

APPENDICES

- A. Abalone Cove and Jacqueline M Glass Family Reserve Restoration Plan
- B. Restoration Monitoring
- C. Habitat Impacts
- D. Targeted Exotic Removal Program for Plants (TERPP)
- E. Research and Monitoring
- F. Trail Management and Signage
- G. Volunteer Programs
- H. Quarterly Enforcement Reports
- I. Preserve Night Hikes
- J. Financials

APPENDIX A

ABALONE COVE & JACQUELINE M. GLASS FAMILY RESERVE RESTORATION PLAN



Habitat Restoration Plan for the

Abalone Cove Ecological Reserve in the Palos Verdes Nature Preserve



FEBRUARY 2016

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**HABITAT RESTORATION PLAN
for the
Abalone Cove Reserve
in the
Palos Verdes Nature Preserve**

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Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	INTRODUCTION.....	1
2	EXISTING CONDITIONS	7
2.1	Site Description.....	7
2.2	Vegetation Communities	7
2.2.1	Coastal Sage Scrub	7
2.2.2	Mixed Coastal Scrub.....	8
2.2.3	Non-native Grassland.....	8
2.3	Geology and Soils	8
2.4	Special-Status Species	9
2.5	Non-Native Invasive Species.....	10
2.6	Additional Considerations	11
3	RESTORATION PROGRAM.....	15
3.1	Restoration Site Goals and Objectives.....	15
3.2	Habitats to be Established or Enhanced.....	16
3.2.1	Coastal Sage Scrub	19
3.2.2	Cactus Scrub	20
3.2.3	Mulefat Scrub.....	21
3.3	Habitat to be Enhanced	22
3.4	Revegetation Materials	23
3.5	Target Functions and Values	24
3.6	Time Lapse.....	24
4	IMPLEMENTATION PLAN	25
4.1	Rationale for Expecting Success.....	25
4.2	Preliminary Schedule	25
4.2.1	Site Preparation	26
4.2.2	Supplemental Watering System.....	27
4.2.3	Erosion Control.....	28
4.2.4	Plant Installation	28
4.2.5	Seed Application.....	28
5	MAINTENANCE PLAN	31
5.1	Maintenance Activities	31
5.2	General Habitat Maintenance Guidelines	32
5.2.1	Weed Control.....	32

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

TABLE OF CONTENTS (CONTINUED)

<u>Section</u>		<u>Page No.</u>
	5.2.2 Supplemental Watering System	33
	5.2.3 Clearing and Trash Removal	33
5.3	Schedule of Maintenance Inspections	34
6	MONITORING PLAN	35
6.1	Performance Standards	35
6.2	Monitoring Methods and Schedule	36
6.3	Monitoring Reports	37
6.4	Project Conclusion	37
7	REFERENCES.....	39

FIGURES

1	Regional Map	3
2	Vicinity Map	5
3	Existing Conditions	13
4	Site Photographs	17
5	Abalone Cove Restoration Area	29

TABLES

1	Non-Native Plant Species and Associated Cal-IPC Ratings	10
2	Proposed Coastal Sage Scrub Planting Palette (Approximately 3.5 Acres)	19
3	Proposed Cactus Scrub Planting Palette (1.1 Acres)	21
4	Proposed Mulefat Scrub Planting Palette (Approximately 0.2 Acre)	22
5	Preliminary Restoration Project Schedule	25
6	Performance Standards	36

APPENDIX

A	Soil Test Results
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Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

1 INTRODUCTION

This Habitat Restoration Plan (HRP) was prepared for the Abalone Cove Reserve within the Palos Verdes Nature Preserve (PVNP) located in the City of Rancho Palos Verdes, California (Figures 1 and 2). The Abalone Cove Reserve is one of ten ecological reserves within the approximately 1,400-acre PVNP. The PVNP is owned by the City of Rancho Palos Verdes and managed by the Palos Verdes Peninsula Land Conservancy (PVPLC).

This HRP discusses implementing restoration of approximately 3.5 acres of coastal sage scrub, 1.1 acre of cactus scrub, 0.2 acre of mulefat scrub, and the enhancement of approximately 8.3 acres of mixed coastal scrub in a disturbed area of the Abalone Cove Reserve. Portions (approximately 2.2 acres) of the habitat enhancement area were identified for planting additional cactus. The HRP addresses restoration design, planting recommendations, installation procedures, maintenance requirements, monitoring methodology, and performance standards.

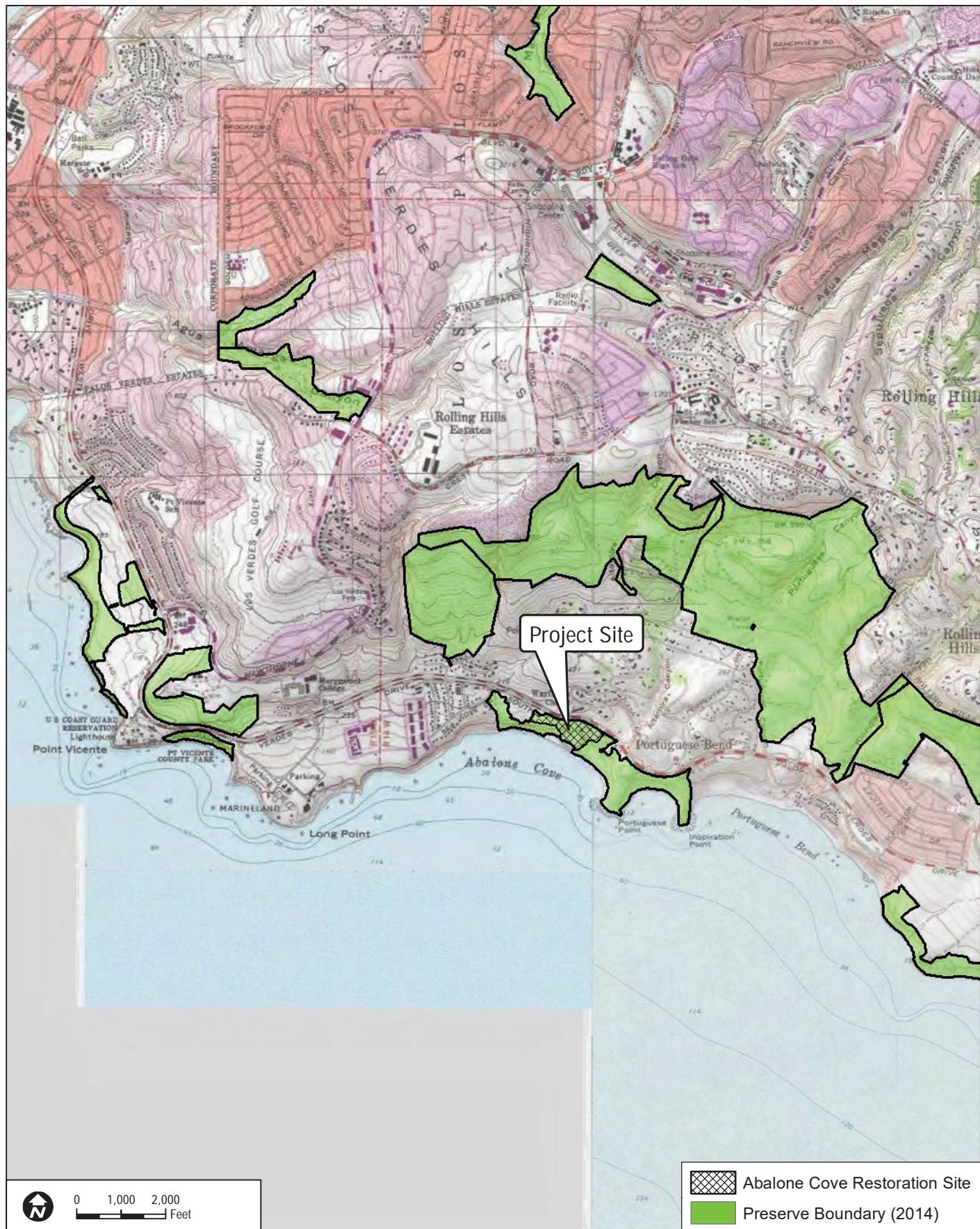
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DUDEK	SOURCE: USGS 7.5-Minute Redondo Beach, San Pedro Series Quadrangles.
9085	Habitat Restoration Plan for the Abalone Cove Ecological Reserve in the Portuguese Bend Nature Preserve

FIGURE 2
Vicinity Map

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

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Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

2 EXISTING CONDITIONS

2.1 Site Description

The Abalone Cove Reserve is located on the southern portion of the Palos Verdes Peninsula. The entire Abalone Cove Reserve is approximately 64 acres and is located south of Palos Verdes Drive South along the shoreline of the peninsula. There are two promontories, Portuguese and Inspiration Points, which bound the cove within the Abalone Cove Reserve. The proposed restoration area is located upslope from the Portuguese Bend Nursery School (Beach School) in the central part of the reserve.

2.2 Vegetation Communities

Plant communities and land covers within the Abalone Cove Reserve are typical of plant communities found in this region, exhibiting various levels of disturbance, but containing elements of the native plant communities. Vegetation mapping of the reserve was prepared by the PVPLC and the California Native Plant Society (CNPS) (PVPLC and CNPS 2010). According to the vegetation mapping conducted by PVPLC and CNPS, the proposed restoration area consists of California coastal sage scrub, mixed coastal scrub, and non-native grassland, comprised of several subtypes (e.g., alliances and associations). The existing vegetation communities present in the restoration/enhancement area are described below.

2.2.1 Coastal Sage Scrub

The coastal sage scrub on site was mapped by CNPS as *Encelia californica* association, *Encelia californica* alliance, *Encelia californica-Artemesia californica* association, and *Rhus integrifolia* (strongly dominant) association (PVPLC and CNPS 2010). Coastal sage scrub is composed of low, subshrubs approximately 1 meter (3 feet) high, many of which are facultatively drought-deciduous (Holland, 1986). Dominant shrub type varies across this vegetation type, depending on localized factors and levels of disturbance, but often includes California Sagebrush (*Artemesia californica*) and California Brittlebush (*Encelia californica*). In this community the shrub layer primarily forms a continuous canopy, but there are areas with a more open canopy, widely spaced shrubs, and fairly well-developed understory. Within the site non-native species, including black mustard (*Brassica nigra*), Russian thistle (*Salsola tragus*), wild oat (*Avena barbata*, *A. fatua*) and other non-native grasses have invaded the coastal sage scrub community.

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

2.2.2 Mixed Coastal Scrub

The mixed coastal scrub on site was mapped by CNPS as disturbed *Rhus integrifolia* association, and urban trees (PVPLC and CNPS 2010). Though these areas are dominated by lemonadeberry (*Rhus integrifolia*) they are disturbed and contain many non-native shrubs and trees, including coastal wattle (*Acacia cyclops*) spiny holdback (*Caesalpinia spinosa*), and Phoenix palm (*Phoenix canariensis*).

2.2.3 Non-native Grassland

Non-native grassland within the project site was mapped by CNPS as cleared land, and California annual and perennial grassland macrogroup (PVPLC and CNPS 2010). Non-native grassland is typically characterized by dense to sparse cover of weedy, introduced annuals including wild oat, brome grasses (*Bromus diandrus*, *B. madritensis*, *B. hordeaceus*) and black mustard. Annual grassland often occurs in areas where there has been some historic disturbance to the natural community. At the proposed restoration site, non-native grassland is heavily dominated by wild oat, brome grasses, black mustard, fennel, tocalote (*Centaurea melitensis*), and false brome (*Brachypodium distachyon*).

2.3 Geology and Soils

The Palos Verdes Peninsula is primarily an old marine terrace with relatively steep eroded canyons which drain southwesterly into the Pacific Ocean. The underlying geologic material consists of marine sedimentary and basaltic rocks. The area is seismically active, with active Palos Verdes and San Pedro fault zones that have caused the peninsula to uplift relative to the adjacent Los Angeles Basin and the offshore bedrock.

According to the Report and General Soil Map for Los Angeles County (USDA 1969), the soils within the Abalone Cove Reserve are composed of the Altamont-Diablo association (30–50% slopes). Soils of the Altamont-Diablo association occur on gently sloping to rolling foothills throughout the Los Angeles basin as far north as Point Dume. The Altamont-Diablo association is comprised of approximately 60% Altamont soils and 30% Diablo soils. Diablo soils are described to be 22–52 inches deep, are well drained, and have slow subsoil permeability. Altamont soils are described to be 24–36 inches deep, are well drained, and have slow subsoil permeability. They have dark brown, neutral, clay surface layers about 12 inches thick underlain by a brown, calcareous clay subsoil.

The proposed restoration area is primarily a terrace above the coastal bluffs. The terrace appears to have been used for agriculture in the 1950's and 1960's, but has lain fallow for several decades. Three soil samples were collected from the proposed restoration area. The soil samples

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

were collected from three areas proposed for restoration (Figure 3). Each of the soil samples was composed of 3-4 subsamples consisting of the 12-16-inch deep soil profile from each location to create a composite soil sample for analysis. The composite soil samples are representative of the general soil conditions on site within the rooting zone of the target plant species. The soil samples were submitted to Wallace Laboratories for analysis of standard soil constituents, agricultural suitability, texture, and cation exchange capacity. The results of the analysis show that, the soils are clay, with a slow/fair infiltration rate and fair organic matter (Appendix A). The soils on site are slightly alkaline ($\text{pH} = 7.69\text{-}7.76$) and the salinity is low ($\text{ECe} = 0.44\text{-}0.72$). Major nutrients (nitrogen and phosphorus) are low.

Plant establishment is not expected to be significantly inhibited due to the soil chemistry described above. The soils appear to be suitable for the establishment of the target habitats without soil remediation or extensive soil amendments. However, container plants may struggle to become established and grow healthfully without supplemental watering, and amendments may be necessary if plants are struggling to become established. While the soils on site pose no significant problems to establishment of native habitat, as native soils they have low levels of major nutrients. Native species are adapted to lower nutrient soils, but will benefit from some supplemental nutrient augmentation during planting to initiate establishment (e.g., slow-release fertilizer packet).

2.4 Special-Status Species

Two special-status wildlife species have been documented within or nearby the restoration and enhancement areas. Coastal California gnatcatcher (*Polioptila californica californica*) (CAGN) and the cactus wren (*Campylorhynchus brunneicapillus*) (CAWR) have been observed in the coastal sage scrub enhancement area, as well as on the southern border of the coastal sage scrub restoration area (PVPLC 2012) (Figure 3).

No special-status plant species have been documented within the specific area identified for restoration in the HRP. However, four special-status plant species have been documented nearby, including aphanisma (*Aphanisma blitoides*), south coast saltyscale (*Atriplex pacifica*), woolly seablite (*Suaeda taxifolia*), and sea dahlia (*Coreopsis maritima*) (Dudek and PVPLC 2007; CNPS 2015). In addition to special-status plant species, the host plant seacliff buckwheat (*Eriogonum parvifolium*) for the federally listed, endangered, El Segundo blue butterfly (*Euphilotes battoides allyni*) is known to occur in the vicinity of the proposed restoration areas. Observation of the El Segundo blue butterfly has not been reported at the Abalone Cove Reserve.

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2.5 Non-Native Invasive Species

Non-native species are abundant within the area identified for restoration, making up the majority of the existing vegetative cover. Non-native species are also common in the area proposed for enhancement. Controlling non-native species during the plant establishment phase will present a significant challenge, and should be prioritized as the most critical aspect of the maintenance program. The most predominant non-native species observed on-site include black mustard, coastal wattle, spiny holdback, Peruvian pepper, Brazilian pepper, and non-native grasses. These species, as well as additional non-native species observed or expected on site, are provided in Table 1 with their associated rating in the California Invasive Plant Council's (Cal-IPC) Inventory of Invasive Plant Species (2015).

Table 1
Non-Native Plant Species and Associated Cal-IPC Ratings

High
<i>Bromus madritensis</i> ssp. <i>madritensis</i> —compact brome
<i>Carpobrotus edulis</i> —hottentot fig
<i>Foeniculum vulgare</i> —fennel
Moderate
<i>Atriplex semibaccata</i> —Australian saltbush
<i>Avena barbata</i> —slender oat
<i>Brassica nigra</i> – black mustard
Moderate
<i>Bromus diandrus</i> —ripgut brome
<i>Centaurea melitensis</i> —Maltese star-thistle
<i>Glebionis coronaria</i> —crown daisy
<i>Hordeum murinum</i> —mouse barley
<i>Mesembryanthemum crystallinum</i> —common iceplant
<i>Myoporum laetum</i> —myoporum
<i>Pennisetum setaceum</i> —crimson fountaingrass
<i>Euphorbia terracina</i> —Geraldton carnation weed
Limited
<i>Bromus hordeaceus</i> —soft brome
<i>Erodium cicutarium</i> —redstem stork's bill
<i>Marrubium vulgare</i> —horehound
<i>Olea europaea</i> —olive
<i>Phoenix canariensis</i> —phoenix palm
<i>Ricinus communis</i> —castorbean
<i>Salsola tragus</i> —prickly Russian thistle
<i>Schinus molle</i> – Peruvian peppertree
<i>Schinus terebinthifolius</i> —Brazilian peppertree

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

Table 1
Non-Native Plant Species and Associated Cal-IPC Ratings

None
* <i>Acacia cyclops</i> —coastal wattle
<i>Caesalpinia spinosa</i> —spiny holdback
<i>Erigeron bonariensis</i> - asthmaweed
<i>Lactuca serriola</i> – prickly-lettuce
<i>Malva parviflora</i> —cheeseweed mallow
* <i>Melilotus indicus</i> —annual yellow sweetclover
** <i>Pinus</i> sp.—pine
<i>Solanum elaeagnifolium</i> – silverleaf nightshade
<i>Sonchus oleraceus</i> —common sowthistle
* <i>Tropaeolum majus</i> —nasturtium
<i>Yucca gloriosa</i> – Spanish dagger

* Note that while there are several species on the list that do not have a Cal-IPC rating for the state of California, that some of these species can be locally invasive. Species with an asterisk are considered to be moderately invasive within the region and should be aggressively controlled. The Targeted Exotic Removal Program for Plants (TERPP) provides additional target invasive species (PVPLC 2013) that may occur on-site

** Note that some trees taller than 5 feet will be left in place and not removed. Seedlings and young saplings less than 5 feet tall will be removed.

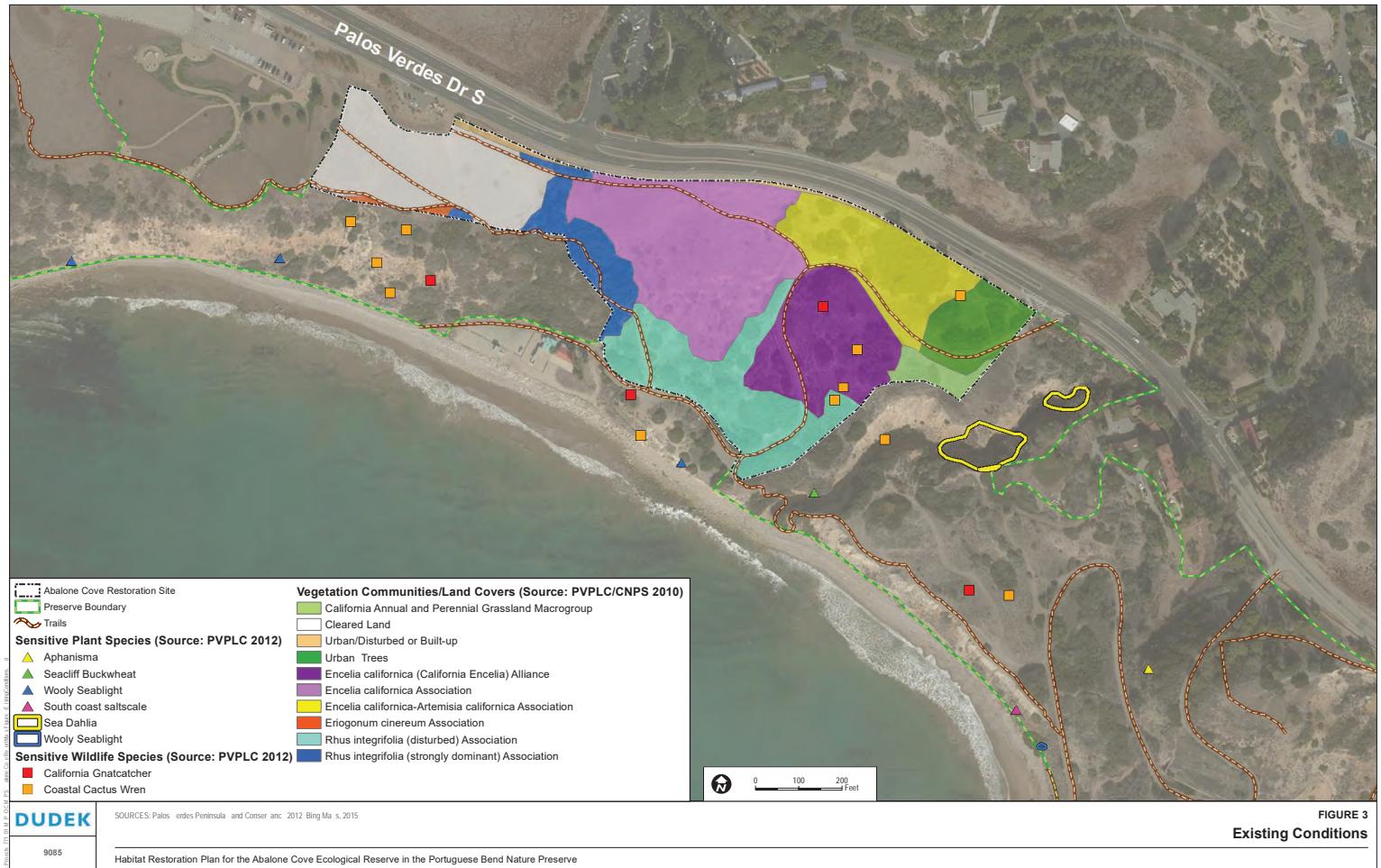
2.6 Additional Considerations

The City of Rancho Palos Verdes has plans for a stabilization project on the walls of the steep, highly eroded canyon on the eastern border of the enhancement area. To allow a buffer for stabilization activities, the enhancement area will leave a buffer of at least 30 feet along the canyon rim, where no enhancement activities will be undertaken.

Additionally, two or more electric utility poles intersect the enhancement area in transit to the Beach School. Restoration and enhancement activities will allow a 15 foot buffer around utility poles, allowing only the management and control of particularly invasive species within these zones (i.e., no planting or seeding).

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3 RESTORATION PROGRAM

This HRP outlines the restoration and enhancement implementation strategy for upland habitat at the Abalone Cove Reserve and proposes to provide for the restoration of approximately 4.8 acres of habitat restoration, and the enhancement of approximately 8.3 acres of mixed coastal scrub. This HRP uses a restoration approach that emphasizes the recovery of the degraded ecosystem through planting and seeding to re-establish or enhance biological functions and services within portions of the Abalone Cove Reserve.

3.1 Restoration Site Goals and Objectives

The disturbed and fragmented habitat existing in the proposed restoration and enhancement locations limit the magnitude of potential wildlife use and provide opportunities for the further spread and establishment of invasive weed species in the area. The planting of native coastal sage scrub, cactus scrub, mulefat scrub, and enhancement of mixed coastal scrub will provide contiguous native habitat that includes a mosaic of shrub cover which will resist the invasion of invasive weed species and provide increased nesting, cover, and foraging opportunities for wildlife. In particular, the overarching goal of the restoration program is to provide habitat for coastal California gnatcatcher and the cactus wren.

The habitat restoration program will focus on the creation of habitat for covered species with the objective of increasing the overall habitat carrying capacity for the target species populations. Coastal scrub restoration is intended to provide improved foraging habitat for resident and migrating wildlife species, and potential nesting and foraging habitat for the coastal California gnatcatcher, and other sensitive wildlife species. Achievement of the performance standards described herein would create suitable habitat for these species. However, occupation of the site by these species is not a requirement for successful project completion.

In addition to these broad goals, the following site-specific objectives for the Abalone Cove Reserve restoration site have been incorporated into this HRP in the interest of minimizing adverse impacts to biological resources:

- Avoid additional or unplanned disturbance to existing native habitats during implementation of the project construction and long-term maintenance activities;
- Prevent any impacts to sensitive plant or wildlife species during implementation of the project construction and long-term maintenance activities;
- Control non-native invasive weed species considered to be highly or moderately invasive on the Cal-IPC Invasive Plant Inventory (2015), and others identified by PVPLC as locally invasive (PVPLC 2013);

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

- Utilize erosion control measures in the form of “Best Management Practices” (BMPs) on the site as conditions necessitate;
- Reintroduce special-status plant species and/or host plants of special-status wildlife species as components of the planting plans where feasible and as appropriate.

3.2 Habitats to be Established or Enhanced

The habitat restoration program consists of site preparation (primarily non-native plant species removal), native planting, seeding, supplemental watering, maintenance, and monitoring. Proposed planting for the target habitat types will focus primarily on the installation of container plants to achieve the project goals. A native seed mix will also be applied as a supplemental measure to increase cover and diversity.

The habitat restoration areas are currently dominated by non-native species. The existing habitat in the restoration areas contains many non-native annual herbs, including black mustard, Russian thistle, and bromes (Figure 4, Photos 1 and 2). Non-native perennials, such as fennel, spiny holdback, Peruvian pepper, and Brazilian pepper also exist within the restoration areas.

Coastal sage scrub habitat will make up the majority of the restored habitat, followed by cactus scrub. Mulefat scrub is planned for approximately 0.2 acre within the restoration area. Each specific habitat type to be restored is described below. It is expected that all planting shall be installed to mimic the natural distribution and vegetation mosaic of adjacent healthy habitats.



Photo 1: Representative view of western restoration area (facing west)



Photo 2: Non-native plants in the western restoration area (black mustard, brome grasses, Russian thistle)



Photo 3: Trail lined by invasive spiny holdback (*Ceasalpinia spinosa*)



Photo 4: Invasive perennial weeds in the habitat enhancement zone (Coastal wattle, Brazilian pepper)



Photo 5: Representative view of the eastern restoration area (facing west)



Photo 6: Invasive annual weeds in the restoration site (black mustard, wild oat)

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3.2.1 Coastal Sage Scrub

The restoration strategy for coastal sage scrub habitat on the Abalone Cove Reserve restoration site includes reintroducing regionally appropriate native coastal sage scrub species that are currently present in adjacent native habitats. The plant palette includes a container plant and seed mix composition (Table 2) that has been designed to replicate the native composition of a healthy coastal sage scrub plant community similar to existing coastal sage scrub habitat present on the Abalone Cove Reserve site, and with the specific intent to provide habitat suitable for occupation by coastal California gnatcatcher. The planting palette has thus been designed to contain a composition of shrub species that are dominant in coastal sage scrub habitat occupied by coastal California gnatcatcher (Atwood et al. 1994). On the Palos Verdes Peninsula, the primary coastal sage scrub dominants include California sagebrush, California brittlebush, and coastal buckwheat, with coast goldenbush, lemonadeberry, California buckwheat, sages, bladderpod, coast prickly-pear, and wishbone bush as common constituents.

The plant palette provides a quantity of container plants (perennial species) that is estimated to establish approximately 75% cover for coastal sage scrub, 60% cover for cactus scrub, and 100% for mulefat scrub once the plants reach maturity. The seed mix is provided to address erosion control and enhance species diversity, and will be applied as needed, and as determined necessary by the PVPLC.

