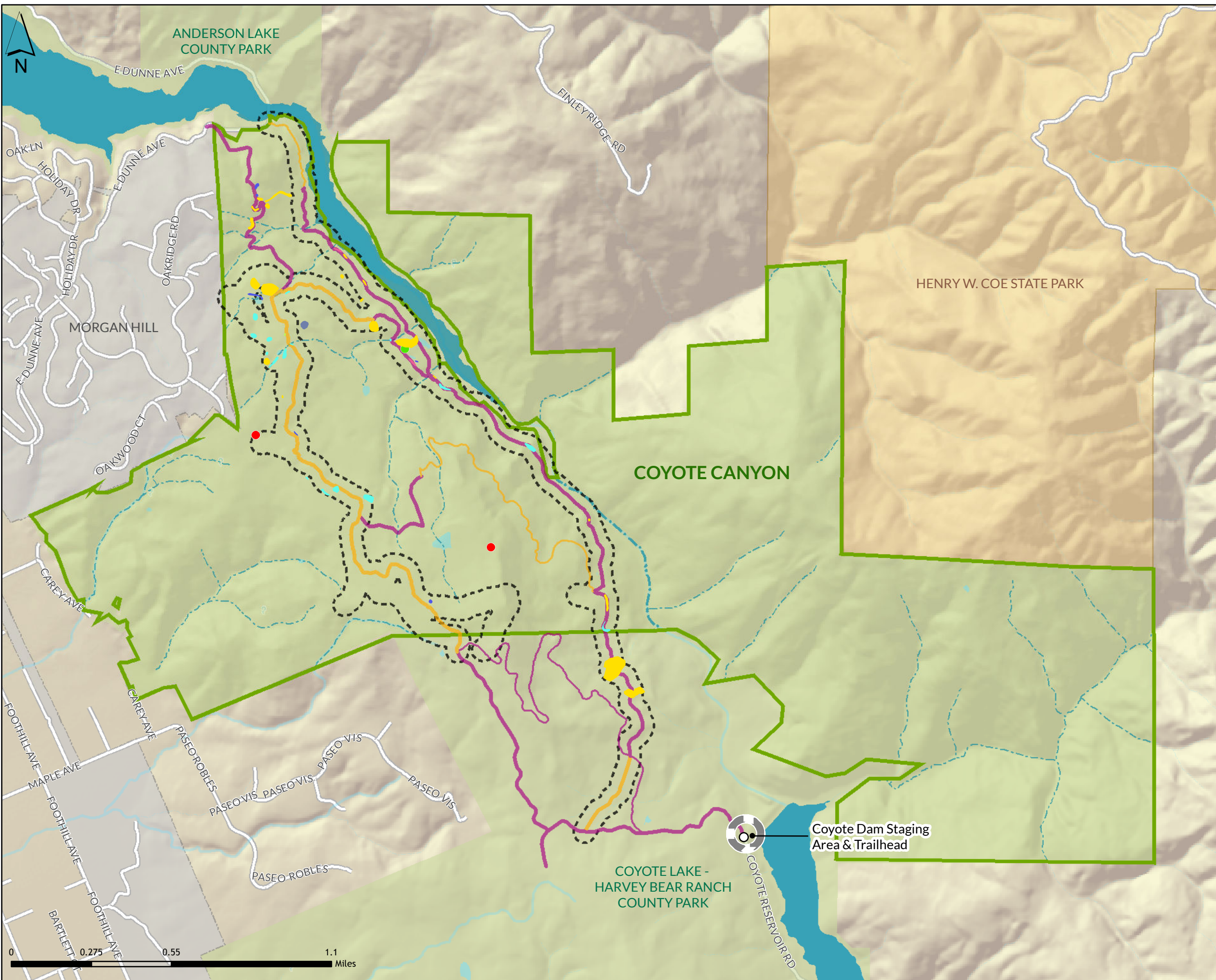
4.5 Nonnative and Invasive Plant and Wildlife Species

4.5.1 Nonnative and Invasive Plant Species

Nonnative invasive species are those that were not historically present in a given area, and are commonly distributed into novel habitats by anthropogenic activity such as international trade and travel. These species are differentiated from those considered to be merely nonnative by the significant deleterious effect invasive species can have on local ecosystems. In general, nonnative invasive species threaten the diversity and abundance of native species in invaded areas through competition for resources, predation, parasitism, interbreeding with native populations, transmitting diseases, or causing physical or chemical changes to the invaded habitat. In some cases, nonnative invasive species have replaced the previously dominant native species, and now provide the dominant and characteristic flora of habitats such as annual grasslands within California. The California Invasive Plant Council (Cal-IPC) rates invasive plants in California into three categories based on ecological impact: High, Moderate, and Limited. Surveys for invasive plants within the vegetation survey area focused on forbs which received a Cal-IPC rating of “Moderate” or “High”, and grass species which received a rating of “High”. However, species with a rating of “Limited” were also mapped if they occurred in large populations which were having a deleterious effect on ecosystem health. Figure 6 depicts the locations of more obvious occurrences of nonnative invasive plants detected within and near the focal vegetation survey areas during focal vegetation surveys in 2018. Additional occurrences of these plants were noted incidentally elsewhere on the Property. Following are discussions of the invasive plant species most prevalent on the Property.

4.5.1.1 Yellow Star Thistle

Yellow star thistle (*Centaurea solstitialis*) is a winter annual, late-flowering noxious broad-leaved weed in the sunflower family (Asteraceae) that is considered one of the most deleterious weeds in the northwestern United States. Yellow star thistle has a Cal-IPC rating of “High”. It is commonly found growing in full sun in California annual grassland and oak woodland habitats throughout California, generally below 7,000 feet and outside of the desert regions of the state. This species is common and abundant throughout the greater Bay Area. Yellow star thistle initially grows as a small rosette which can be difficult to distinguish from surrounding vegetation before bolting in late spring and growing a flowering stem up a meter tall with many yellow flowers covered in spines up to 1 inch long. Large plants can produce over 100,000 seeds, which generally only remain viable in the soil for up to 4 years. Yellow star thistle remains green late in the spring and into early summer, making it easy to distinguish from surrounding vegetation if surveyed for in the appropriate phenology window. Impacts from yellow star thistle infestations are various and wide-ranging, and include consumption of ground water,



Legend

- Coyote Canyon Boundaries
- Santa Clara County Parks
- Protected Lands
- Roads
- Existing Infrastructure**
- Road - Width
- Single - Track
- Planned Infrastructure**
- Road - Width
- Single - Track
- Resource Survey**
- 200-foot Vegetation Survey Area
- Invasive Plant Species**
- Bull Thistle
- Medusahead
- Yellow Star Thistle
- Milk Thistle
- Italian Thistle
- Italian Thistle, Milk Thistle
- Italian Thistle and Yellow Star Thistle
- Italian Thistle, Yellow Star Thistle, Milk Thistle

* Several occurrences of nonnative and invasive plant species were encountered incidentally outside of the vegetation survey area. These areas were mapped where feasible and are shown here.

reduction of forage quality for cattle and horses (for which it is toxic), and significant degradation to habitat of native plants and animals due to out competing desirable plant species (DiTomaso et al. 2006).



Photo 58. An extensive infestation of yellow star thistle in the western part of the Property.

This species' occurrence certainly extends beyond the boundary of the vegetation survey area on the Property, and should be expected in areas of California annual grassland habitat throughout the Property. In particular, large infestations were incidentally noted outside the survey area within the western part of the Property (Photo 58), but these areas were not mapped due to their large extent and because they were outside the focal survey area.

Yellow star thistle is a common component of the California annual grassland community on the Property. In addition to the large yellow star thistle infestations mapped within the focal vegetation survey area (Figure 6), this species occurs in a number of additional areas on the Property. Due to the relatively early timing of the focal survey for this species (May), the mapped infestations on Figure 6 underestimate this species' actual extent within the survey area. Infestations were generally mapped either by observation of small rosettes, which can be easily missed when overtopped by adjacent vegetation, or by remnants of last year's flower stems.

4.5.1.2 Medusa Head

Medusa head (*Elymus caput-medusae*) is a winter annual in the grass (Poaceae) family and is considered an extremely deleterious weed, particularly for its ability to function as an ecosystem transformer and permanently alter the function of an ecosystem. Medusa head has a Cal-IPC rating of "High" (Cal-IPC 2018). This species is found throughout most of the state, excluding the high sierra and the southern desert region. It typically invades California annual grassland, oak woodland, and chaparral habitats, and is a common component of these habitats in the greater Bay Area. Seed dormancy and viability is usually short-lived in medusa head, with most seeds germinating soon after contact with the soil and generally only remaining viable for up to 2 years. While medusa head is a winter annual grass like many nonnative grass species in California, it typically matures 2–4 weeks after most other species have senesced. This allows it to tap into moisture and light resources which would be limited if it had matured earlier in the growing season along with most other annual grass species. This also means that medusa head can be difficult to survey for during the appropriate phenology window for many other noxious weeds, as before it matures it is nearly indistinguishable from other annual grass species. However, when surveyed for in the appropriate phenology windows (typically late May to early June), this species can be readily mapped as it is usually the only annual grass species which remains green and has not yet senesced. Impacts from medusa head are severe, and include reduction in forage quality due to its high silica

content, production of thatch which inhibits germination of desirable native species, and resource and habitat competition with other species (Kyser et al 2014).

Medusa head was observed in only two locations on the wide flat ridgeline in the western portion of the Property during the focal vegetation surveys (Figure 6), though in late July, much more extensive occurrences were noted incidentally in grasslands along the western ridgeline.

4.5.1.3 Italian Thistle



Photo 59. Italian thistle in an area that was previously disturbed by cattle.

Italian thistle is an annual or biennial forb in the sunflower (Asteraceae) family whose ecological impact is rated as “Moderate” by Cal-IPC (Cal-IPC 2018). It is found in a variety of habitats, but generally invades California annual grassland and mixed oak woodland, and will grow very densely under oak canopy and can completely exclude other plants. This species flowers continuously until soil moisture has been exhausted, and can produce over 20,000 seeds per plant. Two types of seeds are produced: brown seeds, which remain with the flower head and fall to the ground after senescence, and silver seeds, which are easily dispersed by winds

to an average distance of 75 feet (up to 325 feet in strong winds). The seeds have a mucilaginous coating that allows them to stick to other surfaces when wet and helps increase germination, especially on clay soils (Ditomaso and Healy 2007). Seeds may remain viable for up to seven years and can germinate from depths of up to 4 inches. Impacts from this species include exclusion of native plant species and reduced forage due to its spiny leaves being unpalatable.

Italian thistle is extremely common both regionally and locally on the Property, often occurring in areas that have been disturbed by cattle, such as beneath scattered oaks that offer shade to cattle (Photo 59; Figure 6). Due to its ubiquitous nature, only the largest infestations were mapped during the survey. Additionally, this species is likely present in California annual grassland and mixed oak woodland habitats outside of the survey area within the rest of the Property.

4.5.1.4 Milk Thistle

Milk thistle is an annual or occasionally biennial forb in the sunflower (*Asteraceae*) family whose ecological impact is rated at “Limited” by Cal-IPC (Cal-IPC 2018). Milk thistle can produce tall, dense stands that excludes native vegetation. This species is generally restricted to areas of significant disturbance, such as along fence



Photo 60. Milk thistle infestation associated with cattle disturbance under a coast live oak tree.

lines or roads and pasturelands. Most seeds germinate after the first fall rain, but they can remain viable in soil for at least 9 years. This species can accumulate levels of nitrates which are toxic to cattle (DiTomaso and Healy 2007).

Milk thistle is common on the Property, often occurring in areas that have been disturbed by cattle, such as beneath scattered oaks that offer shade to cattle (Photo 60; Figure 6). Due to its ubiquitous nature, only large infestations which completely excluded native vegetation were mapped during the survey. Additionally, this species is likely present in California annual grassland and oak woodland outside of the survey area within the rest of the Property.

4.5.1.5 Bull Thistle

Bull thistle (*Cirsium vulgare*) is a biennial, occasionally annual forb in the sunflower (*Asteraceae*) family whose ecological impact is rated as “Moderate” by Cal-IPC (Cal-IPC 2018). Bull thistle can invade a variety of habitats, and is generally found in heavily disturbed areas such as roadsides, rangeland, or forest clear cuts. This species can produce up to 300 seeds per plant, and can have as many as 400 flower heads per plant. Seed dispersal distance is generally low, as the seeds’ pappus detaches at maturity, and most seeds will germinate within a few feet of the flower head. Typically, most seeds germinate within the first year, however seeds which are buried under a few inches of soil may survive up to three years or even longer under favorable conditions. Similar to Italian thistle, impacts from this species include exclusion of native plant species and reduced forage due to its spiny leaves being unpalatable (DiTomaso et al. 2013).

Bull thistle is common regionally, although it is not a dominant invasive species on the Property. It was only noted in one discrete location in the survey area, adjacent to a pond and wetland complex where substantial grazing impacts had occurred (Figure 6). Only a few senescent plants from the previous growing season were noted during the February 2018 survey, as it was too early in the growing season for this year’s rosettes to be visible. While bull thistle was only observed in one location within the survey area, it is likely that this species occurs in other areas of the Property owing to its prevalence in the region.

4.5.2 Nonnative and Invasive Wildlife Species

4.5.2.1 Feral Pig

Feral pigs are common on the Property, and pig rooting is extensive in California annual grasslands and in the understory of mixed oak woodlands (Photos 61 and 62). This species was seen during a number of 2018 survey visits, with family groups of up to 20 at a time being observed (Photos 63 and 64). This exotic species is the ancestor of European wild boars and domestic pigs, with which they freely hybridize (Frederick 1998); was intentionally introduced to North America for hunting; and is now the most abundant wild-living introduced ungulate in the United States (Mayer and Brisbin 1991). Feral pigs are highly adaptable, can inhabit a wide range of environments, are omnivorous and can survive on a great variety of food resources, and are capable of rapid increases in population (Baskin and Dannell 2003). Feral pigs can cause substantial environmental damage (Cushman et al. 2004) and present health, and safety concerns to humans, livestock, and wildlife in California (Kreith 2007, Barrios-Garcia and Ballari 2012, Brown et al. 2018).



Photo 61. Pig rooting in California annual grasslands.



Photo 62. Pig rooting in oak woodlands.



Photo 63. Family groups of feral pigs in California annual grassland.



Photo 64. A feral pig near Windmill Pond.

Feeding and rooting activities of feral pigs can damage ecosystems by disturbing soil, uprooting plants, and modifying physical characteristics and resources. Soil disturbance by pigs facilitates invasion by exotic plant species, increases exotic plant species diversity, and can reduce vegetative soil cover (Cushman et al. 2004). In addition to damaging pastures and causing disturbance in riparian areas (Barrios-Garcia and Ballari 2012), rooting behavior and movements can damage fencing, gates, water troughs, and other infrastructure. Feral pigs feed not only on plants, but also on other animal species, potentially impacting other wildlife populations (Jolley et al. 2010, Barrios-Garcia and Ballari 2012). On the Property, feral pig “wallows” at the edges of some ponds, such as Wigeon Pond and Two Gates Pond, have degraded emergent vegetation. Feral pigs can also present a danger to public safety by charging when they feel threatened, and may act aggressively towards dogs, although the likelihood of an attack is generally low.

4.5.2.2 Bullfrog

The American bullfrog has been accidentally and intentionally introduced (e.g., for food in the 1920s by commercial frog farmers) throughout the world and is now established throughout most of the western United States. The species’ large size, mobility, generalized eating habits (their prey includes native amphibians as well as other aquatic and riparian vertebrates [Graber 1996]), and aggressive behavior have made bullfrogs extremely successful invaders and a threat to biodiversity (AmphibiaWeb 2008).

Bullfrogs are known predators of California red-legged frogs (Moyle 1973, Hayes and Jennings 1986, Cook and Jennings 2001, Kiesecker et al. 2001) and California tiger salamanders (Fisher and Shaffer 1996, Semlitsch 2002, Shaffer and Trenham 2005). Bullfrogs have been observed in Wigeon Pond and Coe Pond in 2013 (Rancho Santa Clara Habitat Assessment 2013), and in Wigeon Pond, Mud Pond, and Coyote Creek during 2018 surveys. Upper and Cattail Ponds also provide suitable breeding habitat for bullfrogs due to their perennial nature.

4.5.2.3 Exotic Fish and Crayfish

Mosquitofish have been introduced throughout the world, including Santa Clara County, to control mosquito populations. Such introductions have been shown to have negative effects on amphibians in experimental studies, including decreased survival of larval Pacific tree frogs (Goodsell and Kats 1999) and California newts (Gamradt and Kats 1996), as well as tail injury, reduced metamorph size, and altered activity patterns of larval California red-legged frogs (Lawler et al. 1999).

Nonnative fish are known predators of California red-legged frogs (Moyle 1973, Hayes and Jennings 1986, Cook and Jennings 2001, Kiesecker et al. 2001) and, along with nonnative crayfish, are known predators of California tiger salamanders (Fisher and Shaffer 1996, Semlitsch 2002, Shaffer and Trenham 2005). Nonnative crayfish were observed in Coyote Creek inside the boundary of the Property during H. T. Harvey & Associates' surveys for a separate project in 2016. No nonnative fish or crayfish have been observed within any pond on the Property. However, it is suspected that nonnative fish or crayfish are present in Cattail Pond due to its perennial nature and the presence of piscivorous pied-billed grebes in this pond.

Section 5. Natural Resource Management and Monitoring Recommendations

When biological resources on a property are not already well-managed, resource management plans often include detailed analyses of alternative management strategies to identify the management regime that will best restore, enhance, or maintain the target resources. In the case of the Property, existing management is maintaining healthy populations of the target sensitive plant and wildlife species as well as diverse, healthy plant communities, and this NRMP proposes little in the way of changes to the existing management regime. Nevertheless, the existing management needs to be codified so they can be applied consistently and effectively by the Department and so that a concrete adaptive management strategy can be defined. Thus, site conditions were analyzed in detail to identify the management strategies that would best maintain and, where opportunities are present, potentially enhance the natural resources on the Property.

Within the Santa Clara County parks system, *resource management* is defined as follows:

A course of action to manage the parks so that the outdoors is available for the enjoyment of the public and at the same time, to preserve, enhance, and restore the best example of our natural environment. It is any course of action toward achieving and maintaining a given condition in plant and/or animal populations and/or habitats, and protection of biotic, geologic, and scenic resources that are identified in the specific plans of each park.

This section describes recommended natural resource management and monitoring strategies to protect and/or enhance natural resources on the Property. Management of the Property's natural resources can take many forms, including protection, ordinance/regulation enforcement, and enhancement. Based on existing Property conditions and the sensitive natural resources identified during the 2018 surveys, the goals of the management and monitoring recommendations provided below are to:

- Maintain existing high-quality habitat conditions throughout the Property (e.g., via codified management practices).
- Reduce herbaceous fuels throughout the Property to minimize fire risk.
- Manage nonnative and invasive plant species.
- Protect and enhance known and potential breeding habitat for California red-legged frogs and California tiger salamanders and basking/foraging habitat for western pond turtles.
- Protect known occurrences of sensitive plant species and habitat/land cover types.
- Protect water quality and habitat quality within the Coyote Creek riparian corridor.

- Enhance areas of blue oak woodland on the Property.
- Enhance habitat for roosting bats and nesting/roosting barn owls.
- Protect active nests of golden eagles and other nesting birds.
- Monitor the effectiveness of protection and enhancement efforts, and apply adaptive management strategies where needed.

As described in *Section 3 Methods for Collecting Baseline Natural Resource Information* above, the 2018 surveys focused on the road and trail alignments proposed under the Plan. Thus, the discussion of natural resource management and monitoring activities provided herein focuses on the mapped occurrences of sensitive resources present within the focal survey areas, and provides a broader, more programmatic discussion of the management and monitoring of natural resources in other areas of the Property.

The protection, enhancement, monitoring, and management of the sensitive natural resources identified during the 2018 surveys are discussed in Section 5.1 below and provide context for the Property’s programmatic grazing plan. As stated above, the Property provides highly suitable habitat for sensitive plant and wildlife species and their habitats, and there are currently no significant impediments to the continued health of these populations for which immediate actions are recommended. Nevertheless, this NRMP provides management and monitoring tools to maintain and/or enhance habitats for these sensitive natural resources.

The Department’s most comprehensive management tool for the Property is managed grazing, and the majority of natural resources on the Property will be managed via the Property’s grazing plan (Section 5.2 below). The grazing plan is based on the Property’s current grazing management regime, which relies on a knowledgeable rancher to establish the stocking rate and timing of livestock grazing; in accordance with the Department’s *Santa Clara County Parkland Range Management Policy*, the grazing plan codifies grazing practices and natural resource conditions so that the grazing plan can be applied consistently and effectively by the Department. In addition, the grazing plan allows for potential improvements to increase the efficiency of management practices, as well as to protect and/or enhance existing resources to improve habitat for target plant and wildlife species.

Additional site-wide management tools, consisting of the management of nonnative invasive plants and animals, are discussed in Section 5.3.

5.1 Protection, Monitoring, and Enhancement of Sensitive Natural Resources

The Property supports or has previously supported a number of sensitive species, including at least five sensitive plant species: Santa Clara Valley dudleya, most beautiful jewelflower, big-scale balsamroot, woodland woollythreads, and smooth lessingia; breeding populations of California red-legged frogs and golden eagles; and a wintering population of burrowing owls. The Property supports high-quality natural areas and healthy populations of these species, and no major changes to the existing management regime are recommended.

However, protections for these resources are provided below to avoid impacts during the implementation of the Plan, and potential management measures (i.e., additional protections, monitoring, adaptive management, and enhancements) are also suggested to the extent that conditions for these natural resources might be improved based on the Department's budget and staffing.

Several of the sensitive plant and animal species discussed in Sections 4.3 and 4.4 above are not addressed in Section 5.1 below because they are absent from the Property, because surveys for the species have not yet been performed (i.e., for certain sensitive plants), or because the species are best managed via the protection and management of the habitats in which they occur (rather than based on species-focused management). These species are as follows:

- The Loma Prieta hoita and smooth lessingia are discussed programmatically in Section 5.1 below, but specific management guidelines for these species are limited due to a lack of information about their occurrence and distribution on the Property, particularly within areas close to the proposed trails. If Loma Prieta hoita, smooth lessingia (aside from the known occurrences on the western part of the Property), or any additional sensitive plant species are detected in subsequent surveys, protection and management guidelines should be developed if existing guidelines for other species and habitats do not adequately protect and manage these species.
- The foothill yellow-legged frog is not known to occur in or adjacent to the Property, the tricolored blackbird and bald eagle are not known to breed in the Property, and there is no expectation that the status of these species will change in the near future. Thus, no specific management tools for these species are provided. If the foothill yellow-legged frog is detected on the Property or if tricolored blackbirds or bald eagles nest on the Property in the future, an assessment should be performed to determine appropriate protection and management needs.
- The western red bat and ringtail have not been recorded on the Property, but there is some potential for these species to occur on the Property in low numbers. Western red bats may occur in riparian habitat along Coyote Creek, while ringtails may occur in riparian habitat along Coyote Creek and/or in the mixed serpentine chaparral habitat near the Ranch Complex Area. No specific management and monitoring tools are provided for these species because they are best managed via the protection, management, and monitoring of the habitats in which they occur. Recommendations to protect and manage the mixed riparian habitat along Coyote Creek are provided in Section 5.1.3, and recommendations to protect and manage serpentine communities are provided in Section 5.1.1.
- The American badger and mountain lion are expected to occur on the Property in low numbers. Due to their large territory sizes, these species will use the majority of the Property, and are thus primarily expected to benefit from site-wide programmatic recommendations (i.e., the grazing plan and other site-wide natural resource management and monitoring tools) that result in adequate management of their prey species and the habitats that support their prey. Further, large areas of suitable habitat for these species are present on the Property away from the proposed roads and trails, and no potential dens of these species were detected

along the proposed alignments to indicate that preferred denning areas are present along the trail alignments. Thus, we do not expect the new roads and trails proposed under the Plan to preclude the future use of the Property by these species.