Table 2
Proposed Coastal Sage Scrub Planting Palette (Approximately 3.5 Acres)

Botanical Name	Common Name	Container Size	Spacing (on center)	Group Size	Quantity (per acre)	Total # Plants
<i>Container Plants</i>						
<i>Artemesia californica</i>	California sagebrush	D40	5	5	348	1,220
<i>Astragalus trichopodus</i> var. <i>lonchus</i>	Ocean locoweed	D40	3	7	184	645
<i>Baccharis pilularis</i>	Coyote brush	D40	5	3	87	305
<i>Brickellia californica</i>	California bricklebush	D40	5	3	87	305
<i>Corethrodyne filaginifolia</i>	Common sandaster	D40	3	3	24	85
<i>Cylindropuntia prolifera</i>	Coastal cholla	1-gallon	4	5	27	95
<i>Dudleya virens</i>	Bright green dudleya	D40	3	3	24	85
<i>Elymus condensatus</i>	Giant wildrye	D40	6	3	24	85
<i>Encelia californica</i>	California brittlebush	D40	5	5	261	915
<i>Eriogonum cinereum</i>	Coastal buckwheat	D40	5	5	87	305
<i>Eriogonum fasciculatum</i>	California buckwheat	D40	5	5	157	549

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

Table 2
Proposed Coastal Sage Scrub Planting Palette (Approximately 3.5 Acres)

Botanical Name	Common Name	Container Size	Spacing (on center)	Group Size	Quantity (per acre)	Total # Plants
<i>Eriogonum parvifolium</i>	Seacliff buckwheat	D40	5	5	87	305
<i>Eriophyllum confertiflorum</i>	Golden yarrow	D40	3	3	145	508
<i>Isocoma menziesii</i>	Coast goldenbush	D40	5	3	87	305
<i>Mirabilis laevis</i> var. <i>crassifolia</i>	Wishbone bush	D40	4	5	54	191
<i>Opuntia littoralis/oricola</i>	Chaparral prickly-pear	1-gallon	6	3	24	85
<i>Peritoma arborea</i>	Bladderpod	D40	5	5	35	122
<i>Rhus integrifolia</i>	Lemonadeberry	D40	15	1	4	14
<i>Salvia leucophylla</i>	Purple sage	D40	5	5	87	305
<i>Salvia mellifera</i>	Black sage	D40	5	3	87	305
Total Container Plants					1,920	6,734
Seed Mix						
Botanical Name	Common Name	Pure Live Seed	Lbs. Per Acre		Total Lbs.	
<i>Eschscholzia californica</i> var. <i>maritima</i>	California poppy	85	2		7	
<i>Lupinus bicolor</i>	Miniature lupine	90	2		7	
<i>Lupinus succulentus</i>	Arroyo lupine	90	4		14	
<i>Stipa lepida</i>	Foothill needlegrass	65	1		3.5	
<i>Stipa pulchra</i>	Purple needlegrass	75	6		21	
Total Lbs.			15		52.5	

3.2.2 Cactus Scrub

The restoration strategy for cactus scrub is comparable to that described for coastal sage scrub, except that the composition of species was modified to be dominated by prickly-pear cactus (*Opuntia littoralis*, *O. oricola*). The plant palette includes a container plant and seed mix composition (Table 3) that has been designed to replicate the native composition of a healthy cactus scrub plant community similar to existing cactus scrub habitat present on the Abalone Cove Reserve site, and with the specific intent to provide habitat suitable for occupation by cactus wren. In addition to areas identified for cactus scrub restoration, approximately 2.2 acres of the habitat enhancement area were designated for planting additional cactus. These areas were previously documented to support cactus wren and have since been overgrown with non-native trees and shrubs and lemonadeberry

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

Table 3
Proposed Cactus Scrub Planting Palette (1.1 Acres)

Botanical Name	Common Name	Container Size	Spacing (on center)	Group Size	Quantity (per acre)	Total # Plants
<i>Container Plants</i>						
<i>Artemisia californica</i>	California sagebrush	D40	5	5	227	249
<i>Astragalus trichopodus</i> var. <i>lonchus</i>	Ocean locoweed	D40	3	7	111	123
<i>Brickellia californica</i>	California bricklebush	D40	5	3	52	57
<i>Corethrodyne filaginifolia</i>	Common sandaster	D40	3	3	24	27
<i>Cylindropuntia prolifera</i>	Coastal cholla	1-gallon	4	10	272	299
<i>Encelia californica</i>	California brittlebush	D40	5	5	87	96
<i>Eriogonum fasciculatum</i>	California buckwheat	D40	5	3	174	192
<i>Isocoma menziesii</i>	Coast goldenbush	D40	5	3	35	38
<i>Mirabilis laevis</i> var. <i>crassifolia</i>	Wishbone bush	D40	4	5	54	60
<i>Opuntia littoralis/ oricola</i>	Coast prickly-pear	1-gallon	6	30	363	399
<i>Peritoma (=Isomeris) arborea</i>	Bladderpod	D40	6	5	36	40
<i>Rhus integrifolia</i>	Lemonadeberry	D40	15	1	2	2
<i>Salvia mellifera</i>	Black sage	D40	5	3	87	96
Total Container Plants (per acre)					1,524	1,678
<i>Seed Mix</i>						
Botanical Name	Common Name	Pure Live Seed	<i>Lbs. Per Acre</i>		Total Lbs.	
<i>Eschscholzia californica</i> var. <i>maritima</i>	California poppy	74	2		2.2	
<i>Lupinus bicolor</i>	pygmy lupine	78	2		2.2	
<i>Lupinus succulentus</i>	arroyo lupine	81	4		4.4	
<i>Phacelia ramosissima</i>	branching phacelia	80	0.25		0.275	
<i>Stipa lepida</i>	foothill needlegrass	54	1		1.1	
<i>Stipa pulchra</i>	purple needlegrass	42	6		6.6	
Total Lbs. Per Acre			15.25		16.8	

3.2.3 Mulefat Scrub

The restoration strategy for mulefat scrub habitat on the Abalone Cove Reserve restoration site includes reintroducing regionally appropriate native mulefat scrub species. A small drainage within the restoration area has been selected as being compatible with mulefat scrub based on the vegetation that currently inhabits the channel and its apparent hydrology. The mulefat scrub restoration area within the Abalone Cove Reserve will contain the native

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

species mulefat (*Baccharis salicifolia*), giant wildrye (*Elymus condensatus*), and blue elderberry (*Sambucus nigra*) as dominant species (Table 4).

Table 4
Proposed Mulefat Scrub Planting Palette (Approximately 0.2 Acre)

Botanical Name	Common Name	Container Size	Spacing (on center)	Group Size	Quantity (per acre)	Total # Plants
<i>Container Plants</i>						
<i>Artemisia dracunculus</i>	Tarragon	D40	4	3	136	27
<i>Baccharis pilularis</i>	Coyote bush	D40	5	3	87	17
<i>Baccharis salicifolia</i>	Mulefat	1-gallon	6	3	605	121
<i>Elymus condensatus</i>	Giant wildrye	D40	5	3	174	35
<i>Isocoma menziesii</i>	Coast goldenbush	D40	5	3	87	17
<i>Muhlenbergia rigens</i>	Deergrass	D40	3	3	242	48
<i>Sambucus nigra</i>	Blue elderberry	1-gallon	8	1	102	20
<i>Verbena lasiostachys</i>	Western vervain	D40	3	3	242	48
Total Container Plants (per acre)					1,675	333
<i>Seed Mix</i>						
Botanical Name	Common Name	Pure Live Seed	Lbs. Per Acre	Total Lbs.		
<i>Ambrosia psilostachya</i>	Western ragweed	8	2	0.4		
<i>Artemisia douglasiana</i>	Mugwort	5	1	0.2		
<i>Eschscholzia californica</i> var. <i>maritima</i>	California poppy	78	2	0.4		
<i>Isocoma menziesii</i>	Coast goldenbush	80	1	0.2		
<i>Lupinus succulentus</i>	Arroyo lupine	54	2	0.4		
<i>Stipa pulchra</i>	Purple needlegrass	42	4	0.8		
Total Lbs. Per Acre			12.0	2.4		

3.3 Habitat to be Enhanced

The habitat enhancement program consists of site preparation (primarily non-native plant species removal), maintenance, monitoring, and potential native planting or seeding. The habitat enhancement area is currently dominated by a mix of native and non-native species. Although the enhancement area currently supports native species, including lemonadeberry (*Rhus integrifolia*) and coast brittlebush (*Encelia californica*), a number of non-native perennials, such as coastal wattle, phoenix palm, spiny holdback, Peruvian pepper, and Brazilian pepper are also common.

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

Habitat enhancement generally includes control of non-native weed species and reliance on natural succession to fill the gaps left by removal. In the case of the enhancement area in Abalone Cove Reserve it is likely that most locations in the enhancement zone will improve naturally after initial removal of invasive species. However, in locations that a significant area is cleared, in-planting of native species may be necessary. The area north of the access road, nearest to Palos Verdes Drive South in particular may necessitate additional planting after removal activities occur.

The planting palette in Table 2 for coastal sage scrub habitat and Table 3 for cactus scrub provide options for installing supplemental plants in areas that require selective planting to fill in gaps created from invasive species removal. Note that Tables 2 and 3 do not account for the quantity of container plants that will be needed for the enhancement areas, as the acreage of invasive species removal is not known. However, the number of container plants is expected to be relatively low compared to the restoration areas. Selective in-planting shall mimic the natural distribution and vegetation mosaic of adjacent native habitats.

3.4 Revegetation Materials

Plant materials for the restoration planting areas will include container stock and seed of coastal scrub species, as indicated in the plant palettes provided in Tables 2–4. As much as feasible, the container plant materials will be grown from native seed collected on the Palos Verdes Peninsula. The plant nursery will grow the plants primarily in D40 Deepots, with some smaller and larger sizes depending on the species (as indicated in Tables 2–4). Additionally, for the seed mixes, PVPLC will coordinate collection of available seed from the peninsula for application at the restoration site. If some species cannot be grown as container stock at the nursery, or local seed is not available for collection, the planting palettes may be adjusted, or another source may be used for acquiring locally sourced plant materials.

DriWater may also be used to aid plant establishment. DriWater is a time released natural cellulose gum gel that retains moisture which is slowly released into the soil when the gel is broken down by naturally occurring enzymes. The moisture released from the DriWater gel becomes available for uptake by developing plant roots. DriWater can be applied in cardboard cartons or in plastic tubes with gel packs. DriWater can be costly to utilize on large scale restoration projects, and therefore would only be used in special cases where supplemental watering was insufficient to promote plant establishment. DriWater may be most useful within the enhancement area if supplemental watering is infeasible.

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

3.5 Target Functions and Values

The primary functional goal of the restored coastal sage scrub, cactus scrub, and mulefat scrub and the enhanced mixed coastal scrub is to restore vegetation that contains a diversity of native coastal scrub plant species and that provides habitat value for sensitive wildlife species, particularly for coastal California gnatcatcher and cactus wren. Additionally, a secondary consideration is to create contiguous and intact habitat which resists the re-establishment of invasive plant species.

3.6 Time Lapse

The length of time necessary to develop high quality habitat depends on a variety of factors including weather, soil conditions, herbivory protection, weed competition, and maintenance quality. Under optimal conditions, coastal sage scrub, cactus scrub, and mulefat scrub may take approximately three years from the installation of container plants and application of seed to develop the appropriate structure to provide the functions and values needed for habitation of wildlife, including suitable nesting habitat for California gnatcatcher and other scrub species. In an unirrigated setting, and with drought conditions, scrub development may take longer than three years to mature enough to be suitable for nesting. As a hedge against drought, the addition of supplemental watering would increase plant survival, improve establishment, and hasten habitat development. This plan allows for five years of maintenance and monitoring to establish the target habitats.

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

4 IMPLEMENTATION PLAN

4.1 Rationale for Expecting Success

The identified locations for restoration on the Abalone Cove Reserve are directly adjacent to viable and self-sustaining target habitats, indicating appropriate environmental conditions to support the intended habitats. This HRP includes a provision for supplemental watering to promote establishment and survival of native species included in the plant palette. The HRP also includes a 5-year maintenance plan, wherein invasive non-native weeds within the restoration site will be controlled to aid native plant establishment. Additionally, native plant materials will be grown or collected from sources on the Palos Verdes Peninsula, thus preserving genetic integrity and increasing the potential for long-term success.

4.2 Preliminary Schedule

Appropriate timing of planting and seeding will minimize the need for supplemental watering and will increase the survival rate of the installed plants. The best survival rates are achieved when container plants and seed are installed at the onset of the rainy season or soon thereafter (November through February). Planting and seeding at the site should be timed to take advantage of seasonal rainfall patterns and most appropriate growing season temperatures (see Charts 1–2 and Table 5).

Table 5
Preliminary Restoration Project Schedule

Task	Date
Site clearing	Fall prior to first year
Invasive weed species control and grow-kill cycles	Winter and Spring of first year
Installation of supplemental watering system	Summer of first year
Planting container stock	Fall and Early Winter of second year
Seed application	Fall and Early Winter of third year
Monitoring and maintenance	To begin upon successful installation of container plants

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

Chart 1
Average Monthly Precipitation for the Portuguese Bend Nature Preserve

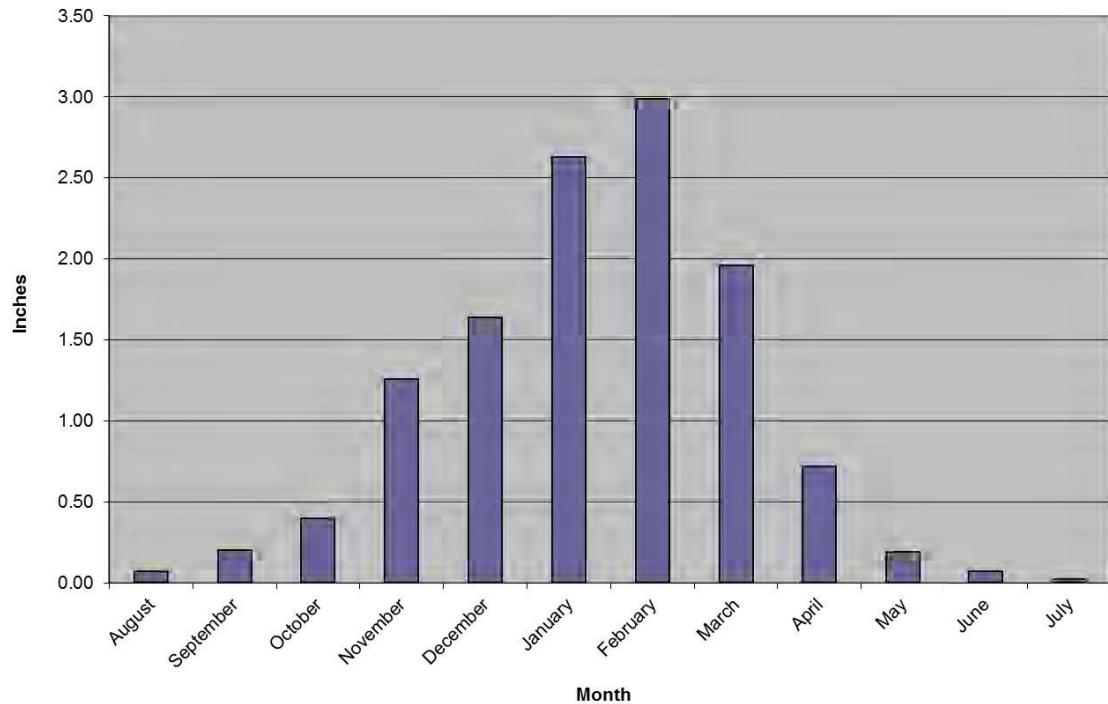
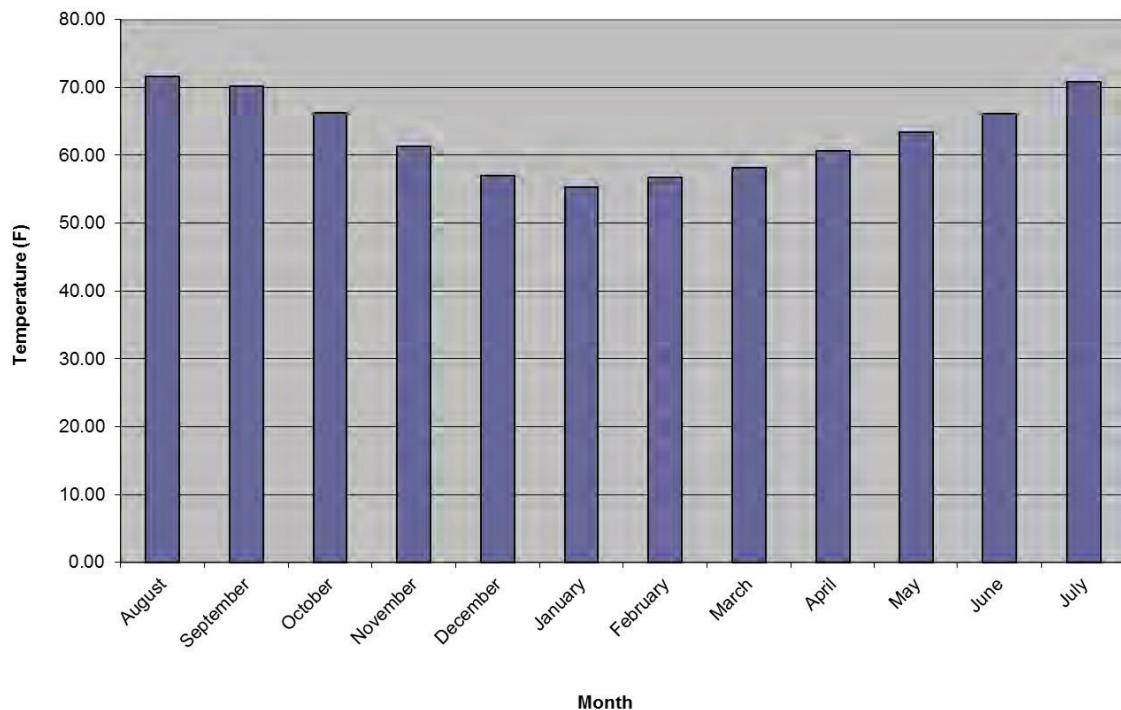


Chart 2
Average Monthly Temperatures for the Portuguese Bend Nature Preserve



Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

4.2.1 Site Preparation

Site preparation includes control of invasive weed species and soil preparation in the restoration areas. If clearing of weeds is planned to be performed during the migratory bird nesting season (February 15–September 15), a nesting bird survey should be conducted by a qualified wildlife biologist within 72 hours prior to vegetation removal in accordance with the Migratory Bird Treaty Act (16 U.S.G. 703-712).

During site preparation, all invasive weed species, particularly non-native annual grasses, black mustard, and fennel, should be killed and removed from the restoration areas. Invasive species control should also include exotic trees and shrubs such as spiny holdback, Peruvian pepper, Brazilian pepper, coastal wattle, pine trees, and palms, as directed by PVPLC staff.

The initial weed control effort will involve a combination of chemical and mechanical treatment. Prior to the installation of native plant materials, “grow and kill” weed removal treatments should be conducted by allowing non-native seedling emergence in the winter and spring. When weeds have begun to grow, and before they begin to develop flowers or flowering structures, a foliar application of an appropriate systemic herbicide should be applied to kill target weeds. If adequate rainfall occurs during this period, multiple grow-kill cycles should be repeated. The restoration ecologist will provide weed control recommendations to the restoration maintenance staff that are specific to the target weed species identified for control. Any use of herbicides shall be in accordance with label instructions, following the recommendations of a licensed Pest Control Advisor, and any application shall be applied under the direction of a state-certified Qualified Applicator.

4.2.2 Supplemental Watering System

The planned method of providing supplemental watering at the proposed restoration area is with a temporary above-ground drip irrigation system. This will help ensure that native container plants and seed installed on site will become adequately established. The supplemental watering system would only be used until the plants are established such that they can survive on their own between periods of rainfall. It is expected that, depending upon the level of plant establishment, the watering system would be removed after two to three years of use. Watering on site will gradually be decreased prior to the removal of the system so the plants can become acclimated to the site’s natural conditions.

The habitat enhancement area may prove infeasible for installation of a temporary watering system. Areas that require planting within the enhancement area will be considered for supplemental watering from a water truck or the use of alternative methods such as DriWater.

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

There is a fire hydrant located immediately north of the proposed restoration site along Palos Verdes Drive South that may function as a point of connection for a temporary irrigation system (Figure 5). The irrigation system should be designed by a landscape architect to ensure that the system has adequate water pressure to supply water to all areas of the proposed restoration site. The supplemental watering system would be installed as an above-ground system, so that irrigation equipment may be removed once the system has been decommissioned.

4.2.3 Erosion Control

Where needed, erosion control measures, such as the installation of sandbags, fiber rolls, silt fencing, and/or erosion-control matting may be necessary to control erosion until target vegetation is established. At a minimum, silt fencing should be installed at the toe of slopes that are unvegetated after removing non-native species. Additionally, erosion control materials may be needed at the edge of the coastal bluff, particularly in the locations where surface runoff coalesces and runs off the bluff. No erosion control materials should be used that contain seed from non-native plants. The need and location of erosion control will be determined in the field by the project's restoration ecologist.

4.2.4 Plant Installation

Standard planting procedures will be employed for installing container stock. Planting holes shall be approximately twice the width of the rootball, and as deep. If dry soil conditions exist at the time of plant installation, planting holes will be filled with water and allowed to drain immediately prior to planting. A fertilizer packet with controlled-release fertilizer (e.g., Best Paks 20-10-5) will be placed in the bottom of each hole prior to planting.

4.2.5 Seed Application

Seed will be hand broadcast throughout the restoration site. The seed mix is primarily a supplemental feature to increase diversity and will not occur until the second year of the Restoration Program. The seeding sites should be prepared by removing weedy vegetation to expose the soil surface. The seed should be raked into the soil so there is good seed-soil contact. Seeding should be timed to occur prior to or early in the rainy season.



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Cove Reserve in the Palos Verdes Nature Preserve**

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5 MAINTENANCE PLAN

The purpose of the maintenance plan is to provide guidelines for long-term maintenance of the restoration site during the establishment period. Maintenance activities will be initiated during the weed reduction period (i.e., grow-kill cycles), and will occur at the direction of the project's restoration ecologist on an as-needed basis. The maintenance period will intensify after the installation of the container plants. Maintenance will be necessary until the habitats are fully established, which is estimated to take approximately five years.

Because the goal of this project is to establish a natural system that can support itself with little or no maintenance, the primary focus of the maintenance plan is concentrated in the first few seasons of plant growth following the revegetation effort, when weeds can easily out-compete native plants. The intensity of the maintenance activity is expected to subside each year as the native plants become established, and local competition from non-native plants for resources is minimized through direct removal and treatment of non-native plants.

5.1 Maintenance Activities

Maintenance activities will be primarily related to non-native invasive plant species control. Supplemental watering, supplemental planting, trash removal, and erosion control will also be conducted, as necessary.

- Non-native plant species should be controlled as soon as they begin to establish. Recommended control methods should be tailored to each specific weed species and should include the most effective control measures for the species and time of year. Control methods may include a combination of manual, mechanical, and chemical control.
- Container plants should be watered when natural rainfall is not adequate to sustain the establishing plants. The project's restoration ecologist will be responsible for scheduling the supplemental watering to promote plant establishment. Supplemental watering should be conducted as deep, soaking watering to promote deep rooting.
- Generally, the site will not be fertilized during the maintenance period unless determined necessary by the project's restoration ecologist as a remedial measure to correct soil nutrient deficiencies.
- Deadwood and leaf litter of native vegetation should not be removed. Deadwood and leaf litter provide valuable microhabitats for invertebrates, reptiles, small mammals, and birds. Non-organic trash and debris should be removed from the revegetation areas on a regular basis.

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

- Erosion control materials should be maintained in working order until they are deemed no longer necessary by the project's restoration ecologist. Maintenance of erosion control materials may include repairing or replacing dilapidated, damaged, or ineffective materials.

5.2 General Habitat Maintenance Guidelines

5.2.1 Weed Control

Weeds are expected to be the primary pest problem in the restoration area during the first several years of the maintenance period. Weeds should be controlled so they do not prevent the establishment of the native species or invade adjacent areas. A combination of physical removal, mechanical treatments (weed whipping) and appropriate herbicide treatments should be used to control the non-native/invasive plant species. Weeds should be controlled prior to setting seed, and should be removed from the site if they become large enough to block sunlight to developing native plants.

Re-establishment of non-native plants onto the site can be adequately minimized by regular and timely maintenance visits with implementation of effective weed control measures. Weed control will require constant diligence by the maintenance personnel. Invasive plant species, such as those listed in Table 1 should be controlled wherever possible within the restoration area. Mature invasive tree species will be retained at the discretion of the PVPLC though the majority of individuals should be removed to reduce the spread of weed propagules.

Removal of weeds by hand where practicable and effective is the most desirable method of control and should be done around individual plantings and native seedlings to avoid inadvertent damage to the native species. However, several of the invasive species may be more effectively controlled with herbicide due to their tenacious and spreading root systems, their size, or their ability to re-sprout from root fragments. All herbicides shall be used in accordance with label instructions, following the recommendations of a licensed Pest Control Advisor, and any application shall be applied under the direction of a state-certified Qualified Applicator. The project's restoration ecologist should monitor control efforts to ensure that the target weed species are being adequately addressed without impacting the native plants.

The non-native Bagrada bug (*Bagrada hilaris*) has been documented on the Palos Verdes Peninsula, and is known to cause substantial damage to plant species from the mustard family (*Brassicaceae*) (County of Los Angeles 2013; University of California, Riverside 2013). As black mustard is one of the predominant species within the proposed coastal sage scrub restoration area, the Bagrada bug may occur; however, it is expected that the damage

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

caused by this insect would be to non-native mustard species, and not native plants. Despite this, if the species becomes problematic as a pest species on the native plants, then the restoration ecologist will evaluate whether or not control measures are necessary. Similarly, if other deleterious pests (e.g., beetles on bladderpod) become problematic enough to cause container plant mortality, the restoration ecologist may recommend measures to minimize pests and promote healthy plant establishment.

5.2.2 Supplemental Watering System

Supplemental watering will be provided for two to three years after planting to help the container plants become established. Supplemental watering will be provided through a drip irrigation system. Supplemental watering would likely be necessary every 3–4 weeks during the dry season, and more frequently immediately after installation if natural rainfall does not provide adequate moisture. If a temporary, on-grade supplemental watering system is installed in the restoration area as described in Section 4.4, it would need to be maintained and repaired as necessary.

The watering system shall be checked regularly to ensure proper operation and adequate coverage of the restoration areas. Problems with the watering system shall be repaired immediately to reduce potential plant mortality or erosion. The frequency and duration of irrigation applications shall be adjusted seasonally in coordination with the project's restoration ecologist to meet habitat needs.

Supplemental watering will be terminated when deemed appropriate by the project's restoration ecologist. All above-ground components of the watering system should be removed from the site at the successful completion of the project. The timing for cessation and removal of the irrigation system shall be determined by the project's restoration ecologist.

5.2.3 Clearing and Trash Removal

Trash consists of all man-made materials, equipment, or debris dumped, thrown, washed into, or left within the restoration area. Pruning or clearing of native vegetation is not anticipated to be necessary within the restoration area, unless extensive growth is causing a maintenance problem for a utility or for an area outside of the restoration area. Any pruning or clearing of native vegetation should be approved by the project's restoration ecologist. Deadwood and leaf litter of native vegetation will be left in place to replenish soil nutrients and organic matter.

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

5.3 Schedule of Maintenance Inspections

The project's restoration ecologist will perform quarterly maintenance/monitoring inspections during the scheduled maintenance and monitoring period. Recommendations for maintenance efforts will be based upon these site observation visits. Weed control shall be conducted as needed to ensure adequate control to promote healthy establishment of the target habitat types. It is anticipated that weed control will be necessary on a monthly basis during the winter and early spring when weeds are vigorously growing. Weed control during other times of the year will likely be diminished, but conducted as necessary, and as directed by the project's restoration ecologist.

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

6 MONITORING PLAN

Monitoring of the restoration site has a two-fold purpose: (1) To monitor the progress of the Abalone Cove Reserve restoration areas by assessing native habitat establishment relative to the established performance standards; and (2) To direct and monitor the maintenance activities and determine remedial actions in a manner that ensures that appropriate maintenance occurs in a timely manner. The monitoring will be performed by the project's restoration ecologist.

The project's restoration ecologist will be responsible for monitoring activities of all the work crews during preparation of the restoration area including site clearing and soil preparation, weed control, container plant and seed application, and quarterly monitoring for the duration of the 5-year maintenance and monitoring period.

Reports will be prepared annually for the restoration areas after installation is complete. Each report will include qualitative data, photo documentation, and future recommendations for site maintenance as described below.

6.1 Performance Standards

Performance standards have been established for the habitat restoration area based on the guidelines in the draft NCCP and on expected vegetative development relative to undisturbed habitat of the same type (Table 6). The following performance standards apply to the Abalone Cove restoration site:

1. Soil at the site is stable and shows no significant erosion.
2. After five years, non-native plant cover is less than 25% with less than 15% cover of invasive perennial species. After five years, there will be no presence of species on Cal-IPC List A with the possible exception of Cal-IPC List A non-native annual grasses.
3. Native plant cover after three years in the CSS community should be greater than 40% with at least 30% cover from perennial species. At five years, total native cover should be greater than 50% with appropriate species diversity.
4. Native plant cover after three years in the cactus scrub community should be greater than 30% with at least 20% cover from perennial species and 5% cover from cactus species. Native plant cover after five years in the cactus scrub community should be greater than 40% with at least 10% cover from cactus.

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

Table 6
Performance Standards

Year	Percent Cover of Native Species (%)[*]			Non-native Cover (for all habitat types)	
	<i>Coastal Sage Scrub</i>	<i>Cactus Scrub</i>	<i>Mulefat Scrub</i>	<i>Invasive Perennial Species Cover</i>	<i>Total Non-native Species Cover</i>
Year 3	>40% (>30% perennial)	>30% (>20% perennial and >5% cacti)	>40%	<15% (0% of Cal-IPC List A)*	<25%
Year 5	>50%	>40% (>10% cacti)	>50%	<15% (0% of Cal-IPC List A)*	<25%

* The NCCP success criteria allow an exception to the requirement for 0% Cal-IPC List A for non-native annual grasses. In other words, Cal-IPC List A grass species would not count toward the 0% criteria, but would count toward the 25% criteria for total non-native species cover.

The Year 3 performance standards will be utilized to assess the annual progress of the restoration area, and are regarded as interim project objectives designed to reach the final Year 5 goals. Fulfillment of these standards will indicate that the restoration area on the project site is progressing toward the habitat type and functions that constitute the long-term goals of the plan. If the restoration efforts fail to meet the performance standards in any year, the project's restoration ecologist may recommend remedial action to be implemented the following year with the intent to enhance the vegetation to a level of conformance with the original standard. These remedial actions may include re-seeding, re-planting, applying soil amendments, additional weed control measures, erosion control, or adjustments to the watering and maintenance practices.

6.2 Monitoring Methods and Schedule

Annual qualitative assessments will be conducted through visual analysis of the restoration area to assess vegetation development, weed presence, and plant establishment. Qualitative monitoring will include reviewing the health and vigor of container plants and seed germination/establishment, assessing survival/mortality, checking for the presence of pests and disease, soil moisture content, and the effectiveness of the supplemental watering, erosion problems, invasion of weeds, and the occurrence of trash and/or vandalism. Representative photographs of the restoration site from stationary photo points will be taken annually.

Permanent vegetation sampling sites will be established within the coastal sage scrub and cactus scrub restoration areas at randomized representative locations. A minimum of one transect will be established for each two acres of restoration area, and at least one transect for each habitat type. The mulefat scrub area is too small to establish quantitative sampling sites and will be evaluated with visual estimates of cover. Transect data will be collected in Years 3 and 5 from the restoration sites in the spring and will be used to determine compliance and achievement of

Habitat Restoration Plan for the Abalone Cove Reserve in the Palos Verdes Nature Preserve

the restoration performance standards. Transect data will be collected using the point-intercept method to determine percent target vegetation cover and weed cover. If the restoration project is in compliance with the Year 5 performance standards in an earlier monitoring period, then qualitative assessments may be substituted for the quantitative monitoring until the end of the 5-year restoration program. If the restoration site is performing below the interim performance standards, the project's restoration ecologist will determine if remedial measures are necessary.