- The San Francisco dusky-footed woodrat occurs in low numbers in mixed oak woodland habitat on the Property, and is likely also present in chaparral and scrub habitats. The woodrat is a robust species that thrives locally where suitable habitat and food resources are present. Because mixed oak woodland and chaparral habitats are widely distributed on the Property, woodrats are primarily expected to benefit from site-wide programmatic recommendations (i.e., the grazing plan and other site-wide natural resource management and monitoring tools). Further, no woodrat nests were observed within 250 feet of the proposed road and trail alignments. Therefore, implementation of the Plan is expected to have little to no effect on populations of this species.

The sections below describe enhancements, protections, monitoring, and adaptive management strategies for sensitive natural resources on the Property in the context of the Plan. The Department's primary tool to conserve the natural resources and ecological processes of the Property is the implementation and enforcement of protections to avoid and minimize the degradation of the Property's natural resources. The protection and enforcement strategies described herein outline strategies for the design and management of Property facilities to (1) minimize conflict between human uses and environmentally sensitive areas, (2) enhance certain natural resources on the Property, and (3) avoid and minimize natural resource degradation. Monitoring and adaptive management should also occur for the purpose of maintaining high-quality habitat and existing populations of sensitive plant and wildlife species on the Property over the long term.

5.1.1 Sensitive Serpentine-Associated Plant Species and Serpentine Communities

Four sensitive serpentine-associated plant species were identified during the 2018 surveys: Santa Clara Valley dudleya, most beautiful jewelflower, woodland woollythreads, and smooth lessingia. Additionally, Loma Prieta hoita has potential to occur in serpentine areas of the Property, and smooth lessingia may occur more widely than the incidental observations in 2018 indicate. Recommendations to maintain healthy populations of these plant species and the serpentine communities in which they occur are discussed together in this section because the prescribed protections, management, and monitoring for these species and habitats are similar. Potential threats to the persistence of populations of serpentine-associated plant species and areas of serpentine communities on the Property are minimal, because (1) serpentine communities on the Property are characterized by extremely shallow or rocky serpentine soils, and therefore colonization by invasive plant species is unlikely; (2) serpentine areas on the Property are either steep and inaccessible to cattle (e.g., the hilltop where dudleya occur near the Ranch Complex Area) or benefit from managed grazing (which tends to remove nonnative plants preferentially), so continued grazing benefits, or at least does not pose a risk to, the persistence of these occurrences; and (3) all of the serpentine-associated plant species and serpentine communities on the Property are located away from the proposed Property improvements, and are therefore not expected to be directly impacted by the establishment of new roads and trails under the Plan. The primary threats to these occurrences are trampling and disturbance due to off-trail use by the public.

If occurrences of Loma Prieta hoita or smooth lessingia near proposed roads and trails are identified during subsequent surveys, measures similar to those discussed below for other sensitive serpentine-associated plant species may need to be developed. These recommendations may be more or less rigorous based on the circumstances of the occurrence (e.g., proximity to public access areas, size/health of the occurrence, and habitat quality). For example, smooth lessingia would likely occupy a greater extent of habitat and is more resilient to impacts compared to other serpentine-associated species on the Property, and thus less stringent protection or monitoring would be recommended.

5.1.1.1 Protections

Cattle cannot access the northern occurrence of woodland woollythreads, or the occurrences of Santa Clara Valley dudleya or mixed serpentine chaparral/serpentine rock outcrop, due to steep slopes and/or fencing. However, cattle can and do access the southernmost occurrence of most beautiful jewelflower and serpentine bunchgrass grassland in the western part of the Property, and limited grazing occurred in 2018 along the north side of the main canyon in the western part of the Property where occurrences of woodland woollythreads, most beautiful jewelflower, and smooth lessingia were noted. These two locations represent healthy occurrences of most beautiful jewelflower and serpentine bunchgrass grassland; access by cattle is not currently damaging sensitive plant populations, and grazing likely benefits these occurrences by preferentially targeting nonnative grasses. Therefore, no protections from cattle are recommended at this time.

5.1.1.2 Monitoring

Because no threats to the majority of serpentine communities and associated serpentine-associate sensitive plant species were identified as a result of proposed activities under the Plan, no monitoring of the majority of these populations is currently recommended. However, monitoring is recommended for occurrences of sensitive serpentine-associated plant species where public access may pose a threat to their populations.

Poaching of dudleya species has recently been recognized as a serious problem, and poachers have been recently convicted of poaching dudleya species to export and sell in China and Korea (CDFW News 2018). Thus, although no public access is currently proposed at or near the dudleya occurrence, this population should be visually assessed during regular patrols. Evidence of dudleya poaching, such as scars in rock outcrops where the long-lived dudleya rosettes have been removed, should be looked for during surveys.

Cattle can access the serpentine bunchgrass grasslands and associated sensitive plants on the western part of the Property. There are no attractants (e.g., water or salt licks) to cattle in the immediate vicinity of these occurrences, and therefore no adverse effects from over-grazing or trampling by cattle are anticipated. However, because continued grazing likely benefits this occurrence by limiting invasion by nonnative plants, serpentine bunchgrass grasslands and associated occurrences of sensitive plants should be visually assessed during regular patrols and grazing monitoring for evidence of adverse effects of invasion by nonnative plants.

5.1.1.3 Adaptive Management

If there is evidence of off-trail public access or poaching impacts on serpentine communities or species, then at occurrences located within 20 feet of public use areas and trails (e.g., near the Ranch Complex Area), symbolic fencing or signage could be considered along the edges of adjacent sensitive serpentine areas to discourage visitors from going off-trail where the occurrence is located. We generally recommend that interpretive signage be minimized to avoid attracting attention to the sensitive plant occurrence/community unless a sensitive resource is located immediately adjacent to high-use public area, in which case signage restricting access could be considered.

In addition, if the health of serpentine bunchgrass grasslands or populations of associated sensitive plants on the western part of the Property are found to be declining due to invasion by nonnative plants resulting from under-grazing, the Department could consider changes to the grazing regime to increase grazing intensity in these areas.

5.1.1.4 Enhancements

No enhancements of serpentine communities or habitat for sensitive serpentine-associate species on the Property, nor any near-term protective measures, are recommended. The Property currently supports high-quality serpentine communities, the current grazing regime is appropriate for continuing to support high-quality serpentine communities, and these communities are not located near areas where public access is currently proposed.

5.1.2 Big-Scale Balsamroot



Photo 65. Cattle grazing observed on big-scale balsamroot individuals.

balsamroot population. If these aggressive nonnative species spread, they could outcompete and reduce available habitat for big-scale balsamroot, thus reducing the population size. Additionally, grazing impacts were directly observed on big-scale balsamroot flower heads. In some patches, approximately half of the flower

As discussed in Section 4.3.5, the population of big-scale balsamroot that occurs on the Property is likely one of the most important populations of this species in the state. As such, it is important to ensure that this population remains healthy and viable through appropriate protection, monitoring, and adaptive management strategies. The primary potential threats to the persistence of this population are (1) competition with invasive plant species, (2) impacts from cattle grazing, and (3) disturbance due to off-trail use by the public. Both yellow star thistle and Italian thistle were observed in high concentrations near the big-scale

heads had been eaten by cattle grazing nearby (Photo 65). The large size and apparent robustness of the population, despite the long duration of cattle grazing here (at least eight consecutive years, with decades of prior grazing at some level), suggest that cattle grazing is not having a deleterious effect on this species' populations on the Property. Nevertheless, monitoring of the health of this population over time is recommended to determine whether grazing is having an adverse effect.

5.1.2.1 Protections

Big-scale balsamroot is widely distributed in grasslands on the Property, including areas where public roads and trails are proposed as part of the Plan. We mapped seven patches of big scale balsamroot (consisting of approximately 114 individuals) within 50 feet of the proposed trails, and an additional 17 patches (consisting of approximately 278 individuals) elsewhere within the focal survey area. The following protections are recommended to minimize impacts on this species as a result of the construction and use of new trails on the Property:

- Trails should be micro-sited to ensure no big-scale balsamroot individuals are impacted by trail construction. This should be accomplished by surveying and flagging the extent of the population along proposed trail corridors prior to trail construction. Surveys for big-scale balsamroot should occur during the species' bloom period (March – June) to ensure it is in its most easily detectable state.
- Where feasible, a buffer of at least 50 feet should be established between big-scale balsamroot individuals and trail construction. If a 50-foot buffer is infeasible, the buffer should be as large as feasible. Buffers will limit indirect impacts from trail construction, provide habitat for the population to expand, and limit possible impacts from Property visitors such as trampling (e.g., during photography) or collecting of this showy species.

Because the population of big-scale balsamroot on the Property appears robust under the current grazing regime, which has been ongoing for eight years, no protections from cattle are recommended at this time. However, monitoring and adaptive management measures are provided below to ensure that cattle impacts (as well as potential impacts from the public) do not reduce the health of this population over the long term. Interpretive signage indicating the presence of big-scale balsamroot should be minimized to avoid attracting attention to the species unless an occurrence is located immediately adjacent to high-use public area, in which case signage restricting access could be considered.

5.1.2.2 Monitoring

Because there is some potential for grazing, competition with invasive plant species, and public access to affect the long-term health of the big-scale balsamroot population on the Property, the health of the site-wide population should be assessed during regular patrols and grazing monitoring. This effort should include observations of grazing impacts, encroachment by invasive species, or evidence of damage or degradation by the public. Any new occurrences found during management of the Property should be recorded.

5.1.2.3 Adaptive Management

The following adaptive management actions are recommended if the big-scale balsamroot population is declining on the Property, as determined by the monitoring effort described above:

- If the population of big-scale balsamroot is determined to be declining due to competition with nonnative invasive weeds, treatment of adjacent weed infestations should occur. Options for treatment of invasive weed populations are provided in Section 5.3.1 below.
- If the population of big-scale balsamroot is determined to be declining due to trampling by the public, collection, or other human activities, interpretive signage should be installed near particularly large occurrences near trails.
- If the population of big-scale balsamroot is determined to be declining due to grazing impacts, the grazing regime within Windmill Pasture and Long Lake Pasture (where big-scale balsamroot is located) should be modified. Options for alteration of the grazing regime are discussed in Section 5.2 below.

5.1.2.4 Enhancements

No enhancements of habitat for big-scale balsamroot are recommended, as the species is currently thriving in the high-quality habitat on the Property.

5.1.3 Coyote Creek and Anderson Reservoir

Sensitive mixed riparian woodland and forest, and stream habitats, occur along Coyote Creek. Recommendations to maintain high-quality riparian and stream habitat along Coyote Creek as well as high quality habitat within Anderson Reservoir are discussed together in this section because the prescribed protections, management, and monitoring for habitats along Coyote Creek are similar; the protection and management of habitats along Coyote Creek is expected to protect water quality downstream in Anderson Reservoir; and no additional recommendations to protect Anderson Reservoir are anticipated to be needed for proposed activities under the Plan. Sensitive habitats along Coyote Creek are located away from the proposed new trails under the Plan, and therefore are not expected to be directly impacted by the creation of new trails. The primary threats to these habitats are (1) impacts from grazing, (2) competition with nonnative invasive plant species, and (3) trampling and disturbance due to off-trail use by the public.

5.1.3.1 Protections

Cattle were observed grazing within the riparian habitat along Coyote Creek during the 2018 surveys (Photo 66). Existing fencing is present along the southwest side of the creek, but this fencing is in disrepair. To maintain high-quality riparian habitat along Coyote Creek, it is recommended that cattle be excluded from the riparian habitat except if needed to control nonnative invasive weeds or travel to pastures located to the northeast. Thus, it is recommended that existing fencing along the southwest side of Coyote Creek be repaired to effectively exclude cattle from this area. In addition, if East Coyote Canyon Pasture will be used for grazing,

the existing fencing located along the northeast side of Coyote Creek should also be repaired to effectively exclude cattle from the creek. The fencing on both sides of the creek would include one or more gates that can be opened to allow passage by cattle as needed.



Photo 66. Cattle grazing along Coyote Creek in the upper portion of drawn-down Anderson Reservoir.

5.1.3.2 Monitoring

Because the Property currently supports high-quality riparian and stream habitat along Coyote Creek, regular monitoring of this habitat is not necessary. However, the Department should visually assess fencing along the creek during regular patrols and other monitoring to ensure that it remains in good repair. In addition, if excessive damage to riparian habitat (e.g., due to cattle, pigs, nonnative invasive weeds, or off-trail use by the public) is noted incidentally, adaptive management actions should be considered to protect this habitat as described below.

5.1.3.3 Adaptive Management

If damage to the cattle exclusion fencing along Coyote Creek is observed, the fencing should be repaired. If evidence of impacts from public access is observed, security measures such as interpretive signage or fencing should be considered to deter visitors from going off-trail into the riparian habitat. If evidence of excessive infestations of nonnative invasive weeds is observed within the fenced portion of Coyote Creek, appropriate control methods should be considered (e.g., adjustments to grazing management, mechanical removal, or chemical controls, as discussed in Section 5.3.1 below).

5.1.3.4 Enhancements

No enhancements of riparian or stream habitat along the reach of Coyote Creek on the Property are recommended, as these areas currently support high-quality riparian and stream habitats.

5.1.4 Other Streams

A number of intermittent and ephemeral streams are located on the Property, and mixed riparian woodland and forest habitat is present along some of these streams. Despite the long history of grazing on the Property, these streams and riparian areas are relatively undegraded and show little or no evidence of excessive trampling, over-grazing, or other adverse conditions. These areas are expected to be adequately managed over the long-term by managing grazing intensity through residual dry matter (RDM) monitoring and ensuring sufficient vegetative cover to protect soils and reduce the potential for watershed lands erosion and increased runoff into streams (see Section 5.2 Grazing Management and Monitoring). The primary threats to the long-term health of these habitats are localized trampling and disturbance from cattle and erosion at trail stream crossings.

Recommendations are provided below are based on streams located southwest of Coyote Creek, as the streams located northeast of Coyote Creek are currently inaccessible. Once accessibility to the area northeast of Coyote Creek is re-established, assessment of stream and riparian habitat is recommended.

5.1.4.1 Protections

Cattle can access many reaches of streams on the Property, and the proposed roads and trails cross streams at several locations. Fencing should be installed or repaired near high-quality stream habitats or near areas of high cattle use of streams to limit impacts of cattle on streams.

5.1.4.2 Monitoring

Visual assessment of streams and riparian habitat during regular patrols and grazing monitoring, particularly at the end of the grazing season (i.e., May–June), is recommended to assess stream conditions in areas with long-duration flows or saturation, as well as areas located near roads or heavily used cattle paths, as these areas are most sensitive to impacts. If excessive damage is noted at these locations, adaptive management measures should be implemented.

5.1.4.3 Adaptive Management

If degradation of streams and riparian habitats occurs due to cattle grazing or trampling, adaptive management strategies to maintain high-quality stream habitat on the site include:

- Existing functional watering troughs in the western part of the Property should be retained, and new troughs in the eastern part of the Property should be placed in House Pasture, Windmill Pasture, and Long Lake Pasture. The troughs should be placed throughout the Property in sufficient numbers and locations to provide an adequate and preferred water source for cattle, thus deterring cattle utilization of the natural water sources on the Property. Similarly, salt/mineral blocks for cattle should be located well away from sensitive aquatic resources.

- The Department should rehabilitate degraded road and trail areas, particularly at stream crossings, that are contributing to erosion, and institute an annual road inspection and maintenance program to properly configure roads to minimize erosion potential.
- The grazing regime, as presented in Section 5.2, may be modified to reduce cattle presence during the hot/dry summer season (once grass forage is dried) when cattle tend to congregate in the riparian shade near streams. This will minimize routine cattle intrusion into streams and riparian areas.

5.1.4.4 Enhancements

No enhancements of intermittent and ephemeral streams on the Property are recommended, as these areas currently support high-quality riparian and stream habitats.

5.1.5 Mixed Oak Woodland

Mixed oak woodland of varying densities is present throughout the Property, and is overall in very good condition. Portions of the proposed roads and trails on the Property will pass through mixed oak woodland habitat, and there is some potential for oak trees to be impacted by trail construction. The primary potential threats, besides public use, to the regeneration and expansion of mixed oak woodland habitat on the Property are (1) impacts from grazing, (2) impacts from feral pig rooting, and (3) competition with nonnative invasive plant species.

5.1.5.1 Protections

To protect trees in mixed oak woodland habitat from impacts due to new road and trail construction, the following measures are recommended, consistent with the Habitat Plan (ICF International 2012):

- All construction activities should adhere to appropriate best management practices to limit introduction of nonnative, invasive weed seed and pathogens, such as *Guidelines to Minimize Phytophthora Contamination in Restoration Projects* (Working Group for Phytophthoras in Native Habitats 2016).
- Large, healthy trees will be maintained whenever feasible (i.e., trails will be sited to minimize impacts on oaks where feasible).
- Where feasible, a buffer zone equal to or greater than 1 foot for each inch of trunk diameter measured at 4.5 feet above the ground should be established between oak trees and trail construction to limit impacts.
- If extensive pruning of blue oaks and valley oaks is needed, pruning should occur under the supervision of a certified arborist, based on industry standards to promote healthy growth structure.

For locations identified for enhancement or restoration, protective measures should be based on site-specific goals and existing conditions. The following protective measures would be adequate to protect areas that are

actively planted with locally collected acorns, or that support zones of natural oak regeneration targeted for protection.

- Pig and livestock exclusion fencing should be installed.
- Herbaceous vegetation should be controlled during early years around oak seedlings through hand removal and/or mechanical mowing.
- Nonnative invasive plant species should be controlled during early years through hand removal, mechanical mowing, or chemical control.
- Once oak seedlings have established to the point that they can sustain a minor degree of impact from browsing and/or trampling (i.e., at least 3–5 years following germination), timed grazing (i.e., grazing for a specific, relatively brief period, such as several days) with limited stocking rates should be used to control herbaceous vegetation and nonnative invasive plant species.

5.1.5.2 Monitoring

Concurrently with regular patrols and other monitoring activities, the Department may identify areas of damage to oak woodland habitat or areas of natural oak recruitment that can be targeted for protection.

Monitoring of any mixed oak woodland enhancement or restoration areas that are established on the Property is recommended on a quarterly basis, or at a minimum once per year. This will provide observations of potential impacts from livestock, feral pigs, or public access throughout the year while providing appropriate timing for monitoring the status of a variety of invasive, nonnative plant species that flower and mature at different times of year.

5.1.5.3 Adaptive Management

If evidence of ongoing impacts to mixed oak woodland enhancement or restoration areas is observed, the Department may consider the following adaptive management measures:

- If evidence of excessive impacts due to feral pigs is observed, pig fencing around particularly important habitat areas (such as concentrations of blue oak seedlings) and/or increased feral pig control measures should be considered (discussed in Section 5.3.2 below).
- If evidence of excessive infestations of nonnative invasive weeds is observed, additional, appropriate control methods should be considered (discussed in Section 5.3.1 below).
- If evidence of excessive damage from grazing is observed, the grazing regime may be altered to increase time for oak sapling establishment, reduce stocking rate, and/or reduce the amount of time livestock are in the area.

5.1.5.4 Enhancements

Due to the high quality of the mixed oak woodland habitat on the Property as well as observed oak recruitment in certain areas, enhancement of this habitat is not recommended at this time. However, in areas where threats to mixed oak woodland are identified in the future as substantially degrading the existing habitat and/or severely restricting regeneration, or where expansion of oak woodlands is desired, the following measures can be considered to enhance oak regeneration or expand the area of mixed oak woodland habitat on the Property.

In areas that are targeted for enhancement, measures such as active planting (i.e., collecting and installing acorns) and protecting natural recruitment can potentially be implemented. Both of these approaches would benefit from installing temporary cattle and pig exclusion fencing, adjusting the grazing regime, and/or controlling competing vegetation. In general, these measures should be implemented only in direct response to a particular need (e.g., restoration of an area damaged by livestock or feral pig activity) or a specific goal identified for the Property (e.g., increase abundance of blue oaks in particular mixed oak woodland areas). It should also be noted that targeted expansion of mixed oak woodland would most likely result in a loss of California annual grassland, as this is the most likely habitat that would be converted.

5.1.6 Ponds and Wetlands and Associated Sensitive Wildlife Species

California red-legged frogs are previously known to have bred in two ponds within the Property. A number of ponds and wetlands on the Property also provide suitable habitat for California tiger salamanders and western pond turtles, and known populations of these species occur close enough to the ponds and wetlands on the Property that individuals can potentially disperse there. Recommendations to maintain (in the case of California red-legged frogs) or potentially support (in the case of California tiger salamanders and western pond turtles) healthy populations of these species on the Property, as well as to maintain, and potentially enhance, the pond and wetland habitat in which they occur are discussed together in this section because the prescribed protections, management, and monitoring for these species and habitats are similar. Potential threats to the persistence of these sensitive wildlife species and the ponds they inhabit are (1) impacts due to populations of nonnative invasive wildlife species, (2) impacts from grazing, (3) disturbance due to off-trail use by the public, and (4) a significant change in regional climate or pond hydrology.

Recommendations are provided below only for ponds located southwest of Coyote Creek, as the ponds located northeast of Coyote Creek are currently inaccessible. No protections, enhancements, management, or monitoring for the ponds northeast of Coyote Creek are included for purposes of this NRMP.

5.1.6.1 Protections

Several of the ponds and wetlands on the Property are located in areas where public roads and trails are proposed as part of the Plan. The following protections are recommended to avoid impacts on this habitat and associated sensitive wildlife species as a result of the construction of new roads and trails on the Property:

- Trails should be sited to avoid ponds and wetlands to the maximum extent feasible.

- A buffer of 50 feet should be established between ponds/wetlands and trail construction where feasible. This would limit indirect impacts from trail construction as well as possible impacts from off-trail use by the public.

5.1.6.2 Monitoring

The monitoring described herein is recommended as a high priority for (1) ponds where California red-legged frogs, California tiger salamanders, and/or western pond turtles are known to occur; and (2) ponds at which enhancements for these species are performed. Monitoring is recommended as a lower priority for other ponds on the Property, but would be beneficial and may be conducted if desired.

It is recommended that the water depth in each pond be monitored during regular patrols, at least from May through August (the periods most important in determining pond suitability for these sensitive pond-associated species). The integrity of, and whether there is any need for repair of, the berm/dam and/or removal of sediment should also be inspected and determined during monitoring. If the monitor notes any substantial change in the drying date relative to the baseline (particularly if ponds that previously supported successful California tiger salamander breeding do not pond through June or ponds that previously supported successful California red-legged frog breeding do not pond through August) or notes rapid sedimentation, excessive vegetation growth, or structural problems with dams or berms that will likely interfere with the pond's conservation values, these issues should be noted so the pond can be repaired or maintained as described in *Adaptive Management* below.

In addition, the Department should monitor impacts of public use at ponds. Dogs may catch, injure, or kill California red-legged frogs, California tiger salamanders, and western pond turtles, and their presence within ponds is highly disturbing to these species, potentially resulting in the mortality of individuals and/or discouraging their occupation of potential breeding ponds. Evidence of impacts from public use at ponds should be recorded so that additional measures can be implemented as described in *Adaptive Management* below.

5.1.6.3 Adaptive Management

If, during the monitoring activities described above, it is observed that a berm/dam of a pond has failed or will likely fail, the berm/dam should be repaired. Repair should occur in the fall when it is expected that larvae of the California red-legged frog and California tiger salamander have metamorphosed out of the ponds and most of the ponds have dried (but it may occur in late spring or summer if the pond is completely dry). If repair of a berm/dam is to occur in a pond that contains water when the repair must be made, and the repair will affect the ponding of the water (cause the water to flow out of the pond) or require entry into the water by personnel or equipment, the pond will be dewatered following an appropriate dewatering protocol to avoid and minimize impacts on sensitive wildlife species. Excessive sediment accumulation or emergent vegetation should similarly be removed as needed, also in the fall.