Each monitoring visit will be followed by a summary of observations, recommendations, and conclusions. Results from the annual monitoring will be used to evaluate the progress of each habitat toward the ultimate goals of the project, and to recommend appropriate management actions.

6.3 Monitoring Reports

The designated restoration ecologist will monitor and report on the restoration work underway in the Abalone Cove Reserve. The restoration area will be monitored for five years, with reports prepared in Years 1-3 and Year 5. Monitoring reports should provide concise, meaningful summaries of the restoration progress and provide direction and maintenance recommendations for future work.

Annual reports will include the following:

1. A description of the restoration and maintenance activities (e.g., seeding, irrigation, weed control, trash removal) conducted on the site during the previous year including the dates the activities were conducted.
2. A description of existing conditions within the restoration site, including descriptions of vegetation composition, weed species, and erosion problems, if any.
3. Qualitative and quantitative monitoring data related to proposed target goals including a comparative analysis of data over the years the project has been monitored.
4. Recommendations for remedial measures to correct problems or deficiencies, if any.
5. Representative photographs of notable observations on site and from fixed photo viewpoints.

6.4 Project Conclusion

At the end of the 5-year monitoring period, a final report will be prepared by the restoration ecologist for submittal to PVPLC. The final report will summarize the project relative to project goals. Upon completion, the site will be managed along with other reserve lands in the Palos Verdes Nature Preserve by the PVPLC.

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APPENDIX A

Soil Test Results

WALLACE LABS
365 Coral Circle
El Segundo, CA 90245
(310) 615-0116

SOILS REPORT

Print Date July 17, 2015 Receive Date 7/16/15

Location Palos Verdes Peninsula, Job No. 9085
Requester Andy Thomson and Jake Marcon, Dudek

graphic interpretation: * very low, ** low, *** moderate

ammonium bicarbonate/DTPA

extractable - mg/kg soil

Interpretation of data

low medium high

0 - 7 8-15 over 15

0-60 60-120 121-180

0 - 4 4 - 10 over 10

0-0.5 0.6- 1 over 1

0 - 1 1 - 1.5 over 1.5

0-0.2 0.3- 0.5 over 0.5

0-0.2 0.2- 0.5 over 1

**** high, ***** very high

Sample ID Number	15-198-07	15-198-08	15-198-09
Sample Description	AC #1	AC #2	AC #3
elements	graphic	graphic	graphic
phosphorus	10.35 ***	10.25 ***	9.20 ***
potassium	522.13 *****	318.32 *****	247.26 *****
iron	1.38 *	1.45 *	1.38 *
manganese	2.01 ****	2.01 ****	1.61 ****
zinc	2.45 ****	2.40 ****	11.62 ****
copper	6.19 *****	5.50 *****	6.36 ****
boron	0.18 **	0.23 ***	0.17 **
calcium	322.10 ***	316.50 ***	326.12 ***
magnesium	259.18 *****	304.98 *****	347.17 *****
sodium	197.35 ***	212.89 ****	155.06 ***
sulfur	20.84 *	20.50 *	27.78 **
molybdenum	0.08 ***	0.01 **	0.10 ***
nickel	2.51 **	1.85 **	1.74 **
The following trace elements may be toxic	aluminum	n d *	n d *
The degree of toxicity depends upon the pH of the soil, soil texture, organic matter, and the concentrations of the individual elements as well as to their interactions.	arsenic	0.07 *	0.03 *
	barium	2.41 *	1.81 *
	cadmium	1.46 **	0.99 *
	chromium	n d *	n d *
	cobalt	0.06 *	0.04 *
	lead	2.51 **	2.10 **
	lithium	0.40 *	0.40 *
	mercury	n d *	n d *
	selenium	n d *	n d *
	silver	n d *	n d *
	strontium	0.61 *	0.68 *
	tin	n d *	n d *
	vanadium	1.28 **	1.20 **
The pH optimum depends upon soil organic matter and clay content-for clay and loam soils: under 5.2 is too acidic	Saturation Extract		
6.5 to 7 is ideal			
over 8.0 is too alkaline			
The ECe is a measure of the soil salinity:	pH value	7.69 ****	7.76 ****
1-2 affects a few plants	ECe (milli-mho/cm)	0.72 **	0.45 **
2-4 affects some plants,			
> 4 affects many plants.			
		millieq/l	millieq/l
problems over 150 ppm	calcium	61.1	38.8
good 20 - 30 ppm	magnesium	14.3	8.7
	sodium	43.6	32.9
	potassium	11.4	2.3
	cation sum	6.4	4.2
toxic over 150 ppm	chloride	128	48
	nitrate as N	12	7
	phosphorus as P	0.2	0.3
toxic over 800	sulfate as S	7.6	8.5
	anion sum	5.0	2.4
toxic over 1 for many plants	boron as B	0.28 **	0.16 *
increasing problems start at 3	SAR	1.3 *	1.2 *
est. gypsum requirement-lbs./1000 sq. ft.		37	54
	relative infiltration rate	slow/fair	slow
	soil texture	sand - 19.6%	sand - 18.0%
	lime (calcium carbonate)	clay silt - 34.3%	clay silt - 33.1%
	organic matter	slight clay - 46.1%	low clay - 48.9%
	moisture content of soil	fair	fair
	half saturation percentage	14.5% gravel over 2 mm	15.2% gravel over 2 mm
		41.3% 8.8%	40.8% 8.4%

Elements are expressed as mg/kg dry soil or mg/l for saturation extract.

pH and ECe are measured in a saturation paste extract. nd means not detected.

Sand, silt, clay and mineral content based on fraction passing a 2 mm screen.

HABITAT RESTORATION PLAN
for the
Abalone Cove Reserve
Phase 4
in the
Palos Verdes Nature Preserve

Palos Verdes Peninsula Land Conservancy
916 Silver Spur Road, Suite 207
Rolling Hills Estates, California 90274
Contact: Cris Sarabia

August 2021

Introduction

This Habitat Restoration Plan (Plan) was prepared for Phase 4 of the Abalone Cove Reserve NCCP habitat restoration project. The Abalone Cove Reserve is located within the Palos Verdes Nature Preserve (PVNP) which is located within the City of Rancho Palos Verdes. This habitat restoration plan describes how the Land Conservancy will implement two (2) acres of coastal sage scrub and three (3) acres of mixed Southern Coastal Bluff Scrub/Southern Cactus Scrub, and includes details regarding planting palette recommendations, project location, project schedule, and conceptual irrigation plan. This Plan supplements the components of the Abalone Cove Habitat Restoration Plan (Dudek), and remains consistent with those specifications including invasive plant management, maintenance, monitoring protocols and success criteria, etc.

Existing Conditions

Current plant communities in the project vicinity according to vegetation mapping in 2010 consists of Southern Coastal Bluff Scrub, Grassland and CSS undifferentiated. The Southern Coastal Bluff Scrub, Grassland and CSS Undifferentiated have native and non-native plant components. As part of this restoration plan, non-native species will be removed and naturally occurring native plants will be left in place. Current site conditions can be seen in Figure 1.



Figure 1

Restoration Program

This restoration plan outlines the restoration and enhancement of 2 acres of coastal sage scrub and 3 acres of mixed Southern Coastal Bluff Scrub/Southern Cactus Scrub. Following the previously created restoration plan for Abalone Cove Phases 1 through 3, Phase 4 will continue with the same restoration and implementation program as well as monitoring and maintenance schedule and protocols.

Habitats to be Established or Enhanced

The two habitats to be established are Coastal Sage Scrub and Southern Coastal Bluff Scrub/Southern Cactus Scrub Mix (Figure 2 and Tables 1 and 2)



Figure 2

Table 1

Coastal Sage Scrub Planting Pallet (2 acres)						
Botanical Name	Common Name	Container Size	Spacing(on center)	Group Size	Quantity (per acre)	Total Plants
<i>Artemesia californica</i>	California sagebrush	1 gal	5	5	348	696
<i>Astragalus trichopodus</i> var. <i>lonchus</i>	Ocean locoweed	1 gal	3	7	184	368
<i>Baccharis pilularis</i>	Coyote brush	1 gal	5	3	87	174
<i>Brickellia californica</i>	California bricklebush	1 gal	5	3	87	174
<i>Corethrogynne filaginifolia</i>	Common sandaster	D-40	3	3	24	48
<i>Cylindropuntia prolifera</i>	Coastal cholla	1 gal	4	5	27	54
<i>Dudleya virens</i>	Bright green dudleya	1 gal	3	3	24	48
<i>Elymus condensatus</i>	Giant wildrye	D-40	6	3	24	48
<i>Encelia californica</i>	California Bush Sunflower	D-40	5	5	261	522
<i>Eriogonum cinereum</i>	Ashy-leaf Buckwheat	1 gal	5	5	87	174
<i>Eriogonum parvifolium</i>	Seacliff buckwheat	1 gal	5	5	87	174
<i>Eriophyllum confertiflorum</i>	Golden Yarrow	D-40	3	5	145	290
<i>Isocoma menziesii</i>	Coast goldenbush	D-40	3	3	87	174
<i>Mirabilis laevis</i> var. <i>crassifolia</i>	Wishbone Bush	1 gal	3	5	54	108
<i>Opuntia littoralis/oricola</i>	Chaparral pricklypear	1 gal	3	3	24	48
<i>Opuntia littoralis/oricola</i>	Chaparral pricklypear	5 gal	5	3	24	48
<i>Opuntia littoralis/oricola</i>	Chaparral pricklypear	15 gal	10	5	5	10
<i>Peritoma arborea</i>	Bladderpod	D-40	5	5	35	70
<i>Rhus integrifolia</i>	Lemonadeberry	D-40	10	1	2	4
<i>Salvia leucophylla</i>	Purple sage	1 gal	5	5	87	174
<i>Salvia mellifera</i>	Black sage	1 gal	3	3	87	174
<i>Stipa cernua</i>	Nodding Needlegrass	D-40	2	3	35	70
<i>Stipa lepida</i>	Foothill Needlegrass	D-40	2	3	35	70
<i>Stipa pulchra</i>	Purple Needlegrass	D-40	2	3	35	70
				Total	1790	3790

Table 2

Southern Coastal Bluff Scrub/Southern Cactus Scrub Planting Pallet (3 acres)						
Botanical Name	Common Name	Container Size	Spacing (on center)	Group Size	Quantity (per acre)	Total Plants
<i>Aphanisma blitoides</i>	Aphanisma	as available	3	3	35	105
<i>Atriplex pacifica</i>	South Coast saltyscale	as available	3	3	23	69
<i>Cylindropuntia prolifera</i>	Coastal Cholla	1 gal	5	5	122	366
<i>Cylindropuntia prolifera</i>	Coastal Cholla	5 gal	5	3	45	135
<i>Cylindropuntia prolifera</i>	coastal Cholla	15 gal	10	3	12	36
<i>Dudleya virens</i>	Bright Green Dudleya	1 gal	4	3	34	102
<i>Eriogonum parvifolium</i>	Seacliff Buckwheat	D40/4"	5	3	87	261
<i>Lycium brevipes</i>	Baja Desert Thorn	1 gal	10	3	23	69
<i>Lycium californica</i>	California Boxthorn	1 gal	7	3	34	102
<i>Mirabilis laevis</i> var. <i>crassifolia</i>	Desert Wishbone-bush	1 gal	5	3	54	162
<i>Opuntia littoralis</i>	Coastal Pricklypear	1 gal	5	5	157	471
<i>Opuntia littoralis</i>	Coastal Pricklypear	5 gal	5	3	70	210
<i>Opuntia littoralis</i>	Coastal Pricklypear	15 gal	10	3	12	36
<i>Opuntia oricola</i>	Chaparral pricklypear	1 gal	3	3	157	471
<i>Opuntia oricola</i>	Chaparral pricklypear	5 gal	5	3	70	210
<i>Opuntia oricola</i>	Chaparral pricklypear	15 gal	10	3	12	36
<i>Peritoma arborea</i>	Bladderpod	D40/4"	4	3	35	105
<i>Rhus integrifolia</i>	Lemonadeberry	D40/4"	15	1	5	15
<i>Suaeda taxifolia</i>	Wooly Seablite	As available	4	3	34	102
				Total	1021	3063

Irrigation Plan

A temporary irrigation system will be installed to provide supplemental watering when natural precipitation rates are inadequate for plant establishment. The temporary, above ground watering system will have a point of connection at the current restoration site and its watering system. The irrigation will be placed above ground for easy removal when plants have been determined to be established and the project is deemed complete. Pipes will be buried at all trail crossings at the appropriate depth as directed by the project manager. The conceptual routed for the main line is shown in Figure 3.

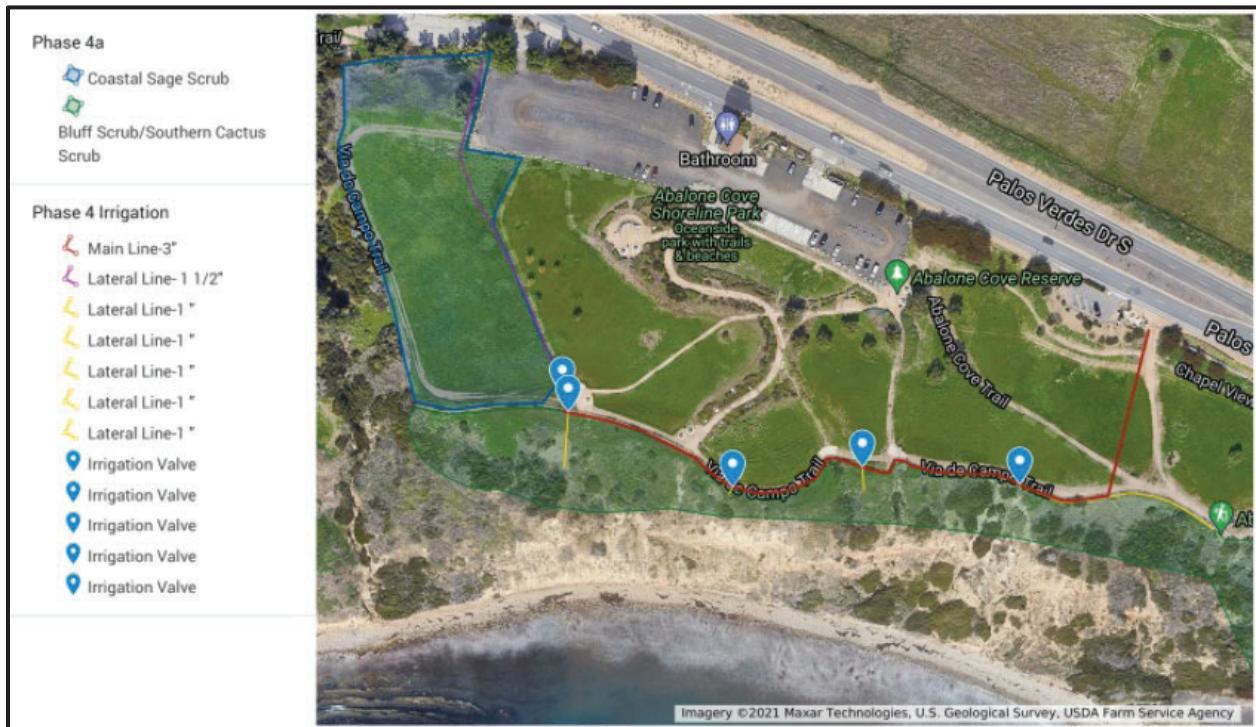


Figure 3

Table 3

Preliminary Restoration Project Schedule		
Task	Date	
Site clearing	Fall Prior to first year	October 2021
Invasive weed species control and grow-kill cycles	Winter and Spring of first year	October 2021-October 2022
Installation of supplemental watering system	Summer of first year	Winter 2022
Planting of container stock	Fall and early winter of second year	Winter 2022/23
Seed Application	Fall and early winter of 3rd year	Winter 2022/23 or before large rain event
Monitoring and Maintenance	To begin upon successful installation of container plants	Five years after planting



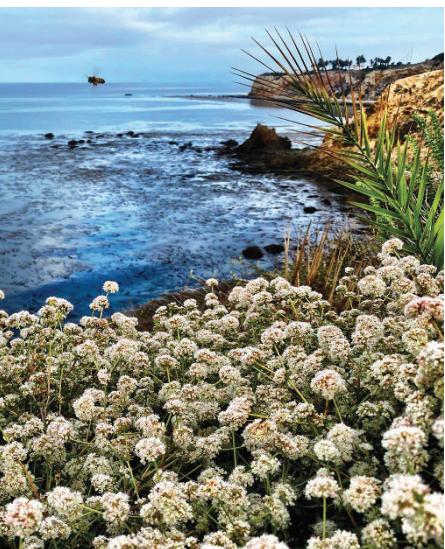
Habitat Restoration Plan for the Jacqueline M. Glass Family Reserve in the PALOS VERDES NATURE PRESERVE

March 2023

Palos Verdes Peninsula Land Conservancy

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Introduction

This Habitat Restoration Plan (Plan) was prepared for the Jacqueline M. Glass Family Reserve (Glass Reserve). The Glass Reserve is located within the Palos Verdes Nature Preserve (Preserve) which is located in the City of Rancho Palos Verdes. This Plan fulfills the obligations of the Palos Verdes Peninsula Land Conservancy (Land Conservancy) under the Rancho Palos Verdes Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP). This habitat restoration plan describes how the Land Conservancy will implement approximately 17 acres of habitat restoration (12 acres of Coastal Sage Scrub) and 5 acres of Southern Cactus Scrub, and includes details regarding planting palette recommendations, project location, project schedule, and conceptual irrigation plan.

Existing Conditions

Current plant communities in the project vicinity according to vegetation mapping in 2010 consists of Grassland, CSS-Undifferentiated, Ruderal Habitat, Disturbed and Exotic Woodland. Recent site surveys show that Southern Cactus Scrub and Riparian Scrub also exist in the project vicinity (Figure 1). The land was acquired by the City of Rancho Palos Verdes in partnership with the Land Conservancy, and enrolled into the Preserve in 2022. Prior to this acquisition, the previous land owner mowed much of the lands annually, while retaining some habitat “islands” in the interior of the parcel. As part of this restoration plan, non-native species will be removed and naturally occurring native plants will be left in place. Current site conditions can be seen in Figure 2.

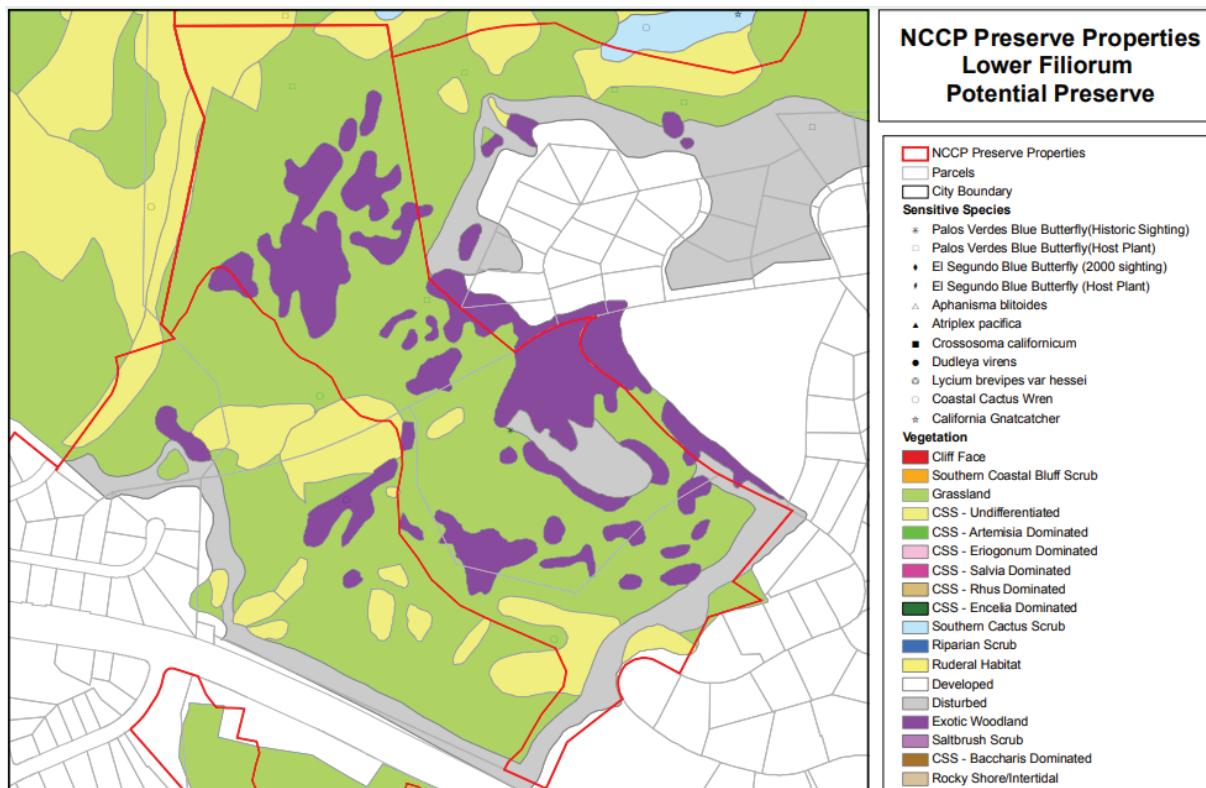


Figure 1



Figure 2-1

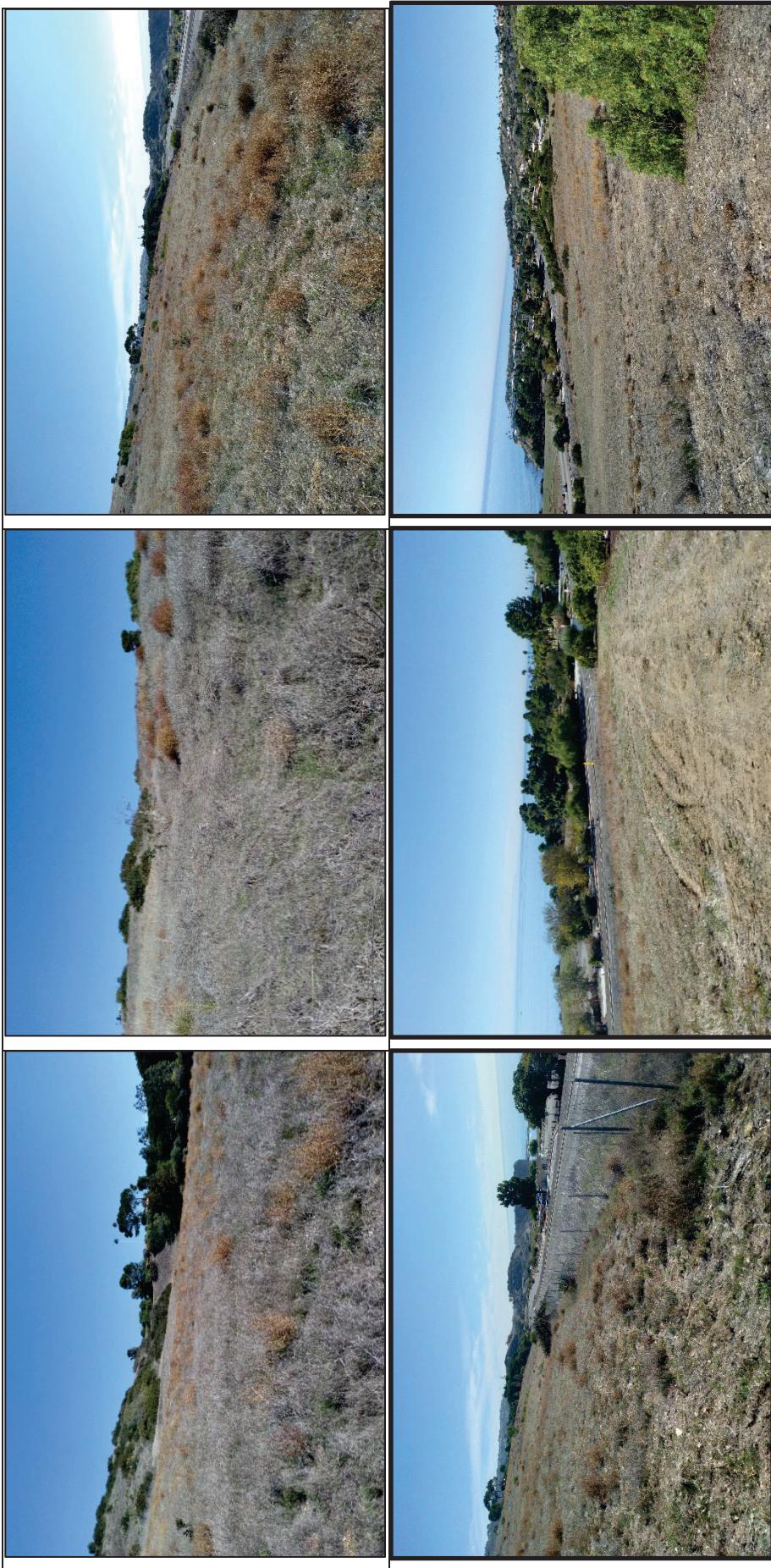


Figure 2-2



Figure 2-3

Restoration Program

This Plan outlines the restoration and enhancement of 17 acres of native habitat, and will consist of 12 acres of Coastal Sage Scrub and 5 acres of Southern Cactus Scrub.

Restoration Site Goals and Objectives

The disturbed and fragmented habitat existing in the proposed restoration and enhancement locations limit the magnitude of potential wildlife use and provide opportunities for the further spread and establishment of invasive weed species in the area. The planting of native coastal sage scrub, cactus scrub, and enhancement of mixed coastal scrub will provide contiguous native habitat that includes a mosaic of shrub cover which will resist the invasion of invasive weed species and provide increased nesting, cover, and foraging opportunities for wildlife. In particular, the overarching goal of the restoration program is to provide habitat for coastal California gnatcatcher and the cactus wren.

The habitat restoration program will focus on the creation of habitat for covered species with the objective of increasing the overall habitat carrying capacity for the target species populations. Coastal scrub restoration is intended to provide improved foraging habitat for resident and migrating wildlife species, and potential nesting and foraging habitat for the coastal California gnatcatcher, and other sensitive wildlife species. Achievement of the performance standards described herein would create suitable habitat for these species. However, occupation of the site by these species is not a requirement for successful project completion.

In addition to these broad goals, the following site-specific objectives for the Glass Parcel restoration site have been incorporated into this HRP in the interest of minimizing adverse impacts to biological resources:

- Avoid additional or unplanned disturbance to existing native habitats during implementation of the project construction and long-term maintenance activities;
- Prevent any impacts to sensitive plant or wildlife species during implementation of the project construction and long-term maintenance activities;
- Control non-native invasive weed species considered to be highly or moderately invasive on the Cal-IPC Invasive Plant Inventory (2015), and others identified by PVPLC as locally invasive (PVPLC 2013);
- Utilize erosion control measures in the form of “Best Management Practices” (BMPs) on the site as conditions necessitate;
- Reintroduce special-status plant species and/or host plants of special-status wildlife species as components of the planting plans where feasible and as appropriate.

Habitats to be Established or Enhanced

The habitat restoration program consists of site preparation (primarily non-native plant species removal), native planting, seeding, supplemental watering, maintenance, and monitoring. Proposed planting for the target habitat types will focus primarily on the installation of container plants to achieve the project goals. A locally sourced native seed mix will also be applied, if available, as a supplemental measure to increase cover and diversity.

The habitat restoration areas are currently dominated by non-native species. The existing habitat in the restoration areas contains many non-native annual herbs, including black mustard, Russian thistle, and

bromes. Non-native perennials, such as fennel, Acacia, and European Olive also exist within the restoration areas.

The two habitats to be established are Coastal Sage Scrub and Southern Cactus Scrub (Figure 3 and Tables 1 and 2). Each specific habitat to be restored is described below and it is expected that all planting shall be installed to mimic the natural distribution and population mosaic of nearby healthy habitats.

Target Functions and Values

The primary functional goal of the restored coastal sage scrub and cactus scrub is to restore vegetation that contains a diversity of native coastal scrub plant species and that provides habitat value for sensitive wildlife species, particularly for coastal California gnatcatcher and cactus wren. Additionally, a secondary consideration is to create contiguous and intact habitat which resists the re-establishment of invasive plant species.

Seed Application

Seed will be hand broadcast throughout the restoration site. The seed mix is primarily a supplemental feature to increase diversity and will not occur until the second year of the Restoration Program. The seeding sites should be prepared by removing weedy vegetation to expose the soil surface. The seed should be raked into the soil so there is good seed-soil contact. Seeding should be timed to occur prior to or early in the rainy season.

Plant Installation

Standard planting procedures will be employed for installing container stock. Planting holes shall be approximately twice the width of the rootball, and as deep. If dry soil conditions exist at the time of plant installation, planting holes will be filled with water and allowed to drain immediately prior to planting. A controlled-release fertilizer (e.g., Best Paks 20-10-5 or equivalent) will be placed in the bottom of each hole prior to planting.

Maintenance Activities

Maintenance activities will be primarily related to non-native invasive plant species control. Supplemental watering, supplemental planting, trash removal, and erosion control will also be conducted, as necessary.

- Non-native plant species should be controlled as soon as they begin to establish. Recommended control methods should be tailored to each specific weed species and should include the most effective control measures for the species and time of year. Control methods may include a combination of manual, mechanical, and chemical control.
- Container plants should be watered when natural rainfall is not adequate to sustain the establishing plants. The project's restoration ecologist will be responsible for scheduling the supplemental watering to promote plant establishment. Supplemental watering should be conducted as deep, soaking watering to promote deep rooting.
- Generally, the site will not be fertilized during the maintenance period unless determined necessary by the project's restoration ecologist as a remedial measure to correct soil nutrient deficiencies.
- Deadwood and leaf litter of native vegetation should not be removed. Deadwood and leaf litter provide valuable microhabitats for invertebrates, reptiles, small mammals, and birds. Non-organic trash and debris should be removed from the revegetation areas on a regular basis.
- Erosion control materials should be maintained in working order until they are deemed no longer necessary by the Conservation Director. Maintenance of erosion control materials may include repairing or replacing dilapidated, damaged, or ineffective materials.