Bullfrogs were observed to be numerous at Wigeon Pond and Mud Lake. The Department should consider draining these ponds to interrupt the 2-year life cycle of bullfrog larvae or should consider removal of bullfrogs

via nets or by gigging. Thereafter, if large numbers of bullfrogs are observed in any pond during the monitoring and management tasks described above, focused bullfrog removal should occur.

Drawdown of a pond should be considered to control nonnative animals if (a) surveys determine that fish, crayfish, and/or bullfrog tadpoles are present in one or more of the existing California red-legged frog and/or California tiger salamander breeding ponds on the Property; and (b) removal of adult or juvenile bullfrogs as described above does not eliminate or reduce the number of bullfrogs in a pond; and (c) gigging and netting are inadequate to allow for the removal of bullfrogs from a pond. The pond in which nonnatives need to be controlled will be drawn down in September or October after California red-legged frog and California tiger salamander larvae have metamorphosed, leaving bullfrog tadpoles (that typically require two seasons to develop and metamorphose), crayfish, and/or fish in the pond. The drawdown will be conducted using a pump and will follow an appropriate dewatering protocol to prevent aquatic organisms from being drawn in. A biologist will monitor the drawdown to ensure that California red-legged frogs or California tiger salamanders are not harmed by the drawdown activity.

If evidence of impacts from public access is observed at pond locations, interpretive signage should be placed along trails at ponds (not just at trailheads) explaining the sensitive nature of the habitat and why access is restricted.

5.1.6.4 Enhancements

The Department should consider conducting presence/absence surveys for California red-legged frogs, California tiger salamanders, and western pond turtles at all ponds located southwest of Coyote Creek for the purpose of determining the baseline distribution and breeding status of these species on the Property as well as prioritizing enhancement activities:

- Surveys for larval California tiger salamanders should follow those described in the most recent USFWS and CDFW protocol (currently USFWS and California Department of Fish and Game [2003]).
- Surveys for California red-legged frogs should consist of both daytime and nighttime visual encounter surveys, according to the most recent USFWS protocol (currently USFWS [2005]).
- Surveys for western pond turtles should consist of daytime visual encounter surveys for basking turtles, which may be combined with daytime red-legged frog surveys.

In addition, the Department should consider assessing the hydrology of each pond to determine whether each of these ponds currently provides suitable habitat for one or all of these species (based on depth and duration of ponding), as well as whether certain ponds have the potential to provide suitable habitat with enhancements.

The potential enhancements discussed herein would improve the quality of existing pond and wetland habitat for California red-legged frogs, California tiger salamanders, and western pond turtles on the Property and/or

create new breeding and/or foraging habitat for these species. Table 1 provides a summary of possible enhancements that the Department could consider. Enhancement priorities are as follows:

- California tiger salamanders are not currently known to occur on the Property, but this species can potentially be attracted or reintroduced to suitable ponds on the Property. Habitat improvements for California tiger salamanders would increase the likelihood that the species would breed successfully, and would be essential if reintroduction efforts are pursued (any reintroduction efforts will be planned and executed under the guidance of USFWS and CDFW). Vernal Pond was identified as the highest priority for enhancement for California tiger salamanders based on the 2018 surveys, but this priority may be adjusted based on the results of the baseline survey (i.e., if California tiger salamanders are determined to be present and breeding in other ponds on the Property).
- California red-legged frogs are previously known to have bred in two ponds on the Property. The distribution of this species on the Property can potentially be increased by enhancing pond habitat throughout the Property. Cattail Pond and Wigeon Pond were identified as the highest priority for enhancement for California red-legged frogs based on the 2018 surveys, but this priority may be adjusted based on the results of the baseline survey (i.e., if California red-legged frogs are determined to be present and breeding in other ponds on the Property).
- Western pond turtles are known to occur along Coyote Creek on the Property, but are not currently known to occur in ponds or wetlands on the Property. Existing perennial ponds located near Anderson Reservoir and Coyote Creek (e.g., Rock Pond and Cattail Pond) are most likely to provide habitat for western pond turtles in the future. Cattail Pond and Wigeon Pond were identified as the highest priority for enhancement for western pond turtles based on the 2018 surveys, but this priority may be adjusted based on the results of the baseline survey (i.e., if western pond turtles are determined to be present in other ponds on the Property).

If the hydroperiod of any of the ponds located southwest of Coyote Creek does not extend to the end of June and/or August, these ponds can potentially be enhanced (e.g., by deepening the pond) to provide breeding habitat for California tiger salamanders, breeding and foraging habitat for California red-legged frogs, and/or foraging habitat for western pond turtles.

In addition, Rock Pond is partially surrounded by a rock wall, which impedes wildlife access to or out of the pond. The Department should consider removing or burying the rock wall to create a more natural bank, which would remove a vertical impediment to California red-legged frogs, California tiger salamanders, and western pond turtles attempting to exit the pond at this location.

Table 1. Potential Pond and Wetland Enhancements

Pond/Wetland	Likely Hydroperiod	2018 Vegetation	Potential Habitat Suitability	Enhancement Priority ³	Potential Repairs and Enhancements*
Two Gates Pond	Perennial	Little emergent vegetation	California tiger salamanders, possibly California red-legged frogs in years of above-average rainfall, and western pond turtles	Low	Fence (with hogwire, to prevent feral pig access) a portion of the pond around the inlet to promote the growth of emergent vegetation. Repair head cut in the berm and the road-culvert crossing downstream of the pond. Minimize the potential for erosion by re-routing the spillway channel to the natural channel downstream or adding rock to the spillway channel at the pond outlet. Re-routing roads and trails around the topographic low (or creating an elevated boardwalk) would increase habitat value and decrease the need for ongoing maintenance.
Shady Pond	Perennial	No emergent vegetation	California tiger salamanders, possibly California red-legged frogs in years of above-average rainfall	Low	Fence a portion of the pond around the inlet to promote emergent vegetation growth, and repair a head cut in the berm by (1) excavating the spillway so that the outlet is lower in elevation than the berm and repair erosion in the berm or (2) creating a new spillway outlet in the berm.
Windmill Pond	Seasonal	Little emergent vegetation	California tiger salamanders	Low	Determine the pond's hydroperiod in an average rainfall year. If ponding does not extend to the end of June, consider deepening the pond.
Mud Lake	Seasonal	No emergent vegetation	California tiger salamanders	Low	Determine the pond's hydroperiod in an average rainfall year. If ponding does not extend to the end of June, consider deepening the pond.
Cattail Pond	Perennial	Supports emergent vegetation (i.e., cattails)	California red-legged frogs and western pond turtles	High	Deepen and steepen multiple areas on the bank of the pond to provide areas open to shore (not extensive stands of emergent vegetation) so that red-legged frogs and pond turtles can easily access the pond for foraging. Place a pond turtle platform in the center of the pond for pond turtle basking. Survey the pond for fish and/or crayfish,

³ Enhancement priorities are provided based on the 2018 site surveys. As discussed under Section 6.1.11.1 *Initial Assessment*, these priorities may be adjusted based on the results of presence/absence surveys and a comprehensive assessment of pond hydrology.

Pond/Wetland	Likely Hydroperiod	2018 Vegetation	Potential Habitat Suitability	Enhancement Priority ³	Potential Repairs and Enhancements*
					and if they are found to be present, drain pond to remove. Seepage through the berm should be repaired, potentially by reinstalling the outlet culvert at a deeper elevation, and should be closely monitored. It may be beneficial to rock the culvert outlet to prevent future incision downstream. The road could also be re-routed around the pond (on the berm) to create a more dispersed wetland area feeding the lower pond.
Rock Pond	Perennial	Supports emergent vegetation (i.e., cattails)	California red-legged frogs and western pond turtles	Low	Remove or bury the rock wall to create a more natural bank, and remove infrastructure debris. The pond outlet should also be re-designed to prevent erosion at the spillway.
Bamboo Pond	Seasonal	No emergent vegetation	California tiger salamanders	Low	Determine the pond's hydroperiod in an average rainfall year. If ponding does not extend to the end of June, determine cause (pond appears suitably deep). The inlet area could potentially be rocked to create a hardened trail ford to prevent erosion and limit mud on the trail at the stream crossing. A boardwalk or low bridge may also be beneficial at the inlet location.
Wigeon Pond	Perennial	No emergent vegetation	California tiger salamanders, California red-legged frogs, and western pond turtles	High	Fence (with hogwire, to prevent feral pig access) a portion of pond to promote emergent vegetation growth in one of the deeper corners. Confirm that ponding extends through August for California red-legged frog breeding. Remove bullfrogs and nonnative turtles through culling or initial draining of pond. Place a pond turtle platform in the center of the pond for pond turtle basking.
Cabin Pond	Seasonal	No emergent vegetation	California tiger salamanders	Low	Determine the pond's hydroperiod in an average rainfall year. If ponding does not extend to the end of June, determine cause (pond appears suitably deep). Consider deepening, or abandon because it is artificially supported.

Pond/Wetland	Likely Hydroperiod	2018 Vegetation	Potential Habitat Suitability	Enhancement Priority ³	Potential Repairs and Enhancements*
Duck Pond	Perennial	Supports emergent vegetation (i.e., cattails)	California red-legged frogs	Low	Deepen and steepen multiple areas on the bank of the pond to provide areas open to shore so that California red-legged frogs can easily access the pond for foraging, but maintain a patch of emergent vegetation in the center of the pond for cover and egg mass attachment. The berm has recently eroded and is in need of near-term maintenance. The berm and culvert should be repaired and the culvert outlet needs to be rocked to prevent future erosion.
Highlands Pond	Seasonal	No emergent vegetation	California tiger salamanders	Low	Determine the pond's hydroperiod in an average rainfall year. If ponding does not extend to the end of June, determine cause (pond appears suitably deep). It is recommended that the spillway be rocked to minimize erosion and stabilize upstream incision.
Vernal Pond	Seasonal	No emergent vegetation	California tiger salamanders	High	Determine the pond's hydroperiod in an average rainfall year. If ponding does not extend to the end of June, deepen the pond and consider constructing fencing around the pond to exclude cattle. It is recommended that the channel be re-routed to higher ground to the east to increase the distance between the trail and the pond.

* Table 1 includes recommendations by H. T. Harvey & Associates and Balance Hydrologics to enhance or maintain biological values of ponds on the Property. Additional recommendations (unrelated to biological enhancements), such as potentially decommissioning ponds, are provided separately by Balance Hydrologics and are discussed in Appendix B of the Plan.

California Red-Legged Frogs

Design criteria for California red-legged frog breeding habitat consists of pond habitat that remains at least 2 feet deep through August 31 during average rainfall years. Ponds with insufficient hydrology can potentially be deepened to increase their hydroperiod in an average rainfall year. Based on observations of pond hydrology during the 2018 surveys, these improvements can potentially be performed for ponds that provide suitable breeding habitat for California red-legged frogs (i.e., potentially Cattail Pond, Rock Pond, Wigeon Pond, and Duck Pond, and potentially Two Gates Pond and/or Shady Pond depending on their hydrology). However, the hydrology of these ponds should be confirmed before the deepening of ponds is considered (see *Initial Assessment* above).



Photo 67. Cattle impacts on emergent vegetation at Wigeon Pond.

hydrology assessment and potential deepening of ponds described above should be performed before determining which ponds are candidates for fencing. Fencing would only be installed in limited portions of ponds to prevent ponds from being overrun by vegetation. In contrast, Cattail Pond and Duck Pond may be enhanced by removing some of the dense emergent vegetation that currently limits areas of open water and pond banks. Opening up these areas would provide sites for frogs to forage and better access the ponds.

The nonnative invasive aquatic predators Louisiana red swamp crayfish and American bullfrog have been observed on the Property, and nonnative invasive fish species may also be present in perennial ponds. These species are known to adversely impact both the California red-legged frog and California tiger salamander through predation and/or competition. Once the hydrology of the Property ponds is determined and perennial ponds are identified, these aquatic predators can potentially be removed (discussed under *Adaptive Management* below).

All of the ponds on the Property are located in areas that are grazed by cattle, which affects vegetation height, distribution, and composition (Photo 67). These ponds are focal points for cattle to forage and drink during much of the year. Intensive cattle use currently degrades many of the ponds by reducing plant height and density, compacting wetland soils, and increasing nutrient levels through fecal matter. Cattle exclusion fencing can be installed to protect and restore wetland vegetation in portions of the pond areas. Cattle exclusion would facilitate the increased growth and recruitment of wetland vegetation, which would provide breeding and foraging habitat for California red-legged frogs (eggs, larvae, and adults); increased height and density of wetland vegetation, thereby improving habitat quality for wetland-associated wildlife; increased species richness of native wetland vegetation; increased aboveground primary production typical of high-quality wetlands; and improved filtration of suspended sediments, nutrients, and organic matter, thereby improving water quality. The initial

California Tiger Salamanders

Design criteria for California tiger salamander breeding habitat consists of pond habitat that remains at least 2 feet deep through May 31 (and preferably through June) during average rainfall years. Ponds with insufficient hydrology can potentially be deepened to increase their hydroperiod in an average rainfall year. Based on observations of pond hydrology during the 2018 surveys, these improvements can potentially be performed for ponds that provide suitable breeding habitat for California tiger salamanders (i.e., potentially Two Gates Pond, Shady Pond, Mud Lake, Wigeon Pond, Windmill Pond, Bamboo Pond, Cabin Pond, Highlands Pond, and/or Vernal Pond depending on their hydrology). However, the hydrology of ponds on the Property should be confirmed before habitat enhancements are considered (see *Initial Assessment* above).

California ground squirrels inhabit the California annual grassland habitat on the Property, but are patchily distributed in rocky areas or areas with oak trees, and generally do not occur near ponds. California ground squirrel burrows are an essential component of high-quality upland refugial habitat for California tiger salamanders, and these burrows can provide refugia for the California red-legged frog as well. To enhance habitat for California tiger salamanders (and potentially California red-legged frogs) on the Property, the Department may consider placing coarse woody debris and/or rocks in upland areas near ponds that support breeding California tiger salamanders to encourage the presence (or increase the abundance) of ground squirrels in these areas. However, ground squirrels should not be encouraged to inhabit the dams/berms that impound water within ponds, to avoid having the squirrels damage these features.

Western Pond Turtles

The same design criteria for California red-legged frog breeding habitat would provide suitable western pond turtle aquatic foraging habitat (i.e., pond habitat inundated by at least 2 feet of open water through August 31 during average rainfall years, and the removal of extensive emergent vegetation in some ponds), although perennial ponds are most attractive to this species. Based on observations of pond hydrology during the 2018 surveys, these improvements can potentially be performed for ponds that provide suitable foraging habitat for western pond turtles (i.e., potentially Cattail Pond, Rock Pond, Wigeon Pond, Duck Pond, Two Gates Pond and/or Shady Pond depending on their hydrology). However, the hydrology of ponds on the Property should be confirmed before habitat enhancements are considered (see *Initial Assessment* above). In addition, providing basking sites for turtles at some these ponds (e.g., Cattail Pond and Wigeon Pond) would allow more turtles to utilize these ponds.

5.1.7 Nesting Golden Eagles

Golden eagles are known to nest on the Property, and larger trees throughout the Property provide suitable nesting sites for this species. Recommendations to maintain the existing golden eagle nesting territories on the Property are provided herein. The only potential threat to the persistence of this species on the Property is disturbance from human activities during the eagles' nesting season.

5.1.7.1 Protections

Construction of proposed Property trails, as well as regular Property maintenance activities, can potentially result in the disturbance of an active golden eagle nest. Nesting golden eagles are highly susceptible to disturbance, and Property construction or maintenance activities resulting in a substantial increase in noise or visible disturbance during the eagles' reproductive period would increase the probability of nest abandonment, and possibly the loss of eggs or young.

In 2018, the pair nesting east of Coyote Creek was 0.8 mile from any proposed trails or roads, and proposed activities under the Plan will not affect that pair. Should Master Plan activities propose trails or other facilities be proposed east of Coyote Creek in the future, protective measures similar to those described below for the 2018 nest in the western part of the Property will be implemented.

Construction of the proposed new Property trails would occur as close as 0.3 mile from the existing golden eagle nest in the western part of the Property. Trail construction activities would involve enough personnel and equipment that they could potentially disturb nesting eagles. In contrast, activities related to the use of trails by the public, grazing management, and maintenance of Property facilities are expected to be relatively low-intensity.

The eagles in the western part of the Property are already habituated to some existing levels of disturbance, as occupied homes are present approximately 0.2 mile southwest of the current nest site, and there is intermittent traffic from farm vehicle usage on the dirt farm roads near their active nest. Nevertheless, Property maintenance activities conducted in the vicinity of a golden eagle nest, particularly during the breeding season, could result in disturbance of the eagles.

Viewshed buffers are a successful method for reducing the potential for golden eagles to abandon their nest site due to construction disturbance, and a ridge separates the proposed new trails from the nest so that construction and/or maintenance activities along the trail would not be visible to birds at the nest. The following measures would avoid and minimize potential impacts of trail construction and Property maintenance activities on nesting golden eagles.

- **Annual Surveys.** Each year, beginning with the construction of new Property trails, surveys of known nesting locations should be conducted prior to each breeding season (e.g., in early January) to determine the territory status of the eagles on the Property and to map nest locations. These surveys would determine whether nests on the Property are being attended and/or if eagles are using nests elsewhere within the territory. Any new nest locations should also be noted. This information would inform nesting-season avoidance and minimization measures for that year. If eagles are determined to occupy areas within 0.5 mile of proposed Property maintenance activities or new facilities construction, the *Viewshed Buffers* measure below should be implemented.
- **Viewshed Buffers.** No construction activities (i.e., the construction of new trails or Property facilities) should occur within a viewshed buffer zone within 0.5 mile around any eagle nest during the nesting season

(i.e., January 15 through August 1), or as determined by a qualified biologist (because the breeding season may be shorter). The viewshed buffer, defined as all work areas that are within 0.5 mile of the nest and that can be seen by an eagle on the nest, should be mapped by a qualified biologist. No construction activities should occur within 0.25 mile of the nest site during the breeding season, regardless of whether or not those activities can be seen from the nest.

- To reduce the potential for the golden eagles to abandon their nest or territory, maintenance activities other than intermittent traffic from farm vehicle usage on the dirt farm roads should not occur within 0.25 mile of the nest (regardless of the viewshed), or within the 0.5-mile viewshed buffer zone, around any golden eagle nest between January 15 and August 1, or as determined by a qualified biologist based on nesting activity.
- All park personnel, including grazing managers and staff, should be informed of the current locations of golden eagle nests and viewshed buffers on the Property on an annual basis. These personnel will be advised to keep all necessary activities within the viewshed buffers as brief as possible, and to avoid areas within the viewshed buffers as feasible.

No seasonal trail closures are currently recommended, as no trails are proposed close enough to an existing eagle nest location to potentially result in the disturbance of an active nest.

5.1.7.2 Monitoring

During regular patrols and grazing monitoring, the Department should visually assess for impacts of public off-trail use within the viewshed buffer of active golden eagle nests on the Property throughout the nesting season. If evidence of public off-trail use is detected, remedial actions (discussed under *Adaptive Management* below) should be considered to protect the nesting golden eagles.

5.1.7.3 Adaptive Management

If evidence of public off-trail use is detected within the golden eagle buffers during the nesting season, the Department should consider measures to deter visitors from going off-trail near golden eagle nests, and should consider designing future trails to avoid established golden eagle nest locations.

5.1.7.4 Enhancements

No enhancements of golden eagle nesting or foraging habitat are recommended, as the Property currently provides high-quality habitat for golden eagles.

5.1.8 Burrowing Owls

Burrowing owls are known to occur in the extensive grasslands west of Coyote Creek during the winter, though they are not expected to breed on the Property. Areas of the Property that support populations of California ground squirrels provide suitable wintering habitat for burrowing owls. Measures to maintain a wintering

population of burrowing owls on the Property are provided below. The primary potential threat to the persistence of wintering burrowing owls on the Property is disturbance due to off-trail use by the public.

5.1.8.1 Protections

Though the locations of burrows used by wintering owls vary from year to year, two wintering burrowing owls observed during the 2018 surveys were located within 300 feet from proposed trails. There is some possibility that off-trail use by the public near burrowing owl use areas may disturb wintering burrowing owls, causing them to flush from their burrows and increasing their vulnerability to predation. However, no protections for wintering burrowing owls on the Property are recommended at this time. Monitoring and adaptive management actions are recommended as described below to ensure that significant harassment of owls by the public does not occur in the future.

Interpretive signage can potentially be installed along trails and roads located near burrowing owl use areas restricting access to these locations and explaining the sensitive nature of the habitat and why access is restricted. However, such signs are not envisioned at this time, as alerting the public to the presence of burrowing owls may encourage public off-trail use by people who want to see the owls, potentially resulting in increased disturbance. The *Adaptive Management* section below provides recommendations for signage if evidence of public off-trail use in these areas becomes a significant issue.

5.1.8.2 Monitoring

During regular patrols and other management and monitoring activities, the Department should visually assess for evidence of public off-trail use within and near burrowing owl use areas in the winter. If evidence of public off-trail use is detected, remedial actions (discussed under *Adaptive Management* below) should be considered to protect the burrowing owls.

Burrowing owl habitat (i.e., California annual grassland) is expected to be monitored and managed through the monitoring of RDM targets on the Property and corresponding adjustments of the grazing regime, as discussed in Section 5.2. Locations of wintering owls should be recorded incidentally as the birds are noted by Department personnel during on-site activities or as reported by the public.

5.1.8.3 Adaptive Management

If impacts from public use are determined to be an issue in burrowing owl use areas due to the known presence of burrowing owls (i.e., because members of the public know owls are present and are traveling off-trail to view the owls), and/or for a reason unrelated to the presence of burrowing owls (e.g., off-trail use by mountain bicycles), the installation of signage along trails near burrowing owl use areas is recommended. The signage should restrict access to these locations; however, signs will avoid providing details about the presence of burrowing owls in the area. Additional security measures such as regular patrols, or symbolic fencing should also be considered to deter visitors from going off-trail within burrowing owl use areas.

5.1.8.4 Enhancements

No enhancements of burrowing owl habitat are recommended, as the Property currently provides high-quality wintering habitat for burrowing owls and this habitat is widespread in the region.

5.1.9 Other Nesting Birds

A number of species of common and sensitive birds are known or expected to nest on the Property, including sensitive species such as the white-tailed kite, yellow warbler, and grasshopper sparrow. The Property provides high-quality nesting habitat for these bird species, and no enhancements, monitoring, or adaptive management measures are currently recommended. The majority of common and sensitive birds that nest on the Property are protected by the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code. Disturbance from construction or maintenance activities occurring during the bird nesting season (February 1 through August 31, for most species) could result in the incidental loss of eggs or nestlings, either directly through the destruction or disturbance of active nests or indirectly by causing the abandonment of nests. Recommended protections are provided below to protect active nests during park activities.

5.1.9.1 Protections

We recommend that the following measures be implemented to ensure that park activities (e.g., the creation and maintenance of roads and trails) comply with the MBTA and California Fish and Game Code:

- **Avoidance.** To the extent feasible, construction and maintenance activities should be scheduled to avoid the nesting season. If activities are scheduled to take place outside the nesting season, all impacts on nesting birds protected under the MBTA and California Fish and Game Code will be avoided. The nesting season for most birds in Santa Clara County extends from February 1 through August 31.
- **Pre-Activity Surveys.** If it is not possible to schedule construction and maintenance activities between September 1 and January 31 then pre-activity surveys for nesting birds should be conducted to ensure that no nests will be disturbed during these activities. These surveys would be conducted no more than seven days prior to the initiation of work activities. During this survey, all trees and other potential nesting habitats (e.g., trees, shrubs, ruderal grasslands, buildings) in and immediately adjacent to the impact areas should be inspected for nests.
- **Buffers.** If an active nest is found sufficiently close to work areas to be disturbed by these activities, a biologist should determine the extent of a construction-free buffer zone to be established around the nest (typically 300 feet for raptors other than golden eagles [which are discussed in Section 5.1.7] and 100 feet for other species), to ensure that no nests of species protected by the MBTA and California Fish and Game Code will be disturbed during work activities.

5.1.10 Roosting Bats and Nesting/Roosting Barn Owls

Evidence of roosting bats was detected within two of the existing structures on the Property (the north metal Quonset structure at the Ranch Complex Area and the Achilles barn along Carey Avenue) during the 2018 surveys. These structures provide relatively low-quality day-roosting habitat for several common species of bats including the California myotis, Yuma myotis, Mexican free-tailed bat, and big brown bat. There is no evidence that large numbers of bats have occupied these structures, likely because they are too exposed to light and/or air flow to provide stable thermal conditions. Barn owls have been documented using one of the Quonset structures at the Ranch Complex Area on the Property.

5.1.10.1 Protections

Roosting Bats

The common and sensitive species of roosting bats that occur on the Property are protected under the California Fish and Game Code. Although activities under the Plan will not involve the removal or modification of existing buildings that may support bat roosts, there is some potential for bats to roost in cavities in trees within work areas. If any large trees with sizable cavities will be removed by the Department for Plan activities, then pre-activity surveys for roosting bats are recommended to ensure that roosting bats will not be impacted by these activities. These surveys should be conducted no more than seven days prior to the initiation of work activities. During this survey, the biologist would inspect all large trees to be removed for evidence of roosting bats. If an active bat roost is detected within a tree to be removed, the following measures are recommended to protect the roosting bats:

- To the extent feasible, impacts on active bat roosts should be avoided during the maternity season (i.e., April 1 through August 31). However, if during the maternity season it is not feasible to avoid the removal of a tree with an active bat roost, a biologist may determine (e.g., via acoustic monitoring) whether dependent young are present in the roost. Bats may be evicted from a maternity roost if the qualified biologist determines that the young are volant (i.e., capable of flight).
- Eviction should not occur during long periods of inclement or cold weather (as determined by the bat biologist) when prey is not available or bats are in torpor. Eviction activities will be planned by and performed under the supervision of a qualified bat biologist, who would determine the precise eviction methods. Following eviction, bat exclusion devices may be installed or left in place to prevent bats from taking up occupancy of the structure prior to the onset of the proposed removal of the tree or structure.
- Where feasible, an alternative roost structure may be provided if an active bat roost is removed. Specifications for appropriate bat boxes are provided under *Enhancements* above.
- These same procedures should be implemented at buildings if future activities (e.g., under the Master Plan) involve removal or modification of structures that could support bat roosts.

Barn Owls

As discussed under Section 5.1.9 Other Nesting Birds above, avoidance, pre-activity surveys, and non-disturbance buffers around active nests of birds, including barn owls, are recommended to avoid disturbing active nests and ensure compliance with the MBTA and California Fish and Game Code.

5.1.10.2 Monitoring

No monitoring of bat boxes or barn owl boxes is recommended under this NRMP. If desired, the Department can periodically monitor any modified structures and/or installed bat boxes or barn owl boxes for occupancy.

5.1.10.3 Adaptive Management

No adaptive management measures are recommended. However, if the Department chooses to monitor the use of modified structures and/or installed bat boxes or barn owl boxes for occupancy and they are not being used, the Department may determine potential reasons and recommend adjustments (e.g., to the location or design of the boxes).

5.1.10.4 Enhancements

Roosting Bats

The Department may consider two types of enhancements to encourage roosting bats on the Property: (1) the modification of existing structures, and (2) the installation of bat boxes. Modifying existing structures has the potential to attract larger numbers of bats to the roost; however, this would potentially prevent the Department from using these structures (e.g., the Achilles barn is being considered for historical restoration). Installing bat boxes would not prevent Department use of existing structures on the Property, and these boxes can potentially be installed in many areas throughout the Property. Recommendations for these two types of enhancement are provided below.

Modifications can potentially be performed to any structure on the Property to make it more attractive as roosting habitat for bats; however, considerable improvements (e.g., roof repairs) would be necessary to improve the Achilles barn as bat roosting habitat, and the metal Quonset structures likely do not provide stable temperatures required by day-roosting bats, which prefer wood buildings. The Department may install artificial day-roosting structures (e.g., bat houses) on the Property. All bats species likely to be present on the Property (and that would roost in anthropogenic structures, such as the Achilles barn and the north Quonset) will use bat boxes if the boxes are appropriately sited. Multi-chambered bat boxes, which allow bats to move about the box to regulate their temperature and can accommodate larger numbers of bats, would be used. Additionally, bat boxes would have two sizes of chambers to accommodate small (e.g., California myotis) and large (e.g., pallid bats) bats. Bat boxes purchased from a reputable dealer (e.g., Bat Conservation International) or a Bat Conservation International-certified vendor, or boxes constructed by a bat specialist knowledgeable in roosting bat ecology, would be most effective. While the boxes may be located throughout the Property, they would be most effective if placed near a water source such as Coyote Creek or a pond.

Barn Owls

Barn owls are known to use one of the Quonset structures on the Property, and can potentially nest or roost in buildings and in cavities in trees throughout the Property. Barn owls can be encouraged to nest or roost in buildings or other locations on the Property via the installation of nest boxes. Nest boxes may be purchased or constructed, and they should have two compartments (Wade et al. 2012). Siting of nest boxes will occur as follows:

- Barn owl nest boxes will not be placed in buildings that will be used by the Department in the future, as human activities can potentially disturb the nesting owls.
- Department activities such as the installation and maintenance of new roads and trails have some potential to disturb nesting barn owls, as described under *Other Nesting Birds* above. To avoid potentially disturbing nesting barn owls, as well as potential constraints to road/trail construction and maintenance due to the presence of active owl nests, owl nest boxes will be placed at least 300 feet from any planned roads, trails, or other areas where work will occur.
- Because barn owls are territorial, nest boxes will be installed at least 240 feet apart.
- Barn owls are known to prey upon burrowing owls, and barn owl nest boxes should therefore be installed at least 0.6 mile from known burrowing owl use areas so that the barn owls' territories do not overlap occupied burrowing owl habitat (Taylor 2004).

5.2 Grazing Management and Monitoring

The *Santa Clara County Parkland Range Management Policy* was adopted by the County in 1992 to help manage and enhance native vegetation. This policy specifies that decisions regarding whether and how to best employ a grazing program should be based on the primary land use objectives for each parkland. Land management objectives to be considered when developing a grazing plan include:

- Providing visitor access and recreational opportunities
- Providing for the safety of park users
- Protecting, conserving, and enhancing natural plant communities
- Minimizing fire hazards to parklands and private property by managing vegetative fuels
- Rehabilitating degraded vegetation and wildlife habitat
- Establishing cooperative relationships with adjacent property owners

Under the Parkland Range Management Policy, grazing on parklands is managed to maintain the quality of the soil, water, vegetation, and wildlife. Each site must have a management plan describing management techniques, including a grazing plan. The Policy's goals to guide the management program include the following considerations (among others):

- Providing information and justification for stocking rates, spatial and seasonal patterns of use, and type of livestock
- Selecting appropriate vegetation management techniques, including grazing and other techniques
- Monitoring plant and wildlife communities
- Considering the effects of grazing on rare plants and plant communities, sensitive habitats, and rare wildlife, as well as the relationship between grazing and invasive plants
- Considering seasonality of grazing in parklands experiencing heavy summer visitor use
- Taking a conservative approach to determining stocking rates to protect natural resources
- Providing appropriate fencing to protect sensitive natural resources



Photo 68. Steep slopes northeast of Coyote Creek.

In conformance with the Parkland Range Management Policy, a grazing plan for Coyote Canyon was developed to provide grazing management and monitoring guidelines programmatically for the Property as a whole. Benefits of managed grazing include increased diversity of plant and animal species, the control of nonnative invasive weeds, reduced fire risk, and improved watershed health. However, as discussed below, grazing is currently limited primarily to areas of the Property located southwest of Anderson Reservoir and Coyote Creek due to steep slopes and a lack of fencing to the northeast (Photo 68). General management and monitoring recommendations are provided for the southwest portion of the Property, but as the Department considers possible future activities on the northeast portion of the Property, more refined options and prescriptions for management can be explored.

5.2.1 Existing Conditions and Grazing Management Practices

The following sections summarize the current grazing management practices on the Property, as well as certain physical and biological attributes that are particularly relevant to the development of a grazing management approach. Descriptions of additional physical and biological attributes of the Property that are relevant to the grazing plan are provided in Sections 2 and 4 above and are referenced below.

5.2.1.1 2018 Rangeland Conditions

Based on empirical observations during the 2018 surveys, the Property is generally in moderate condition with respect to grazing impacts and RDM levels (i.e., high-quality habitat conditions are present throughout some areas of the Property, but many areas would benefit from adjustments to the grazing regime) (Photos 69 and 70). Within areas of California annual grasslands, the Property was observed to be moderately to heavily grazed with very low to moderate RDM levels on average in late winter to early spring, likely in part due to the timing and amount of rainfall received in the 2017–2018 season. Late-spring and early summer surveys on the Property noted that certain areas of California annual grasslands had high RDM later in the growing season, especially once cattle were removed from the Property. RDM levels were low (with short-cropped grass and higher abundance of native forbs in mid-spring) throughout late winter and spring along the western ridgeline but were higher in less well-grazed areas, such as much of the area west of that ridgeline. In late spring and early summer, just before cattle were removed from the Property for the season, RDM levels on the ridge increased.

Large infestations of yellow star thistle observed in Windmill Pasture were thought to have resulted from ground disturbance by feral pigs, whereas extensive yellow star thistle in the western part of the Property was present in areas that had been lightly grazed and had little pig damage (Photo 71). Oak recruitment is occurring along the Coyote Creek riparian corridor and in lowland areas, but very little to none is present in upland grasslands, where grazing and animal impacts are most intensive. Grazing intensity is low to moderate in most riparian areas and woodlands, although pegging (i.e., disturbance of soil where cattle hooves have cut into and sheered soft soils) is extensive due to deep, soft, friable soils with thick litter layers under canopies. However, RDM levels were moderate to high in most wooded and riparian areas. Soils are generally heavily impacted by livestock and feral pigs in California annual grasslands (e.g., due to pegging, compaction and forming of trails, bare and disturbed soils, and evidence of erosion), particularly around water resources such as the constructed ponds.



Photo 69. Cattle grazing within Long Lake Pasture.



Photo 70. Cattle grazing in extensive grassland within Long Lake Pasture.



Photo 71. Extensive yellow star thistle infestation on Front Pasture in the western part of the Property.

The floodplain around Coyote Creek, in the uppermost portion of drawdown Anderson Reservoir, was characterized by compacted soils and was heavily infested with thistles, and cattle were observed to loaf in this area, facilitating erosion levels that were higher than would be expected from the movement of water alone (Photo 72). Moreover, algal blooms were observed in the creek in shallow waters, perhaps due to nutrient deposition from cattle and/or erosion coming from small ephemeral streams and along the stream banks.



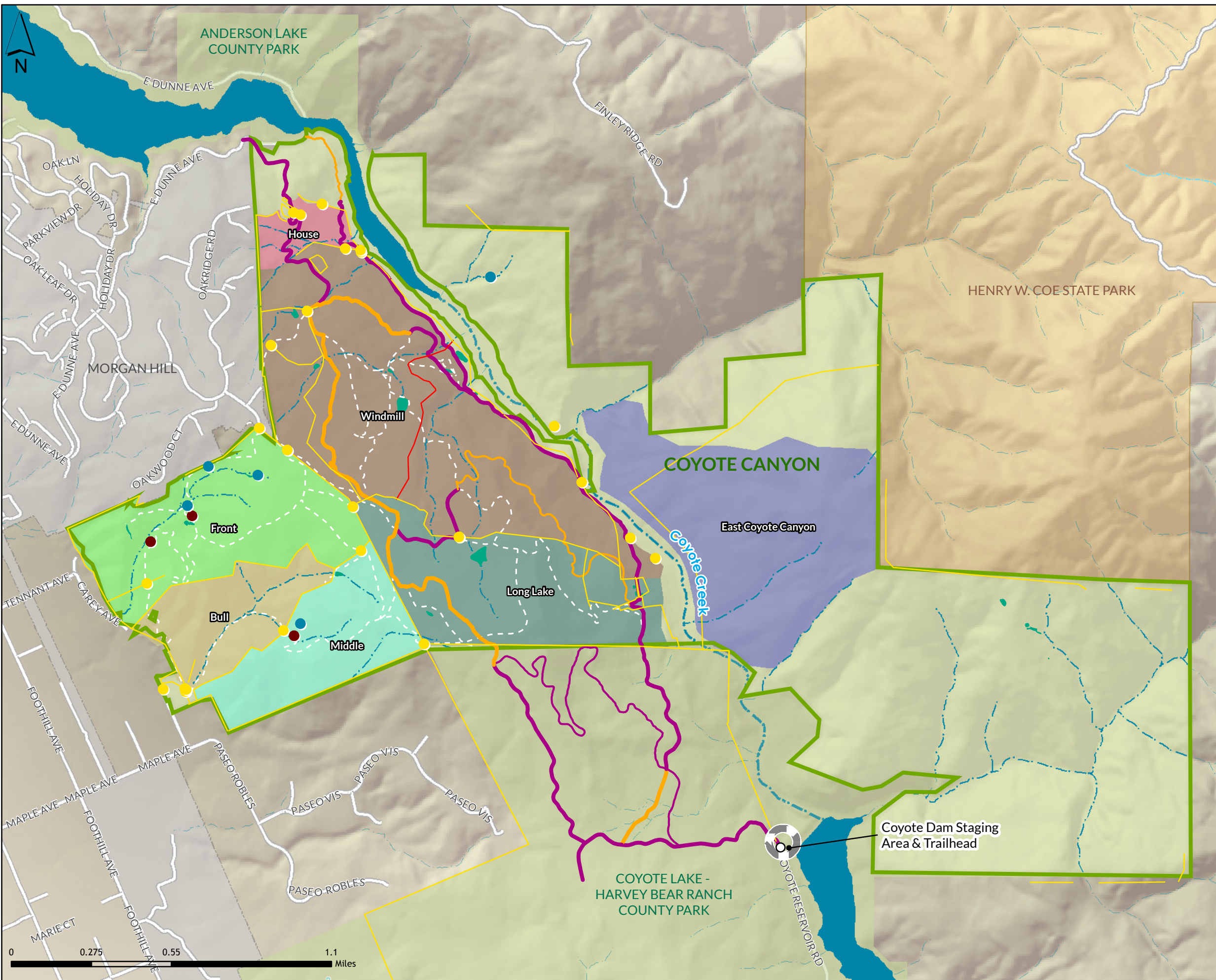
Photo 72. Cattle loafing along Coyote Creek create compacted soils, promote infestations of thistles in disturbed areas, and increase erosion.

Near the Jackson Oaks community in Windmill and Front Pastures, grasslands supported low biomass in February such that a fire hazard was not a concern at that time. However, biomass increased toward late spring and early summer and was fairly high by the time cattle were removed from the Property in May. In contrast, House Pasture supported relatively high biomass adjacent to Jackson Oaks from late winter through spring, with lower biomass closer to Coyote Creek.

Small numbers of cattle were observed in the portion of the Property located northeast of Coyote Creek (i.e., East Coyote Canyon Pasture and other areas that are not within a defined pasture) in late winter. This area is likely undergrazed, but due to the limited available grasslands in this area, as well as lacking infrastructure (e.g., fencing) and steep topography, this is unlikely to pose a management issue.

5.2.1.2 Range Improvements, Grazing Management Areas, and Water Availability

Fence alignments on the Property have been opportunistically mapped by the Department, and additional fence mapping occurred, where feasible, concurrently with other fieldwork completed in support of this NRMP. Additionally, the current grazing lessee was interviewed to identify the approximate location of fencing and livestock water troughs (Photo 73) throughout the Property. Based on these sources of information, the approximate locations of fencing and water troughs on the Property identified to date are shown on Figure 7. The fencing and pasture alignments are approximate and do not currently align based on the available information; a survey is recommended to confirm the fence alignments and adjust the pasture boundaries to conform to the existing fencing, where present.



Legend

- Coyote Canyon Boundaries
- Santa Clara County Parks
- Protected Lands
- Fences
- Potential alignment for Windmill Pasture dividing fence
- Roads
- Existing Roads and Trails
- Gate
- Existing Infrastructure**
- Road - Width
- Single - Track
- Planned Infrastructure**
- Road - Width
- Single - Track
- Water Sources**
- Spring
- Trough
- Pond/Seasonal Wetland
- Reservoir
- Stream
- Pastures**
- Bull
- East Coyote Canyon
- Front
- House
- Long Lake
- Middle
- Windmill



Photo 73. An existing water trough in the western part of the Property.

The current fencing configuration creates seven individual grazing management areas (i.e., pastures). In general, most fencing is in good to fair condition in areas southwest of Coyote Creek, although livestock fencing typically requires frequent repairs to maintain functionality, and livestock access is possible in some locations where fencing does not exist or is in disrepair. The perimeter and interior fencing on the northeast side of Coyote Creek is generally in disrepair or missing. The lack of functional fencing northeast of Coyote Creek is a significant impediment to managed livestock grazing in this portion of the Property. A lack of developed livestock water sources (e.g., troughs) outside the

western part of the Property is also a limitation on livestock grazing management.

Surface water features on the Property include ponds, seeps, ephemeral drainages, and seasonal wetlands. Perennial and near-perennial ponds (i.e., Two Gates Pond, Shady Pond, Rock Pond, Cattail Pond, and Wigeon Pond) hold water into the summer and fall, and provide the primary source of livestock water in pastures where troughs are absent (i.e., outside of the western part of the Property). Most other drainages, ponds, and wetlands provide livestock water on a seasonal basis only. These features are shown on Figure 7.

5.2.1.3 Livestock Grazing Operation

The site has been grazed consistently (i.e., with consistent stocking numbers) by the same grazing lessee for the past eight years. Currently, the Property is seasonally grazed by approximately 120 cow-calf pairs. Animals are brought onto the Property in the fall, roughly at the start of November (the actual timing may vary by several days depending on forage availability, weather, and other factors). Cattle are turned into the corrals located at 15470 Carey Avenue. From here, they are allowed to habituate to the site in the lower slopes and hillsides above and north of the corral complex (i.e., within the western part of the Property in Front, Bull, and Middle Pastures) for roughly 2–4 weeks. Once habituated to the site, cattle are pushed to the east (i.e., in Long Lake, Windmill, and House Pastures), where they remain for the majority of the grazing season. Near the end of the grazing season, cattle are gathered and herded back to pastures on the western part of the Property, where they are allowed to remain for approximately another month. Cattle are removed from the Property around the end of May or early June, depending on forage conditions on the Property and other factors.

A small number of bulls brought onto the Property remain in the southwestern part of the Property throughout the duration of the grazing season, and other cattle may be temporarily held in this area due to proximity to the corral and other livestock handling facilities on an as-needed basis. Additionally, the grazing lessee may herd a small number of cattle to East Coyote Canyon Pasture for shorter-duration grazing at various times during the grazing season; however, this pasture generally is not used for livestock grazing because these areas lack suitable

forage (i.e., annual grassland), and fencing is not sufficient to prevent cattle access to Coyote Creek, Anderson Reservoir, and points south and east of the Property.

5.2.1.4 Property Soil Productivity

A complete soil type list along with the total estimated amount of forage produced by each soil type (dry weight, pounds per acre in years with above average, average, and below average precipitation) is provided in Table 2. The distribution of these soil types on the Property is provided in the Plan. In general, soils west of Coyote Creek are relatively more productive clay and clay loams (Altamont, Climara, Gilroy series), and soils east of Coyote Creek are relatively less productive steep loams (Gaviota and Los Gatos series). Over one-quarter of the soils on the Property are mapped as eroded or severely eroded, again mostly in areas east of Coyote Creek, further limiting vegetation productivity and grazing suitability in this part of the Property.

Table 2. Total Dry-Weight Forage Production by Soil Series

Soil Map Unit ID, Name, and Percent Slopes	Percent of Property	Total Dry Weight Production (lbs/acre)		
		Wet Year	Normal Year	Dry Year
AcF, Altamont clay, 30 to 50% slopes	2.9%	3381	2415	1545
AcG2, Altamont clay, 50 to 75% slopes	2.7%	3381	2415	1545
AkC, Arbuckle loam, deep, 5 to 9% slopes	0.1%	NR ¹	NR	NR
AuD2, Azuke clay loam, 9 to 15% slopes, eroded	0.2%	3091	2511	1545
AuE, Azuke clay loam, 15 to 30% slopes	0.1%	3091	2511	1545
AuG, Azuke clay loam, 30 to 75% slopes	0.5%	2957	2402	1478
CID, Climara clay, 9 to 30% slopes	1.6%	2865	2101	1528
CmE, Climara stony clay, 15 to 30% slopes	3.8%	2898	2125	1545
GcG, Gaviota loam, 30 to 75% slopes	10.8%	1936	1496	880
GhG2, Gaviota gravelly loam, 30 to 75% slopes, eroded	4.4%	1760	1360	800
GhG3, Gaviota gravelly loam, 30 to 75% slopes, severely eroded	21.6%	1830	1445	850
GmF, Gaviota-Los Gatos complex, 30 to 50% slopes	4.2%	1800	1375	850
GoD, Gilroy clay loam, 5 to 30% slopes	8.6%	2961	2197	1433
GoF, Gilroy clay loam, 30 to 50% slopes	8.5%	2635	1955	1275
GoG, Gilroy clay loam, 50 to 75% slopes	9.7%	2635	1955	1275
InG2, Inks rocky clay loam, 50 to 75% slopes, eroded	2.1%	1020	850	425
IsG3, Inks stony clay loam, 30 to 50% slopes, severely eroded	1.7%	1159	966	483
LaF, Landsides	1.3%	NR	NR	NR
LhG, Los Gatos-Gaviota complex 30 to 75% slopes	13.1%	1750	1325	850
RaC2, Rincon clay loam, 2 to 9% slopes	0.1%	NR	NR	NR

¹NR = Not Rated

5.2.2 Grazing Management and Monitoring Plan

The implementation of livestock grazing on the Property is intended to be adaptable and flexible without being overly prescriptive or restrictive. Specific grazing implementation and monitoring recommendations, consistent with the guidelines and objectives of the Parkland Range Management Policy, are summarized below.

5.2.2.1 Framework

As described above, the Property is seasonally grazed by approximately 120 cow-calf pairs for roughly 6–7 months each grazing season, between November and May or June, with most grazing occurring along the western ridgeline and between that ridgeline and Coyote Creek. East Coyote Canyon Pasture is only minimally grazed in most years, if at all, because this area lacks sufficient fencing and water and because this area is dominated by mixed oak woodland and forest, northern coastal scrub, and northern mixed chaparral—plant communities that do not provide significant amounts of livestock forage. Fencing and water improvements east of Coyote Creek would open a larger part of the Property to livestock grazing, but given the cost of these improvements and the marginal benefits to grazing management of the Property, such improvements are not recommended at this time.

Based on the guidelines and objectives of the Parkland Range Management Policy, fieldwork conducted in support of this NRMP, interviews with Department staff and the current grazing lessee, and the opinions of H. T. Harvey & Associates' rangeland ecologists and biologists, it was determined that the current approach to livestock grazing management does not warrant significant alteration at this time. However, monitoring and adaptive management should be implemented to determine whether modifications to the current grazing regime, beyond those described in this NRMP, would be needed (e.g., to allow more targeted grazing of invasive species). Although the Property was observed to be in moderate condition with respect to grazing during the 2018 surveys, the current grazing regime is generally appropriate for the Property (as evidenced by the high-quality habitat present throughout much of the Property), and the implementations of some adjustments to this regime (e.g., excluding cattle from sensitive areas and adjusting the movement of cattle between pastures in a given year based on standardized monitoring) are expected to improve rangeland conditions. The “status quo” approach to grazing management currently being applied on the Property is largely supported by a wealth of prior study and literature related to proper grazing management of California annual grasslands and associated oak woodlands, nearly all of which supports two interrelated observations. First, plant species composition (e.g., native versus nonnative plants) within California annual grasslands is temporally and spatially complex and highly variable, primarily as a result of climate and other abiotic factors (Biswell 1956, Heady 1956, Pitt and Heady 1979, Bartolome 1989, Evans and Young 1989, Jackson and Bartolome 2002, and Becchetti et al. 2016). Second, because species composition within California's annual grassland communities is primarily a function of factors that cannot be controlled or managed (e.g., climate, soil characteristics), approaches to grazing management in these ecosystems tend to be fairly simplistic and typically focus on season-long or winter-spring grazing to achieve a particular amount of RDM as measured prior to the onset of the rainy season (Heady 1961). Further, recommendations are provided in Section 5.3.2 (Feral Pigs) below to address the observed impacts of feral pigs on rangeland conditions that are noted above.