Figure 3

Coastal Sage Scrub

The restoration strategy for coastal sage scrub habitat on the Glass Reserve restoration site includes reintroducing regionally appropriate native coastal sage scrub species that are currently present in adjacent native habitats. The plant palette includes a container plant composition (Table I) that has been designed to replicate the native composition of a healthy coastal sage scrub plant community similar to existing coastal sage scrub habitat present on the adjacent Filiorum Reserve and Three Sisters Reserve sites, and with the specific intent to provide habitat suitable for occupation by coastal California gnatcatcher, Palos Verdes blue butterfly and El Segundo blue butterfly. The planting palette has thus been designed to contain a composition of shrub species that are dominant in coastal sage scrub habitat occupied by coastal California gnatcatcher (Atwood et al. 1994). On the Palos Verdes Peninsula, the primary coastal sage scrub dominants include California sagebrush, California brittlebush, and coastal buckwheat, with coast goldenbush, lemonadeberry, California buckwheat, sages, bladderpod, coast prickly-pear, and wishbone bush as common constituents.

The plant palette also provides two host plant species for both the El Segundo blue butterfly and Palos Verdes blue butterfly. Rattlepod (*Astragalus trichopodus* var. *lonchus*) and coastal buckwheat (*Eriogonum parvifolium*) will both be planted within the Coastal Sage Scrub plant pallet being cautious not to plant larger CSS species too close. Since Rattlepod serves as an early successional species, follow up infill planting or mimicked disturbance may need to occur to maintain a healthy population of host plant. Recommendations will be made by the PVPLC Conservation Director in yearly monitoring reports.

Table I

Coastal Sage Scrub Planting Pallette (12 acres)						
Botanical Name	Common Name	Container Size	Spacing(on center)	Group Size	Quantity (per acre)	Total Plants
<i>Acmispon glaber</i>	Deerweed	1 gal	3	7	87	1044
<i>Acourtia microcephala</i>	Sacapellote	as available				0
<i>Artemisia californica</i>	California sagebrush	1 gal	5	5	348	4176
<i>Astragalus trichopodus</i> var. <i>lonchus</i>	Ocean locoweed	1 gal	3	7	184	2208
<i>Baccharis pilularis</i>	Coyote brush	1 gal	5	3	87	1044
<i>Baccharis salicifolia</i>	Mulefat	1 gal	5	3	24	288
<i>Brickellia californica</i>	California bricklebush	1 gal	5	3	87	1044
<i>Ceanothus spinosus</i>		as available				0

<i>Corethrodyne filaginifolia</i>	Common sandaster	D-40	3	3	24	288
<i>Crossosoma californicum</i>		as available				0
<i>Elymus condensatus</i>	Giant wildrye	D-40	6	3	24	288
<i>Encelia californica</i>	California Bush Sunflower	1 gal	5	5	150	1800
<i>Eriogonum cinereum</i>	Ashy-leaf Buckwheat	1 gal	5	5	87	1044
<i>Eriogonum parvifolium</i>	Seacliff buckwheat	1 gal	5	5	348	4176
<i>Eriophyllum confertiflorum</i>	Golden Yarrow	1 gal	3	5	54	648
<i>Gutierrezia californica</i>	Matchweed	as available				0
<i>Hazardia squarrosa</i>	Sawtooth Goldenbush	as available	3	5	87	1044
<i>Isocoma menziesii</i>	Coast goldenbush	D-40	3	3	87	1044
<i>Juglans californica</i>	California black walnut	as available	10	1	2	24
<i>Lycium brevipes</i>	Baja desert-thorn	as available				0
<i>Mirabilis laevis</i> var. <i>crassifolia</i>	Wishbone Bush	4"	3	5	54	648
<i>Peritoma arborea</i>	Bladderpod	D-40	5	5	35	420
<i>Rhus integrifolia</i>	Lemonadeberry	D-40	10	1	2	24
<i>Salvia leucophylla</i>	Purple sage	1 gal	5	5	87	1044
<i>Salvia mellifera</i>	Black sage	1 gal	3	3	87	1044
<i>Sambucus cerulea</i>	Blue Elderberry	5 gal	10	1	5	60
<i>Stipa cernua</i>	Nodding Needlegrass	D-40	2	3	35	420
<i>Stipa lepida</i>	Foothill Needlegrass	D-40	2	3	35	420
<i>Stipa pulchra</i>	Purple Needlegrass	D-40	2	3	35	420
<i>Prunus ilicifolia</i>	Catalina Cherry	5- Gal	10	1	2	24
				Total	2057	24684

Seed Mix

Botanical Name	Common Name	Pure Live Seed	Lbs. Per Acre	Total Lbs.
<i>Eschscholzia californica</i> var. <i>maritima</i>	California Poppy	85	2	24

<i>Lupinus bicolor</i>	Miniature Lupine	90	2	24
<i>Lupinus succulentus</i>	Arroyo Lupine	90	4	48
<i>Stipa lepida</i>	Foothill Needlegrass	65	1	12
<i>Stipa pulchra</i>	Purple Needlegrass	75	6	72
Total Lbs.			15	180

Southern Cactus Scrub

The restoration strategy for southern cactus scrub habitat is comparable to that described for coastal sage scrub, except that the composition of species was modified to be dominated by Chaparral prickly pear cactus (*Opuntia oricola*), Coastal prickly pear (*O. littoralis*) and Coast Cholla (*Cylindropuntia prolifera*). The plant palette includes a container plant composition (Table 2) that has been designed to replicate the native composition of a healthy cactus scrub plant community similar to existing cactus scrub habitat present on Filiorum Reserve and Three Sisters Reserve, and with the specific intent to provide habitat suitable for occupation by cactus wren.

Table 2

Southern Cactus Scrub Planting and Enhancement Pallette (5 acres)

Botanical Name	Common Name	Container Size	Spacing(on center)	Group Size	Quantity (per acre)	Total Plants
<i>Aphanisma blitoides</i>	Aphanisma	as available	3	3	35	175
<i>Atriplex pacifica</i>	South Coast saltsscale	as available	3	3	23	115
<i>Cylindropuntia prolifera</i>	Coastal Cholla	1 gal	5	5	122	610
<i>Cylindropuntia prolifera</i>	Coastal Cholla	5 gal	5	3	45	225
<i>Cylindropuntia prolifera</i>	coastal Cholla	15 gal	10	3	12	60
<i>Dudleya virens</i>	Bright Green Dudleya	1 gal	4	3	34	170
<i>Eriogonum parvifolium</i>	Seacliff Buckwheat	4"	5	3	87	435
<i>Lycium brevipes</i>	Baja Desert Thorn	1 gal	10	3	23	115
<i>Lycium californica</i>	California Boxthorn	1 gal	7	3	34	170
<i>Mirabilis laevis</i> var. <i>crassifolia</i>	Desert Wishbone- bush	4"	5	3	54	270
<i>Opuntia littoralis</i>	Coastal Pricklypear	1 gal	5	5	157	785
<i>Opuntia littoralis</i>	Coastal Pricklypear	5 gal	5	3	70	350

Opuntia littoralis	Coastal Pricklypear	15 gal	10	3	12	60
Opuntia oricola	Chaparral pricklypear	1 gal	3	3	157	785
Opuntia oricola	Chaparral pricklypear	5 gal	5	3	70	350
Opuntia oricola	Chaparral pricklypear	15 gal	10	3	12	60
Peritoma arborea	Bladderpod	1 gal	4	3	35	175
				Total	982	4910

Seed Mix

Botanical Name	Common Name	Pure Live Seed	Lbs. Per Acre	Total Lbs.
<i>Eschscholzia californica var. maritima</i>	California Poppy	85	2	24
<i>Lupinus bicolor</i>	Miniature Lupine	90	2	24
<i>Lupinus succulentus</i>	Arroyo Lupine	90	4	48
<i>Phacelia ramosissima</i>	Branching Phacelia	80	0.25	20
<i>Stipa lepida</i>	Foothill Needlegrass	65	1	12
<i>Stipa pulchra</i>	Purple Needlegrass	75	6	72
	Total Lbs.		15	200

Site Preparation

Site preparation for this project includes control of invasive weed species and other non-natives. If clearing of weeds is planned to be performed during the migratory bird nesting and raptor nesting season (February 15 – September 30), a nesting bird survey should be conducted by a qualified wildlife biologist within 72 hours prior to vegetation removal.

During site preparation, all invasive weed species, particularly non-native annual grasses, black mustard, and fennel, should be killed and removed from the restoration areas if possible. Invasive species control should also include exotic trees and shrubs such as spiny holdback, Peruvian pepper, Brazilian pepper, coastal wattle, pine trees, and palms, as directed by PVPLC staff in coordination and approval and approval by the city. The initial weed control effort will involve a combination of manual, mechanical, grazing, cultural and chemical treatments. Prior to the installation of native plant materials, “grow and kill” weed removal treatments should be conducted by allowing non-native seedling emergence in the winter and spring. When weeds have begun to grow, and before they begin to develop flowers or flowering structures, a treatment option will be implemented to kill target weeds. If adequate rainfall occurs during this period, multiple grow-kill cycles should be repeated. The restoration ecologist will provide weed control recommendations to the restoration maintenance staff that are specific to the target weed species identified for control.

Irrigation Plan

A temporary irrigation system will be installed to provide supplemental watering when natural precipitation rates are inadequate for plant establishment. The temporary, above ground watering system will have a point of connection at the eastern boundary near Narcissa Drive. The irrigation will be placed above ground for easy removal when plants have been determined to be established and supplemental watering is no longer needed. The conceptual route for the main line is shown in Figure 4. A drip system will be used for this project and will consist of .9gph emitters throughout the restoration locations.

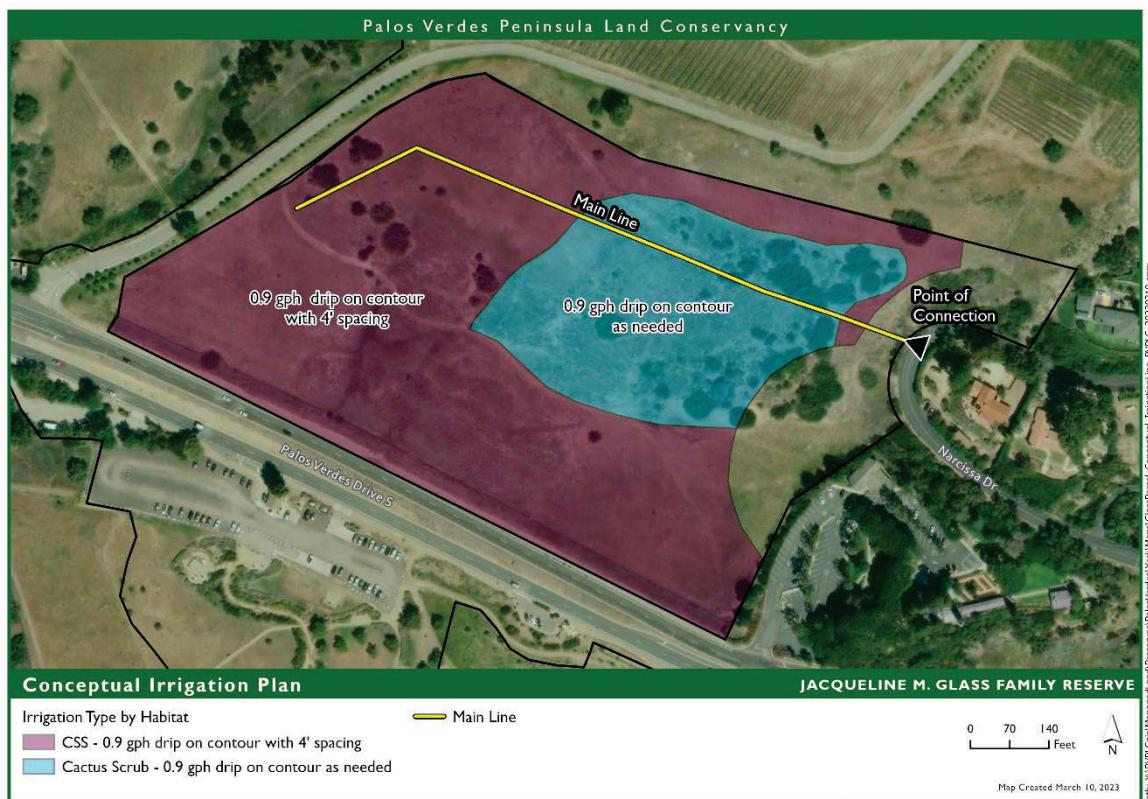


Figure 4

Table 3

Preliminary Restoration Project Schedule	
Task	Date
Invasive weed species control, grow-kill cycles, and brush removal	Spring of first and second year
Installation of supplemental watering system	Summer of first year
Planting of container stock	Fall and early winter of second year
Seed Application	Fall and early winter of 3rd year
Monitoring and Maintenance	To begin upon 1 year after successful installation of container plants for five years

General Habitat Maintenance Guidelines

Weed Control

Weeds are expected to be the primary pest problem in the restoration area during the first several years of the maintenance period. Weeds should be controlled so they do not prevent the establishment of the native species or invade adjacent areas. A combination of physical removal, mechanical treatments (weed whipping) and appropriate herbicide treatments should be used to control the non-native/invasive plant species. Weeds should be controlled prior to setting seed, and should be removed from the site if they become large enough to block sunlight to developing native plants.

Re-establishment of non-native plants onto the site can be adequately minimized by regular and timely maintenance visits with implementation of effective weed control measures. Weed control will require constant diligence by the maintenance personnel. Invasive plant species, such as those listed in Table I should be controlled wherever possible within the restoration area. Mature invasive tree species will be retained at the discretion of the PVPLC though the majority of individuals should be removed to reduce the spread of weed propagules.

Removal of weeds by hand where practicable and effective is the most desirable method of control and should be done around individual plantings and native seedlings to avoid inadvertent damage to the native species. However, several of the invasive species may be more effectively controlled with herbicide due to their tenacious and spreading root systems, their size, or their ability to re-sprout from root fragments. All herbicides shall be used in accordance with label instructions, following the recommendations of a licensed Pest Control Advisor, and any application shall be applied under the direction of a state-certified Qualified Applicator. The project's restoration ecologist should monitor control efforts to ensure that the target weed species are being adequately addressed without impacting the native plants.

The non-native Bagrada bug (*Bagrada hilaris*) has been documented on the Palos Verdes Peninsula, and is known to cause substantial damage to plant species from the mustard family (Brassicaceae) (County of Los Angeles 2013; University of California, Riverside 2013). As black mustard is one of the predominant species within the proposed coastal sage scrub restoration area, the Bagrada bug may occur; however, it is expected that the damage caused by this insect would be to non-native mustard species, and not native plants. Despite this, if the species becomes problematic as a pest species on the native plants, then the restoration ecologist will evaluate whether or not control measures are necessary. Similarly, if other deleterious pests (e.g., beetles on bladderpod) become problematic enough to cause container plant mortality, the restoration ecologist may recommend measures to minimize pests and promote healthy plant establishment.

Supplemental Watering System

Supplemental watering will be provided for three to five years after planting to help the container plants become established. Supplemental watering will be provided through a drip irrigation system. Supplemental watering would likely be necessary every 3–4 weeks during the dry season, and more frequently immediately after installation if natural rainfall does not provide adequate moisture. If a temporary, on-grade supplemental watering system is installed in the

restoration area, it would need to be maintained and repaired as necessary.

The watering system shall be checked regularly to ensure proper operation and adequate coverage of the restoration areas. Problems with the watering system shall be repaired immediately to reduce potential plant mortality or erosion. The frequency and duration of irrigation applications shall be adjusted seasonally in coordination with the Conservation Director to meet habitat needs.

Supplemental watering will be terminated when deemed appropriate by the Conservation Director. All above-ground components of the watering system should be removed from the site at the successful completion of the project and determined by the Conservation Director.

Clearing and Trash Removal

Trash consists of all man-made materials, equipment, or debris dumped, thrown, washed into, or left within the restoration area. Pruning or clearing of native vegetation is not anticipated to be necessary within the restoration area, unless extensive growth is causing a maintenance problem for a utility or for an area outside of the restoration area. Any pruning or clearing of native vegetation should be approved by the project's restoration ecologist. Deadwood and leaf litter of native vegetation will be left in place to replenish soil nutrients and organic matter

Monitoring Plan

Monitoring of the restoration site has a two-fold purpose: (1) To monitor the progress of the Glass Reserve restoration areas by assessing native habitat establishment relative to the established performance standards; and (2) To direct and monitor the maintenance activities and determine remedial actions in a manner that ensures that appropriate maintenance occurs in a timely manner. The monitoring will be performed by the project's restoration ecologist.

The project's restoration ecologist will be responsible for monitoring activities of all the work crews during preparation of the restoration area including site clearing and soil preparation, weed control, container plant and seed application, and monitoring for the duration of the 5-year maintenance and monitoring period.

Reports will be prepared annually for the restoration areas after installation is complete. Each report will include qualitative data, photo documentation, and future recommendations for site maintenance as described below and will be included in the Palos Verdes Nature Preserve Annual report.

Performance Standards

Performance standards have been established for the habitat restoration area based on the guidelines in the NCCP/HCP and on expected vegetative development relative to undisturbed habitat of the same type (Table 4). The following performance standards apply to the Glass Reserve restoration site:

1. Soil at the site is stable and shows no significant erosion.
2. After five years, non-native plant cover is less than 25% with less than 15% cover of invasive perennial species. After five years, there will be no presence of species on Cal-IPC List A with the possible exception of Cal-IPC List A non-native annual grasses.
3. Native plant cover after three years in the CSS community should be greater than 40% with at least 30% cover from perennial species. At five years, total native cover should be greater than 50% with appropriate species diversity.
4. Native plant cover after three years in the cactus scrub community should be greater than 30% with at least 20% cover from perennial species and 5% cover from cactus species. Native plant cover after five years in the cactus scrub community should be greater than 40% with at least 10% cover from cactus.

Table 4
Performance Standards

Year	Percent Cover of Native Species (%)*)		Non-native Cover (for all habitat types)	
	Coastal Sage Scrub	Cactus Scrub	Invasive Perennial Species Cover	Total Non-native Species Cover
Year 3	>40% (>30% perennial)	>30%(>20% perennial and >5% cacti)	<15% (0% of Cal-IPC List A)*	<25%
Year 5	>50%	>40% (>10% cacti)	<15% (0% of Cal-IPC List A)*	<25%

*The NCCP success criteria allow an exception to the requirement for 0% Cal-IPC List A for non-native annual grasses. In other words, Cal-IPC List A grass species would not count toward the 0% criteria, but would count toward the 25% criteria for total non-native species cover.

The Year 3 performance standards will be utilized to assess the annual progress of the restoration area, and are regarded as interim project objectives designed to reach the final Year 5 goals. Fulfillment of these standards will indicate that the restoration area on the project site is progressing toward the habitat type and functions that constitute the long-term goals of the plan.

If the restoration efforts fail to meet the performance standards in any year, the project's restoration ecologist may recommend remedial action to be implemented the following year with the intent to enhance the vegetation to a level of conformance with the original standard. These remedial actions may include re-seeding, re-planting, applying soil amendments, additional weed control measures, erosion control, or adjustments to the watering and maintenance practices.

Monitoring Methodology and Schedule

Annual qualitative assessments will be conducted through visual analysis of the restoration area to assess vegetation development, weed presence, and plant establishment. Qualitative monitoring will include reviewing the health and vigor of container plants and seed germination/establishment, assessing survival/mortality, checking for the presence of pests and disease, soil moisture content, and the effectiveness of the supplemental watering, erosion problems, invasion of weeds, and the occurrence of trash and/or vandalism. Representative photographs of the restoration site from stationary photo points will be taken annually.

Permanent vegetation sampling sites will be established within the coastal sage scrub and cactus scrub restoration areas at randomized representative locations. A minimum of one transect will be established for each two acres of restoration area, and at least one transect for each habitat type. Transect data will be collected in Years 3 and 5 from the restoration sites in the spring and will be used to determine compliance and achievement of the restoration performance standards. Transect data will be collected using the point-intercept method to determine percent target vegetation cover and weed cover. If the restoration project is in compliance with the Year 5 performance standards in an earlier monitoring period, then qualitative assessments may be substituted for the quantitative monitoring until the end of

the 5- year restoration program. If the restoration site is performing below the interim performance standards, the project's restoration ecologist will determine if remedial measures are necessary.

Each monitoring visit will be followed by a summary of observations, recommendations, and conclusions. Results from the annual monitoring will be used to evaluate the progress of each habitat toward the ultimate goals of the project, and to recommend appropriate management actions.

Monitoring Reports

The designated restoration ecologist will monitor and report on the restoration work underway in the Glass Reserve. The restoration area will be monitored for five years, with reports prepared in Years 1-3 and Year 5. Monitoring reports should provide concise, meaningful summaries of the restoration progress and provide direction and maintenance recommendations for future work.

Annual reports will include the following:

1. A description of the restoration and maintenance activities (e.g., seeding, irrigation, weed control, trash removal) conducted on the site during the previous year including the dates the activities were conducted.
2. A description of existing conditions within the restoration site, including descriptions of vegetation composition, weed species, and erosion problems, if any.
3. Qualitative and quantitative monitoring data related to proposed target goals including a comparative analysis of data over the years the project has been monitored.
4. Recommendations for remedial measures to correct problems or deficiencies, if any.
5. Representative photographs of notable observations on site and from fixed photo viewpoints.

Project Conclusion

At the end of the 5-year monitoring period, a final report will be prepared by the restoration ecologist for submittal to PVPLC. The final report will summarize the project relative to project goals. Upon completion, the habitat restoration will be managed along with other habitat restoration in the Palos Verdes Nature Preserve by the Land Conservancy.

APPENDIX B

2023 RESTORATION MONITORING REPORT

In 2023, vegetation surveys were conducted at restoration sites within currently-managed NCCP/HCP restoration projects located at Alta Vicente and Abalone Cove Reserves to quantify establishment of native plant habitat through measurements of estimated percent cover of native and non-native plants, litter, and bare ground. This data is used to evaluate the success of restoration based on the goals determined in each site-specific restoration plan. Transect status relative to success criteria measures for each Reserve can be found in Tables 2 and 4. Photopoint documentation of all restored areas continued, including a photo at each monitoring transect can be found in Appendix B-1.

1.0 ALTA VICENTE SURVEY METHODS

Restored habitat areas were surveyed through qualitative and quantitative vegetative assessment techniques along 50-meter permanent transect lines (location of transects: Figure 1) within three habitat types (coastal sage scrub, cactus scrub, and Palos Verdes blue butterfly habitat). Transects were surveyed in July 2023 by PVPLC Biologist Olivia Jenkins. Success criteria was assessed using qualitative methodology (CNPS Rapid Vegetation Assessment Method) in monitoring Years 1 and Year 2 and with quantitative methodology (point-intercept method) in Years 3 and 5. Photopoints were collected in all monitoring years. Areas that had not achieved success by Year 5 according to criteria, were assessed using qualitative methods to determine overall plant health for the restored area. Qualitative measurements of percent cover for native, non-native, species-specific, and bare/litter categories were collected through use of an adapted form of the CNPS Rapid Vegetation Assessment Method. Quantitative measurements of percent cover and plant size (height and width) were collected using the point-intercept method on a 50m transect to evaluate restoration success based on set criteria for Year 3 and Year 5 after planting. Photopoints were taken at both ends of permanent monitoring transects to aid in the assessment of plant health and establishment. Transects not meeting success criteria by Year 5 (end of required monitoring period) were monitored using qualitative measures to assess plant percent cover and overall recovery of the habitat within a 10-meter buffer of the transect.

1.1 ALTA VICENTE PHASE 1 AND 2 SURVEY RESULTS (YEAR 13)

PVB Butterfly Habitat

Two monitoring transects (AV-2 and AV-5) were surveyed within the PVB butterfly habitat of Phase 2 restored areas. AV-2 was surveyed within the PVB habitat of Phase 2 restoration following a relocation from Phase 1. Qualitative survey methods (CNPS Rapid Vegetation Assessment Method) found percent cover of native plant species to be 71%, an increase from 51% in 2022, and 1% cover by PVB host plants, a slight increase from 0.5% in 2022 (Table 1). Native plant cover is within the success criteria range for Year 5+ goals but host plant cover falls below the minimum of 10% coverage goal for Year 5+ (Table 2).

At transect AV-5, native vegetation cover was 73%, including 2% cover by PVB host plants. In 2022, native cover was at 50% and PVB host plant cover remained the same at 2% (Table 1). Qualitative assessments indicate that habitat along AV-5 is within success criteria goals for native cover but the host plant cover falls below Year 5+ goals (>10% coverage from *Acmispon glaber* and/or *Astragalus trichopodus*) (Table 2).

Coastal Sage Scrub

All Cactus Scrub transects in Phase 1 and 2 were removed from monitoring activities after achieving success criteria in 2020 or earlier.

Cactus Scrub

All Cactus Scrub transects were removed from monitoring activities after achieving success criteria in 2018 or earlier.

I.2 ALTA VICENTE SURVEY RESULTS PHASE 3 (YEAR 6)

All CSS transects passed success criteria in 2022 or earlier and were removed from annual monitoring.

I.3 ALTA VICENTE SURVEY RESULTS PHASE 4 (YEAR 5)

Phase 4 restoration in Alta Vicente was monitored in July 2023 (Year 5) using qualitative monitoring methods (Table 1) and quantitative point-intercept monitoring methods.

Coastal Sage Scrub

In 2023, two coastal sage scrub transects were surveyed using qualitative and quantitative methods. Transect AV-9 increased from 40% native plant cover in 2022 to 68% in 2023. Transect AV-10 increased from 37% native cover in 2022 to 76% in 2023. Both AV-9 and AV-10 met success criteria for Year 5 (>50% native cover) on schedule.

Butterfly Habitat

In 2023, one butterfly habitat transect (AV-11) was monitored using qualitative and quantitative methods. Native plant cover in AV-11 was estimated at 53% (Table 1). AV-11 included 0% cover of PVBB host plant *A. trichopodus* var. *lonchus* and 15% cover of El Segundo blue butterfly (ESB) host plant *E. parvifolium*. AV-11 had 17% cover of non-native plants including 7% non-native grass species. AV-11 met success criteria for native cover (30-70%) and ESB hostplant cover, but fell short of PVB host plant cover (>10%). AV-11 also fell within the 10-50% max native shrub cover success criteria.

Cactus Scrub

In 2023, Cactus Scrub transect AV-12, located on a south-facing slope, was monitored using qualitative and quantitative methods. Transect AV-12 increased from 43.5% relative cover of native plants in 2022 to 62% in 2023 (Table 1). This transect met Year 5 success criteria for overall native plant cover (>30%) and exceeds the >10% cactus cover criteria at 14% native cactus cover, an increase from 12% the previous year (Table 2).

1.4 ALTA VICENTE CONCLUSIONS AND RECOMMENDATIONS

In 2023, Palos Verdes Blue Butterfly were observed during flight season in Phases 1-3 in Alta Vicente, pointing to the success of restoration and maintenance efforts.

Coastal sage scrub restoration areas in all Phases increased in total estimated native cover and met success criteria standards for Year 5 (Tables 1 and 2). The most recent Phase 4 CSS habitat met success criteria for the first time on schedule, where perennial sage scrub species such as *Artemisia californica* and *Salvia spp.* appear to be well established and in good health. We recommend maintenance continue as usual including regular non-native annual grass weeding and trimming of native woody shrubs to prevent encroachment onto other native plants.

The cactus scrub habitat areas in Phase 1, 2 and 3 remain in good health and were not monitored in 2023, as they have met success criteria for over 5 years. Phase 4 Cactus Scrub habitat met success criteria on schedule, as the cactus are slowly maturing. We recommend maintenance continue as usual, including regular non-native plant weeding and potential supplemental watering.

Butterfly habitat in Phase 4 did not meet success criteria at the time of survey. It is important to note that a healthy population of *A. trichopodus* was observed earlier in the season during annual PVB surveys March-April, and died back before the annual vegetation survey was performed. Multiple PVB were observed in Phases 4 near the butterfly transect. Therefore, it is likely this restoration area is more suitable than the results suggest. Phase 4 will continue to be maintained to have gaps in CSS, which are essential for PVB host plant growth.

Similar to last year, Phase 1 and 2 butterfly habitat did not have sufficient host plant percent cover to meet the Year 5 success criteria. Native plant cover increased in both Phase 1 and 2 butterfly habitats since the previous year. Therefore, recommendations for this area are the same as Phase 4 butterfly habitat. Despite considerable infill planting and consistent non-native removal since restoration began in 2010, butterfly habitat in these areas remains at a low percent cover compared to Phase 3 and 4 butterfly habitat sites. This suggests that AV-2 and AV-5 habitat areas may not have proper environmental conditions for butterfly host plant to thrive and meet the success criteria. Still, weeding efforts and monitoring of this site will continue until decided otherwise. It is recommended that weed removal be more frequently implemented at PVB host

plant restoration sites than other perennial dominated habitat types. Any infill planting that needs to occur in these areas should be solely PVB and ESB host plant species. We recommend continued implementation of disturbance regimes, alongside weeding projects, which the PVB hostplant require for proper growth.

2.0 ABALONE COVE SURVEY METHODS

Restored habitat areas were surveyed through qualitative and photographic vegetative assessment techniques along 50-meter permanent transect lines. Phase 1 and Phase 2 were surveyed in May and June of 2023 by PVPLC Biologist Olivia Jenkins. Success criteria was assessed using qualitative methodology (CNPS Rapid Vegetation Assessment Method) in monitoring Years 1, as well as Year 2, and will be monitored with quantitative methodology (point-intercept method) in Years 3 and 5. Photopoints were collected in all monitoring years. Areas that do not achieve success by Year 5 according to criteria, are assessed using qualitative methods to determine overall plant health for the restored area. Qualitative measurements of percent cover for native, non-native, species-specific, and bare/litter categories were collected through use of an adapted form of the CNPS Rapid Vegetation Assessment Method.