While there is no clear, consistent relationship between RDM and grassland species composition (Jackson and Bartolome 2002), RDM has been found to influence total forage production the subsequent growing season (Bartolome et al. 1980), and adequate RDM (or “mulch”) provides protection from soil erosion and attendant degradation of soil quality and soil fertility (Bartolome et al. 2006). In California, annual climate patterns are unpredictable and frequently vary between years and within years. Therefore, even relatively simplistic approaches to livestock grazing management must be flexible between years and within years to effectively manage biomass accumulation and consistently maintain appropriate RDM levels while minimizing unintended adverse effects on rangeland resources.

While a relatively straightforward (but flexible) grazing approach assures protection of basic rangeland resources, there is increasing recognition that nuanced, or targeted, management of livestock can help achieve more specific resource protection or enhancement goals apart from basic rangeland resource protection. These targeted approaches may require additional infrastructure (i.e., fencing and water) or development of more specific grazing systems—combinations of animal kind (cattle, sheep) and class (cow, yearling), stocking rate (number of animals per unit area), grazing timing, and grazing duration—designed to achieve more specific goals. Thus, although a relatively simple and flexible approach, based on current livestock grazing practices, can and will form the basis of future livestock management on the Property, the approach described in this NRMP also recommends adaptively managing targeted livestock grazing, where warranted, to better address additional resource management goals. These goals, which have been informed by the objectives of the Parkland Range Management Policy, are:

- Herbaceous fuels reduction to reduce fire danger
- Control of nonnative and invasive plant species
- Protection and enhancement of known and potential breeding habitat for the California red-legged frog and California tiger salamander
- Protection of known sensitive plant species occurrences and areas of serpentine and riparian communities
- Protection of water quality and riparian habitat within the Coyote Creek corridor and along other streams
- Regeneration of mixed oak woodland

As directed by the Parkland Range Management Policy, monitoring within an adaptive management framework is a critically important component of any grazing management strategy. Regular monitoring and collection of data helps determine how well the grazing plan is implemented and if desired results are being achieved. Monitoring associated with implementation of the grazing management and monitoring program will focus on an assessment of RDM. RDM data will be combined with species-specific monitoring to assess attainment of both basic rangeland resource protection as well as the specific the response of specific species or taxa to livestock grazing on the Property. The grazing management strategy should be adjusted as needed to meet

overall management goals. Implementation of the grazing management strategy, including specific grazing management guidelines, are described in detail below.

5.2.2.2 Guidelines/RDM Targets

The following describes livestock grazing management guidelines for the Property. The intent of these guidelines is not to be prescriptive; rather, these guidelines are intended to establish the parameters or performance standards within which the grazing lessee should manage his or her grazing operation to help meet the Property's overall natural resource management goals. In general, performance standards are expressed as an RDM target, with the targeted amount of RDM prior to the first germinating rainfall varying among specific grazing management zones, each of which has been defined with specific resource management or enhancement goals in mind. Some RDM targets are defined as a minimum value (i.e., observed RDM should not be lower than the stipulated value) and other RDM targets are define as a maximum value (i.e., observed RDM should not be higher than the stipulated value).

Minimum RDM levels for basic ecological health of California annual grasslands have been developed by the University of California Cooperative Extension (Bartolome et al. 2006). Recommended minimum RDM levels vary by annual rainfall amount, tree canopy cover, and slope. For areas similar to the Property, recommended minimum RDM levels are 600 pounds (lbs)/acre on areas with slopes less than 30%, and 800 lbs/acre on slopes greater than 30%⁴. These general RDM guidelines, which are focused on minimizing soil erosion, maintaining water quality, and optimizing forage productivity, may not necessarily optimize other resource management goals, as summarized above, and in these instances, higher or lower RDM targets may be warranted. In addition to varying targeted RDM amounts, attainment of some resource management goals may necessitate stipulating a specific season of grazing use (i.e., the time of year when grazing may occur) or partial or complete fencing of specific resource management areas, to facilitate targeted grazing of the fenced area relative to the surrounding area.

Management guidelines that reflect differing RDM targets, seasons of use, and degrees of grazing exclusion (Table 3) as well as guidelines for the management of nonnative invasive plants with grazing (Table 4 with additional discussion in Section 5.3.1 [Nonnative and Invasive Plant Species] below) have been developed for the Property. These include general guidelines for the majority of the Property, as well as flexible guidelines for the purpose of protecting specific natural resources or achieving Property management objectives. The guidelines are intended to be flexible and variable within and between years, with specific locations for management activities identified as warranted by Department staff based on resource conditions. It is anticipated that Department staff will work with the grazing lessee on a regular basis to review any special

⁴ The RDM guidelines developed by Bartolome et al. (2006) use 10–20% slope, 20–40% slope, and >40% slope as breaks for defining different RDM targets. For simplicity, the RDM target specified for areas less than 30% slope in the Park corresponded to the 10–20% slope value provided in the RDM guidelines, and the RDM value specified for areas greater than or equal to 30% slope corresponded to the RDM value for areas greater than 40% slope in the RDM guidelines.

Table 3. Grazing Management Guidelines and RDM Targets

Guideline/Objective	RDM Target	Timing	Notes
General for all areas with <30% slopes	Minimum: 600 lbs/acre Maximum: 1200 lbs/acre	No restrictions	The minimum RDM value is set to protect basic rangeland resources and protect soils from erosion, and the maximum RDM value is set to ensure adequate grazing of annual grassland vegetation for fuels management and grassland species diversity (to the extent possible).
General for all areas with ≥30% slopes	Minimum: 800 lbs/acre Maximum: 1600 lbs/acre	No restrictions	These areas require a higher minimum RDM value to protect soils that are more prone to erosion (relative to flatter areas), while the maximum RDM value is set to ensure adequate grazing of annual grassland vegetation for fuels management and grassland species diversity (to the extent possible).
Coyote Creek	Not applicable	No restrictions	Exclusion of cattle from the Coyote Creek riparian corridor is recommended to protect sensitive vegetation within this area. Grazing (e.g., pulse grazing) guided by prior consultation with a California-licensed Certified Rangeland Manager (CRM) may be allowed within this habitat for brief durations at specific times of the year to meet resource management goals (e.g., management of nonnative invasive plants).
Pond Enhancement (Two Gates Pond, Shady Pond, and Wigeon Pond)	Minimum: 600 lbs/acre Maximum: 1200 lbs/acre	When pond is dry, or from August until the start of the rainy season	Fencing (with hogwire, to prevent feral pig access) is recommended around portions of certain ponds to promote the establishment of emergent vegetation; the fencing should have a gate to allow cattle access as needed. Vegetation management is not anticipated to be needed in these fenced areas, but pulse grazing or mowing may be used to control vegetation cover and nonnative invasive weeds if needed. Timing is confined to periods when amphibians are generally not present (to avoid trampling and other livestock impacts). If cattle are not on-site during the recommended management period, vegetation may need to be managed by mowing (see Section 5.3.1).
Vernal Pond Enhancement	Minimum: 600 lbs/acre Maximum: 1200 lbs/acre	When pond is dry, or from August until the start of the rainy season	Fencing is recommended around Vernal Pond and surrounding upland areas to exclude cattle. The fencing should include a gate to allow cattle access as needed, and the gate may be left open once the pool dries. If cattle are not present on-site when the pool dries, mowing may be used in this area to control vegetation cover and nonnative invasive weeds, if needed (see Section 5.3.1). Timing is confined to periods when amphibians are generally not present (to avoid trampling and other livestock impacts).

Wildfire Risk Reduction	Maximum 500 lbs/acre	No restrictions	A low RDM target (at or below 500 lbs/acre) is recommended for portions of the House, Windmill, and Front Pastures located within 200–500 feet of the Jackson Oaks residential development, and any other areas where wildfire risk is of particular concern, to reduce fine fuel accumulation and enhance fire breaks near this community. Strategic placement of salt and nutrient supplements, water, or portable electric fencing can be used, as appropriate and necessary, to encourage cattle grazing in these areas.
Oak Regeneration	Not applicable	See Notes	Areas where oak regeneration is desired should generally be excluded from grazing until oaks have reached approximately 6 feet in height (typically at least 3–5 years following germination). If grazing is desired for fuel control or to meet other resource management goals, it should occur from November 1–March 31 and be implemented in coordination with a CRM.
Invasive Plant Management	Not applicable	See Table 4	Areas where RDM and grazing timing are varied to specifically occur during periods of time most likely to target specific species of invasive plants. See Table 4 for species-specific recommendations related to widespread invasive plants occurring on the Property. In these areas, RDM targets should generally follow the target for appropriate Basic Resource Protection zone, unless a different target is developed in consultation with a CRM.
Flexible Management	No restriction	No restriction	Areas where RDM standards are not enforced, temporarily, to provide management flexibility during periods of drought or to meet other resource management goals.

Table 4. Grazing Management Guidelines for the Management of Nonnative Invasive Plants

Invasive Species	Recommended Grazing Period(s)	Management Recommendations
Yellow star thistle (<i>Centaurea solstitialis</i>)	March – June	Intensive late spring to early summer grazing at a high intensity to reduce biomass before production of viable seed could reduce infestations over time. Multiple short periods of high-intensity, high-density grazing may be needed, as flushes of spring rains and rapid regrowth can result in the germination of new seedlings, and grazed plants may branch and form new flowerheads. While grazing of more palatable seedlings and rosettes (roughly from March – May) may reduce biomass, grazing may more effectively reduce current populations if targeted immediately prior to the formation of spines to reduce production of seed and further spread (generally prior to June).
Italian thistle (<i>Carduus pycnocephalus</i>)		While grazing is not often used for control of this species, minimizing extreme soil disturbance and the creation of bare ground will reduce infestation. This plant is not generally grazed by cattle due to it many spines, although it may be grazed at a very young stage while still soft, and occasionally cattle will eat the flowerheads. Mechanical controls, including knocking down tall plants or trampling them, accompanied by reseeding, may be needed to reduce large, mature infestations. Mowing at the bolting stage and prior to production of flowers may also reduce seed production over time (see Section 5.3.1).
Medusahead (<i>Elymus caput-medusae</i>)	March – June	Intensive early spring to late-spring grazing to reduce biomass of this invasive species before production of viable seed may reduce infestations over time. The most effective timing for reducing viable seed production is prior to the boot stage, when the grass is just about to form a seedhead. Repeated bouts of grazing to reduce regrowth and flowering will likely be necessary.
Milk thistle (<i>Silybum marianum</i>)	February–April November–December	While grazing is not often used for control of this species, minimizing extreme soil disturbance and the creation of bare ground will reduce infestation. This plant may be grazed at a very young stage while still palatable. Mechanical controls, including knocking down tall plants or trampling them, accompanied by reseeding, may be needed to reduce large, mature infestations. Mowing at the bolting stage and prior to production of flowers may also reduce seed production over time (see Section 5.3.1). Pulse grazing large numbers of cattle, in the fall, may also be used to knock down growth from prior years.
Bull thistle (<i>Cirsium vulgare</i>)		While grazing is not often used for control of this species, minimizing extreme soil disturbance and the creation of bare ground will reduce infestation. This plant may be grazed at a very young stage while still palatable. Mechanical controls, including knocking down tall plants or trampling them, accompanied by reseeding, may be needed to reduce large, mature infestations. Mowing at the bolting stage and prior to production of flowers may also reduce seed production over time (see Section 5.3.1).

grazing management prescriptions for the coming grazing season, and these areas would be denoted on maps and discussed with the grazing lessee as part of the annual grazing lessee meeting (see *Annual Operating Plan* below for additional information).

5.2.2.3 Implementation

Range Improvements

Following completion of a survey of the alignments of existing fencing within the portion of the Property located southwest of Coyote Creek, as well as identification of sections of fence in need of repair, the grazing management areas mapped southwest of Coyote Creek should be adjusted to align with the fencing. Fencing surveys and repairs northeast of Coyote Creek are not recommended at this time, but these should be performed prior to the inclusion of East Coyote Canyon Pasture as part of the annual grazing operation in the future.

Although current fencing is generally sufficient southwest of Coyote Creek, some existing segments of fencing are only in fair condition, requiring frequent repairs, and other segments of fencing are incomplete. Ineffective fencing complicates grazing management because pastures cannot be managed independently from one another. Additionally, much of the Property lacks developed sources of livestock water, forcing livestock to utilize sensitive ponds, springs, creeks, and drainages for water. To facilitate grazing management on the Property and protect sensitive resources, new fencing and water sources are recommended.

Specifically, new fencing (or repaired and improved fencing, where non-functioning fencing currently exists) is recommended in the following locations⁵:

- Along the southwest side of Coyote Creek for the purpose of excluding cattle from grazing within the sensitive habitat along the creek.
- Roughly in the middle (running approximately east to west) of Windmill Pasture, creating two smaller pastures from one larger pasture for the purpose of facilitating targeted grazing management within this pasture. The location of this recommended fencing is shown on Figure 7⁶.

As new fencing is installed on the Property or old fencing is repaired/replaced, the Department should consider the use of wildlife-friendly fencing, where feasible.

Developed water currently only exists on the western part of the Property; additional water sources are recommended in every fenced pasture on the Property southwest of Coyote Creek, with a minimum of two developed water sources per pasture. As with the fencing recommendations above, specific locations for water

⁵ Note that adding fencing in certain recommended areas will change the grazing management areas identified for this NRMP.

⁶ The proposed alignment for fencing to bisect Windmill Pasture was drawn based on limited information on the location of existing fencing, and should be adjusted following field verification of existing conditions.

sources cannot be identified at this time; however, we recommend the following measures related to siting water sources (as well as mineral resources) in appropriate locations relative to sensitive natural resources on the Property and/or to achieve Property management goals:

- Water and mineral sources should be located a minimum of 250–500 feet from sensitive habitats (i.e., Anderson Reservoir, ponds, wetlands, streams, and serpentine communities) and sensitive plant occurrences to avoid congregating cattle in these areas.
- Although cattle are expected to use public trails regularly, siting water and mineral sources a minimum of 250–500 feet from trails will minimize the congregation of cattle along public trails.
- Water and mineral sources should be sited within 200–500 feet of areas where wildlife risk is of particular concern to attract cattle, thereby reducing fine fuel accumulation and enhancing fire breaks near this community.

It is recommended that the Department work with its grazing lessee and other partner agencies (e.g., the Natural Resources Conservation Service, which provides grants for livestock fencing and water projects) to identify a prioritized list of water projects and implement these projects as funding allows. Continued maintenance of fencing and livestock water sources is the responsibility of the grazing lessee, per the terms of the lessee's lease with the Department. It is recommended that all new and existing artificial water sources be fitted with escape ramps for wildlife species to prevent drowning.

Annual Operating Plan

By October 1 of each year, it is recommended that the Department's grazing lessee develop an operating plan for the coming grazing season. The annual operating plan (AOP) should describe the proposed duration of grazing for the coming year; the number, kind (e.g., cattle, sheep), and class (e.g., cow, bull, steer) of livestock to be grazed on the Property; a pasture rotation schedule, including the number animals grazed in each pasture and the dates during which grazing will occur; any proposed range improvements for the coming year; approximate locations of mineral and nutrient supplements; and any other information related to proposed grazing for the coming season. The Department should review this information and schedule a meeting with the grazing lessee by October 15 to discuss any revisions to the proposed plan, including the designation of any special grazing management zones for the coming year. A final, approved AOP should be submitted to the Department prior to initiation of grazing in the fall (i.e., on or about November 1 annually). Modifications to the AOP may be made during the grazing season with the prior approval of the Department.

Monitoring Guidelines

As described previously, regular monitoring of forage production or RDM would form the basis for adjustments to the number of livestock or the permitted grazing season on the Property. Monitoring, which is described in detail below, is recommended multiple times per year with reconnaissance surveys conducted throughout the grazing season and a more detailed RDM assessment conducted at the end of the grazing

season. During the reconnaissance visits, each management area should be inspected to determine if the management area is in compliance with the RDM targets described in Section 5.2.2.2 (Guidelines/RDM Targets) above. During the more detailed fall RDM assessment, both site-specific RDM measurements and general estimates of RDM within each management area should be recorded. Aside from informing overall grazing management on the Property, these data should be combined with species-specific data (e.g., the distribution and population size of sensitive plant and wildlife species) collected as part of the monitoring described in Section 5.1 to determine the relationship between grazing management and the response of target species or resources. Procedures for collecting RDM and forage utilization estimates are summarized below.

Reconnaissance Surveys. Reconnaissance surveys should be conducted by the grazing lessee or the Department (as applicable) up to four times per year (i.e., between October and December, at the end of January, at the end of February, and at the end of March). Reconnaissance surveys will serve four purposes:

- To determine if pastures about to be grazed are ready for grazing, meaning that the management unit has either sufficient RDM from the previous year's grass growth or new grass growth from the current year to support the number of livestock planned for that management area as outlined in the AOP, without resulting in forage over-utilization.
- In the case of the late fall to winter reconnaissance surveys, to estimate the potential amount of new grass growth during the coming year (based on the prior year's RDM estimates, late fall and early winter grass growth, and predicted weather patterns for the coming spring) so that stocking rates for the remainder of the grazing season can be proactively adjusted, if needed.
- To help determine, for pastures that are being grazed, whether livestock should be removed, prior to the planned end of the grazing period for that management area, or if livestock grazing should be extended on that management area beyond the planned end of the grazing period.
- In the case of the late March survey, to determine whether greater grazing effort is needed in portions of the House, Windmill, and Front Pastures located within 200–500 feet of areas where wildfire risk is of particular concern to reduce fine fuel accumulation and enhance fire breaks near this community.

During each reconnaissance survey, management areas should be visually inspected by the lessee, photographs of representative forage conditions should be taken at key reference sites (see below), and the amount of biomass (either RDM or new grass growth) should be visually estimated across the entire management unit according to the biomass classes described in Table 5. It is recommended that the grazing lessee provide an email summary of each reconnaissance survey to the Department within one week following the survey.

Table 5. Grazing Implementation Summary and Responsibilities

Task	Responsible Party	Notes
Locate and Construct Fencing	Department	Prioritize fencing improvements in coordination with grazing lessee and explore opportunities for cost-sharing with outside partners (i.e., the Natural Resource Conservation Service). Suggest adding new fence (see Figure 7) that would split Windmill Pasture into two smaller pastures in an effort to facilitate improved livestock management.
Locate and Construct Livestock Water Improvements	Department	Prioritize water improvements in coordination with grazing lessee and explore opportunities for cost-sharing with outside partners (i.e., the Natural Resource Conservation Service). Livestock water sources should be sited to facilitate positive drainage away from the trough and a minimum of 500 feet from recreational trails, ponds known to support sensitive wildlife, rare plant populations, and the locations of other sensitive biological resources. Steep slopes, areas of shallow soils (e.g., serpentine), and similar areas that are prone to erosion should be avoided as locations of livestock water sources.
Develop Annual Operating Plan	Grazing Lessee	Provide by October 1 annually, Department to review and provide feedback, including designation of grazing management zones, by October 15. AOP finalized and approved by November 1.
Reconnaissance Surveys	Grazing Lessee	Conduct up to four times annually (i.e., October–December, at the end of January, at the end of February, and at the end of March). Provides input needed to make adaptive management decisions.
Reference Site Surveys	Department	Conduct in October annually. Calibrates RDM zone mapping and provides additional, detailed data, including maintenance needs for water troughs and fencing, weed infestations, and areas of erosion.
RDM Zone Mapping	Department	Conduct in October concurrently with reference site surveys. Determines whether or not grazing lessee met RDM targets and highlights resource management issues.
Adaptive Management	Grazing Lessee	Results from periodic monitoring may necessitate modifications to the AOP.

Reference Site Surveys. Reference site surveys should occur at the end of the grazing season (i.e., in October), after livestock have been removed, to determine if established RDM targets were successfully met during the grazing season and highlight potential resource issues (e.g., potential infestations of invasive plants, inappropriate locations for salt and other supplements, poor livestock distribution) that should be addressed prior to next year’s grazing season.

It is recommended that detailed information be collected by the Department at selected reference sites located within each pasture. Estimates of RDM and reference photographs should be collected at each site. Information collected at reference sites is not intended to represent the entire management unit being surveyed; however, it is intended to be representative of the larger area surrounding the sample point and to serve as a reference point for calibrating visual estimates of utilization or RDM. Thus, reference sites should be placed in locations that receive “typical” livestock use and not in areas near fencelines, water sources, areas where supplements are placed, near gates, and similar areas that tend to be grazed by livestock preferentially.

The exact number of reference sites per pasture should be determined based on pasture size and differences in soils, slope, and other factors that influence forage production and livestock utilization of that forage. Exact locations of reference sites should be established during the first year of monitoring, permanently marked in the field, and mapped so that they can be easily re-located during subsequent surveys. Reference sites should be selected that are representative of the general area and capable of responding similarly to grazing management. Most reference monitoring sites are established in areas that are expected to receive typical livestock use (i.e., a level of livestock use that is representative of the larger management unit, as described above). Reference monitoring sites at times may be established in low use areas and high use areas to better document the actual range of impacts that may be occurring on large diverse pastures. The location and number of reference sites may change over time in response to changing resource conditions or changes in grazing management.

Each reference site should be roughly 100 feet in diameter and composed of four 50-foot transects (one in each cardinal direction [i.e., north, east, south, and west]) and nine sampled points (one at the plot center, one at each transect midpoint, and one at each transect end point). At each sampled point, biomass expressed as pounds of aboveground herbaceous plant growth per acre (not including weedy and unpalatable summer annuals, such as yellow star thistle), percent bare ground in the plot (estimated as one of six classes: less than 1%, 1.1–5%, 6–25%, 26–50%, 51–75%, and greater than 75%), and average grass height (based on visual obstruction of a Robel pole) should be recorded. If needed to calibrate visual estimates, RDM may be clipped and weighed, in addition to being visually estimated, by following standard RDM clipping and weighing procedures (Bartolome et al. 2006). Other data collected at each reference site should be the percent cover of invasive plants, by species, in the plot and the percent of the plot with evidence of fossorial rodent (both estimated as one of the previously described six cover classes). Using the Robel pole and four high-visibility golf balls for visual scale, with two golf balls spaced roughly one foot apart on either side of the Robel pole, representative photographs should be captured at the end of each transect (i.e., four photographs per plot). Other, incidental observations should be recorded as appropriate (e.g., invasive plant infestations outside the reference site, significant areas of erosion within the pasture, fencing or livestock water maintenance needs within the pasture).

Results of reference site surveys should be summarized and the results reviewed by the Department annually.

Utilization/RDM Zone Mapping. Concurrent with reference site surveys, it is recommended that the Department prepare RDM zone maps. RDM zones should be completed by visually estimating biomass within

each pasture and delineating boundaries to depict areas meeting the RDM target, falling below the RDM target, or exceeding the RDM target. Zone maps may be prepared by hand on paper maps or mapped using a GPS unit. As a general rule, zones should be no smaller than 20 acres, unless smaller zones are warranted to adequately characterize resource conditions. Ultimately, data should be transferred to a GIS to facilitate analysis and comparison of data among different years. In addition to water sources, the locations of salt and mineral supplements and supplemental feeding locations should also be mapped, or obtained from the grazing lessee, to aid in interpretation of RDM zone maps.