Quantitative measurements of percent cover and plant size (height and width) will be collected using the point-intercept method on a 50m transect to evaluate restoration success based on set criteria for Year 3 and Year 5 after planting. Photopoints will be taken at both ends of permanent monitoring transects to aid in the assessment of plant health and establishment. Transects not meeting success criteria by Year 5 (end of required monitoring period) will be monitored using qualitative measures to assess plant percent cover and overall recovery of the habitat within a 10-m buffer of the transect. Locations of monitoring transects can be found in Figure 2.

2.1 ABALONE COVE SURVEY RESULTS FOR PHASE 1 (YEAR 3)

In Phase 1 restoration areas, qualitative surveys were performed in CSS habitat (AC-1, AC-2) and Mulefat Scrub (AC-3).

Coastal Sage Scrub

For Year 3 of Phase 1, native CSS cover increased from 50% in 2022 to 65% in 2023 and met Year 3 success criteria (Tables 3, 4). Notably, 20% of the native cover included a healthy host plant *A. trichopodus* population. Transect AC-2 also surpassed this Year 3 success criteria at 65% total native cover. Non-native cover was estimated at 3% on average in both CSS transects, largely due to consistent weed management (Table 5).

Mulefat Scrub

For Year 3 of Phase 1, the total native plant cover in Mulefat Scrub transect AC-3 was 72% and non-native cover was estimated at 3%, meeting Year 3 success criteria on schedule (Table 5). Notably, native vegetation included 15% *Baccharis salicifolia* and 15% *Sambucus cerulea*.

2.2 ABALONE COVE SURVEY RESULTS FOR PHASE 2 (YEAR 2)

In Phase 2 restoration areas, qualitative surveys were conducted in Cactus Scrub (transect AC-4) and CSS habitat (transects AC-5 and AC-6).

Cactus Scrub

For Phase 2, the total native plant cover in Cactus Scrub habitat was estimated to be 40%, an increase from 29% in 2022 (Table 3). Transect AC-4 had 7% cacti cover, and 7% non-native cover. Ahead of schedule, this transect exceeded the Year 3 success criteria of >30% native Cactus Scrub cover, including and >5% cacti cover, and <25% non-native cover.

Coastal Sage Scrub

For Phase 2, transect AC-5 had 60% native CSS cover and 5% non-native cover, meeting Year 3 success criteria (>40% CSS cover) one year early (Tables 3, 4). AC-6 also met success criteria with 51% native cover, a significant increase from 31% native cover in 2022. AC-6 also had 5% host plant cover (*A. trichopodus*).

2.3 ABALONE COVE SURVEY RESULTS FOR PHASE 3 (YEAR 1)

Two transects were established and monitoring for the first time in Phase 3. Both the CSS and Cactus scrub habitats passed early or are on schedule to pass success criteria.

Coastal Sage Scrub

Transect AC-7 in Phase 3 passed success criteria with 58% CSS cover, and 3% non-native cover (Tables 3, 4).

Cactus Scrub

Transect AC-8 in Phase 3 is on track to meeting success criteria, with 3% native cacti cover, 32% total native cover, and 3% non-native cover (Tables 3, 4).

2.4 ABALONE COVE CONCLUSIONS AND RECOMMENDATIONS

Phase 1, 2, and 3 within the restored habitat of Abalone Cover were qualitatively evaluated for success criteria in 2023. These areas were monitored under qualitative evaluation Year 1, 2, and 3.

Phase 1 restoration area native cover has increased significantly from 2022 and all habitats met Year 3 success criteria. Phase 2 restoration areas also met Year 3 success criteria on schedule. Phase 3 restoration areas are on schedule to meeting Year 3 success criteria already at Year 1. Success of all phases can be largely attributed to regular non-native removal and efficient irrigation.

It is recommended that areas throughout all this and all future phases continue to receive non-native plant control and supplemental irrigation when necessary, to maintain positive native plant growth and establishment.

Table 1. Alta Vicente Qualitative Vegetation Assessment (Phases 1, 2, and 4): Percent cover along each 50m transect as observed along 10m swath on each side of the transect

Species	Phase 1+2		Phase 4			
	AV-2 (Butterfly)	AV-5 (Butterfly)	AV-9 (CSS)	AV-10 (CSS)	AV-11 (Butterfly)	AV-12 (Cactus Scrub)
Acmispon glaber*					0 ****	
Amsinckia menziesii	10					
Artemesia californica	12	20	20	20	15	15
Astragalus trichopodus**	0 ****	2	0.5		0 ****	
Baccharis pilularis			0.5			0.5
Brickelia californica			0.5	3		
Corethrogynne filaginifolia				0.5		
Cylindropuntia prolifera						2
Dudleya sp.					0.5	0.5
Encelia californica	5	20	20	7	5	2
Eriogonum cinereum	15	5	1	10		
Eriogonum fasciculatum						
Eriogonum parvifolium***	1	0 ****	12	5	15	5
Hazardia squarrosa						
Heteromeles arbutifolia	2				1	2
Isocoma menziesii var.			5	5	1	2
Leymus condensatus	0.5			1		
Malosma laurina	0.5					5
Mirabilis laevis	1	1				
Opuntia littoralis/oricola	3		0.5			12
Peritoma arborea	1	1		2		10
Rhus integrifolia	5	5		5	3	3
Salvia leucophylla	5	10	7	12	7	
Salvia mellifera	10		1	5	2	3
Sambucus cerulea					1	
Stipa sp.	2	3			2	
Total Native Cover	73	67	68	75.5	52.5	62
NNAG	5	5	1	1	7	5
NNP	7	5	3	1	10	10
Total Non-native Cover	12	10	4	2	17	15
Bare	3	3	3	2	3	3
Litter	12	20	25	20	27	20
Total Bare and Litter	15	23	28	22	30	23
Total Plant Cover	85	77	72	77.5	69.5	77

*Palos Verdes Blue butterfly host plant

** El Segundo Blue and Palos Verdes Blue Butterfly host plant

*** El Segundo Blue butterfly host plant

****Present earlier in the season, died back by the time survey was performed

Table 2: Alta Vicente Restoration Success Criteria and Transect Status

Success Criteria						
		Percent Cover of Native Species (%)*			Percent Cover of Non-native Species (%) for all habitat types*	
Preserve	Year	Coastal Sage Scrub	Cactus Scrub ¹	Blue Butterfly Habitat ²	Invasive Perennial Species**	Total Non-native Species**
Alta Vicente	Year 5	>50%	>40%	30%-60%	<15% (0% of Cal-IPC List A)**	<25%

* Percentage based on visual estimates.

** The NCCP success criteria allow an exception to the requirement for 0% Cal-IPC List A for non-native annual grasses. In other words, Cal-IPC List A grass species would not count toward the 0% criteria, but would count toward the 25% criteria for total non-native species cover.

¹ Percentage coverage of cactus species should be at least 1% for Year 1, 3% for Year 2, 5% for Year 3, and 10% for Year 5.

² From Year 3 on, there should be at least 10% coverage from A. glaber and/or A. trichopodus and the woody shrubs should be sustained at 10-20%

CAL-IPC = California Invasive Plant Council

Transect Status Based on Success Criteria					
Phase 1+2 (Year 13)		Phase 4 (Year 5)			
AV-2 (Butterfly)	AV-5 (Butterfly)	AV-9 (CSS)	AV-10 (CSS)	AV-11 (Butterfly)	AV-12 (Cactus Scrub)
Did not meet host plant cover	Did not meet host plant cover	Pass (68%)	Pass (76%)	Did not meet 10% coverage from A. glaber and/or A. trichopodus at time of survey	Pass (14% native cactus cover)

Table 3. Abalone Cove Qualitative Vegetation Assessment (Phases 1 - 3): Percent cover along each 50m transect as observed along 10m swath on each side of the transect

Species	Phase 1			Phase 2			Phase 3	
	AC-1 (CSS)	AC-2 (CSS)	AC-3 (Mulefat Scrub)	AC-4 (Cactus Scrub)	AC-5 (CSS)	AC-6 (CSS)	AC-7 (CSS)	AC-8 (Cactus Scrub)
<i>Artemisia californica</i>	10	15	3	10	20	10	15	7
<i>Astragalus trichopodus</i> var. <i>lonchus</i> *	20	2	2	3	2	5	1	
<i>Baccharis pilularis</i>		7	2	1	1	5	7	
<i>Baccharis salicifolia</i>	5		15					
<i>Brickelia californica</i>	3	1			2	3		
<i>Corethryogyne filaginifolia</i>						0.5		
<i>Cylindropuntia prolifera</i>		0.5	2					1
<i>Dudleya</i> sp.							0.5	
<i>Encelia californica</i>	15	15	3	5	1	7	10	10
<i>Eriogonum cinereum</i>								
<i>Eriogonum fasciculatum</i>	2							
<i>Eriogonum parvifolium</i> **					2	7	2	0.5
<i>Isocoma menziesii</i> var. <i>sedoides</i>	2	10	1		12	1	7	3
<i>Leymus condensatus</i>		1				3		
<i>Malacothrix saxatilis</i>				1	1	0.5		
<i>Muhlenbergia rigens</i>			0.5					
<i>Opuntia littoralis</i>	1		1	7				3
<i>Peritoma arborea</i>					0.5	0.5		
<i>Rhus integrifolia</i>		0.5	25	3	2	5	7	7
<i>Salvia leucophylla</i>	5	12			15	2	5	
<i>Salvia mellifera</i>	2	1	1	10	1	1	3	
<i>Sambucus cerulea</i>			15					
<i>Solanum douglasii</i>			0.5				0.5	
<i>Verbena</i> sp			0.5					
Total % Native Cover	65	65	72	40	60	51	58	32
NNAG	0	0	0.5	2	0.5	2	0.5	0.5
NNP	3	3	3	5	5	5	2	3
Total % Non-native Cover	3	3	3.5	7	5.5	7	2.5	3.5
Bare	7	7	10	3	5	3	15	5
Litter	25	25	15	50	30	40	25	60
Total Bare and Litter	32	32	25	53	35	43	40	65
Total Plant Cover	68	68	75	47	65	58	61	35

* Palos Verdes Blue / El Segundo Blue Butterfly host plant

**El Segundo Blue Butterfly host plant

Table 4: Alta Vicente Restoration Success Criteria and Transect Status

Success Criteria						
		Percent Cover of Native Species (%) [*]			Percent Cover of Non-native Species (%) for all habitat types [*]	
Preserve	Year	Coastal Sage Scrub	Cactus Scrub [†]	Mulefat Scrub	Invasive Perennial Species	Total Non-native Species
Abalone Cove	Year 3	>40% (>30% perennial)	>30% (>20% perennial and >5% cacti)	>40%	<15% (0% of Cal-IPC List A)**	<25%

* Percentage based on visual estimates.

** The NCCP success criteria allow an exception to the requirement for 0% Cal-IPC List A for non-native annual grasses. In other words, Cal-IPC List A grass species would not count toward the 0% criteria, but would count toward the 25% criteria for

[†] Percentage coverage of cactus species should be at least 1% for Year 1, 3% for Year 2, 5% for Year 3, and

CAL-IPC = California Invasive Plant Council

Transect Status Based on Success Criteria						
Phase 1 (Year 3)			Phase 2 (Year 2)		Phase 3 (Year 1)	
AC-1 (CSS)	AC-2 (CSS)	AC-3 (Mulefat Scrub)	AC-4 (Cactus Scrub)	AC-6 (CSS)	AC-7 (CSS)	AC-8 (Cactus/bluff scrub)
Pass (65%)	Pass (65%)	Pass (72%)	Pass (40%)*	Pass (51%)*	Pass (58%)*	On Schedule (32%)**

*Transect passed ahead of schedule

**Transect passed the previous year's success criteria and is likely to pass the next success criteria year measurement based on relative percent coverage and qualitatively observed rate of growth

Figure 1. 2023 Alta Vicente Transect Monitoring Map

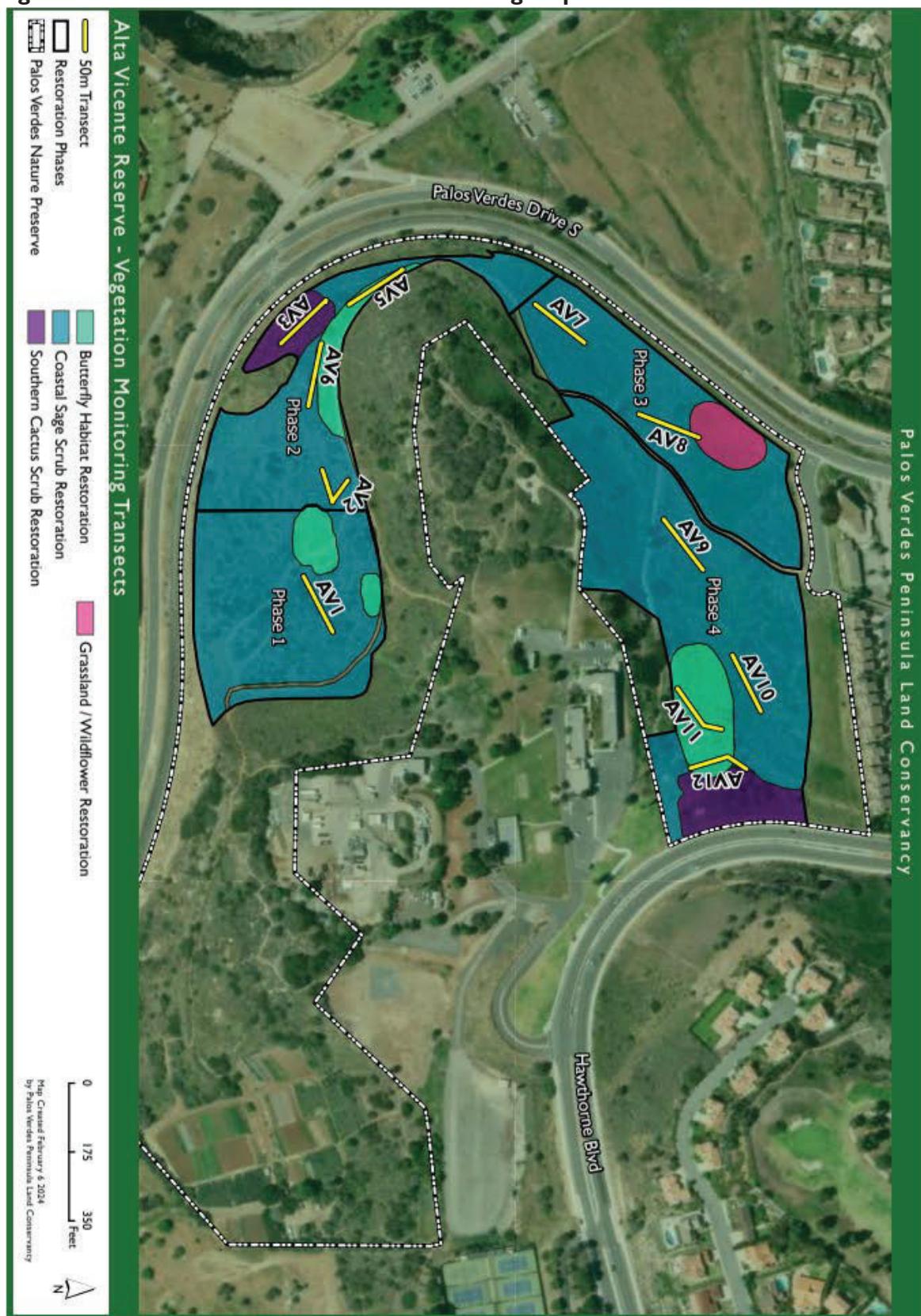
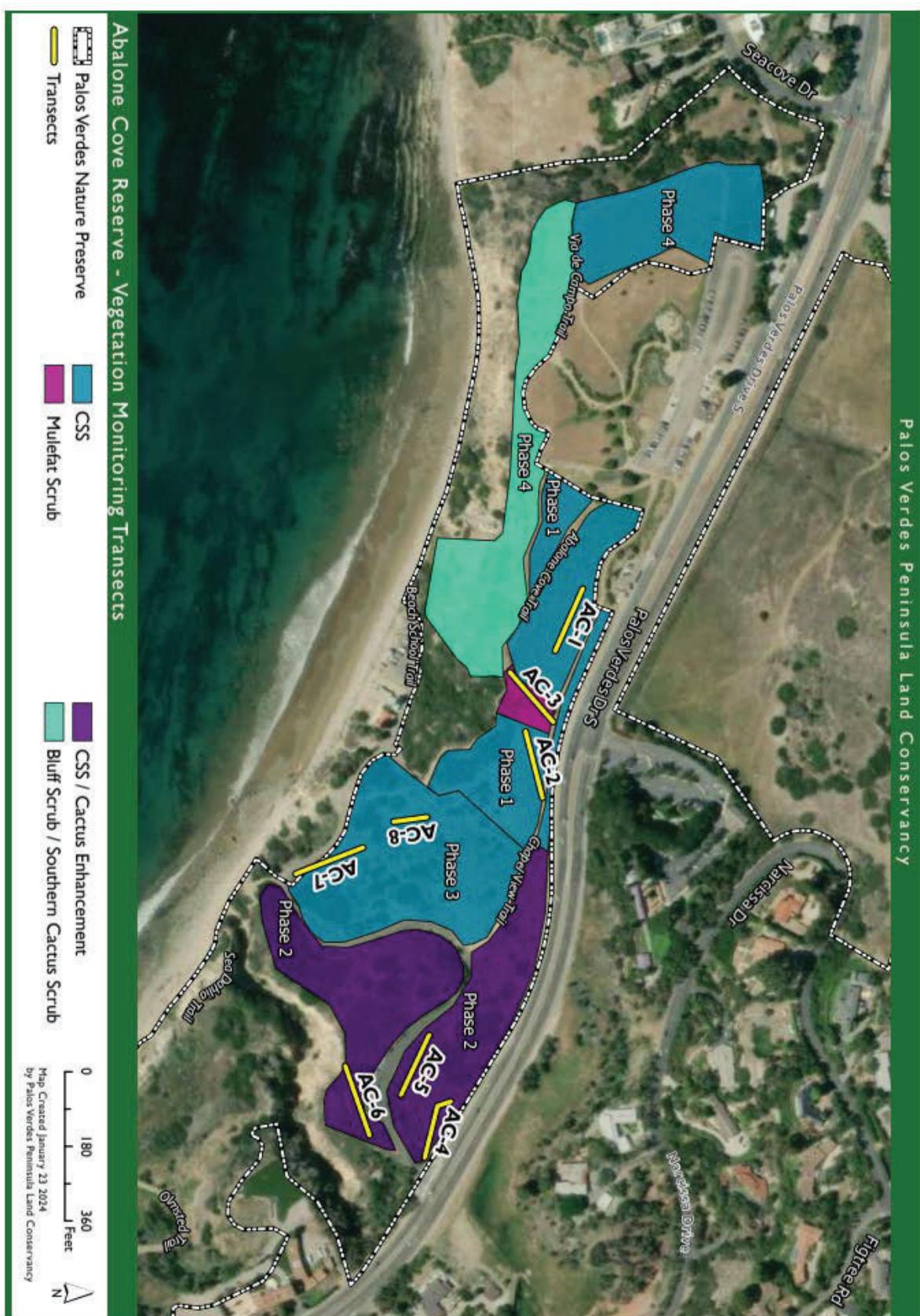


Figure 2. 2023 Abalone Cove Transect Monitoring Map



APPENDIX B

2023 RESTORATION MONITORING PHOTOS

Abalone Cove Transect Photo Documentation

Transects 1-6 Comparison 2022-2023

Photos taken June 2022

AC-1 2022



Photos taken May/June 2023

AC-1 2023



AC-2 2022



AC-2 2023



AC-3 2022



AC-3 2023



AC-4 2022



AC-4 2023



AC-5 2022



AC-5 2023



AC-6 2022



AC-6 2023



Transects 7-8 (First Monitoring Year)
Photos taken June 2023

AC-7 Start



AC-7 End



AC-8 Start



AC-8 End



Alta Vicente Transect Photo Documentation

Transect Comparison 2022-2023

Photos taken June/July 2022

AV-2 2022



Photos taken May/June 2023

AV-2 2023



AV-5 2022



AV-5 2023



AV-9 2022



AV-9 2023



AV-10 2022



AV-10 2023



AV-11 2022



AV-11 2023



AV-12 2022



AV-12 2023



APPENDIX C

HABITAT IMPACTS

Preserve Projects and Habitat Impacts Summary

PVPLC provided monitoring, consultation and documentation for 8 projects/impacts and 1 project completion from a previous 2022 project. Seven of those projects were documented as having impacts within the preserve and one outside of the preserve. Additionally, 7 CalWater habitat impacts due to land movement, were recorded.

Below are summaries of projects that had impacts to the Preserve or adjacent in 2023 and can be seen in Figures 1-7.

In April of 2023, the Land Conservancy met with City, County and Sanitation District representatives about a potential sewer leak and maintenance access in Agua Amarga. Recommendations on an access point within the established easement were provided. Due to the network of sewer manholes throughout the preserve, city representatives cut vegetation from an access point from a southeast location not within the easement. PVPLC measured those impacts and attended several meetings to understand the impacts associated with the projects. The total amount of impacts outside of the easement to coastal sage scrub was .2 acres and will be considered permanent since the locations will have to be cleared yearly to maintain access. As of the publication of this annual report, PVPLC is awaiting further information if further clearance or impacts are needed to facilitate maintenance of that sewer system and will report in the 2024 Annual Report. This project category is 14. Utility Maintenance and Repair.

In July of 2023, PVPLC was contacted by the City that the Los Angeles Fire Department Lifeguard unit needed to install a new lifeguard tower at Abalone Cove Beach and that impacts to the road would occur to bring in that structure. .03 acres of Coastal Sage Scrub habitat impacts were documented. Since the work mainly involved trimming shrubs, those would regrow into their original footprint and it will be considered temporary. This project category is 8. RPV Trails Plan Implementation.

Also in July of 2023, PVPLC was contacted by Terranea Resort about the need to remove habitat to meet fuel modification requirements from the LA County Agricultural Commissioner. PVPLC gave recommendations on prioritizing non-native species removal first and then targeting certain native species to meet the goals. The total impact to Coastal Sage Scrub was .001 acres.

Also in July of 2023, a vehicular accident occurred at Vicente Bluffs Reserve which resulted in a casualty. The vehicle crash and subsequent retrieval resulted in the impact of .007 acres of temporary impacts to grassland within the preserve. This unfortunate incident was an accident and will be followed up on in the 2024 Annual Report.

In August of 2023, a volunteer noticed an encroachment into the Forrestal Nature Reserve. PVPLC worked with the City's Code Enforcement Division and it was determined that .13 acres of Coastal Sage Scrub habitat had been impacted. However, because the habitat

loss occurred within a fuel modification zone, it will not be additionally deducted.

In November of 2023, as part of dewatering well construction by the Abalone Cove Landslide Abatement District (ACLAD), areas within Abalone Cove adjacent to Olmstead Trail were damaged. ACLAD initially met with PVPLC for a pre-construction walk in accordance with minimization measures. Additional impacts occurred during construction that were not discussed and .43 acres of Coastal Sage Scrub were impacted as well as covered species habitat. It is still being determined if the areas impacted will be permanent or temporary and as of the publication of this report, PVPLC is awaiting further information from ACLAD on how much of the impact footprint will need to be kept cleared indefinitely and will report in the 2024 Annual Report. This project category is 2. Dewatering Wells.

Also in November of 2023, as part of Klondike Canyon Landslide Abatement District (KCLAD) landslide abatement measures to fill a fissure, .16 acres of Coastal Sage Scrub habitat were impacted in Klondike Canyon, south Conqueror Trail. Further information is needed to determine if the area will need to be maintained indefinitely and to categorize this project as temporary or permanent. As of the publication of this report, PVPLC is awaiting further information and will report in the 2024 Annual Report. This project category is 2. Dewatering Wells.

In December of 2023, as part of dewatering well construction by ACLAD, areas within Abalone Cove Reserve adjacent to Beach School Trail were impacted. ACLAD initially met with PVPLC for a pre-construction walk in accordance with NCCP/HCP minimization measures. Additional impacts occurred during construction that were not discussed and .2 acres of Coastal Sage Scrub/Cactus Scrub habitat were impacted which included areas of known Palos Verdes blue butterfly and El Segundo blue butterfly occurrences. Further information is needed to determine if the areas impacted will be permanent or temporary impacts. PVPLC is also in communication to understand if further work and subsequent impacts need to occur in the area. As of the publication of this report, PVPLC has not received further information and will report in the 2024 Annual Report. This project category is 2. Dewatering Wells.

In 2021, fuel modification occurred in Malaga Canyon Reserve in areas that had not been managed before. By using goats, the City was able to reach steep slope areas that were included in the 200' fuel modification zones. Surveys were done after the project was completed with maps and acreage calculated. Since these additional sites had never been cleared, Coastal Sage Scrub was impacted resulting in the loss of 1.2 acres of habitat. The project category is 13. Preserve Fuel Modification.

Pending Projects:

A CalWater hydrant break near Burma Road in 2021 which caused significant damage to trails and habitat is still being assessed and worked on and is expected to be reported in the 2024 Annual Report.

In May of 2023, a water leak was noticed in Klondike Canyon. As part of the Klondike Canyon Landslide Abatement District (KCLAD) dewatering well infrastructure, clearing of vegetation was conducted North of Conqueror trail, to find and repair the leaking infrastructure. Repairs are still being made and impacts are expected to be reported in the 2024 Annual Report.

California Water Service Habitat Impacts

Throughout 2023, due to an increase in land movement, various failures to California Water Service (CalWater) infrastructure occurred. The City along with PVPLC worked as closely as possible to alert CalWater of breaks, implement emergency response and coordinating temporary repairs. Pressurized water flow has since been stopped east of Vanderlip Trail. With this adjustment to water flow, future breaks and impacts along the Burma Road main water line are not anticipated. Currently, the impacts are being considered as Temporary but further information is needed to understand if they should ultimately be classified as Permanent, especially when multiple breaks occur in the same vicinity. None of these projects were initially addressed in the NCCP/HCP so they may be charged a fee to be deposited in the habitat restoration fund. Also to note is that many projects began in 2023 and continued into 2024. If completed, those projects will be included in the 2024 Annual Reports Habitat Impacts. An estimated 1.11 acres of Coastal Sage Scrub and .15 acres of Grassland were impacted. Below is a summary of habitat impacts that occurred within the Preserve:

In April of 2023, a water line break occurred at Portuguese Bend Reserve near Burma Road Trail and Vanderlip Trail resulting in .43 acres of Coastal Sage Scrub habitat damage.

In August of 2023, a water line break occurred at Forrestal Reserve near Conqueror Trail resulting in .06 acres of Coastal Sage Scrub habitat damage.

In August 2023, a water line break occurred a Portuguese Bend Reserve in the area of Toyon /Landslide Scarp Trails resulting in .13 acres of Coastal Sage Scrub habitat impacts.

In August 2023, a water line break occurred at Portuguese Bend Reserve in the area of Barn Owl/Panorama Trails resulting in .06 acres of Coastal Sage Scrub habitat impacts.

In August 2023, a water line break occurred at Portuguese Bend Reserve, north of Gary's Gulch Trail resulting in the impact of .1 acre of Grassland habitat.

In November 2023, a water line break occurred at Portuguese Bend Reserve at Vanderlip Trail resulting in the impact of .05 acre of Grassland habitat.

Also in November 2023, a water line break occurred at Forrestal Reserve near Conqueror Trail resulting in .43 acres of Coastal Sage Scrub habitat impacts.