The Property has a variety of soils, aspects, and vegetation types, which is likely to result in non-uniform livestock use, particularly within larger pastures. Delineation of boundaries between different zones requires careful interpretation when developing zone maps. A combination of reference photographs, descriptive narratives (Bartolome et al. 2006, Wildland Solutions 2008), and clipping and weighing biomass at designated reference sites are all helpful tools to determine zone boundaries and to assign a specific biomass class to each zone. Zone boundaries are delineated where one zone "mostly" shifts to another zone; in practice, zone boundaries are typically delineated by topographic breaks in slope and changes in aspect or changes in soil types that are relatively easy to map in the field (Wildland Solutions 2008).

Results of RDM zone mapping should be included with results from reference site surveys and reviewed by the Department annually. The RDM zone map would also be the basis for determining whether or not the grazing lessee adhered to the RDM targets for the Property and highlight issues (e.g., inappropriate locations for salt and other supplements, poor livestock distribution) that should be addressed prior to next year's grazing season.

Adaptive Management

Adaptive management of livestock grazing on the Property relies on periodic assessment of RDM or forage production throughout the grazing season (see Section 5.2.2.2, Guidelines/RDM Targets above) and comparison of RDM/forage production levels with the conditions of other biological features being monitored (such as abundance of invasive plants). Estimates of forage production prior to the start of grazing within any management area can help determine if the area is ready to be grazed (i.e., if sufficient dry forage, from the previous year's growth, or new grass growth exists to sustain livestock without potentially causing resource damage). Given the relationship between RDM levels and forage productivity during the subsequent year (Bartolome et al. 1980), an assessment of RDM from the prior year and early grass growth from the current year prior to the onset of livestock grazing can also help determine an approximate amount of forage production for the coming year, allowing the Department to proactively adjust livestock numbers or season of use, or to proactively implement flexible management (Table 3) if lower amounts of forage production are likely. Similarly, an assessment of forage production in the early spring helps determine if target RDM amounts have been reached or are likely to be reached prior to the planned end of the grazing season, and therefore the grazing season should be shortened or number of livestock reduced within a particular management area. Early spring estimates of productivity would also help determine if maximum RDM targets are not likely to be reached prior to the end of the grazing season and, therefore, the grazing season should be extended or the number of livestock increased on a particular pasture.

To adaptively manage grazing on the Property, the Department should ensure that the grazing lessee approximates standing biomass at key points during the grazing season (see *Monitoring Guidelines* above). If, based on these assessments, it appears sufficient forage does not exist to support grazing in any pasture, grazing should be delayed and the AOP updated as necessary. Similarly, if regular assessments of biomass indicate that target fall RDM values likely will not be met (either too little or too much RDM), the grazing lessee should make appropriate adjustments to the AOP, which can include extending or reducing the season of grazing use on the Property or in any pasture on the Property; investigating the feasibility, in coordination with the grazing lessee, of either increasing or reducing the number of livestock as necessary to meet RDM targets; or designating Flexible Management zones where RDM targets temporarily do not apply.

5.3 Other Site-Wide Natural Resource Management and Monitoring

5.3.1 Nonnative and Invasive Plant Species

Many species of nonnative annual grasses that are part of the California annual grassland community (e.g., wild oats, foxtail barley, and riggut brome) can be managed through standard grazing management practices. This section generally focuses on control of plant species with a Cal-IPC “Impact” or “Invasiveness” rating of Moderate or High that also present significant potential impacts on existing habitat values and/or livestock forage quality. Existing populations of nonnative, invasive species were mapped as part of the 2018 surveys supporting the preparation of this NRMP and serve as the baseline conditions (Figure 6)⁷. The following nonnative, invasive plant species were detected during the 2018 surveys and are considered “target invasive species” in this NRMP: yellow star thistle (Cal-IPC rating “High”), medusa head (Cal-IPC rating “High”), Italian thistle (Cal-IPC rating “Moderate”), and bull thistle (Cal-IPC rating “Moderate”). In addition, milk thistle (Cal-IPC rating “Limited”) is included as it can be locally problematic and warrant management and monitoring. A number of other nonnative invasive plant species can potentially occur on the Property, but their effects are expected to be limited at this time, especially with regard to the primary goals and objectives of this NRMP, and therefore, are not discussed here. If other nonnative invasive species establish in higher density patches in the future they should be mapped and appropriate management measures and monitoring measures similar to the measures described below should be implemented.

5.3.1.1 Initial Management Actions

Slight adjustments to grazing management (i.e., timing and stocking rates) in the areas that currently support medusahead and yellow star thistle would provide some immediate benefits to control the expansion of these local populations. Per Table 4, intensive early spring to early summer (March–June) grazing to reduce biomass of these invasive species before production of viable seed may reduce infestations over time. As a result, grazing management should target a reduction in the extent of these two species in areas where particularly large infestations of these species occur (e.g., yellow star thistle in Front Field on the western part of the Property).

⁷ Due to survey timing, yellow star thistle and medusa head were not yet mature and could not be comprehensively surveyed for within the vegetation survey area, although some occurrences were documented. In order to accurately map the extent and density of these species within the vegetation survey area, focused surveys should be conducted in late May to early June.

Grazing management is not the most effective form of control for Italian thistle, milk thistle, and bull thistle due to their low palatability, but grazing can be helpful if timed appropriately (i.e., very early growth stages while plants are still soft). Due to the currently localized, limited nature of the occurrences of these thistles, implementing additional control measures is not recommended at this time. However, these populations should be closely monitored per Section 5.3.1.2, and if on-going grazing management guidelines (Section 5.2.2.2) are not sufficient to control the expansion of these species, other measures, such as mechanical control (e.g., mowing prior to seed set) should be recommended.

5.3.1.2 Monitoring

Regular monitoring of the Property for occurrences of target invasive plants should generally occur in March–July to capture the most likely window of active growth and allow control measures to be implemented prior to maturation and seed set. Ideally, three distinct monitoring events spread throughout this time window should be conducted to capture the variability in growth stages for the target invasive plants. Monitoring should initially be performed more intensively (i.e., with three visits during March–July) during the early years to provide the best opportunity to control the existing populations of target invasive plants; monitoring should then occur annually thereafter (e.g., during regular patrols and grazing monitoring) to maintain site conditions and allow for identification of any new invasive species that may colonize the Property. For purposes of the Plan, monitoring should focus on areas southwest of Coyote Creek where public access and grazing are proposed. Areas currently supporting target invasive plants and any additional populations that are observed in the future should be monitored as follows:

- A series of monitoring visits should be conducted for 3–5 years to track the known populations of target invasive species. In general, three site visits should be conducted during March–July to capture the active growing season of these species. The actual timing of the site visits would need to be flexible to allow for evaluation and determination of appropriate management actions (e.g., altered grazing regime, mechanical control, or chemical control). It is anticipated that following the first few years of active annual monitoring and implementation of recommended management actions, the monitoring frequency could be reduced to annual inspections associated with other ongoing management and monitoring associated with grazing management of the Property.
- The extent and severity of target invasive plants should be mapped on an as-needed basis to direct specific management actions and document new target invasive plants or infestations throughout the Property. Maps would be prepared using GPS technology and would link to descriptions of the distribution and abundance of target invasive plants and the recommended management actions.

5.3.1.3 Adaptive Management

If the extent and abundance of any of the existing target invasive plants increases or future populations become established, the frequency of effectiveness monitoring may need to be increased and adaptive management measures identified to provide more effective control.

Active grazing, per the Grazing Management Plan (Section 5.2), should be the primary action utilized to control the target invasive plants. The observations during the three monitoring events, as well as observations from monitoring per the Grazing Management Plan, would guide any adjustments to grazing within the areas supporting the target invasive plants. If grazing alone does not appear to be an effective control of one or more of the target invasive plants, a qualified restoration ecologist, in collaboration with a Certified Rangeland Manager should prescribe additional measures such as a significant alteration of the grazing regime, mechanical removal (e.g., mowing or weed-whacking), or chemical controls. Prescribed burns can be considered if this approach is determined to be the most effective means of managing an infestation of invasive plants and it would occur in an area with limited fuel loads where the fire can be safely controlled. The prescription should include specific techniques and timing for mechanical measures, and if chemical controls are appropriate, a recommendation from a licensed Pest Control Advisor should be acquired. Any application of herbicides/pesticides should be done by an individual with a qualified applicator license. In areas that support sensitive natural resources, such as serpentine outcrops, rare plant occurrences, ponds, and wetlands, more specifically focused measures should be implemented to control target invasive plants. These would typically include hand removal, mowing, and possible pulse grazing. The specific management measures for these types of areas would need to be determined based on the extent of the existing sensitive natural resource(s), the extent and growth stage of the target invasive plant(s), the time of year, and other considerations.

5.3.2 Feral Pigs

Feral pigs are common on the Property, and areas of damage from rooting pigs are evident in several areas. Based on empirical observations, feral pigs may be causing much of the damage that is promoting large areas of nonnative invasive plant infestations on the Property. Feral pigs may also present a danger to public safety, as feral pigs can charge when threatened. Because pigs have the potential to cause extensive damage to natural areas and may be a danger to the public, the Department should consider control of feral pigs on the Property.

Currently, a Memorandum of Understanding exists between the CDFW and the Department for the purpose of managing feral pigs in Santa Clara County parks. Pig control on the Property would have limited effectiveness as long as pigs can enter the Property from adjacent properties, but installation of hogwire fencing around the perimeter of the Property is infeasible and may reduce desirable movement by other wildlife between the Property and adjacent areas. The following measures are recommended to minimize damage from feral pigs:

- The Department will consider development of a feral pig management plan for the Property that identifies pig management techniques, triggers (e.g., certain population sizes) for active management, and regional agreements for pig control.
- Department staff should incidentally note and map areas of pig damage during regular patrols, and prioritize measures to control feral pigs in areas where extensive damage is observed.
- The Department will consider adding hogwire fencing to Property pasture fencing that surrounds sensitive areas (e.g., along portions of Coyote Creek).

- If pigs are determined to be damaging sensitive habitats (e.g., wetlands, ponds, or serpentine communities), the Department will consider fencing the sensitive area to exclude feral pigs as long as the hog fencing does not preclude important movements by native mammals. Pulse grazing (discussed in Table 3) may need to be used to manage nonnative invasive weeds in fenced areas.

5.4 Summary of Additional Needs

5.4.1 Natural Resources Management Plan & Interim Access Plan

The following is a summary of identified needs to complete the NRMP in support of the Plan:

- Surveys for late-summer blooming sensitive plant species (including the Habitat Plan-covered Loma Prieta hoita and smooth lessingia) should be completed within the vegetation survey area prior to the implementation of the Plan.
- More comprehensive surveys for late-summer blooming nonnative invasive plant species (e.g., yellow star thistle and medusa head) should be conducted after the plants have matured (generally late May to early June) prior to the implementation of the Plan.
- A comprehensive survey of existing fencing and areas in need of repair should be completed for all areas southwest of Coyote Creek, and the grazing management areas adjusted accordingly.

If additional trails or other developed/public access features are planned in the future (e.g., northeast of Coyote Creek), surveys for biological resources in those new areas, and development of management and monitoring recommendations for those areas, should be performed. For example, although the Bay checkerspot butterfly is not expected to be present on the Property (see Appendix C), flight surveys for Bay checkerspot butterflies may need to be completed within areas where suitable host plants were observed (outside the focal vegetation survey areas for the NRMP) if any activities are proposed in serpentine bunchgrass grassland habitat, per Habitat Plan requirements.

Section 6. Management and Monitoring Strategies by Management Zone

6.1 Natural Resource Management Zones

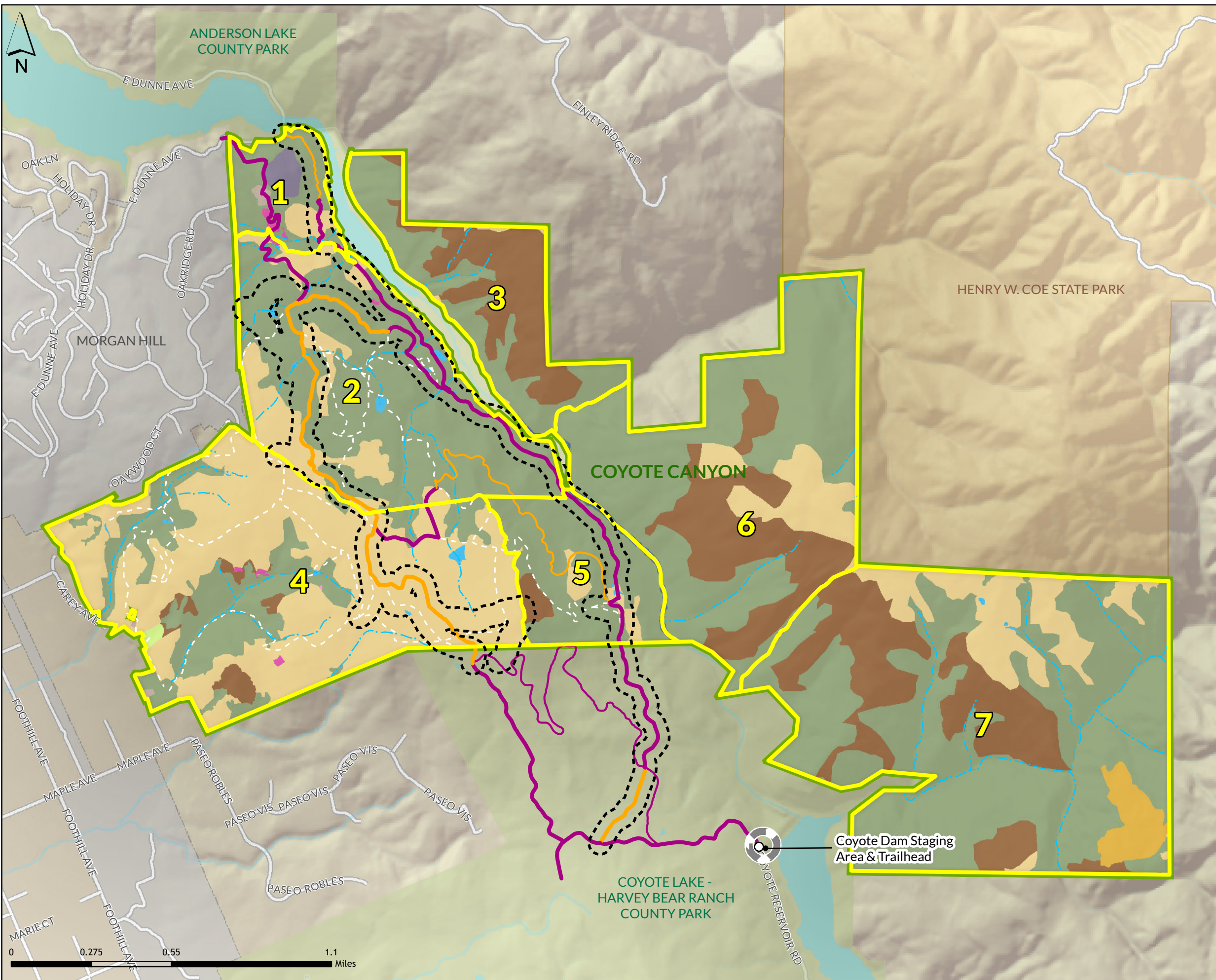
Natural resource management zones used in the Santa Clara County Park system are defined by logical boundaries within the landscape, and function to:

- Simplify management of natural resources;
- Identify more precisely what needs to be managed; and
- Act as an instrument of planning for park use, development, prioritization, and natural resource protection.

Seven natural resource management zones were defined on the Property based on a number of factors, including physical geography, ecological communities, management issues and objectives, existing and past land uses, and desired uses (Figure 8). Each management zone includes specific management objectives or prescriptions for public access, natural resource management and protection, facilities development, and/or Property operations.

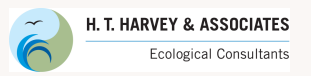
Natural resource management zones may be used to:

- Create a basis for more precise inventory of natural resources found in each park;
- Provide the Department with a planning tool that gives an overview of the sensitivity of plant and wildlife species, their habitats, geological formations, and other resources that may be found in designated management zones for trail use master plans and/or specific park master plans;
- Allow the Department to focus their efforts on prioritized segments or areas on the Property that have special habitat needs;
- Allow the Department to focus their efforts on prioritized segments of parks and trails that need special attention to resolve natural resource problems;
- Allow the Department to better communicate with field personnel where resource problems exist on the Property;
- Prioritize restoration efforts based upon resource values and threats.



Legend

- Coyote Canyon Boundaries
- Santa Clara County Parks
- Protected Lands
- Roads
- Existing Roads and Trails
- Existing Infrastructure**
- Road - Width
- Single - Track
- Planned Infrastructure**
- Road - Width
- Single - Track
- Resource Survey**
- 200-foot Vegetation Survey Area
- VHP Land Cover Types**
- California Annual Grassland
- Mixed Oak Woodland
- Mixed Riparian Woodland and Forest
- Mixed Serpentine Chaparral/ Serpentine Rock Outcrop
- Northern Coastal Scrub / Diablan Sage Scrub
- Northern Mixed Chaparral / Chamise Chaparral
- Ornamental Woodland
- Pond/Seasonal Wetland
- Reservoir
- Rural Residential
- Serpentine Bunchgrass
- Serpentine Rock Outcrops
- Stream



The sections below identify priority natural resource objectives on the Property, the zones where these issues are present, and the tasks needed to mitigate these issues through enhancements, management, and/or monitoring. These priority natural resource issues were determined using the following criteria:

- The presence or potential presence of rare, endangered, threatened, Habitat Plan-covered, or sensitive plant and wildlife species that are protected by state and/or federal regulations
- The presence of sensitive habitats
- Public safety concerns
- The presence of unique natural resources
- Bioregional approaches to restoration, management, and monitoring
- Response to concerns of cooperative or partnering agencies or neighboring landowners

6.1.1 Site-Wide Management and Monitoring

The management and monitoring objectives, tasks, and priorities summarized in Table 6 apply to all portions of the Property (i.e., Zones 1–7). Additional details about each objective, task, and priority are provided in each corresponding NRMP section.

Table 6. Recommended Natural Resource Management Objectives, Tasks, and Priorities for All Management Zones

Objective	Tasks	Task Priority ¹	Corresponding NRMP Section
Natural Resource Management and Monitoring			
Monitor and manage intermittent and ephemeral streams	Monitor streams and riparian habitat accessible to cattle annually	High	Section 5.1.4.2
	If livestock damage to streams is observed, consider installing additional water troughs to attract cattle away from streams	High	Section 5.1.4.3
	If livestock damage to streams is observed, consider modifying the grazing regime to reduce cattle impacts on streams	High	Section 5.1.4.3
Protect mixed oak woodland	Maintain large, healthy oaks; leave a buffer between trails and oak trees where feasible; and prune oaks based on industry standards to promote healthy growth structure	High	Section 5.1.5.1
	Monitor any areas identified for oak enhancement or protection	Low	Section 5.1.5.2

Objective	Tasks	Task Priority¹	Corresponding NRMP Section
	If evidence of excessive impacts on oak woodlands due to feral pigs, invasive plants, or grazing, consider appropriate measures to reduce impacts	High	Section 5.1.5.3
Protect nesting birds (including barn owls)	Conduct pre-activity surveys for nesting birds prior to construction or maintenance activities that occur during the nesting season (February 1–August 31)	High	Section 5.1.9.1
Protect roosting bats	Conduct pre-activity surveys for roosting bats prior to tree removal or structure demolition year-round	High	Section 5.1.10.1
Grazing Management and Monitoring			
Make range improvements to facilitate grazing management	Repair existing fencing and gates and install new perimeter fencing where fencing is currently absent	High	Section 5.2.2.3
	Install new water troughs in all actively grazed pastures where no troughs are present currently to facilitate grazing management and meet RDM targets	High	Section 5.2.2.3
Prepare Annual Operating Plan	Develop and implement an operating plan for each grazing season	High	Section 5.2.2.3
Monitor forage production to assess range conditions	Have grazing lessee conduct reconnaissance surveys 4x/year to assess range conditions and determine if grazing effort should be adjusted to meet RDM targets	High	Section 5.2.2.3
	Conduct reference site surveys to determine if RDM targets were successfully met and prepare RDM zone maps annually after the grazing season	High	Section 5.2.2.3
Implement adaptive management	If target RDM values are not met, adjust the grazing regime (e.g., by increasing or reducing the number of livestock or designating Flexible Management pastures)	High	Section 5.2.2.3
Other Site-Wide Management and Monitoring			
Manage nonnative invasive plants	Visually assess the Property March–July to identify infestations of target invasive plant species	High	Section 5.3.1.2

Objective	Tasks	Task Priority ¹	Corresponding NRMP Section
	If the extent/abundance of target invasive plants increases or new populations become established, implement measures (e.g., targeted grazing, mechanical removal, or chemical controls, as appropriate) to control nonnative invasive plants	High	Section 5.3.1.3
Reduce damage due to feral pigs	Consider developing and implementing a feral pig management plan for the Property that identifies management tools and triggers for active management	High	Section 5.3.2
	Monitor for evidence of pig damage during regular patrols	Ongoing	Section 5.3.2
	If pig damage to sensitive areas is observed, consider adding hogwire to existing fencing to protect sensitive areas	High	Section 5.3.2

6.1.2 Zone 1

Zone 1 includes the existing Ranch Complex Area and potential trail alignment extending to East Dunne Avenue (which will not be constructed under the Plan), and is primarily dominated by mixed oak woodland habitat. A portion of Zone 1 is located within House Pasture and is grazed by cattle. Sensitive natural resources present in Zone 1 are northern mixed chaparral/serpentine rock outcrop habitat, serpentine bunchgrass habitat, an occurrence of Santa Clara Valley dudleya, and several intermittent and ephemeral streams. Zone 1 is also located immediately adjacent to Anderson Reservoir. Because no trail creation or public access is proposed within Zone 1 under the Plan, and grazing in this zone is limited to a small area, potential protections for natural resources within this zone are limited. Recommended management and monitoring objectives, tasks, and priorities specific to Zone 1 are provided in Table 7.

Table 7. Recommended Natural Resource Management Objectives, Tasks, and Priorities for Zone 1

Objective	Tasks	Task Priority ¹	Corresponding NRMP Section
Natural Resource Management and Monitoring			
Protect, monitor, and manage serpentine communities and associated sensitive plants	Visually assess Santa Clara Valley dudleya occurrence and serpentine bunchgrass habitat for impacts due to public access and cattle	Low	Section 5.1.1.2
	If evidence of impacts is observed, consider interpretive signage or fencing	As needed	Section 5.1.1.3
Protect and manage sensitive habitat along Anderson Reservoir	Repair existing fencing along Anderson Reservoir to exclude cattle.	High	Section 5.1.3.1
	Visually assess fence condition and riparian habitat during regular patrols	Ongoing	Section 5.1.3.2
	If impacts due to public access are observed, consider interpretive signage or fencing	As needed	Section 5.1.3.3
	If impacts due to invasive plants are observed, consider targeted management of invasive plants	As needed	Section 5.1.3.3
Grazing Management and Monitoring			
Make range improvements to facilitate grazing management	Conduct targeted fuel reduction near the Jackson Oaks community by strategically locating salt and nutrient supplements, water, or portable electric fencing (as appropriate)	High	Section 5.2.2.3

¹High = High-priority objective; should be undertaken as soon as funding or staff are available.

Low = Low-priority objective; to be undertaken after high-priority objectives are complete or impacts to resources.

Ongoing = To be undertaken as part of routine patrols.

As needed = Protections should occur as applicable for work activities conducted under the Plan.

6.1.3 Zone 2

Zone 2 encompasses the central portion of the Property southwest of Anderson Reservoir. This zone is dominated by mixed oak woodland habitat and includes a large section of the existing and proposed trails under the Plan. Sensitive natural resources in Zone 2 are a small area of serpentine bunchgrass habitat, several seasonal and perennial ponds (some of which provide suitable breeding and foraging habitat for sensitive wildlife species), occurrences of big-scale balsamroot, and intermittent and ephemeral streams. Zone 2 is also located immediately adjacent to Anderson Reservoir and Coyote Creek. Because public access is proposed throughout much of Zone 2 and grazing also occurs throughout this zone, the protection of natural resources near trails and in cattle use areas is a priority. Recommended management and monitoring objectives, tasks, and priorities for Zone 2 are provided in Table 8.

Table 8. Recommended Natural Resource Management Objectives, Tasks, and Priorities for Zone 2

Objective	Tasks	Task Priority ¹	Corresponding NRMP Section
Natural Resource Management and Monitoring			
Protect, monitor, and manage serpentine communities and associated sensitive plants	Visually assess serpentine bunchgrass habitat for impacts due to public access and cattle	Low	Section 5.1.1.2
	If evidence of impacts is observed, consider interpretive signage or fencing	As needed	Section 5.1.1.3
Protect, monitor, and manage the population of big-scale balsamroot	Site future trails to avoid occurrences of big-scale balsamroot by at least 50 feet	High	Section 5.1.2.1
	Visually assess the population to determine grazing, invasive species, or public access impacts	High	Section 5.1.2.2
	If impacts from invasive plants are observed, consider treatment of invasive plants	As needed	Section 5.1.2.3
	If impacts from off-trail public access are observed, consider installing interpretive signage	As needed	Section 5.1.2.3
	If grazing impacts are observed, consider modifying the grazing regime	As needed	Section 5.1.2.3
Protect and manage sensitive habitat along Coyote Creek	Repair existing fencing along Coyote Creek to exclude cattle.	High	Section 5.1.3.1
	Visually assess fence condition and riparian habitat during regular patrols	Ongoing	Section 5.1.3.2
	If impacts due to public access are observed, consider interpretive signage or fencing	As needed	Section 5.1.3.3
	If impacts due to invasive plants are observed, consider targeted management of invasive plants	As needed	Section 5.1.3.3
Protect, monitor, and manage pond habitat and associated sensitive wildlife species	Consider conducting baseline presence/absence surveys and a hydrology assessment to determine if/where sensitive species are breeding and which ponds provide suitable breeding habitat	High	Section 5.1.6.1
	Site trails to avoid ponds by at least 50 feet where feasible	High	Section 5.1.6.2
	Consider installing interpretive signage and symbolic fencing along trails near ponds to discourage public access	Low	Section 5.1.6.4

Objective	Tasks	Task Priority ¹	Corresponding NRMP Section
	Visually assess the hydrology of enhanced ponds and ponds where sensitive wildlife species occur	Low	Section 5.1.6.3
	Visually assess impacts due to public access at ponds	High	Section 5.1.6.3
	If monitoring determines that repairs to pond infrastructure are needed, conduct appropriate repairs to maintain habitat for sensitive species	As needed	Section 5.1.6.4

Grazing Management and Monitoring

Make range improvements to facilitate grazing management	Conduct targeted fuel reduction near the Jackson Oaks community by strategically locating salt and nutrient supplements, water, or portable electric fencing (as appropriate)	High	Section 5.2.2.3
	Install new fencing to divide Windmill Pasture into two smaller pastures to facilitate targeted grazing management	High	Section 5.2.2.3

¹High = High-priority objective; should be undertaken as soon as funding or staff are available.

Low = Low-priority objective; to be undertaken after high-priority objectives are complete or impacts to resources.

Ongoing = To be undertaken as part of routine patrols.

As needed = Protections should occur as applicable for work activities conducted under the Plan.

6.1.4 Zone 3

Zone 3 is located northeast of Anderson Reservoir in an area with extremely steep slopes that is difficult to access. This zone is primarily dominated by oak woodland habitat and northern coastal scrub/Diablan sage scrub. The only sensitive natural resources in Zone 3 are intermittent and ephemeral streams, but Zone 3 is also located immediately adjacent to Anderson Reservoir and Coyote Creek. No trail creation, cattle grazing, or public access is proposed within Zone 3 in the near-term. General recommendations for Zone 3, provided in Table 9, may be implemented once access is established. In addition, once access is established, focused surveys are recommended to assess natural resource conditions within Zone 3 and determine appropriate additional management objectives and priorities for this zone.

Table 9. Recommended Natural Resource Management Objectives, Tasks, and Priorities for Zone 3

Objective	Tasks	Task Priority ¹	Corresponding NRMP Section
Natural Resource Management and Monitoring			
Protect and manage sensitive habitat along Anderson Reservoir and Coyote Creek	Install new fencing, or repair existing fencing, along Coyote Creek/Anderson Reservoir to exclude cattle	High	Section 5.1.3.1

Objective	Tasks	Task Priority ¹	Corresponding NRMP Section
	Visually assess fence condition and riparian habitat during regular patrols	Ongoing	Section 5.1.3.2
	If impacts due to public access are observed, consider interpretive signage or fencing	As needed	Section 5.1.3.3
	If impacts due to invasive plants are observed, consider targeted management of invasive plants	As needed	Section 5.1.3.3

¹High = High-priority objective; should be undertaken as soon as funding or staff are available.

Low = Low-priority objective; to be undertaken after high-priority objectives are complete or impacts to resources.

Ongoing = To be undertaken as part of routine patrols.

As needed = Protections should occur as applicable for work activities conducted under the Plan.

6.1.5 Zone 4

Zone 4 includes all of the western part of the Property and a portion east of the western ridgeline, which is dominated by California annual grassland habitat. Proposed trails under the Plan will cross the western ridgeline, but no trails are proposed below (west of) that ridgeline. Sensitive natural resources in Zone 4 are a pair of nesting golden eagles; several seasonal and perennial ponds and wetlands (several of which provide suitable breeding and foraging habitat for sensitive wildlife species); serpentine bunchgrass and rock outcrops; intermittent and ephemeral streams; and occurrences of big-scale balsamroot, most beautiful jewelflower, smooth lessingia, and woodland woollythreads. Because public access is proposed in the eastern portion of Zone 4 and grazing occurs throughout this zone, the protection of natural resources near trails and in cattle use areas is a priority for this zone. Recommended management and monitoring objectives, tasks, and priorities for Zone 4 are provided in Table 10.

Table 10. Recommended Natural Resource Management Objectives, Tasks, and Priorities for Zone 4

Objective	Tasks	Task Priority ¹	Corresponding NRMP Section
Natural Resource Management and Monitoring			
Protect, monitor, and manage serpentine communities and associated sensitive plants	Visually assess populations of most beautiful jewelflower, smooth lessingia, and woodland woollythreads as well as serpentine bunchgrass habitat	Low	Section 5.1.1.2
	If evidence of grazing impacts is observed, install cattle exclusion fencing or change the grazing regime	As needed	Section 5.1.1.3
Protect, monitor, and manage the population of big-scale balsamroot	Site future trails to avoid occurrences of big-scale balsamroot by at least 50 feet	High	Section 5.1.2.1

Objective	Tasks	Task Priority ¹	Corresponding NRMP Section
	Visually assess the population to determine grazing, invasive species, or public access impacts	High	Section 5.1.2.2
	If impacts from invasive plants are observed, consider treatment of invasive plants	As needed	Section 5.1.2.3
	If impacts from off-trail public access are observed, consider installing interpretive signage	As needed	Section 5.1.2.3
	If grazing impacts are observed, consider modifying the grazing regime	As needed	Section 5.1.2.3
Protect, monitor, and manage pond habitat and associated sensitive wildlife species	Consider conducting baseline presence/absence surveys and a hydrology assessment to determine if/where sensitive species are breeding and which ponds provide suitable breeding habitat	High	Section 5.1.6.1
	Site trails to avoid ponds by at least 50 feet	High	Section 5.1.6.2
	Consider installing interpretive signage and symbolic fencing along trails near ponds to discourage public access	Low	Section 5.1.6.4
	Visually assess the hydrology of enhanced ponds and ponds where sensitive wildlife species occur	Low	Section 5.1.6.3
	Visually assess impacts of public use at ponds	High	Section 5.1.6.3
	If monitoring determines that repairs to pond infrastructure are needed, consider appropriate repairs to maintain habitat for sensitive species	As needed	Section 5.1.6.4
	Protect nesting golden eagles	Conduct annual surveys to determine the status of known golden eagle nest locations and establish viewshed buffers around active nests	High
Visually assess for evidence of public off-trail use within eagle viewshed buffers		Ongoing	Section 5.1.7.2
Consider designing future trails to avoid established nest locations		Ongoing	Section 5.1.7.3
Protect, monitor, and manage wintering burrowing owls	Visually assess public off-trail use near burrowing owl locations	Ongoing	Section 5.1.8.2

Objective	Tasks	Task Priority ¹	Corresponding NRMP Section
	If evidence of public off-trail use near burrowing owls is observed, consider installing interpretive signage	As needed	Section 5.1.8.3
Grazing Management and Monitoring			
Make range improvements to facilitate grazing management	Conduct targeted fuel reduction near the Jackson Oaks community by strategically locating salt and nutrient supplements, water, or portable electric fencing (as appropriate)	High	Section 5.2.2.3

¹ High = High-priority objective; should be undertaken as soon as money or staff are available.

Low = Low-priority objective; to be undertaken after high-priority objectives are complete or impacts to resources.

Ongoing = To be undertaken as part of routine patrols.

As needed = Protections should occur as applicable for work activities conducted under the Plan.

6.1.6 Zone 5

Zone 5 is dominated by mixed oak woodland habitat and is located adjacent to Coyote Creek. New public trails are proposed within Zone 5 connecting with Zone 2 to the north and Coyote Lake-Harvey Bear County Park to the south. Sensitive natural resources that were identified within Zone 5 are Cabin Pond and the sensitive riparian and stream habitats along Coyote Creek. Because public access is proposed within Zone 5 and grazing occurs throughout this zone, the protection of natural resources near trails and in cattle use areas is a priority in Zone 5. Recommended management and monitoring objectives, tasks, and priorities for Zone 5 are provided in Table 11.

Table 11. Recommended Natural Resource Management Objectives, Tasks, and Priorities for Zone 5

Objective	Tasks	Task Priority ¹	Corresponding NRMP Section
Natural Resource Management and Monitoring			
Protect and manage sensitive habitat along Coyote Creek	Repair existing fencing along Coyote Creek to exclude cattle	High	Section 5.1.3.1
	Visually assess fence condition and riparian habitat during regular patrols	Ongoing	Section 5.1.3.2
	If impacts due to public access are observed, consider interpretive signage or fencing	As needed	Section 5.1.3.3
	If impacts due to invasive plants are observed, consider targeted management of invasive plants	As needed	Section 5.1.3.3

Objective	Tasks	Task Priority ¹	Corresponding NRMP Section
Natural Resource Management and Monitoring			
Protect, monitor, and manage pond habitat and associated sensitive wildlife species	Conduct baseline presence/absence surveys and a hydrology assessment of Cabin Pond to determine if the pond provides suitable breeding habitat and if sensitive species are present	High	Section 5.1.6.1
	Based on the results of the baseline surveys, consider deepening Cabin Pond to increase its hydroperiod.	Low	Section 5.1.6.1
	Site trails to avoid ponds by at least 50 feet	High	Section 5.1.6.2
	Consider installing interpretive signage and symbolic fencing along trails near Cabin Pond to discourage public access	Low	Section 5.1.6.4
	If Cabin Pond provides suitable habitat for sensitive species, visually assess its hydrology	Low	Section 5.1.6.3
	Visually assess impacts of public use at Cabin Pond	High	Section 5.1.6.3
	If monitoring determines that repairs to pond infrastructure are needed, conduct appropriate repairs to maintain habitat for sensitive species	As needed	Section 5.1.6.4

¹ High = High-priority objective; should be undertaken as soon as money or staff are available.

Low = Low-priority objective; to be undertaken after high-priority objectives are complete or impacts to resources.

Ongoing = To be undertaken as part of routine patrols.

As needed = Protections should occur as applicable for work activities conducted under the Plan.

6.1.7 Zone 6

Zone 6 is located northeast of Coyote Creek in an area with extremely steep slopes. This zone is dominated by mixed oak woodland habitat, and is periodically grazed by cattle. Sensitive resources in Zone 6 are a pair of nesting golden eagles, intermittent and perennial streams, Coe Pond, and the sensitive habitats along Coyote Creek. No trail creation, cattle grazing, or public access is proposed within Zone 6 in the near-term. General recommendations for Zone 6, provided in Table 12, may be implemented once access is established. In addition, once access is established, focused surveys are recommended to assess natural resource conditions within Zone 6 and determine appropriate additional management objectives and priorities for this zone.

Table 12. Recommended Natural Resource Management Objectives, Tasks, and Priorities for Zone 6

Objective	Tasks	Task Priority ¹	Corresponding NRMP Section
Natural Resource Management and Monitoring			
Protect and manage sensitive habitat along Coyote Creek	Install new fencing along Coyote Creek to exclude cattle	High	Section 5.1.3.1
	Visually assess fence integrity and riparian habitat during regular patrols	Ongoing	Section 5.1.3.2
	If impacts due to public access are observed, consider interpretive signage or fencing	As needed	Section 5.1.3.3
	If impacts due to invasive plants are observed, consider targeted management of invasive plants	As needed	Section 5.1.3.3
Protect nesting golden eagles	Conduct annual surveys to determine the status of known golden eagle nest locations and establish viewshed buffers around active nests	High	Section 5.1.7.1
	Visually assess for evidence of public off-trail use within eagle viewshed buffers	Ongoing	Section 5.1.7.2
	Consider designing future trails to avoid established nest locations	Ongoing	Section 5.1.7.3
Protect, monitor, and manage pond habitat and associated sensitive wildlife species	Consider conducting baseline presence/absence surveys and a hydrology assessment of Coe Pond to determine if the pond provides suitable breeding habitat and if sensitive species are present	High	Section 5.1.6.1
	Based on the results of the baseline surveys, consider additional monitoring and management of Coe Pond	Low	Section 5.1.6.4
Grazing Management and Monitoring			
Range improvements	Install new fencing and/or repair existing fencing along the Property boundary	High	Section 5.2.2.3

¹High = High-priority objective; should be undertaken as soon as money or staff are available.

Low = Low-priority objective; to be undertaken after high-priority objectives are complete or impacts to resources.

Ongoing = To be undertaken as part of routine patrols.

As needed = Protections should occur as applicable for work activities conducted under the Plan.

6.1.8 Zone 7

Zone 7 is located in an area with extremely steep slopes that is difficult to access. This zone is dominated by mixed oak woodland habitat. Sensitive natural resources in Zone 7 are several ponds (at least one of which provides suitable breeding habitat for California red-legged frogs) and intermittent and ephemeral streams. No

trail creation, cattle grazing, or public access is proposed within Zone 7 in the near-term. General recommendations for Zone 7 are provided in Table 13 that may be implemented once access is established. In addition, once access is established, focused surveys are recommended to assess natural resource conditions within Zone 7 and determine appropriate additional management objectives and priorities for this zone.

Table 13. Recommended Natural Resource Management Objectives, Tasks, and Priorities for Zone 7

Objective	Tasks	Task Priority ¹	Corresponding NRMP Section
Natural Resource Management and Monitoring			
Protect, monitor, and manage pond habitat and associated sensitive wildlife species	Consider conducting baseline presence/absence surveys and a hydrology assessment of Upper Corral Pond, Nesbit Pond, and Lower Corral Pond to determine if they provide suitable breeding habitat and if sensitive species are present	High	Section 5.1.6.1
	Based on the results of the baseline surveys, consider additional monitoring and management of ponds	Low	Section 5.1.6.4
Grazing Management and Monitoring			
Range improvements	Install new fencing and/or repair existing fencing along the Property boundary	High	Section 5.2.2.3

¹High = High-priority objective; should be undertaken as soon as money or staff are available.

Low = Low-priority objective; to be undertaken after high-priority objectives are complete or impacts to resources.

Ongoing = To be undertaken as part of routine patrols.

As needed = Protections should occur as applicable for work activities conducted under the Plan.

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Appendix A. Plant Species Observed

Family	Scientific Name	Common Name
Anacardiaceae	<i>Toxicodendron diversilobum</i>	pacific poison oak
Apiaceae	<i>Conium maculatum</i>	poison hemlock
Apiaceae	<i>Daucus pusillus</i>	American wild carrot
Apiaceae	<i>Lomatium dasycarpum</i>	woollyfruit desertparsley
Apiaceae	<i>Sanicula bipinnatifida</i>	purple sanicle
Apiaceae	<i>Sanicula crassicaulis</i>	pacific sanicle
Apiaceae	<i>Scandix pecten-veneris</i>	shepherd's needle
Apiaceae	<i>Torilis arvensis</i>	common hedge parsley
Apocynaceae	<i>Asclepias californica</i>	California milkweed
Asparagaceae	<i>Chlorogalum pomeridianum</i>	wavy-leafed soap plant
Asparagaceae	<i>Dichelostemma capitatum</i>	blue dicks
Asparagaceae	<i>Triteleia laxa</i>	Ithuriel's Spear
Asteraceae	<i>Achillea millefolium</i>	common yarrow
Asteraceae	<i>Achyrrachaena mollis</i>	blow wives
Asteraceae	<i>Agoseris heterophylla</i>	annual agoseris
Asteraceae	<i>Anaphalis margaritacea</i>	pearly everlasting
Asteraceae	<i>Artemisia californica</i>	California sagebrush
Asteraceae	<i>Artemisia douglasiana</i>	mugwort
Asteraceae	<i>Baccharis pilularis</i>	coyote brush
Asteraceae	<i>Balsamorhiza macrolepis</i>	California balsamroot
Asteraceae	<i>Carduus pycnocephalus</i>	Italian thistle
Asteraceae	<i>Cirsium vulgare</i>	bull thistle
Asteraceae	<i>Hypochaeris radicata</i>	common cat's-ear
Asteraceae	<i>Lasthenia californica</i> or <i>gracilis</i>	goldfields
Asteraceae	<i>Madia exigua</i>	small tarweed
Asteraceae	<i>Matricaria discoidea</i>	pineapple-weed
Asteraceae	<i>Micropus californicus</i>	cotton top
Asteraceae	<i>Microseris douglasii</i>	Douglas' microseris
Asteraceae	<i>Monolopia gracilens</i>	woodland woollythreads
Asteraceae	<i>Rafinesquia californica</i>	California chicory
Asteraceae	<i>Silybum marianum</i>	milk thistle
Asteraceae	<i>Sonchus asper</i>	prickly sowthistle
Asteraceae	<i>Uropappus lindleyi</i>	silver puffs

Family	Scientific Name	Common Name
Asteraceae	<i>Wyethia glabra</i>	smooth mule-ears
Boraginaceae	<i>Amsinckia intermedia</i>	rancher's fiddleneck
Boraginaceae	<i>Phacelia imbricata</i> ssp. <i>imbricata</i>	imbricate phacelia
Boraginaceae	<i>Plagiobothrys</i> sp.	popcorn flowers
Brassicaceae	<i>Brassica nigra</i>	black mustard
Brassicaceae	<i>Capsella bursa-pastoris</i>	shepherd's-purse
Brassicaceae	<i>Lepidium draba</i>	whitetop
Brassicaceae	<i>Lepidium nitidum</i>	shining pepper grass
Brassicaceae	<i>Nasturtium officinale</i>	watercress
Brassicaceae	<i>Sisymbrium officinale</i>	hedge mustard
Brassicaceae	<i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	most beautiful jewelflower
Caprifoliaceae	<i>Symphoricarpos albus</i> var. <i>laevigatus</i>	common snowberry
Caprifoliaceae	<i>Symphoricarpos mollis</i>	creeping snowberry
Caryophyllaceae	<i>Silene gallica</i>	common catchfly
Caryophyllaceae	<i>Stellaria media</i>	common chickweed
Convolvulaceae	<i>Calystegia subacaulis</i> ssp. <i>subacaulis</i>	Cambria morning glory
Convolvulaceae	<i>Convolvulus arvensis</i>	field bindweed
Crassulaceae	<i>Dudleya abramsii</i> ssp. <i>setchellii</i>	Santa Clara Valley dudleya
Cyperaceae	<i>Carex</i> sp.	sedge
Cyperaceae	<i>Eleocharis macrostachya</i>	spike rush
Dipsacaceae	<i>Dipsacus sativus</i>	Indian teasel
Ericaceae	<i>Arbutus menziesii</i>	pacific madrone
Ericaceae	<i>Arctostaphylos glauca</i>	big berry manzanita
Euphorbiaceae	<i>Euphorbia spathulata</i>	reticulate-seeded spurge
Fabaceae	<i>Acacia paradoxa</i>	kangaroo thorn
Fabaceae	<i>Acmispon brachycarpus</i>	Short podded lotus
Fabaceae	<i>Acmispon wrangelianus</i>	Chilean trefoil
Fabaceae	<i>Lupinus bicolor</i>	miniature lupine
Fabaceae	<i>Lupinus microcarpus densiflorus</i>	dense-flowered lupine
Fabaceae	<i>Lupinus nanus</i>	sky lupine
Fabaceae	<i>Lupinus succulentus</i>	arroyo lupine
Fabaceae	<i>Medicago polymorpha</i>	bur clover
Fabaceae	<i>Melilotus indicus</i>	annual yellow sweetclover
Fabaceae	<i>Trifolium campestre</i>	hop clover
Fabaceae	<i>Trifolium ciliolatum</i>	tree clover
Fabaceae	<i>Trifolium depauperatum</i>	cowbag clover

Family	Scientific Name	Common Name
Fabaceae	<i>Trifolium fucatum</i>	bull clover
Fabaceae	<i>Trifolium hirtum</i>	rose clover
Fabaceae	<i>Trifolium hybridum</i>	alsike clover
Fabaceae	<i>Trifolium subterraneum</i>	sub clover
Fabaceae	<i>Trifolium willdenovii</i>	tomcat clover
Fabaceae	<i>Vicia sativa</i>	common vetch
Fabaceae	<i>Vicia villosa</i>	hairy vetch
Fagaceae	<i>Quercus agrifolia</i>	coast live oak
Fagaceae	<i>Quercus douglasii</i>	blue oak
Fagaceae	<i>Quercus lobata</i>	valley oak
Geraniaceae	<i>Erodium botrys</i>	Mediterranean stork's-bill
Geraniaceae	<i>Erodium cicutarium</i>	common stork's-bill
Geraniaceae	<i>Geranium dissectum</i>	cut-leaved crane's-bill
Geraniaceae	<i>Geranium molle</i>	dove's-foot crane's-bill
Iridaceae	<i>Iris pseudacorus</i>	yellow flag iris
Iridaceae	<i>Sisyrinchium iridifolium</i>	purple eyed grass
Juncaceae	<i>Juncus effusus</i> ssp. <i>pacificus</i>	Pacific rush
Lamiaceae	<i>Clinopodium douglasii</i>	yerba buena
Lamiaceae	<i>Salvia columbariae</i>	chia
Lamiaceae	<i>Salvia mellifera</i>	black sage
Lamiaceae	<i>Stachys albens</i>	whitestem hedgenettle
Lamiaceae	<i>Stachys bullata</i>	California hedgenettle
Lamiaceae	<i>Stachys rigida</i> var. <i>rigida</i>	rough hedgenettle
Lauraceae	<i>Umbellularia californica</i>	California bay
Liliaceae	<i>Calochortus albus</i>	white globe lily
Malvaceae	<i>Sidalcea diploscypha</i>	fringed checkerbloom
Montiaceae	<i>Claytonia perfoliata</i>	miner's lettuce
Myrtaceae	<i>Eucalyptus globulus</i>	blue gum
Onagraceae	<i>Clarkia gracilis</i> ssp. <i>gracilis</i>	graceful clarkia
Onagraceae	<i>Clarkia purpurea</i> ssp. <i>viminea</i>	winecup claria
Onagraceae	<i>Taraxia ovata</i>	sun cup
Orobanchaceae	<i>Bellardia trixago</i>	Mediterranean lineseed
Orobanchaceae	<i>Castilleja attenuata</i>	valley tassels
Orobanchaceae	<i>Castilleja densiflora</i> ssp. <i>densiflora</i>	dense flower owl's clover
Orobanchaceae	<i>Castilleja exserta</i> ssp. <i>exserta</i>	purple owl's clover
Orobanchaceae	<i>Castilleja foliolosa</i>	texas paintbrush