Habitat Impacts in the PVNP in 2023

Date	Project	Impact	Location	Vegetation Type	Size of Impact (acres)	Permanent or Temporary loss of habitat*	Project Category
April 2023	Agua Amarga Sewer Repair & Maintenance	Habitat damage to repair & maintain sewer line	Agua Amarga Canyon	Coastal Sage Scrub	.2 acres	Permanent*	14. Utility Maintenance & Repair
July 2023	Lifeguard Tower Installation	Habitat damage to install tower	Abalone Cove: Olmstead Trail	Coastal Sage Scrub	.03 acres	Temporary	8. RPV Trails Plan Implementation
July 2023	Terranea Fuel Modification	Habitat damage due to fuel modification	Terranea Resort (outside of preserve)	Coastal Sage Scrub	.001 acres	TBD	TBD
July 2023	Vehicular Accident	Habitat damage due to accident	Vicente Bluffs	Grassland	.007 acres	Temporary	17. Other Misc. City Projects
August 2023	Coolheights Encroachment	Habitat damage due to encroachment	Forrestal	Coastal Sage Scrub	.13 acres	N/A	N/A
November 2023	ACLAD Dewatering Wells	Habitat damage due to well construction	Abalone Cove: Olmstead	Coastal Sage Scrub: Covered Species	.43 acres	TBD	2. Dewatering Wells
November 2023	KCLAD Dewatering	Habitat damage due to drainage repair	Forrestal: Klondike Canyon South	Coastal Sage Scrub	.16 acres	TBD	2. Dewatering Wells

December 2023	ACLAD Dewatering Wells	Habitat damage due to well construction	Abalone Cove: Beach School Trail	Coastal Sage Scrub, Cactus Scrub & PVB/ESB Habitat: Covered Species	.2 acres	TBD	2. Dewatering Wells
2022	Malaga Canyon Fuel Mod	Habitat damage due to fuel modification	Malaga Canyon	Coastal Sage Scrub	1.2 acres	Permanent	13. Preserve Fuel Modification

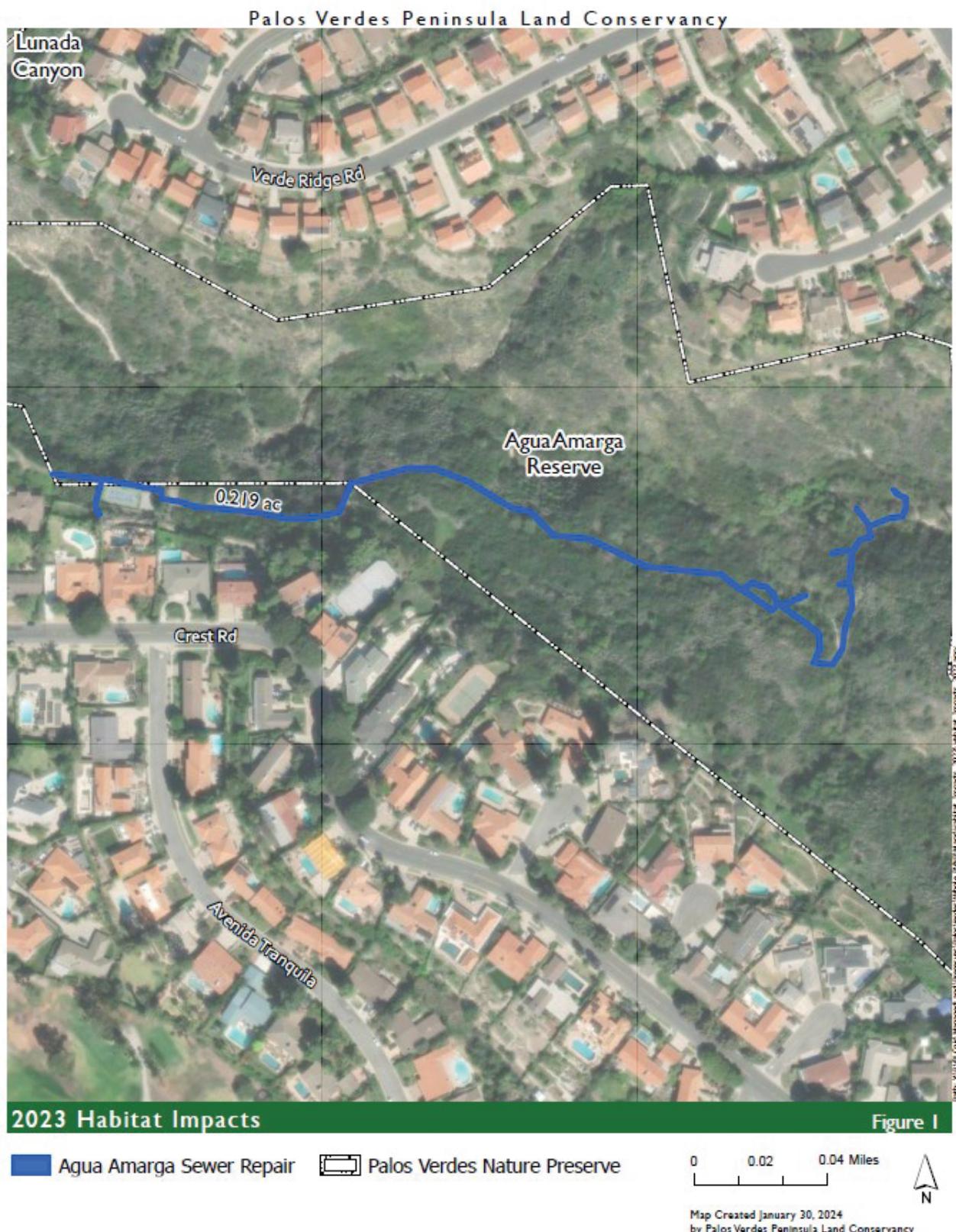
California Water Service Habitat Impacts							
Date	Project	Impact	Location and Vegetation Type	Vegetation Type	Size of Impact (acres)	Permanent or Temporary loss of habitat**	Project Category***
April 2023	Water Line Break	Habitat damage due to repetitive breaks and subsequent repairs	Portuguese Bend: Burma Road/Vanderlip Trail	Coastal Sage Scrub	0.43 acres	TBD	14. Utility Maintenance and Repair
August 2023	Water Line Break	Habitat damage to repair line damage	Forrestal: Conqueror Trail	Coastal Sage Scrub	.06 acres	TBD	14. Utility Maintenance and Repair
August 2023	Water Line Break	Habitat damage to maintain line	Portuguese Bend: Burma Road at Toyon/Landslide Scarp Trails	Coastal Sage Scrub	0.13 acres	TBD	14. Utility Maintenance and Repair
August 2023	Water Line Break	Habitat damage to repair line	Portuguese Bend: Burma Road at Panorama/Barn Owl Trails	Coastal Sage Scrub	0.06 acres	TBD	14. Utility Maintenance and Repair
August 2023	Water Line Break	Habitat damage to repair line	Portuguese Bend: North of Gary's Gulch Trail	Grassland	0.1 acres	TBD	14. Utility Maintenance and Repair
November 2023	Water Line Break	Habitat damage to repair line	Portuguese Bend: Vanderlip Trail	Grassland	.05 acres	TBD	14. Utility Maintenance and Repair
November 2023	Water Line Break	Habitat damage to repair line	Forrestal: Conqueror Trail	Coastal Sage Scrub	.43 acres	TBD	14. Utility Maintenance and Repair

*The City, PVPLC, USFWS, and CDFW are coordinating closely on landslide-related impacts and activities, and these loss tables are subject to change.

**Further information is needed to understand if these projects will be classified as Temporary or Permanent. An assessment should be completed by the 2024 Annual Report.

***There are currently 1.26 acres of habitat impacted by CalWater leaks and repairs within the landslide area. There are also currently 0.79 acres of habitat impacts caused by abatement district work in the landslide area. These habitat losses are currently categorized under the Utility Maintenance Project and Dewatering Wells Project categories, respectively and are subject to change.

Figures 1-7. Habitat Impacts in the PVNP in 2023



Palos Verdes Peninsula Land Conservancy



2023 Habitat Impacts

Figure 2

Olmstead Lifeguard Tower Installation
Abalone Cove Dewatering Wells (ACLD)

 Palos Verdes Nature Preserve

0 0.02 0.04 Miles

△
N

Map Created January 30, 2024
by Palos Verdes Peninsula Land Conservancy

Palos Verdes Peninsula Land Conservancy

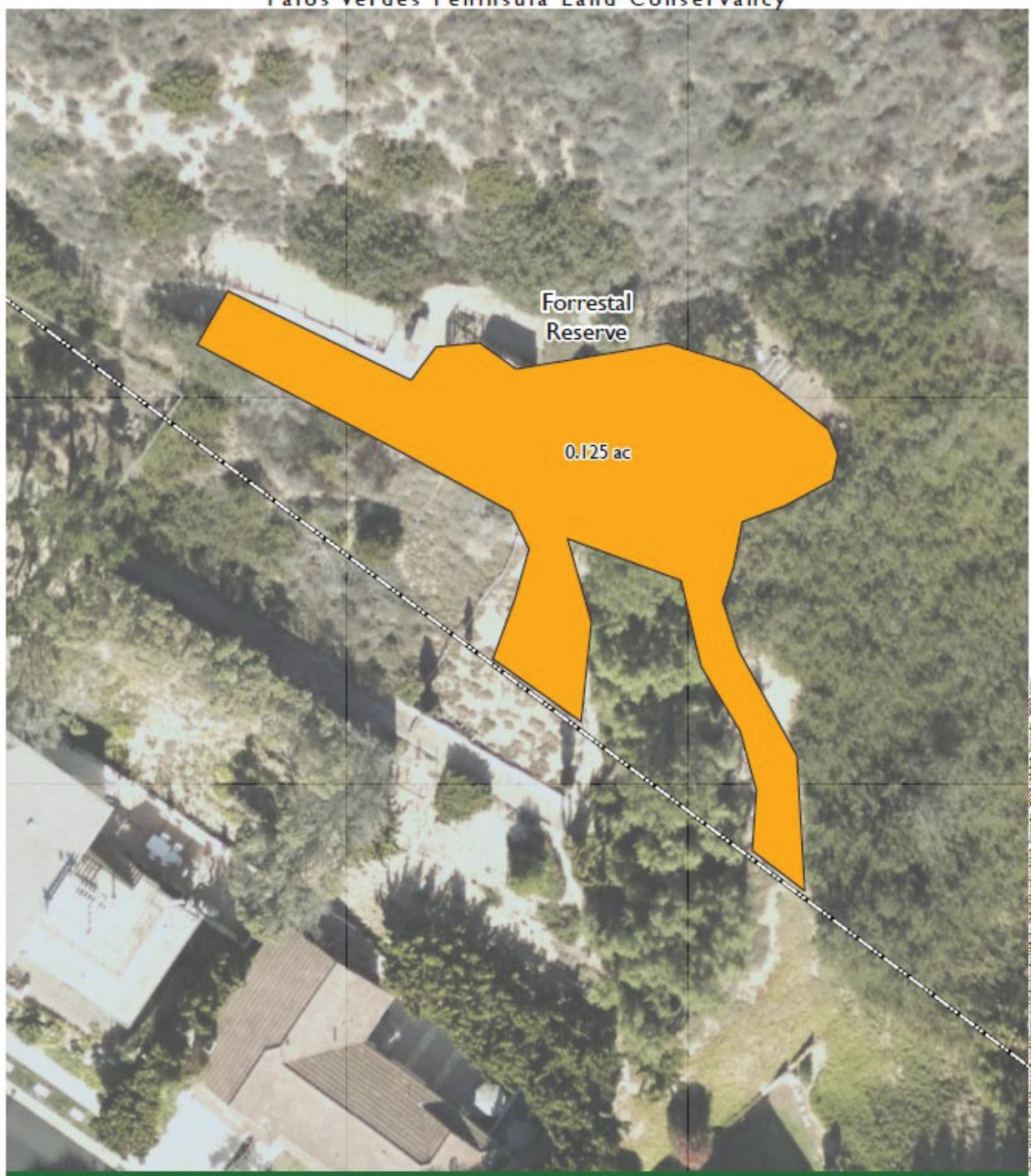


Figure 3

█ Coolheights Residential Encroachment █ Palos Verdes Nature Preserve

0 0 0.01 Miles 

DOI: 10.5093/palosverdes-2023-001

Palos Verdes Peninsula Land Conservancy



2023 Habitat Impacts

Figure 4

 Vicente Bluffs Vehicle Accident  Palos Verdes Nature Preserve

0 0 0.01 Miles 

Map Created January 30, 2024
by Palos Verdes Peninsula Land Conservancy



CalWater Service Repairs

Palos Verdes Nature Preserve

0 0.03 0.06 Miles



Map Created January 30, 2024
by Palos Verdes Peninsula Land Conservancy

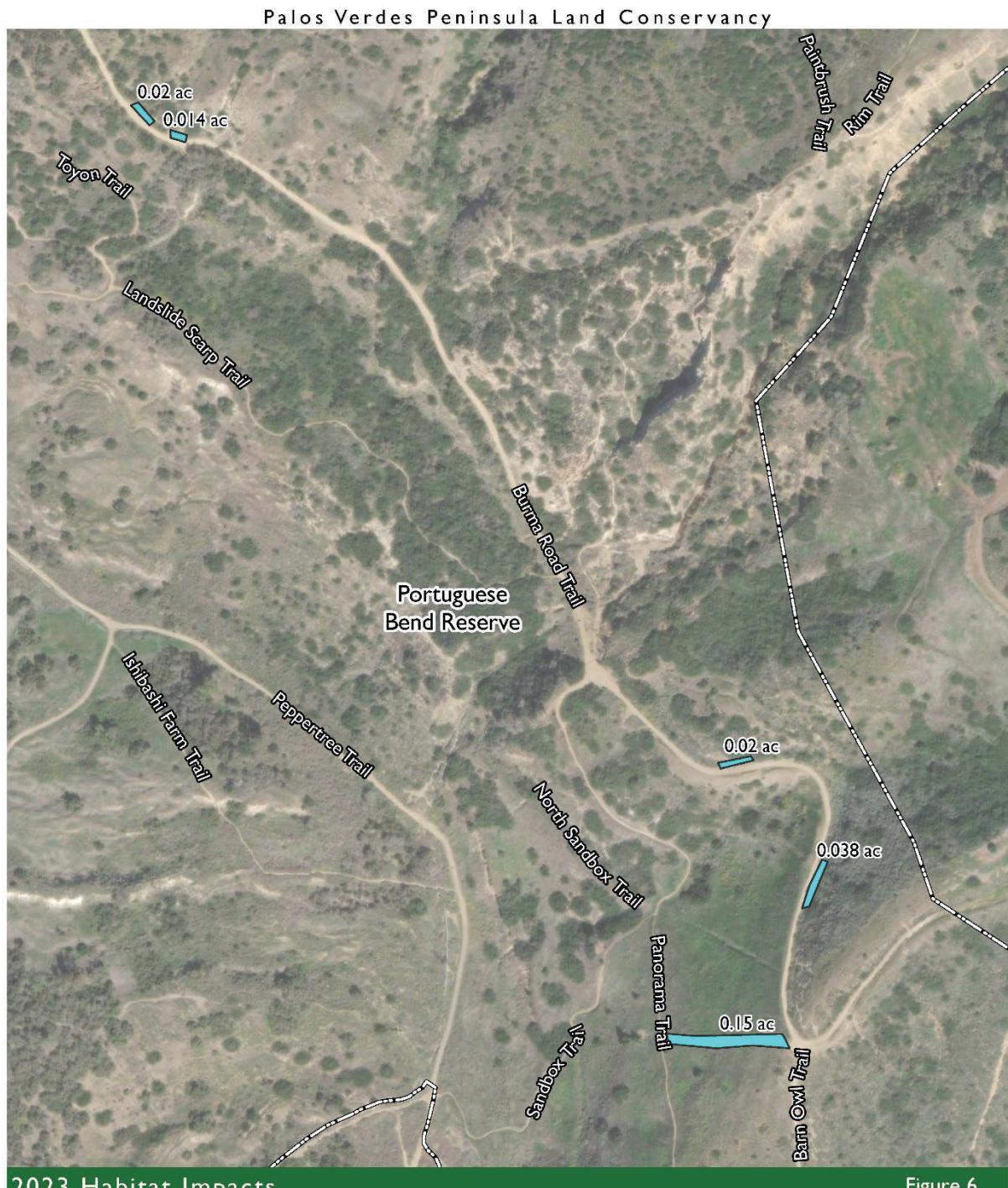


Figure 6

CalWater Service Repairs

Palos Verdes Nature Preserve

0 0.03 0.06 Miles
N

Map Created January 30, 2024
by Palos Verdes Peninsula Land Conservancy

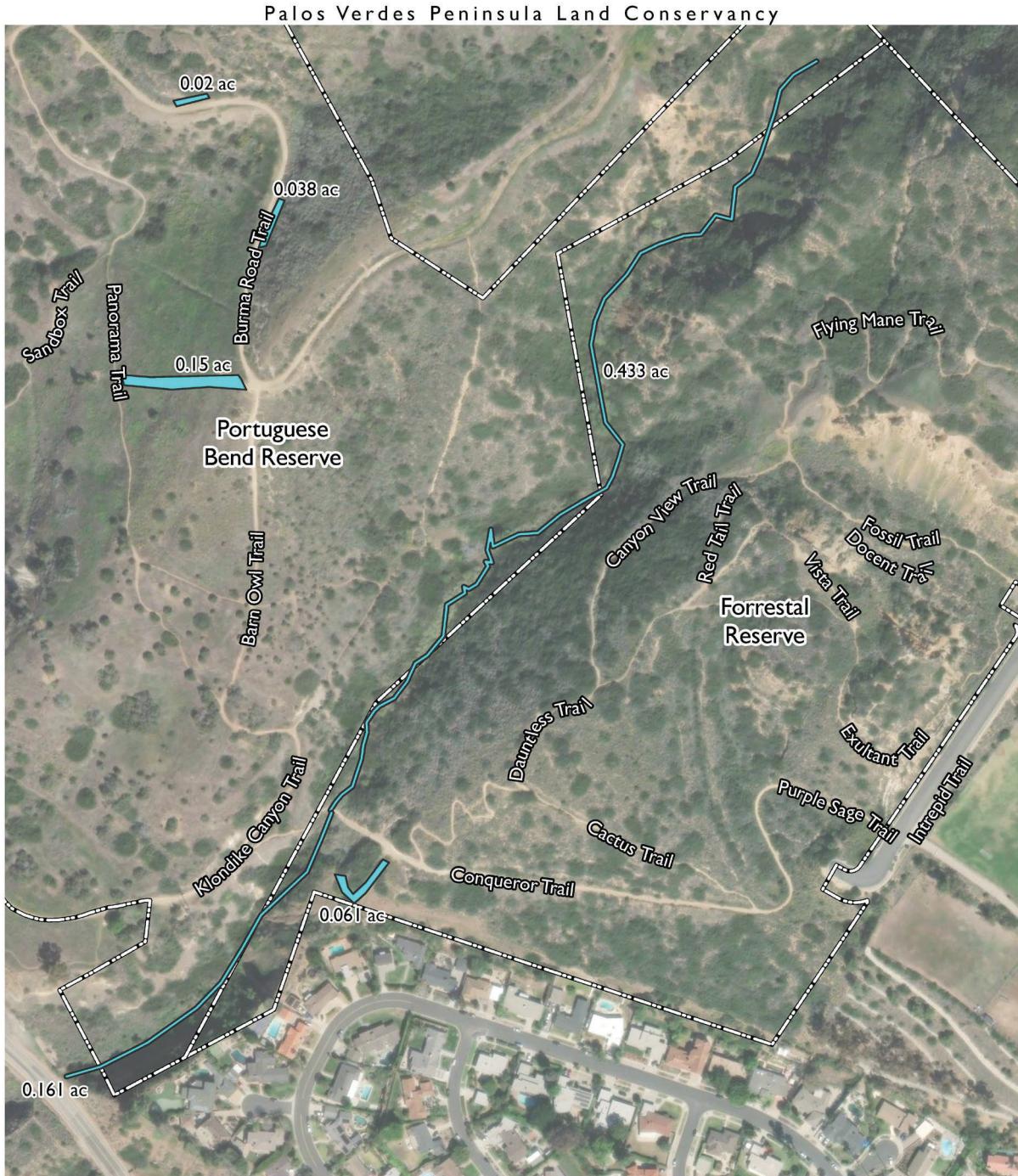


Figure 7

CalWater Service Repairs

Palos Verdes Nature Preserve

0 0.03 0.06 Miles

N

Map Created January 30, 2024
by Palos Verdes Peninsula Land Conservancy

Table 3. Status of Previous Habitat Impacts in the PVNP

Date	Project	Impact	Location and Vegetation Type	Size	Permanent/Temporary or Restoration complete as of February 2024
September 2022	SCE Burma Pole Maintenance	Habitat Damage to access pole	Coastal Sage Scrub	.06 acres	Temporary
October 2022	Fuel Load Reduction	Habitat Damage to access non-native species	Coastal Sage Scrub	.01 acres	Temporary
November 2022	CalWater Burma Road pipe breaks	Habitat damage to repair breaks	Coastal Sage Scrub/Riparian	.02 acres	Permanent*/TBD
November 2020-2021	CalWater Vanderlip Erosion	Vanderlip trail damaged with surrounding habitat impacts	Coastal Sage Scrub	.11 acres	Temporary/TBD
Summer/Fall 2021	CalWater Rim/Burma Pipe Replacement	Damage to hillside habitat adjacent to pipeline	Coastal Sage Scrub	.24 acres	Temporary/TBD
December 2021	SCE Burma Pole Repair	Habitat damage to access pole	Coastal Sage Scrub/Riparian	.12 acres	Temporary
December 2021	CalWater Vanderlip erosion	Erosion to trailside habitat	Coastal Sage Scrub	.024 acres	Permanent/TBD
December 2021	PVPLC Fuel Load Reduction Access	Damage to native plants through access	Coastal Sage Scrub/Riparian	0.073	Temporary
July – September 2020	PVIC Trail Coastal Bluffs fence replacement	Native plants were removed or trimmed. No host plant was impacted	Vicente Bluffs along Seaside Trail; Coastal Sage Scrub	0.001	Temporary
Summer 2019	Beach School Trail Paving	Paving of natural soil surface area	Abalone Cove	.06 acres	Permanent
Fall 2019	McGee Landslide Surveys	Vegetation Clearance for Access	Throughout PVNP	.22 acres	Permanent

*Further information is needed to understand if these projects will be classified as Temporary or Permanent. An assessment should be completed by the 2024 Annual Report

RPV NCCP/HCP Habitat Impact Tracking Draft

City Project Name	Total Habitat Loss (Acres)		Habitat Loss in Preserve (Acres)	
	CSS allowed	Grassland allowed	CSS allowed	Grassland allowed
1. Altamira Canyon Drainage Project (Future Project)	2.5	3	0	0
Remaining	<u>2.5</u>	<u>3</u>	<u>0</u>	<u>0</u>
2. Dewatering Wells (Ongoing)	2.5	2.5	2.5	2.5
2014 City of RPV	0.08	0	0.08	0
2016 ACLAD	0.1	0	0.1	0
2023 ACLAD	0.43*	0	0.43*	0
2023 KCLAD	0.16*	0	0.16*	0
2023 ACLAD	0.2*	0	0.2*	0
<i>Habitat Loss Total</i>	<i>0.18</i>		<i>0.18</i>	
Remaining	<u>2.32</u>	<u>2.5</u>	<u>2.32</u>	<u>2.5</u>
3. Landslide Abatement Measures (Ongoing)	5	15	3.3	9.9
2012 City of RPV	0.04	0	0.04	0
2015 City of RPV	0	0.1	0	0.1
2018 City of RPV	0.22	0	0.22	0
2019 McGee Landslide Surveys	0.22	0	0.22	0
<i>Habitat Loss Total</i>	<i>0.48</i>	<i>0.1</i>	<i>0.48</i>	<i>0.1</i>
Remaining	<u>4.52</u>	<u>14.9</u>	<u>2.82</u>	<u>9.8</u>
4. Misc. Drainage Repair in Landslide Areas (Ongoing)	10	15	6.6	9.9
2011 Repair "Archery Range" Area	0	0.009	0	0
2013 City of RPV	0	0	0.009	0
<i>Habitat Loss Total</i>	<i>0</i>	<i>0.009</i>	<i>0.009</i>	<i>0</i>
Remaining	<u>10</u>	<u>14.991</u>	<u>6.591</u>	<u>9.9</u>
5. PVDE Drainage Improvement Project (Future Project)	5	15	0	0
Remaining	<u>5</u>	<u>15</u>	<u>0</u>	<u>0</u>
6. Misc. Drainage Improvements (Ongoing)	20	60	6.6	20
2013 City of RPV	0.005		0.005	
<i>Habitat Loss Total</i>	<i>0.005</i>	<i>0</i>	<i>0.005</i>	<i>0</i>
Remaining	<u>19.995</u>	<u>60</u>	<u>6.595</u>	<u>20</u>
7. Abalone Cove Beach Project	1	2	1	2
Remaining	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>
8. RPV Trails Plan Implementation (Ongoing)	4	10	2	5

2020 PVIC Trail Coastal Bluffs fence replacement	0.001		0.001	
2023 Lifeguard Tower Installation(Temporary)	0.03		0.03	
<i>Habitat Loss Total</i>	<i>0.031</i>	<i>0</i>	<i>0.031</i>	<i>0</i>
Remaining	3.969	<u>10</u>	1.969	<u>5</u>
9. Lower San Ramon Canyon Repair (Complete)	0.34	0	0.34	0
2011 San Ramon Project	0.34		0.34	
<i>Habitat Loss Total</i>	<i>0.34</i>	<i>0</i>	<i>0.34</i>	<i>0</i>
Remaining	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
10. Lower Point Vicente (Future Project)	1.5	11.2	0	0
Remaining	<u>1.5</u>	<u>11.2</u>	<u>0</u>	<u>0</u>
11. Palos Verdes Drive South Road Repair (ongoing)	5	15	5	15
2010 PVDS Repair		1.4		1.4
<i>Habitat Loss Total</i>		<i>1.4</i>		<i>1.4</i>
Remaining	<u>5</u>	<u>13.6</u>	<u>5</u>	<u>13.6</u>
12. Upper Point Vicente (Future Project)	2	22	1	11
Remaining	<u>2</u>	<u>22</u>	<u>1</u>	<u>11</u>
13. Preserve Fuel Modification (ongoing)	12	18	12	18
2012 City of RPV	0.7		0.7	
2022 Malaga Canyon Fuel Modification	1.2		1.2	
<i>Habitat Loss Total</i>	<i>1.9</i>	<i>0</i>	<i>1.9</i>	<i>0</i>
Remaining	<u>10.1</u>	<u>18</u>	<u>10.1</u>	<u>18</u>
14. Utility Maintenance and Repair	10	20	5	10
2006 SCE	0.03		0.03	
2008 LA County Sanitation	0.01		0.01	
2009 Cox Cable	0.01		0.01	
2010 Cal Water/City Burma Road Repair	0.4		0.4	
2011 Cal Water	0.1*		0.1*	
2012 Cal Water	0.1*		0.1*	
2012 Sanitation District	0.02		0.02	
2013 Sanitation District	0.02		0.02	
2016 CalWater	0.1		0.1	
2018 CalWater (Forrestal)	0.1	0.02	0.1	0.02
2021 SCE Burma Pole Repair(Temporary)	0.12		0.12	
2022 Burma Pole Maintenance(Temporary)	0.06		0.06	
2021 CalWater Vanderlip Erosion	0.11*		0.11*	
2021 CalWater Rim/Burma Pipe Replacement	0.24*		0.24*	
2021 CalWater Vanderlip Erosion	0.024*		0.024*	
2022 CalWater Burma Road Pipe Breaks	0.02*		0.02*	

2023 Agua Amarga Sewer Repair & Maintenance	0.2		0.2	
2023 CalWater Main Line Break(a)	0.43*		0.43*	
2023 CalWater Main Line Break(b)	0.06*		0.06*	
2023 CalWater Main Line Break(c)	0.13*		0.13*	
2023 CalWater Main Line Break(d)	0.06*		0.06*	
2023 CalWater Main Line Break(e)	0.1*		0.1*	
2023 CalWater Main Line Break(f)	0.05*		0.05*	
2023 CalWater Main Line Break(g)	0.43*		0.43*	
Habitat Loss Total	1.07	0.02	1.07	0.02
Remaining	<u>8.93</u>	<u>19.98</u>	<u>3.93</u>	<u>9.98</u>
15. Unimproved City Parks (Future Project)	10	20	0	0
2023 Ladera Linda Community Park	0.21			
Habitat Loss Total	0.21	0	0	0
Remaining	<u>9.79</u>	<u>20</u>	<u>0</u>	<u>0</u>
16. Malaga Canyon Drainage Improvements (Future Project)	5	15	5	15
Remaining	<u>5</u>	<u>15</u>	<u>5</u>	<u>15</u>
17. Other Misc. City Projects	20	60	10	30
2010 Lightman		0.9		0.9
2010 Ginsburg Grading	0.5		0.5	
2012 Fire (temporary)	12.7		12.7	
2012 Sunshine	0.01		0.01	
2012 Fire (temporary)		0.2		0.2
2012 Unauthorized Trail Creation	0.12		0.12	
2013 Private Resident	unknown	unknown	unknown	unknown
2013 Chase Bank	0.45		0.45	
2016 Toyon/Peppertree Grading	0.3		0.3	
2019 Beach School Trail Paving		0.06		0.06
2021 Fuel Load Reduction Access(Temporary)	0.073		0.073	
2022 Fuel Load Reduction(Temporary)	0.01		0.01	
2023 Coolheights Encroachment	0.13		0.13	
2023 Vicente Bluffs Vehicular Accident(Temporary)	0.007		0.007	
Habitat Loss Total	14.3	1.16	14.3	1.16
Remaining	<u>5.7</u>	<u>58.84</u>	<u>-4.3</u>	<u>28.84</u>
Total Acreage of Habitat Loss Allowed	115.5	303.7	60.3	148.3
Habitat lost	18.516	2.689	18.315	2.68
Remaining Acreage of Habitat Loss Allowed	<u>96.984</u>	<u>301.011</u>	<u>41.985</u>	<u>145.62</u>

* TBD if habitat loss will be permanent or temporary

Private Covered Projects	Total Habitat Loss (acres)	
	CSS allowed	Grassland allowed

Lower Filiorum Development	11.9	70
Portuguese Bend Club Remedial Grading	3	10
Fuel Modification for Private Projects	10	20
Plumtree Development	2.8	19.7
Misc. Private Projects throughout the City	71.8	143.1
	99.5	262.8

APPENDIX D

2023 TARGETED EXOTIC REMOVAL PROGRAM FOR PLANTS (TERPP)

1.0 INTRODUCTION

The Palos Verdes Peninsula Land Conservancy (PVPLC), as preserve habitat manager for the Palos Verdes Nature Preserve (PVNP), conducts strategic weed control activities throughout the year as part of the Targeted Exotic Plant Removal Plan for Plants (TERPP). As directed in the Rancho Palos Verdes Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP), PVPLC selects five acres or 20 small sites of invasive plants for removal each year. The overall goal of this program is to systematically target invasive species throughout the PVNP to increase the success of native plant growth and create greater habitat opportunities for wildlife.

The TERPP is an element of the NCCP/HCP that includes a specific protocol for ranking exotic species populations and strategically removing those species over time (Appendix D1-D5). The 2023 TERPP Report documents PVPLC's effort over the past year to remove exotic plant species that threaten native vegetation in the PVNP. It details the methods of assessing the threat of individual exotic species to native vegetation, field methods for removal and provides site-specific documentation related to every completed removal site.

2.0 SITE ASSESSMENT

Invasive species control is included in PVPLC's annual conservation planning strategy where Stewardship staff prioritize potential TERPP sites and assess best practice methods for removal. PVPLC staff locate TERPP sites to target for the calendar year, assess the best method for eradication, photo document and map the population/s, and conduct weed removal accordingly.

The PVPLC weighs potential areas for exotic species control based on several criteria:

1. Threat to native vegetation, particularly populations of NCCP-covered species;
2. Feasibility of eradication, which includes limiting disturbance to native habitat and ease of access, and;
3. Invasiveness of exotic species, using a synthesized rating system drawn from plant invasiveness rankings from both the California Invasive Plant Council (Cal-IPC) and the California Department of Food and Agriculture (CDFA).

Through regular property surveys and viewing fine scale imagery using Geographic Information Systems (GIS), PVPLC plans for invasive species control across the entire Preserve area.

A sample of the TERPP field data collection form is in Appendix D1. The forms provide basic information about the species targeted, including site identification number and property, approximate location, removal methods used, and general comments related to the removal

activities. PVPLC also includes photo documentation: staff photographs the sites before work takes place and after the removal of the individual or population of exotic species. Photo documentation not only confirms completion of the work, but also provides a snapshot of the surrounding environment at the time of the TERPP-related activities. This record helps to create a historical record of the presence of non-native plant species on the sites, which may inform future restoration efforts. Beginning in 2017, PVPLC began using the GIS based application, Survey 123, to track the TERPP sites. Using this application has assisted with efficiency and accuracy in data collection and reporting.

Each TERPP site is tracked via GIS, a tool that aids planning and monitoring efforts. PVPLC has treated 182 TERPP sites since 2006. As *Euphorbia terracina* and *Acacia cyclops* is a high priority invasive and may take multiple treatments to control, these populations are treated in numerous years. Previous TERPP sites were visited by staff and volunteers and hand pulling of any seedlings was implemented. In 2023, small Acacia shrubs were hand pulled within 8 previous removal sites which totaled approximately 13.2 acres. 35 acres of Black Mustard and non-native grasses were mowed at 8 previously treated sites. All previous Acacia removal sites (totaling over 32 acres) will continue to be monitored and count as future TERPP.

3.0 FIELD METHODS

PVPLC staff uses best practice, the most effective and least intrusive, methods at all times when conducting TERPP-related activities. High priority areas may occur near rare or endangered biological populations. Care is taken to minimize soil erosion, fire risk, disturbance to surrounding native vegetation and further dispersal of the exotic species. PVPLC utilizes a combination of methods to conduct exotic species removal, generally limited to the following:

- Mechanical removal - staff may use tools with motorized blades to fell larger species;
- Manual removal - staff conduct most removals by hand pulling and/or with small hand tools for pruning and cutting;
- Chemical control - trained staff applies herbicides at the appropriate phase of vegetative growth;
- Grazing prior to seed set, and;

The Stewardship Manager and Conservation Director developed all recommendations for chemical pest control and senior staff supervises field staff and contractors in sensitive areas. Additionally, field staff has an integral role in the TERPP and often have crucial, site-specific knowledge related to the sites.

4.0 2023 TREATMENTS

In 2023, 8 previous acacia sites were maintained and hand weeded which totaled approximately 13.2 acres. 35 acres of Black Mustard and non-native grasses were mowed in 8 previously treated sites. *Euphorbia terracina* was treated at 2 previous sites.

Table I. 2023 TERPP Sites and Treatment Description

Species:	Preserve:	Stand ID:	Stand Size:	No. Individuals:	Treatment Type:	Percent Treated
<i>Euphorbia terracina</i>	Agua Amarga	AA_EuTe_02	600ft-1000ft	200-500	Herbicide	75-100
<i>Euphorbia terracina</i>	Alta Vicente	AV_EuTe_02	>1000ft	>1000	Hand pull	50-75
<i>Acacia cyclops</i>	Filiorum	FI_AcCy_01	>1000ft 1 acre	500-1000	Hand pull	75-100
<i>Acacia cyclops</i>	Filiorum	FI_AcCy_02	>1000ft 1 acre	500-1000	Hand pull	75-100
			>1000ft 3.5 acres			
<i>Acacia cyclops</i>	Filiorum	FI_AcCy_03	100-200	Hand pull	75-100	
			>1000ft 1.5 acres			
<i>Acacia cyclops</i>	Filiorum	FI_AcCy_04	200-500	Hand pull	75-100	
	Portuguese Bend	PB_AcCy_26	>1000ft 2.2acres	50-100	Hand pull	75-100
	Portuguese Bend	PB_AcCy_28	>1000ft 1.5acre	50-100	Hand pull	75-100
	Portuguese Bend	PB_AcCy_29	>1000ft 1.5 Acre	50-100	Hand pull	75-100
	Portuguese Bend	PB_AcCy_30	>1000ft 1.5 Acre	>1000	Brush Cut/Herbicide	75-100
	Portuguese Bend	PB_BrNi_01	>1000ft 5.5 acres	>1000	Brushcut	75-100
	Portuguese Bend	PB_BrNi_02	>1000ft 7 Acres	>1000	Brushcut	75-100
	Portuguese Bend	PB_BrNi_03	>1000ft 5.5 Acres	>1000	Brushcut	75-100
	Portuguese Bend	PB_BrNi_04	>1000ft 13 Acres	>1000	Mow	75-100
<i>Avena fatua</i>	Portuguese Bend	PB_AvFa_01	1 Acre	>1000	Brushcut	75-100
<i>Avena fatua</i>	Portuguese Bend	PB_AvFa_02	0.5 Acre	>1000	Brushcut	75-100
<i>Brassica nigra</i>	Vicente Bluffs	VB_BrNi_01	2.5 Acres	>1000	Brushcut	75-100
<i>Brassica nigra</i>	Vicente Bluffs	VB_BrNi_02	600ft-1000ft	200-500	Brushcut	75-100

5.0 REFERENCES

California Invasive Plant Council 2023. California Invasive Plant Inventory. February. California Invasive Plant Council: Berkley, CA.

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State of California 2007. Department of Food and Agriculture Division of Plant Health & Prevention Services Noxious Weed Ratings. Retrieved September 2007, from: <http://www.cdfa.ca.gov/phpps/ipc/encycloweedia/pdfs/noxiousweed_ratings.pdf>.

URS 2006. City of Rancho Palos Verdes Draft Natural Community Conservation Plan and Habitat Conservation Plan. June 9.

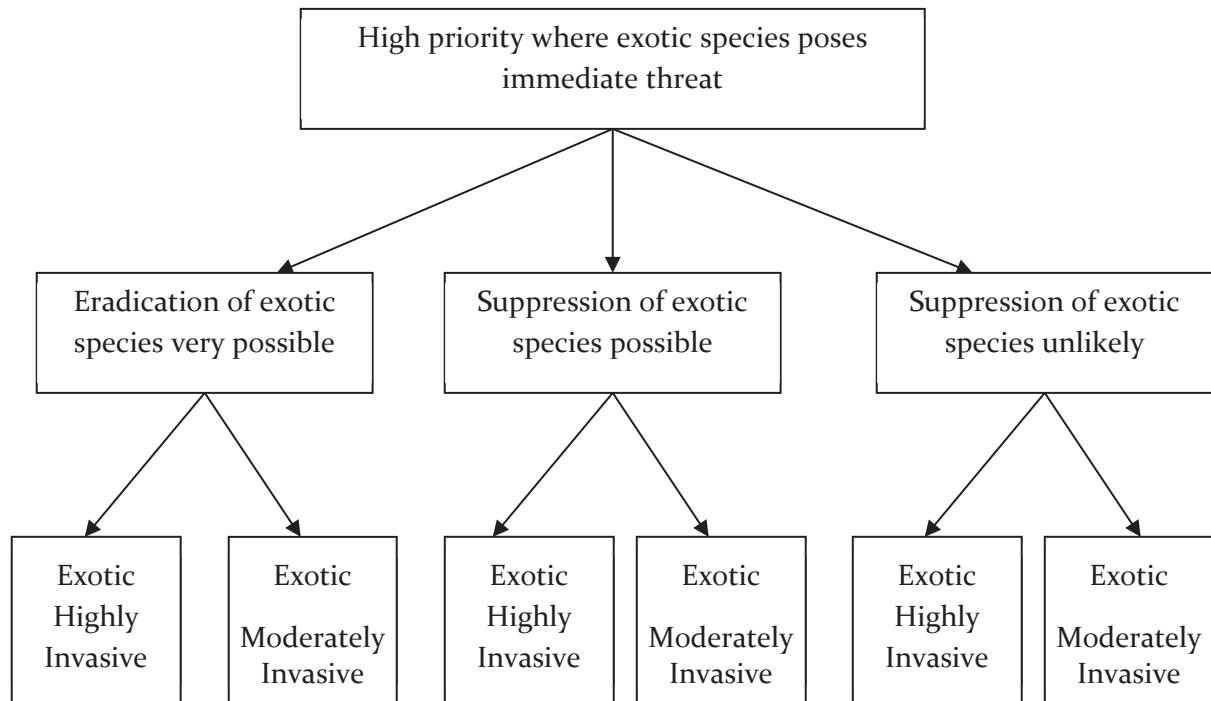
APPENDIX D1: SAMPLE TERPP FORM

Invasive Weed Mapping Field Datasheet

Survey Type New Infestation Assesment Treatment			Surveyor's Name	
Date			Location Description:	
Species				
Preserve				
Stand ID			Surrounding Vegetation Type:	
			cactus scrub	coastal sage scrub
			riparian	bluff
			grassland	non-native plants
			trail	non-native annual grass (NNAG)
			Other	
Stand Size			Stand Comments:	
1 ft ² - 10 ft ²				
10 ft ² - 100 ft ²				
100 ft ² - 300 ft ²				
300 ft ² - 600 ft ²				
600 ft ² - 1000 ft ²				
> 1000 ft ²				
1-10				
10-50				
50-100				
100-200				
200-500				
500-1000				
>1000				
No. Individuals			Treatment Comments:	
1-5%				
5-10%				
10-25%				
25-50%				
50-75%				
>75%				
Percent Canopy Cover				
Plant Phenology				
Flowering Non-Flowering Fruiting				
Plant Age			Additional Comments:	
Seedling Juvenile Mature Dead				
Treatment Type				
Hand pull Herbicide Hand-pull/Herbicide				
Weed-whip Mulch Tree removal Other				
Area Treated				
1 ft ² - 10 ft ²				
10 ft ² - 100 ft ²				
100 ft ² - 300 ft ²				
300 ft ² - 600 ft ²				
600 ft ² - 1000 ft ²				
> 1000 ft ²				
Percent of Infestation Treated			Photo Image Numbers:	
0-25%				
25-50%				
50-75%				
75-100%				
Stand ID Example: AC_EuTe_01_YYYY.MM.DD.JPG				
Preserve abbreviations:				
AA - Agua Amarga AC - Abalone Cove AV - Alta Vicente CP - Chandler Preserve DF - DFSP GF - George F				
FI - Filiorum FO - Forrestal OT - Ocean Trails PB - Portuguese Bend SR - San Ramon				
TS - Three Sisters VB - Vicente Bluffs VN - Vista del Norte WP - White Point OR - Other				

Rev 3/13

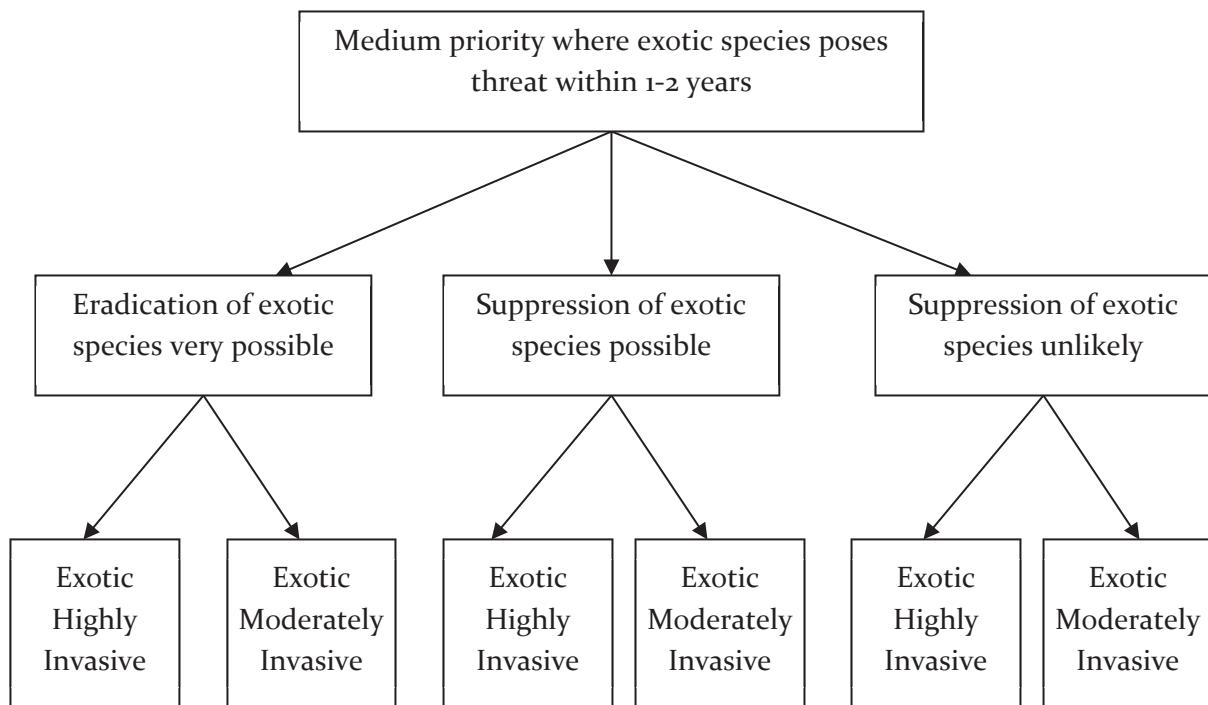
APPENDIX D2: FLOWCHART FOR HIGH PRIORITY THREAT TO NATIVE VEGETATION



Priority Ranking For Control of Exotic Species

1-3= Low priority 4-7= Medium priority 8-10= High priority

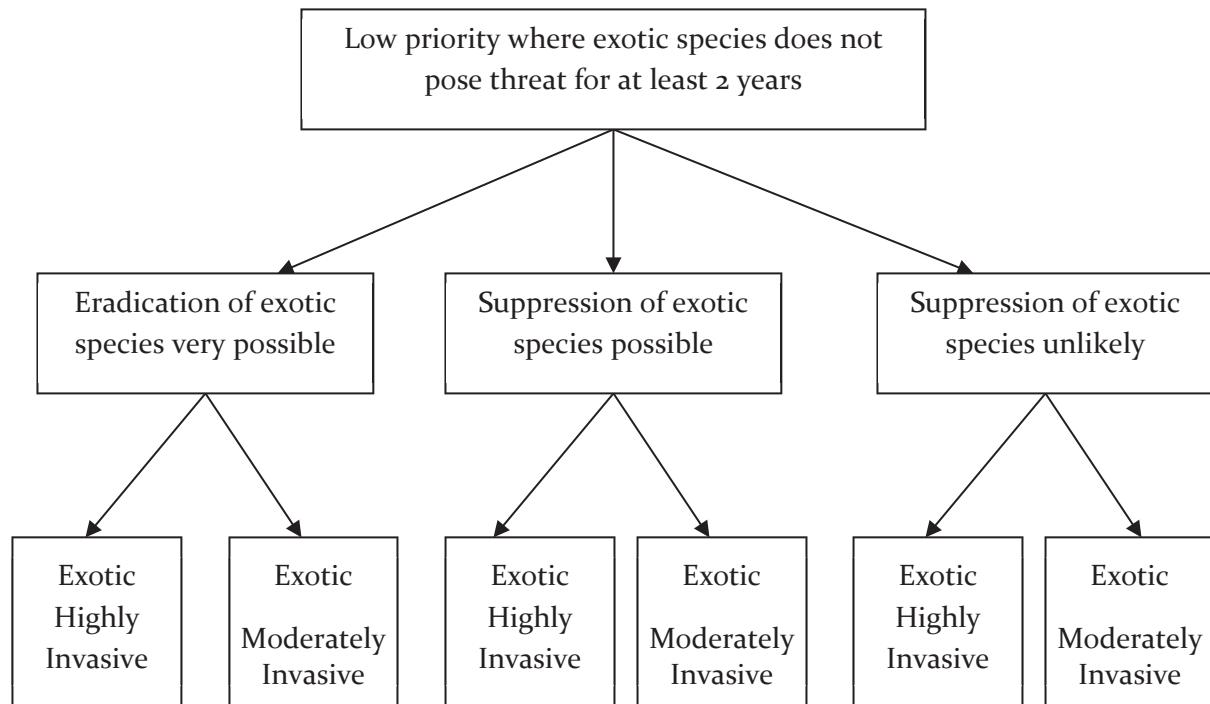
APPENDIX D3: FLOWCHART FOR MEDIUM PRIORITY DEGREE OF THREAT TO NATIVE VEGETATION



Priority Ranking For Control of Exotic Species

1-3= Low priority 4-7= Medium priority 8-10= High priority

APPENDIX D4: FLOWCHART FOR LOW PRIORITY DEGREE OF THREAT TO NATIVE VEGETATION



Priority Ranking For Control of Exotic Species

1-3= Low priority 4-7= Medium priority 8-10= High priority

APPENDIX D5: NON-NATIVE PLANT SPECIES AND CAL-IPC RATING

High
<i>Bromus madritensis</i> ssp. <i>rubens</i> —red brome
<i>Bromus tectorum</i> —cheatgrass
<i>Foeniculum vulgare</i> —fennel
Moderate
<i>Avena barbata</i> —slender oat
<i>Avena fatua</i> – wild oats
<i>Brassica nigra</i> – black mustard
<i>Bromus diandrus</i> —ripgut brome
<i>Centaurea melitensis</i> —Tocalote
<i>Glebionis coronaria</i> —crown daisy
<i>Hirschfeldia incana</i> —shortpod mustard
<i>Hordeum murinum</i> —mouse barley
<i>Nicotiana glauca</i> – tree tobacco
<i>Pennisetum setaceum</i> —crimson fountaingrass
<i>Euphorbia terracina</i> —Geraldton carnation weed
Limited
<i>Bromus hordeaceus</i> —soft brome
<i>Erodium cicutarium</i> —redstem stork's bill
<i>Marrubium vulgare</i> —horehound
<i>Olea europaea</i> —olive
<i>Salsola tragus</i> —prickly Russian thistle
<i>Schinus molle</i> – Peruvian peppertree
<i>Schinus terebinthifolius</i> —Brazilian peppertree
None
* <i>Acacia cyclops</i> —coastal wattle
* <i>Eucalyptus</i> sp.
<i>Lactuca serriola</i> – prickly lettuce
<i>Malva parviflora</i> —cheeseweed mallow
<i>Medicago polymorpha</i> – burr medic
* <i>Melilotus albus</i> —white sweetclover
* <i>Melilotus indicus</i> —annual yellow sweetclover
* <i>Pinus canariensis</i> —Canary Island pine
<i>Sonchus oleraceus</i> —common sowthistle

Notes:

- * While there are several species on the list that do not have a Cal-IPC rating for the state of California, some of these species can be locally invasive. Species with an asterisk are moderately invasive within the region and should be aggressively controlled.

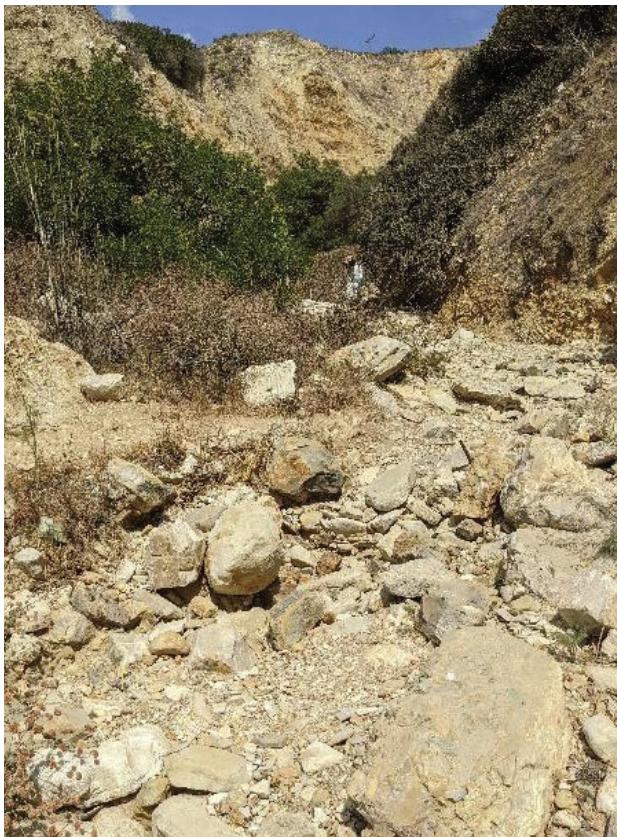
2023 TARGETED EXOTIC REMOVAL PROGRAM FOR PLANTS (TERPP)

Photos and Maps

Abalone Cove

AC_Eu_02





Alta Vicente

AV_EuTe_02







Filiorum

Fl_AcCy_01; Fl_AcCy_02; Fl_AcCy_03; Fl_AcCy_04







Portuguese Bend

PB_AcCy_26; PB_AcCy_28; PB_AcCy_29; PB_AcCy_30







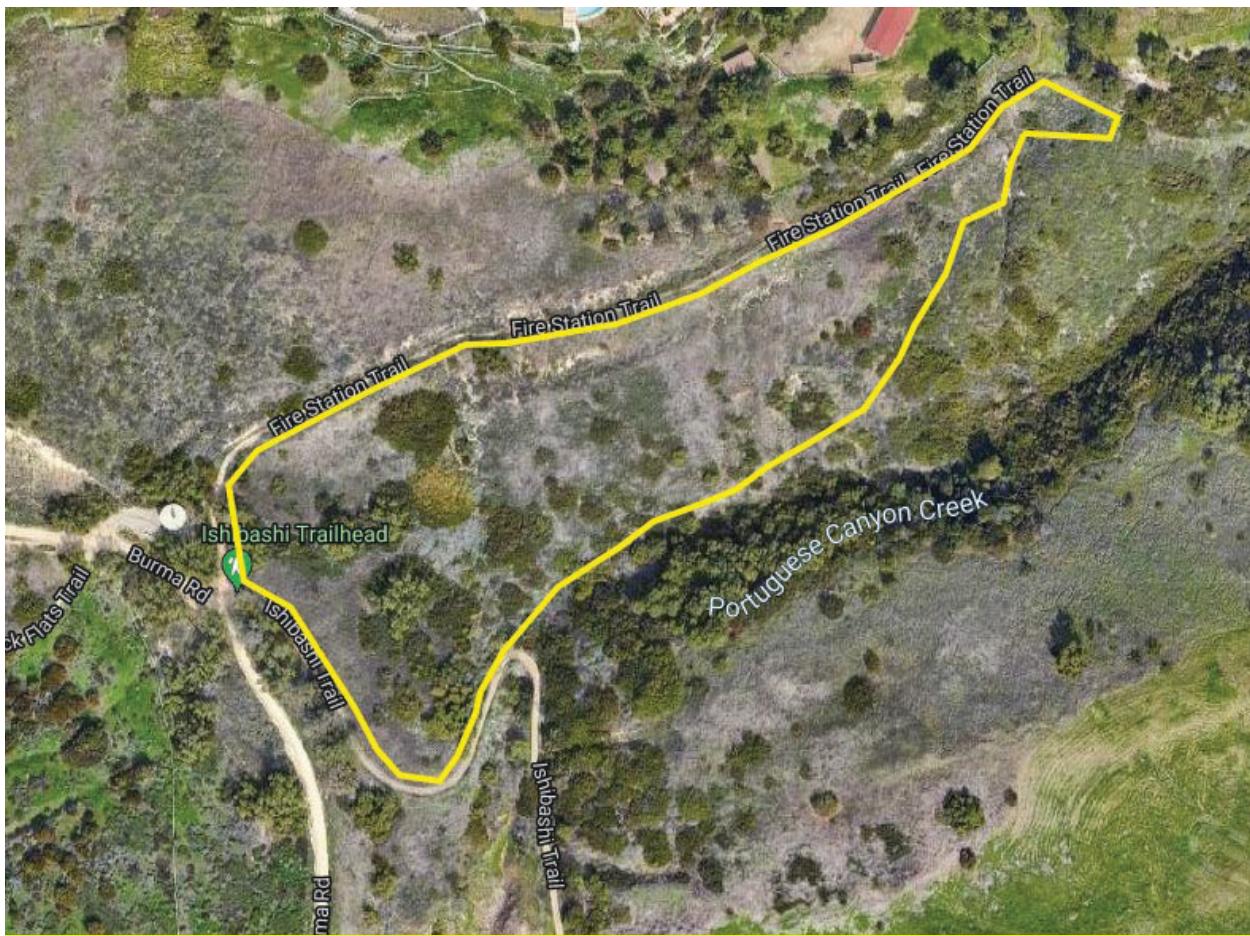








PB_BrNi_01



PB_BrNi_02







PB_BrNi_03





PB_BrNi_04





PB_AvFa_01; PB_AvFa_02

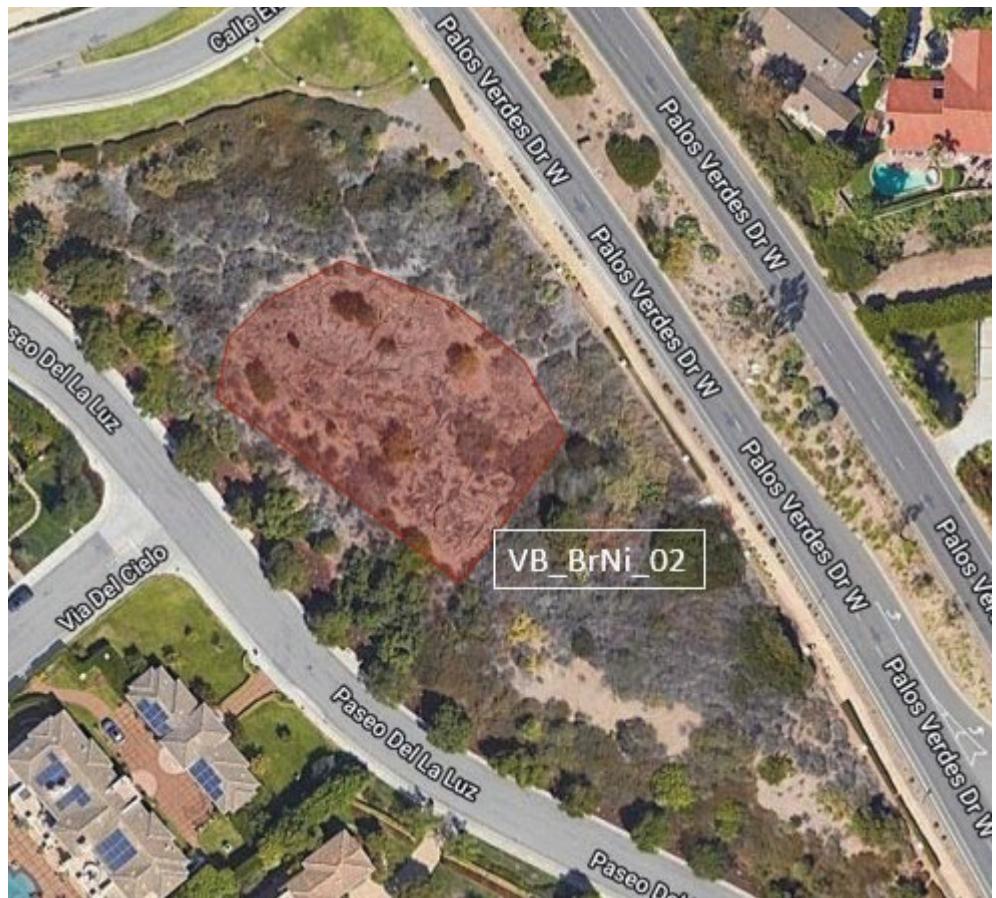


Vicente Bluffs

VB_BrNi_01; VB_BrNi_02









APPENDIX E

COMMUNITY SCIENCE AND EDUCATION PROGRAMS

1.0 INTRODUCTION

PVPLC implements an integrated approach to stewardship by involving students and community volunteers in programs that addresses specific conservation issues related to the management of the Palos Verdes Nature Preserve. In 2023, high school and university students as well as community members participated in research that not only satisfied their educational and/or personal goals, but also contributed to informing PVPLC land management activities. The Community Science Program, initiated in fall 2013, has brought volunteers to PVPLC for focused studies in the preserves. Community Science projects completed in 2023 include the Cactus Wren Monitoring Program, the Wildlife Tracking Program, and the Wildlife Camera Monitoring Program.

University professors are crucial for the success of research, as they provide expertise and technical guidance in managing several research projects. Land Conservancy staff provides access to the preserve as well as technical support and local knowledge to participants.

This report covers the Research and Education Program's activities via the major categories:

- High School Research
- University Researchers
- Non-student Research conducted
- Community Science Programs

2.0 HIGH SCHOOL RESEARCH

High school students are important to PVPLC's field research. By participating in PVPLC's research program with professionals and university researchers, high school students obtain field and analytical skills in the natural science fields. Additionally, students increase their appreciation of nature while expanding their awareness of opportunities that the natural science fields have to offer. As a result, PVPLC students often win honors in science fairs and are able to leverage their experience for gaining entrance into top universities, satisfying course credits, or obtaining paid internships. In winter 2022, a high student began a long-term phenology study on Palos Verdes blue butterfly host plants, rattlepod (*Astragalus trichopodus*) and deerweed (*Acmispon glaber*), that lasted through Summer of 2023 in various PVNP reserves. By the end of the project, the student gained vegetation surveying skills and additional field experience for a career in conservation.

3.0 UNIVERSITY STUDENTS

College students from local universities participate in research under the umbrella of the Conservancy's Intern and Community Science programs (Table. 2). Students participate in activities integral to land management and conservation, which provides the students valuable

hands-on experience. PVPLC's stewardship staff conducts a variety of surveys throughout the preserves for assessing habitat quality as well as documenting the progress of our restoration efforts.

In addition to gaining work experience, many students leverage their internships for entrance into a professional job or graduate school. While the Conservancy benefits from their work, the students benefit from experience and training that will benefit them in future careers.