Family	Scientific Name	Common Name
Orobanchaceae	<i>Castilleja rubicundula</i> ssp. <i>lithospermoides</i>	cream sacs
Orobanchaceae	<i>Triphysaria eriantha</i>	johnnytuck
Papaveraceae	<i>Eschscholzia californica</i>	California poppy
Papaveraceae	<i>Fumaria</i> sp.	fumitory
Papaveraceae	<i>Platystemon californicus</i>	creamcups
Phrymaceae	<i>Mimulus aurantiacus</i>	orange bush monkeyflower
Phrymaceae	<i>Mimulus guttatus</i>	seep monkeyflower
Pinaceae	<i>Pinus sabiniana</i>	gray pine
Plantaginaceae	<i>Collinsia heterophylla heterophylla</i>	Chinese-houses
Plantaginaceae	<i>Plantago erecta</i>	dot-seed plantain
Plantaginaceae	<i>Plantago lanceolata</i>	ribwort
Plantaginaceae	<i>Veronica anagallis-aquatica</i>	water speedwell
Plantaginaceae	<i>Veronica persica</i>	bird's eye speedwell
Poaceae	<i>Avena barbata</i>	wild oat
Poaceae	<i>Avena fatua</i>	wild oat
Poaceae	<i>Phyllostachys</i> sp.	bamboo
Poaceae	<i>Bromus diandrus</i>	ripgut brome
Poaceae	<i>Bromus hordeaceus</i>	common Soft-brome
Poaceae	<i>Bromus madritensis</i> ssp. <i>rubens</i>	foxtail brome
Poaceae	<i>Cynosurus echinatus</i>	bristly dogtail grass
Poaceae	<i>Elymus glaucus</i> subsp. <i>glaucus</i>	blue wild rye
Poaceae	<i>Festuca bromoides</i>	brome fescue
Poaceae	<i>Festuca microstachys</i>	small six-weeks grass
Poaceae	<i>Festuca perennis</i>	perennial ryegrass
Poaceae	<i>Hordeum marinum gussoneanum</i>	Mediterranean barley
Poaceae	<i>Hordeum murinum</i>	foxtail barley
Poaceae	<i>Lamarckia aurea</i>	goldentop grass
Polemoniaceae	<i>Gilia achilleifolia</i> ssp. <i>multicaulis</i>	many stemmed gilia
Polemoniaceae	<i>Leptosiphon bicolor</i>	whiskerbrush
Polemoniaceae	<i>Leptosiphon parviflorus</i>	variable linanthus
Polygonaceae	<i>Rumex crispus</i>	curly dock
Primulaceae	<i>Anagallis arvensis</i>	scarlet pimpernel
Primulaceae	<i>Primula hendersonii</i>	mosquito bill
Pteridaceae	<i>Adiantum jordanii</i>	California maidenhair fern
Pteridaceae	<i>Pellaea andromedifolia</i>	coffee cliffbrake
Ranunculaceae	<i>Clematis lasiantha</i>	chaparral clematis

Family	Scientific Name	Common Name
Ranunculaceae	<i>Delphinium decorum ssp. decorum</i>	coast larkspur
Ranunculaceae	<i>Ranunculus californicus</i>	California buttercup
Rosaceae	<i>Heteromeles arbutifolia</i>	toyon
Rosaceae	<i>Rosa</i> sp.	rose
Rubiaceae	<i>Galium</i> sp.	bedstraw
Rubiaceae	<i>Sherardia arvensis</i>	field madder
Salicaceae	<i>Salix babylonica</i>	weeping willow
Salicaceae	<i>Salix laevigata</i>	red willow
Sapindaceae	<i>Acer macrophyllum</i>	bigleaf maple
Sapindaceae	<i>Aesculus californica</i>	California buckeye
Saxifragaceae	<i>Lithophragma affine</i>	San Francisco woodland-star
Solanaceae	<i>Solanum xanti</i>	chaparral nightshade
Themidaceae	<i>Muilla maritima</i>	common muilla
Typhaceae	<i>Typha latifolia</i>	common cattail
Valerianaceae	<i>Plectritis macrocera</i>	plectritis
Violaceae	<i>Viola pedunculata</i>	California golden violet

Appendix B. Sensitive Plant Species with the Potential to Occur on the Property

Common Name	Scientific Name	Observed	*Status	Habitat and Blooming Period ⁸	Edaphic Conditions
Santa Clara thorn-mint	<i>Acanthomintha lanceolata</i>		CRPR 4.2	Chaparral (often serpentinite), cismontane woodland, and coastal scrub. Blooms March–June.	Rocky.
Bent-flowered fiddleneck	<i>Amsinckia lunaris</i>		CRPR 1B.2	Cismontane woodland, valley and foothill grassland, and coastal bluff scrub. Blooms March–June.	None.
California androsace	<i>Androsace elongata</i> ssp. <i>acuta</i>		CRPR 4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, and valley and foothill grassland. Blooms March–June.	None.
Big-scale balsamroot	<i>Balsamorhiza macrolepis</i>	X	CRPR 1B.2	Chaparral, valley and foothill grassland, and cismontane woodland. Blooms March–June.	Sometimes on serpentinite.
Brewer's calandrinia	<i>Calandrinia breweri</i>		CRPR 4.2	Chaparral and coastal scrub. Blooms March–June (January).	Sandy or loamy, disturbed sites, and burns.
Oakland star-tulip	<i>Calochortus umbellatus</i>		CRPR 4.2	Broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Blooms March–May.	Often serpentinite.
Santa Cruz Mountains pussypaws	<i>Calyptridium parryi</i> var. <i>hesseae</i>		CRPR 1B.1	Chaparral and cismontane woodland. Blooms May–August.	Sandy or gravelly openings.
South Coast Range morning-glory	<i>Calystegia collina</i> ssp. <i>venusta</i>		CRPR 4.3	Chaparral, cismontane woodland, and valley and foothill grassland. Blooms April–June.	Serpentinite or sedimentary.
Chaparral harebell	<i>Campanula exigua</i>		CRPR 1B.2	Chaparral. Blooms May–June.	Rocky sites, usually on serpentinite in chaparral.

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⁸ Months in which a species may occasionally bloom, but generally does not, are shown in parenthesis.

Common Name	Scientific Name	Observed	*Status	Habitat and Blooming Period ⁸	Edaphic Conditions
Tiburon paintbrush	<i>Castilleja affinis</i> var. <i>neglecta</i>		Habitat Plan-Covered, CRPR 1B.2, ST, FE	Valley and foothill grassland. Blooms April–June.	Rocky serpentine sites.
Pink creamsacs	<i>Castilleja rubicundula</i> var. <i>rubicundula</i>		CRPR 4B.2	Chaparral, cismontane woodland, meadows and seeps, and valley and foothill grassland. Blooms April–June.	Openings in chaparral or grasslands, on serpentine.
Coyote ceanothus	<i>Ceanothus ferrisiae</i>		CRPR 1B.1	Chaparral, valley and foothill grassland, coastal scrub. Blooms January–May.	Serpentine sites in the Mt. Hamilton range.
Dwarf soaproot	<i>Chlorogalum pomeridianum</i> var. <i>minus</i>		CRPR 1B.2	Chaparral. Blooms May–August	Serpentine.
Mt. Hamilton fountain thistle	<i>Cirsium fontinale</i> var. <i>campylon</i>		Habitat Plan-Covered, CRPR 1B.2	Cismontane woodland, chaparral, valley and foothill grassland. Blooms April–August (February).	In seasonal and perennial drainages on serpentine.
Brewer's clarkia	<i>Clarkia breweri</i>		CRPR 4.2	Chaparral, cismontane woodland, and coastal scrub. Blooms April–June.	Often serpentinite.
Santa Clara red ribbons	<i>Clarkia concinna</i> ssp. <i>automixa</i>		CRPR 4.3	Chaparral, and cismontane woodland. Blooms May–June (April, July).	None.
San Francisco collinsia	<i>Collinsia multicolor</i>		CRPR 1B.2	Closed-cone coniferous forest and coastal scrub. Blooms March–May (February).	On decomposed shale (mudstone) mixed with humus; sometimes on serpentine.
Hospital Canyon larkspur	<i>Delphinium californicum</i> ssp. <i>interius</i>		CRPR 1B.2	Cismontane woodland, chaparral, and coastal scrub. Blooms April–June.	In wet, boggy meadows, and openings in chaparral and in canyons.
Santa Clara Valley dudleya	<i>Dudleya abramsii</i> ssp. <i>setchellii</i>	X	Habitat Plan-Covered, CRPR 1B.1, FE	Valley and foothill grassland and cismontane woodland. Blooms April–October.	On rocky serpentine outcrops and on rocks within grassland or woodland.

Common Name	Scientific Name	Observed	*Status	Habitat and Blooming Period ⁸	Edaphic Conditions
Tracy's eriastrum	<i>Eriastrum tracyi</i>		CRPR 3.2, SR	Chaparral, cismontane woodland, and valley and foothill grassland. Blooms June–July.	Gravelly shale or clay; often in open areas.
Clay buckwheat	<i>Eriogonum argillosum</i>		CRPR 4.3	Cismontane woodland (serpentinite or clay). Blooms March–June.	None.
Bay buckwheat	<i>Eriogonum umbellatum</i> var. <i>bahiiforme</i>		CRPR 4.2	Cismontane woodland and lower montane coniferous forest. Blooms July–September.	Rocky, often serpentinite.
Jepson's woolly sunflower	<i>Eriophyllum jepsonii</i>		CRPR 4.3	Chaparral, cismontane woodland, and coastal scrub. Blooms April–June.	Sometimes serpentinite.
San Francisco wallflower	<i>Erysimum franciscanum</i>		CRPR 4.2	Chaparral, coastal dunes, coastal scrub, and valley and foothill grassland. Blooms March–June.	Often serpentinite or granitic, sometimes roadsides.
Stinkbells	<i>Fritillaria agrestis</i>		CRPR 4.2	Chaparral, cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland. Blooms March–June.	Clay, sometimes serpentinite.
Fragrant fritillary	<i>Fritillaria liliacea</i>		Habitat Plan-Covered, CRRP 1B.2	Coastal scrub, valley and foothill grassland, coastal prairie, and cismontane woodland. Blooms February–April.	Often on serpentine; various soils reported though usually on clay, in grassland.
Phlox-leaf serpentine bedstraw	<i>Galium andrewsii</i> ssp. <i>gatense</i>		CRPR 4.2	Chaparral, cismontane woodland, lower montane coniferous forest. Blooms April–July.	Rocky serpentinite.
Loma Prieta hoita	<i>Hoita strobilina</i>		Habitat Plan-Covered, CRPR 1B.1	Chaparral, cismontane woodland, and riparian woodland. Blooms May–July (August–October).	Serpentine; mesic sites.
Coast iris	<i>Iris longipetala</i>		CRPR 4.2	Coastal prairie, Lower montane coniferous forest, and meadows and seeps. Blooms March–May.	Mesic sites.
Satan's goldenbush	<i>Isocoma menziesii</i> var. <i>diabolica</i>		CRPR 4.2	Cismontane woodland. Blooms August–October.	None.
Bristly leptosiphon	<i>Leptosiphon acicularis</i>		CRPR 4.2	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland. April - July.	None.

Common Name	Scientific Name	Observed	*Status	Habitat and Blooming Period ⁸	Edaphic Conditions
Serpentine leptosiphon	<i>Leptosiphon ambiguus</i>		CRPR 4.2	Cismontane woodland, coastal scrub, and valley and foothill grassland. Blooms March–June.	Usually serpentinite.
Large-flowered leptosiphon	<i>Leptosiphon grandiflorus</i>		CRPR 4.2	Coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal dunes, coastal prairie, coastal scrub, and valley and foothill grassland. Blooms April–August.	Usually sandy.
Mt. Hamilton coreopsis	<i>Leptosyne hamiltonii</i>		CRPR 1B.2	Cismontane woodland. Blooms March–May.	On steep shale talus with open southwestern exposure.
Smooth lessingia	<i>Lessingia micradenia</i> var. <i>glabrata</i>		Habitat Plan-Covered, CRPR 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Blooms July–November (April–June).	Serpentine; often on roadsides.
Spring lessingia	<i>Lessingia tenuis</i>		CRPR 4.3	Chaparral, cismontane woodland, lower montane coniferous forest. Blooms May–July.	Openings.
Arcuate bush-mallow	<i>Malacothamnus arcuatus</i>		CRPR 1B.2	Chaparral and cismontane woodland. Blooms April–September.	Gravelly alluvium.
Hall's bush-mallow	<i>Malacothamnus hallii</i>		CRPR 1B.2	Chaparral and coastal scrub. Blooms May–September (April, October).	Some populations on serpentinite.
Dusky-fruited malacothrix	<i>Malacothrix phaeocarpa</i>		CRPR 4.3	Closed-cone coniferous forest and chaparral. Blooms April–June.	Openings, burned or disturbed areas.
Sylvan microseris	<i>Microseris sylvatica</i>		CRPR 4.2	Chaparral, cismontane woodland, Great Basin scrub, pinyon and juniper woodland, and valley and foothill grassland (serpentinite). Blooms March–June.	None.
Woodland woollythreads	<i>Monolopia gracilens</i>	X	CRPR 1B.2	Chaparral, valley and foothill grassland, cismontane woodland, broadleaved upland forest, and North Coast coniferous forest. Blooms March–July (February).	Grassy sites, in openings; sandy to rocky soils. Often seen on serpentinite after burns, but may have only weak affinity to serpentinite.
Cotula navarretia	<i>Navarretia cotulifolia</i>		CRPR 4.2	Chaparral, cismontane woodland, and valley and foothill grassland. Blooms May–June.	Adobe.

Common Name	Scientific Name	Observed	*Status	Habitat and Blooming Period ⁸	Edaphic Conditions
San Benito pentachaeta	<i>Pentachaeta exilis</i> <i>ssp. aeolica</i>		CRPR 1B.2	Cismontane woodland and valley and foothill grassland. Blooms March–May.	Grassy areas.
Mt. Diablo phacelia	<i>Phacelia phacelioides</i>		CRPR 1B.2	Chaparral and cismontane woodland. Blooms April–May.	Adjacent to trails, on rock outcrops and talus slopes; sometimes on serpentine.
Narrow-petaled rein orchid	<i>Piperia leptopetala</i>		CRPR 4.3	Cismontane woodland, lower montane coniferous forest, and upper montane coniferous forest. Blooms May–July.	None.
Michael's rein orchid	<i>Piperia michaelii</i>		CRPR 4.2	Coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest. Blooms April–August.	None.
Warty popcornflower	<i>Plagiobothrys verrucosus</i>		CRPR 2B.1	Chaparral. Blooms March–May.	Shale substrate.
Rock sanicle	<i>Sanicula saxatilis</i>		CRPR 1B.2, SR	Broadleaved upland forest, chaparral, and valley and foothill grassland. Blooms April–May.	Bedrock outcrops and talus slopes in chaparral or oak woodland habitat.
Maple-leaved checkerbloom	<i>Sidalcea malachroides</i>		CRPR 4.2	Broadleaved upland forest, coastal prairie, coastal scrub, North Coast coniferous forest, and riparian woodland. Blooms April–August (March).	Often in disturbed areas.
Metcalf Canyon jewelflower	<i>Streptanthus albidus</i> <i>ssp. albidus</i>		CRPR 1B.2, FE	Valley and foothill grassland. Blooms April–July.	Relatively open areas in dry grassy meadows on serpentine soils; also on serpentine balds.
Most beautiful jewelflower	<i>Streptanthus albidus</i> <i>ssp. peramoenus</i>	X	CRPR 1B.2	Chaparral, valley and foothill grassland, and cismontane woodland. Blooms April–September (March, October).	Serpentine outcrops on ridges and slopes.
Mt. Hamilton jewelflower	<i>Streptanthus callistus</i>		CRPR 1B.3	Chaparral and cismontane woodland. Blooms April–May.	Open talus slopes on shale with grey pine and/or black oak.

Common Name	Scientific Name	Observed	*Status	Habitat and Blooming Period ⁸	Edaphic Conditions
Santa Cruz clover	<i>Trifolium buckwestiorum</i>		CRPR 1B.1	Coastal prairie, broadleaved upland forest, and cismontane woodland. Blooms April–October.	Moist grassland. Gravelly margins.

*Key to Status Abbreviations: Federally Endangered (FE), State Threatened (ST), State Rare (SR), Covered under the Habitat Plan (Habitat Plan-Covered).

CRPR 1B = Plants rare, threatened, or endangered in California and elsewhere

CRPR Rank 2 = Plants rare, threatened, or endangered in California but more common elsewhere

CRPR Rank 3 = Plants about which information is needed-a review list

CRPR Rank 4 = Plants of limited distribution-a watch list

.1 = seriously endangered in California

.2 = fairly endangered in California

.3 = not very endangered in California

Appendix C. Sensitive Wildlife Species Determined to Be Absent from the Property

Name	*Status	Habitat	Justification for Determination of Absence
Federal or State Endangered, Threatened, or Candidate Species			
Bay checkerspot butterfly (<i>Euphydryas editha bayensis</i>)	FT, Habitat Plan	Native grasslands on serpentine soils. Larval host plants are <i>Plantago erecta</i> and/or <i>Castilleja</i> spp.	Absent. Critical habitat for this species is located 0.9 mile to the south at Coyote Lake-Harvey Bear County Park (Unit 11) and 2.6 miles to the northwest at Anderson Lake County Park (Unit 13) (USFWS 2008). The Habitat Plan maps suitable habitat for Bay checkerspot butterflies within these critical habitat units but not on the Property (ICF International 2012). Although larval host plants were detected on the Property during the botanical surveys, they were present in low densities, and Bay checkerspot butterflies are not known to occur on the Property. Furthermore, the small patches of serpentine bunchgrass grassland habitat on the Property are too small to support a population of this species and lack the topographic heterogeneity typical of this species' occupied habitat. Therefore, Bay checkerspot butterflies and suitable habitat for this species are determined to be absent from the Property.
C-1 Swainson's hawk (<i>Buteo swainsoni</i>)	ST	Nests in trees surrounded by extensive marshland or agricultural foraging habitat.	Absent as Breeder. Currently, the species is known to occur in Santa Clara County primarily as a very infrequent transient during migration. Pairs apparently nested in small numbers in the County historically, and there is an 1894 nest record from the Berryessa area in eastern San Jose (Bousman 2007c). Each year from 2013 through 2018, a pair of Swainson's hawks has nested along Coyote Creek in northern Coyote Valley approximately 9 miles northwest of the Property, providing the only County nesting record since the 1890s (Phillips et al. 2014). Although nesting Swainson's hawks may be returning to the region, no Swainson's hawk breeding territories currently overlap the Property and the species is not expected to nest within or adjacent to the Property in the foreseeable future. A Swainson's hawk was observed migrating northward over the Property during spring 2018 survey, and the species may forage on the Property in grassland areas when in transit through the County, albeit infrequently and in very low numbers.

Name	*Status	Habitat	Justification for Determination of Absence
Least Bell's vireo (<i>Vireo bellii pusillus</i>)	FE, SE, Habitat Plan	Nests in heterogeneous riparian habitat, often dominated by cottonwoods and willows.	Absent. This species has not been recorded on the Property, which does not provide high-quality nesting habitat. The only breeding records in Santa Clara County are from Llagas Creek southeast of Gilroy in 1997 and the Pajaro River south of Gilroy in 1932 (Rottenborn 2007a). Otherwise, records in the County include 1–2 singing males along lower Llagas Creek in May 2001 (CNDDDB 2018), and singing males observed for only one day in June 2006 along Coyote Creek near the Coyote Creek Golf Club (H. T. Harvey & Associates 2007) and May 2016 near Gold Street and Highway 237 in Alviso (Jeffers 2016). The Habitat Plan maps potential habitat for this species as occurring on the Property only in one drainage on Coyote Highlands (ICF International 2012), but a focused habitat assessment conducted in 2018 determined that suitable nesting habitat is absent from the Property. Although the abundance and distribution of this species may increase as core populations increase, it is unlikely to be more than a rare and very locally occurring breeder along southern Santa Clara County streams (south of the Property).
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	FE, ST, Habitat Plan	Annual grassland or mixed shrub and grassland habitats throughout low, rolling hills and in valleys.	Absent. This species has not been recorded within, and is not expected to occur on the Property. The closest area of potential occurrence (based on Habitat Plan mapping) is approximately 8.6 miles southeast of the Property in the vicinity of Pacheco Creek and the uppermost reaches of the Pajaro River, where it may occur infrequently and in low numbers during dispersal.
California Species of Special Concern			
California horned lizard (<i>Phrynosoma coronatum frontale</i>)	CSSC	Open habitats with sandy, loosely textured soils, such as chaparral, coastal scrub, annual grassland, and clearings in riparian woodlands with the presence of native harvester ants (<i>Pogonomyrmex barbatus</i>).	Absent. No suitable habitat with loosely textured soils is present on the Property, and there are no known records of the species from the Property or surrounding vicinity. Determined to be absent.
Northern harrier (<i>Circus cyaneus</i>)	CSSC (nesting)	Nests in marshes and moist fields, forages over open areas.	Absent as Breeder. No suitable nesting habitat for this species occurs on the Property, and harriers are not known to nest on the Property vicinity. Individual harriers will forage in open areas of the Property during migration and winter. However, this species is only considered a California species of special concern when nesting, and therefore is not a sensitive wildlife species when it occurs on the Property.

Name	*Status	Habitat	Justification for Determination of Absence
Vaux's swift (<i>Chaetura vauxi</i>)	CSSC (nesting)	Nests in snags in coastal coniferous forests or, occasionally, in chimneys; forages aerially.	Absent as Breeder. Vaux's swifts are not known to nest in the Morgan Hill area (Rottenborn 2007c). Individuals may occur as occasional nonbreeding visitors, primarily during migration, and forage aerially over the Property. However, this species is only considered a California species of special concern when nesting, and therefore is not a sensitive wildlife species when it occurs on the Property.
Yellow-breasted chat (<i>Icteria virens</i>)	CSSC (Nesting)	Nests in dense stands of willow and other riparian habitat.	Absent as Breeder. Historically, this species likely bred more widely in Santa Clara County, but it is now rare because of the loss of suitable breeding habitat and brood parasitism by brown-headed cowbirds (<i>Molothrus ater</i>). There are no known breeding occurrences within or in the vicinity of the Property, which provides only marginally suitable riparian breeding habitat due to the relatively small and open (i.e., not dense) areas of mixed riparian forest and woodland vegetation. Due to the lack of dense willow habitat on the Property, as well as this species' low populations in Santa Clara County, any yellow-breasted chats that choose to breed in the region will select the highest-quality habitat, which is absent from the Property. Occasional nonbreeding visitors may forage on the Property during migration. However, this species is only considered a California species of special concern when nesting, and therefore is not a sensitive wildlife species when it occurs on the Property.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	CSSC	Roosts in caves and mine tunnels, and occasionally in deep crevices in trees such as redwoods or in abandoned buildings, in a variety of habitats.	Absent. Individuals have been recorded recently in Santa Clara County on the United Technologies Corporation Property east of Coyote Ridge (northwest of the Property), and at Almaden-Quicksilver County Park. However, no breeding populations are known from the vicinity (including at United Technologies Corporation). Structures on the Property do not provide high-quality cave-like roosting habitat for Townsend's big-eared bats, and this species is not expected to colonize the Property in the future. Determined to be absent.

California Fully Protected Species

American peregrine falcon (<i>Falco peregrinus anatum</i>)	SP	Forages in many habitats; nests on cliffs and tall bridges and buildings.	Absent as Breeder. Peregrine falcons occur year-round in the region, but there are no known nests in the Morgan Hill area. This species is not expected to nest on the Property due to a lack of high-quality nesting habitat (e.g., cliffs or tall buildings). Occasional individuals may occur on the Property as foragers, primarily during migration and winter.
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*Key to Status Abbreviations: Federally Endangered (FE), Federally Threatened (FT), State Endangered (SE), State Threatened (ST), California Fully Protected (SP), California Species of Special Concern (CSSC), Santa Clara Valley Habitat Plan Covered Species (Habitat Plan).