Table 2. 2023 Collegiate research conducted

Student	Project	Academic Institution
Daria Smith	<i>Herbaceous vegetation mitigates temperature stress in the greater Los Angeles area</i>	CSU LA
CSULB Students	<i>Palos Verdes Blue Butterfly habitat restoration at Lunada Canyon</i>	CSU Long Beach

3.0 NON-STUDENT RESEARCH CONDUCTED

The Land Conservancy facilitates non-student research as much as possible, including creating our own research studies to assist in our management goals. These projects are managed by staff and largely done by Land Conservancy interns.

Table 3. 2023 Non-student research conducted or facilitated

Researcher	Project	Academic Institution
Nele Schindeler	<i>Wildlife camera remote monitoring</i>	PVPLC Internship
Lola Primmer	<i>Wildlife camera remote monitoring</i>	University of Oregon

4.0 COMMUNITY SCIENCE PROGRAMS

Volunteers are important for PVPLC, not only helping with growing plants, habitat restoration, guiding walks, and special events, but also with science research and education. Our volunteers travel from throughout the Palos Verdes Peninsula and Los Angeles to help out.

The Community Science program blossomed in 2013 with the initiation of the Cactus Wren Program along with the ongoing Wildlife Tracking Program. The initial Cactus Wren Program resulted in detailed analysis of how the birds utilize mature cactus scrub habitat and newly-restored habitat at Alta Vicente Reserve. In addition, the volunteers were able to obtain detailed documentation of a single pair of cactus wrens as the wrens built a nest, incubated eggs, and successfully fledged three chicks. Monitoring work in 2023 focused on cactus wren occupancy of specific delineated cactus patches within the Palos Verdes Nature Preserve. This information described varying levels of cactus wren occupancy across the Preserve and made possible the inference of breeding activity based on a number of criteria. Results can be found in the attached Cactus Wren Monitoring report.

The 2023-24 Wildlife Tracking Program started in the fall of 2023 and finishes in March 2024. Land Conservancy staff trained volunteers in tracking coyotes, red fox, and gray fox, among many other species in the Preserve. Further training and practice were also available for volunteers throughout the program duration. Once volunteers were confident in identifying tracks and scat of a particular species, they individually conducted regular surveys along specific routes. The data were submitted to the Conservancy for use in its management using a program called Survey123 for ArcGIS allowing for more efficient data analysis and reporting. A map was also created to illustrate the location of scat or track observations; results can be found in the attached wildlife tracking report.

Motion-sensor cameras deployed by PVPLC volunteers captured both images and video of wild canid species. High quality videos allowed for the identification of individual coyotes providing insight into wildlife population's dynamics and movement throughout the Preserve. With a donation of four cameras, and the associated equipment, the Land Conservancy was able to increase the reach of the wildlife camera program. Volunteers, namely Jim Rassler, manage the wildlife cameras, including data input and analysis. Results from a sample of camera data can be found in the attached Wildlife Camera Monitoring Report.



Volunteers learn the basics of cactus wren observations before starting the first Community Science Cactus Wren monitoring season.

Coastal Cactus Wren
(*Campylorhynchus brunneicapillus*)
Community Science Monitoring
2023



PO Box 3472
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www.pvplc.org



Report by: Olivia Jenkins

Data Collected by: PVPLC Community Science Volunteers

INTRODUCTION

The coastal Cactus Wren (*Campylorhynchus brunneicapillus*) (CACW, Cactus Wren) on the Palos Verdes Peninsula is a special status species that lives exclusively in coastal sage scrub habitat areas. They prefer areas of at least one acre in size containing 30% prickly pear cactus (*Opuntia spp.*) and large specimens of coastal cholla (*Cylindropuntia prolifera*). Habitat preferences for nesting are strict, with nesting substrate almost entirely restricted to prickly pear and coastal cholla (Rea and Weaver 1990). Ninety percent of their foraging time is spent on the ground, feeding on insects year-round, and feeding on fruit and plants during cooler months. Adult birds are highly sedentary and tend to return to the same breeding territory each year. In a 1993-1997 study on the Palos Verdes Peninsula, ornithologist Jon Atwood found that 65% of the juveniles dispersed less than one kilometer from their natal territory (Atwood 1998). The wren's natural tendency to stay close to its natal territory and not move great distances underscores the importance of having quality habitat throughout the preserves.

Following the formal establishment of the Community Science Cactus Wren Program in 2014, volunteer work focused on assessing how Cactus Wren utilize their habitat. The goal was to obtain data that would inform the Conservancy how to better manage cactus habitat for the bird and to build new habitat. Those years were quite successful in meeting that goal, as we now have a better understanding of how close the wrens stay to their habitat and how much they explore developing habitat (infrequently, unless they are feeding growing chicks and need to expand their forage area).

Despite the ability of previous surveys to identify the Cactus Wren behavior relating to dispersal, locating areas of Cactus Wren inhabitance has proven challenging. As shown by biologist Dan Cooper, who conducted comprehensive triennial Cactus Wren surveys in 2009, 2012, 2015, 2018 and in 2021 with PVPLC biologists, the numbers of Cactus Wren has varied over time, counting the same number of territories in 2009 and 2015 (25) and more counted in 2012 (48) and a precipitous decrease in 2018 (5), and 7 territories in 2021. (Cooper Ecological Monitoring 2021) Because of the triennial frequency of the surveys, it is difficult to determine whether or not these trends are true or an artifact of sampling, but the overall trend is troubling.

Participants in the Community Science Cactus Wren Program can help answer the question: Where are Cactus Wrens found in the preserves year-to-year? To address this question, teams of volunteers regularly hike the trails, noting when Cactus Wren are heard and/or seen, beginning in April and continuing through July. This period coincides with the more active period for the wrens when they are nesting and caring for newly fledged chicks, as they are more inconspicuous in the non-breeding season. These repeated visits provide data that indicates where birds are likely to be, and the variation of their distribution year-to-year to augment the triennial surveys conducted by the Conservancy's biologist.

METHODS

Study Area

The study area was within nine reserves (Abalone Cove, Alta Vicente, Filiorum, Forrestal, Ocean Trails, Portuguese Bend, San Ramon, and Three Sisters) of the Palos Verdes Nature Preserve located in the city of Rancho Palos Verdes, CA, in addition to White Point Nature Preserve in San Pedro, CA, which was surveyed for the first time in 2023. The reserves surveyed were those which had been documented to support Cactus Wren activity or extensive patches of prickly pear (*Opuntia littoralis* and *O. oricola*) and coastal cholla (*Cylindropuntia prolifera*) (Cooper Ecological Monitoring 2013).



Figure 1. Study area within the Palos Verdes Peninsula Nature Preserve and White Point Nature Preserve.

Data Collection

Volunteers for the Community Science Program met prior to the start of the monitoring season to learn how to identify Cactus Wren in their habitat and how to record field observations on the mobile app Survey123. The use of this app was new to the program in 2020. This app streamlines the data collection, analysis and organization process and allows for real time QA/QC by PVPLC. If any nests were found, the volunteers were asked to estimate the location on a map and send it to the PVPLC Biologist to digitize either via ArcGIS Collector in the field or ArcGIS Pro. If necessary, teams were formed for the monitoring season, pairing more experienced volunteers with those having little or no birding experience. The volunteers then took to the field outfitted with binoculars, a spotting scope, or cameras equipped with telephoto lenses.

The volunteers conduct at least two surveys for each month of the survey period (March through August). Volunteers walked their predetermined trail route documenting visual or audial observations of Cactus Wren. Additionally, weather and wind observations were included because the birds' presence is impacted unduly by weather. No surveys were conducted during rainy days and high winds greater than 19 mph (30 km/hr). Surveys were typically conducted during late morning. All electronic field observations were archived in the Conservancy's database, and maps depicting wren inhabitance were archived in PDF format on the Conservancy's server.

Data Analysis

Collected data were analyzed on the basis of four criteria that describe the level of Cactus Wren inhabitance specific to each cactus patches surveyed. These criteria allowed each cactus patch to receive

a rating category reflecting the level of Cactus Wren inhabitance observed. These ratings assist in the interpretation of survey data and specifically allow for the inference, in general terms, of potential Cactus Wren behavior, habitat quality, and other factors relative to inhabitance. Categorization is also helpful in providing a scale of inhabitance for each cactus patch that can be mapped. Subsequent ratings associated with each patch were mapped using ArcGIS Software which allowed for a color gradient to describe the various inhabitance ratings throughout the surveyed reserves as well as a map depicting the highest rating found within each reserve (Figures 2-7).

Inhabitance Rating Categories

Categories were developed to assist in the interpretation of survey data and to infer in general terms potential Cactus Wren behavior, habitat quality, and other factors related to Cactus Wren inhabitance. This categorization is also helpful in providing a scale of inhabitance that can be mapped such that different levels of inhabitance may be compared to each other. Categorical ratings based on four descriptors were extracted from the data:

Inhabitance Descriptors (4):

1) Observation Rate

of visits with a Cactus Wren observation / total number of visits

2) Multiple Month Observation

Sighting of a Cactus Wren in more than one month of the survey period

3) Multiple Cactus Wren Observation

Sighting of multiple Cactus Wrens during a single survey or site visit.

4) Nest

Sighting of a nest that appears to have been used by Cactus Wren within the survey period.

Inhabitance Rating Categories (5):

RARE

Indicates rare habitation of a cactus patch, which is defined by an observation rate below 25% and a lack of any additional inhabitance descriptor. Rare habitation is expected to include behaviors associated with short term inhabitance such as foraging or dispersal and suggests a lack of nesting. A patch categorized as “rare” may also indicate poor habitat quality or the presence of residence inhibiting factors (i.e. competition, predation, or disturbance).

OCCASIONAL

Indicates occasional habitation of a cactus patch, which is defined as an observation rate below 25% and having one or more additional inhabitance descriptors associated with that patch. Occasional habitation is expected to include behaviors associated with short term inhabitance (i.e. foraging or dispersal) and suggests a lack of nesting. A patch categorized as “occasional” may also indicate poor habitat quality or the presence of residence-inhibiting factors.

PERIODIC

Indicates periodic habitation of a cactus patch, which is described by an observation rate of 26-50% and one or more additional inhabitance descriptors. Periodic habitation is expected to include behaviors

such as repeated visitation for foraging and/or dispersal. This rating could be considered a weak indicator of nesting. A patch categorized as “periodic” may also indicate higher quality habitat and a decrease in residence inhibiting factors in compared to un-ranked or patches ranked patches or those ranked as “rare” or “occasional”.

REGULAR

Indicates regular habitation of a cactus patch, which is defined as an observation rate of 50-75% and at least two additional inhabitance descriptors. A patch categorized as “regular” may indicate Cactus Wren nesting, high quality habitat, and a lack of residence-inhibiting factors.

CONSISTENT

Indicates consistent habitation of a cactus patch, which is defined as an observation rate of 75-100% and at least two additional inhabitance descriptors. A patch categorized as “consistent” may be a strong indicator of Cactus Wren nesting, high quality habitat, and a lack of residence-inhibiting factors.

RESULTS

Table I. Inhabitance criteria and rating of cactus patches where Cactus Wren were observed in 2023.

Reserve	Cactus Patch ID	Total # Surveys	# Surveys with CACW Present	CACW Nest Present	Juvenile Present	Multiple CACW	Multiple Month Observed	CACW Observation Rate (%)	Inhabitance Rating 2023
Abalone Cove	AC-6	13	2			Yes	Yes	15%	OCCASIONAL
Alta Vicente	AV-2	55	55	Yes	Yes	Yes	Yes	100%	CONSISTENT
Alta Vicente	AV-3	55	4			Yes	Yes	7%	PERIODIC
Alta Vicente	AV-4	55	2				Yes	4%	PERIODIC
Alta Vicente	AV-5	55	3			Yes - pair	Yes	5%	PERIODIC
Alta Vicente	AV-7	55	0					0%	-
Alta Vicente	AV-9	15	4	Yes	Yes	Yes	Yes	27%	REGULAR
Filiorum	Fi-1	26	4					15%	PERIODIC
Filiorum	Fi-2	20	3					15%	PERIODIC
Filiorum	Fi-3	20	3			Yes - pair		15%	PERIODIC
Filiorum	Fi-4	20	11	Yes	Yes	Yes - pair		55%	REGULAR
Filiorum	Fi-5	20	4	Yes	Yes	Yes - pair		20%	REGULAR
Ocean Trails	OT-8	20	4	Yes	Yes	Yes - pair	Yes	20%	REGULAR
Ocean Trails	OT-9	20	2			Yes	Yes	10%	OCCASIONAL
Ocean Trails	OT-10	20	2			Yes - pair	Yes	10%	OCCASIONAL
Ocean Trails	OT-11	20	3	Yes	Yes	Yes	Yes	0.15	REGULAR
Ocean Trails	OT-12	20	1			Yes	Yes	5%	RARE
Ocean Trails	OT-13	20	11	Yes	Yes	Yes - pair	Yes	55%	REGULAR
Portuguese Bend	PB-4	14	1				Yes	7%	OCCASIONAL
Portuguese Bend	PB-5	14	1				Yes	7%	OCCASIONAL
Portuguese Bend	PB-8	14	3	Yes		Yes	Yes	21%	PERIODIC
Portuguese Bend	OP-1	14	3			Yes	Yes	21%	PERIODIC
Three Sisters	TS-1	12	1				Yes	8%	RARE
Three Sisters	TS-5	11	2				Yes	18%	OCCASIONAL
Three Sisters	TS-6	11	6				Yes	55%	REGULAR
Three Sisters	TS-7	12	4			Yes	Yes	33%	REGULAR
Three Sisters	TS-8	12	0					0%	-
Three Sisters	TS-9	12	2			Yes	Yes	17%	PERIODIC
Three Sisters	TS-10	12	0					0%	-
White Point	WP-1	13	3			Unk	Yes	23%	REGULAR

Red rows indicate the high likelihood of Cactus Wren breeding within associated cactus patch.

Inhabitance Rating Maps by Cactus Patch and Reserve

Alta Vicente Reserve (Figure 2): The core territories in Alta Vicente and Ocean Trail Reserves remained the locations with the highest observation rate of Cactus Wren and highest inhabitance ratings. Some cactus patches with no or little activity in previous years also increased in 2023. For example, AV-3 had no observations in 2022, and gained an inhabitance rating of Periodic in 2023. Two territories had successful nesting in Alta Vicente, AV-9 and AV-2. Consistent with previous years, AV-2 had a 100% observation rate. Juvenile were present in both AV-9, located behind the non-native cactus farm, and AV-2 located on the central northernmost hillside of the reserve.

Three Sisters and Filiorum Reserves (Figure 3): In 2023, ten out of fifteen territories in the Three Sisters and Filiorum Reserves combined had observed Cactus Wren activity. The most consistent patches were Fi-4 and Fi-5, which both also had successful nesting confirmed by juvenile sightings. Both of these cactus patches are relatively large and rate high in suitable habitat. No nesting was observed in 2022, so this result is a positive sign. Fi-5 overlaps with the newly acquired land between Three Sisters and Filiorum. The Land Conservancy plans to restore and maintain this area to further increase suitability.

Ocean Trails and San Ramon (Figure 4): Cactus Wren observed nesting activity increased in Ocean Trails since last year. Three cactus patches with no observations in 2022 gained an inhabitance rating of over 5%. Nests were present in three territories, OT-8, OT-11, and OT-13. The Land Conservancy plans to collaborate with the Trump Golf Course to ensure these habitats are not disturbed, especially during breeding season. Juvenile were observed in OT-11 and OT-13. Like previous years, no Cactus Wren were observed in Ocean Trails A, which includes the southwestern portion of the Reserve below the golf course on the bluffs. No Cactus Wren were observed within San Ramon Reserve, no change from last year.

Abalone Cove Reserve (Figure 5): A single Cactus Wren was observed twice early in the breeding season at Abalone Cove near Inspiration Point (Patch AC-6 in Figure 5 map) for the first time in over 3 years. Last year, no Cactus Wren were observed in Abalone Cove. No nesting was observed, but the presence of the wren signifies potential dispersal from core territories. After the breeding season (not included in the survey results), another Cactus Wren was observed in AC-1 south of the Abalone Cove parking lot within the newest of the Land Conservancy's restoration areas. The Land Conservancy will focus on restoring and maintaining Cactus Wren cactus scrub habitat in this area to support potential increase in inhabitance of this patch.

Portuguese Bend Reserve (Figure 6): In 2023, Cactus Wren activity increased in Portuguese Bend Reserve. A nest was observed in PB-8 but nesting success was not confirmed. In 2022, no Cactus Wren activity was observed. This result is yet another indication of potential dispersal to additional territories. Surveys of Portuguese Bend may not be possible in 2024 due to landslide activity, so the Land Conservancy plans to place acoustic meters in these areas to keep track of activity.

White Point Nature Preserve (Figure 7): Cactus Wren were observed in White Point for the first time since the Cactus Wren Monitoring Program began. They may have been present previous years, but were not recorded. Starting in 2023, volunteers will regularly be assigned to survey White Point. Surveys did not confirm more than one Cactus Wren, but it is possible there were multiple. The Land Conservancy was careful not to mow near this area due to the Cactus Wren observations.

Figure 2: Inhabitance Rating in Cactus Patches at Alta Vicente Reserve

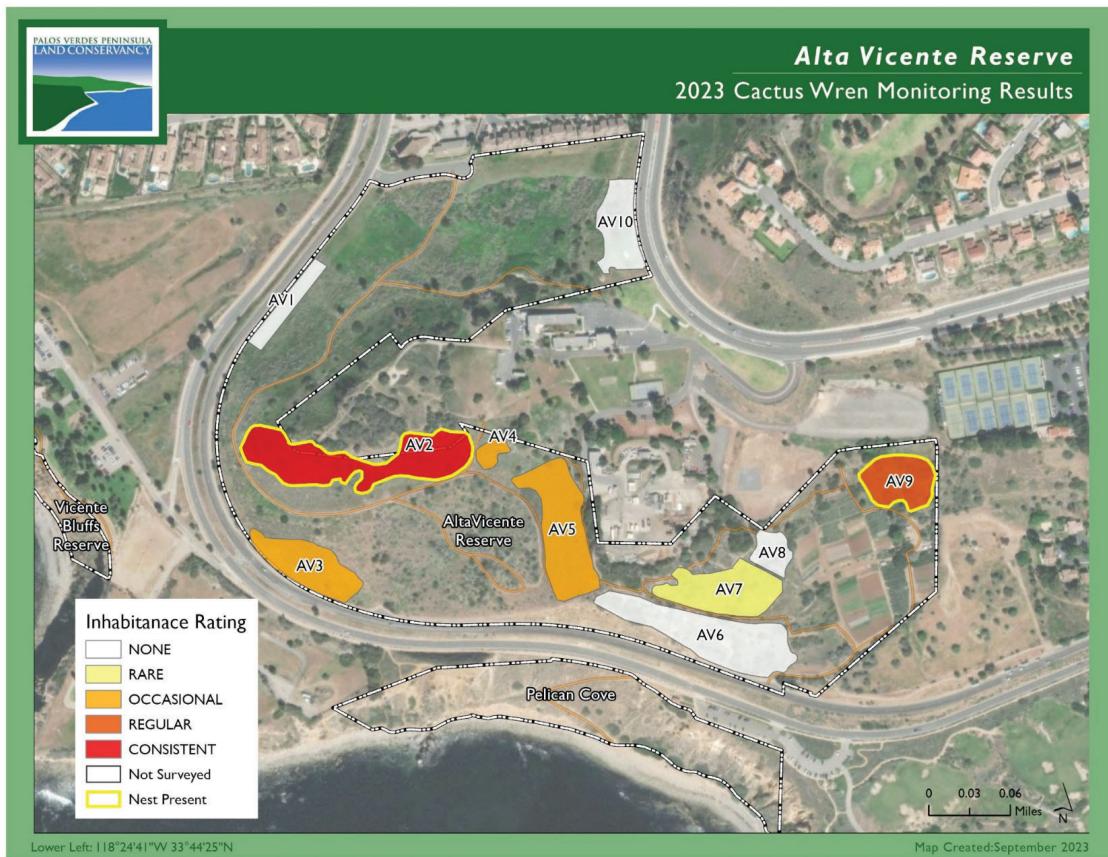


Figure 3: Inhabitance Rating in Cactus Patches at Three Sisters and Filiorum Reserves

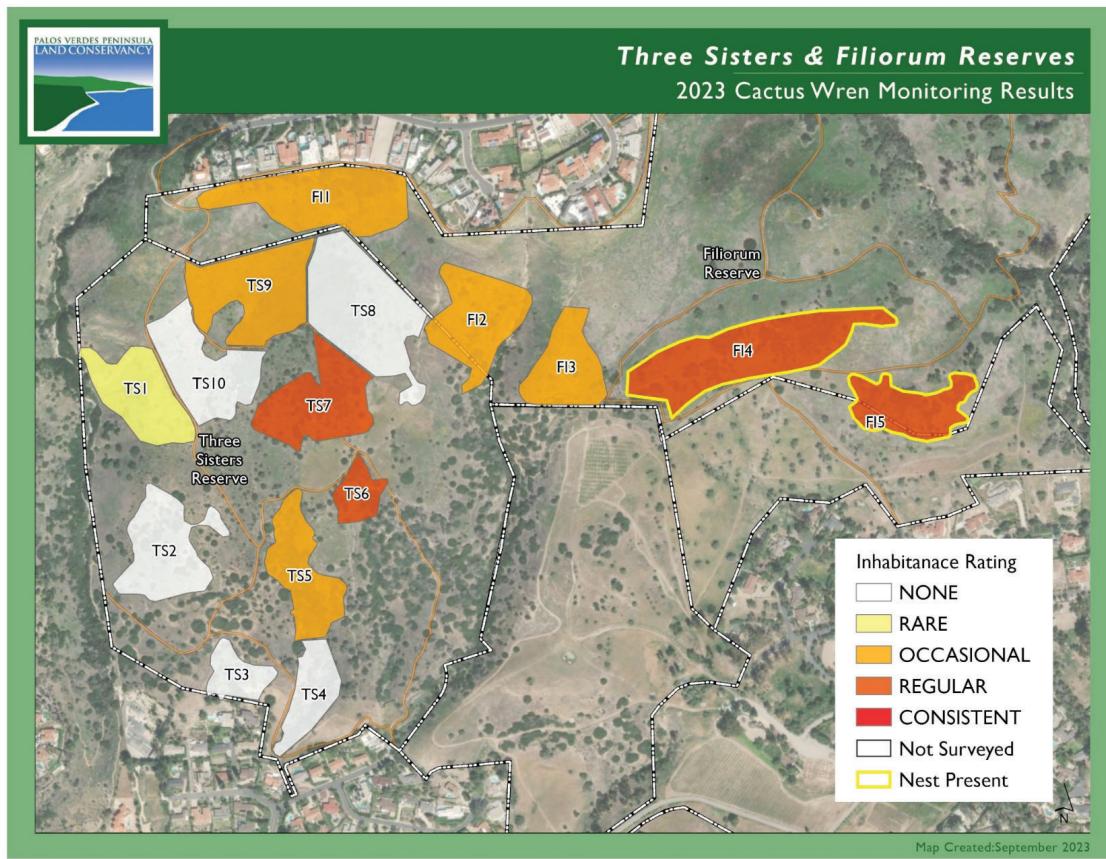


Figure 4: Inhabitance Rating in Cactus Patches at Ocean Trails and San Ramon Reserves

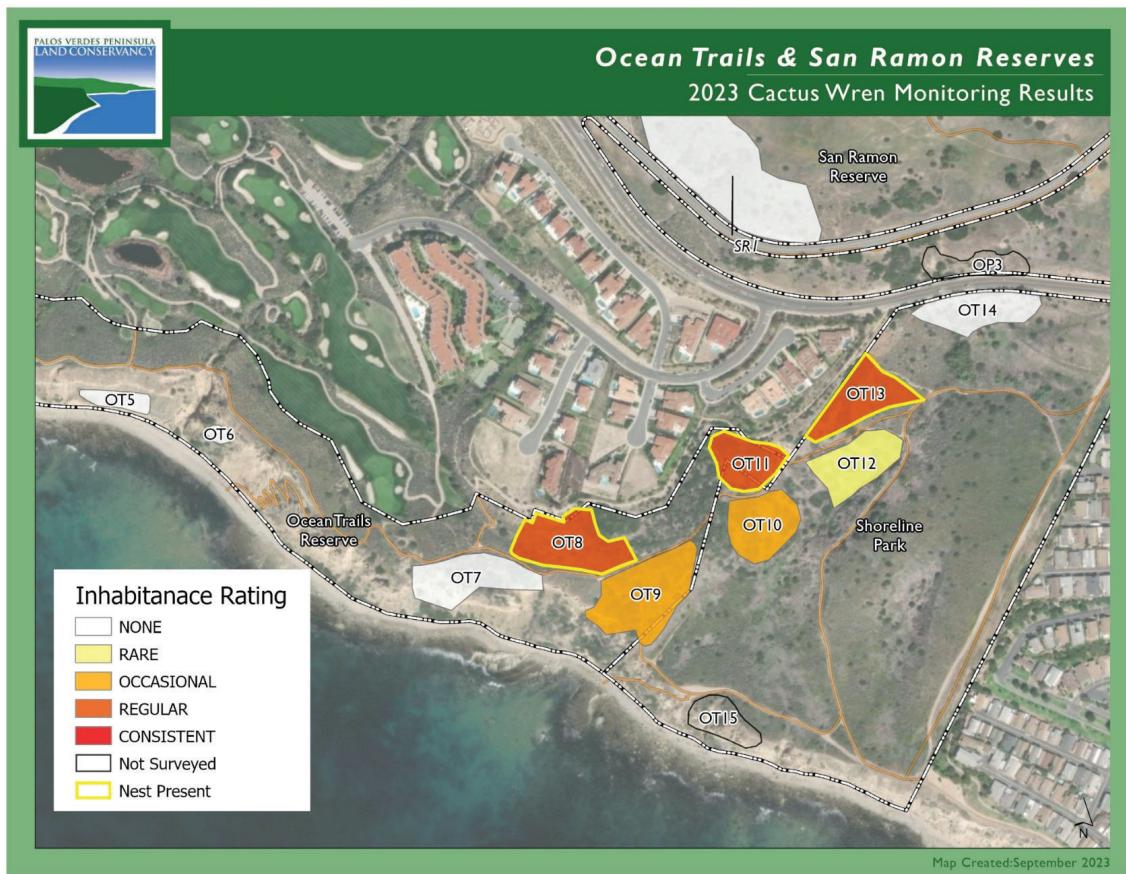


Figure 5: Inhabitance Rating in Cactus Patches at Abalone Cove Reserve

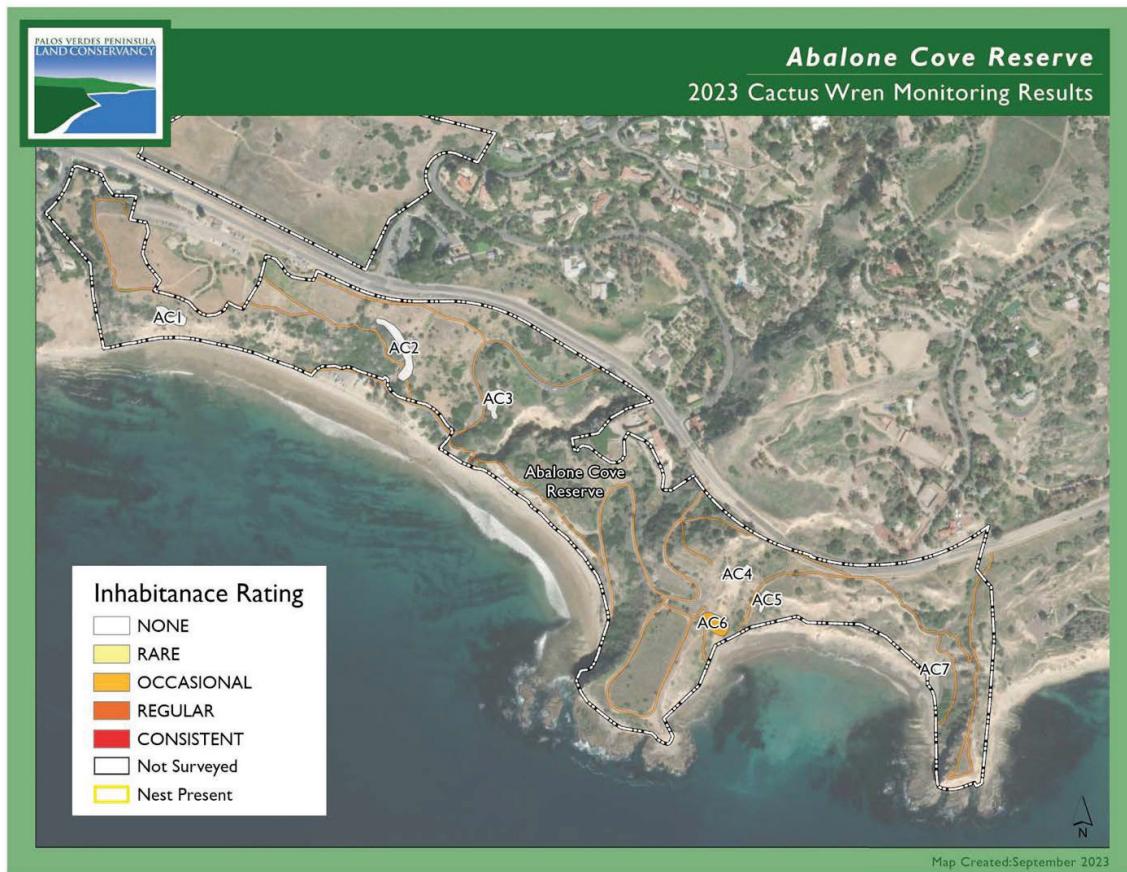


Figure 6: Inhabitance Rating in Cactus Patches at Portuguese Bend and Forrestal Reserves

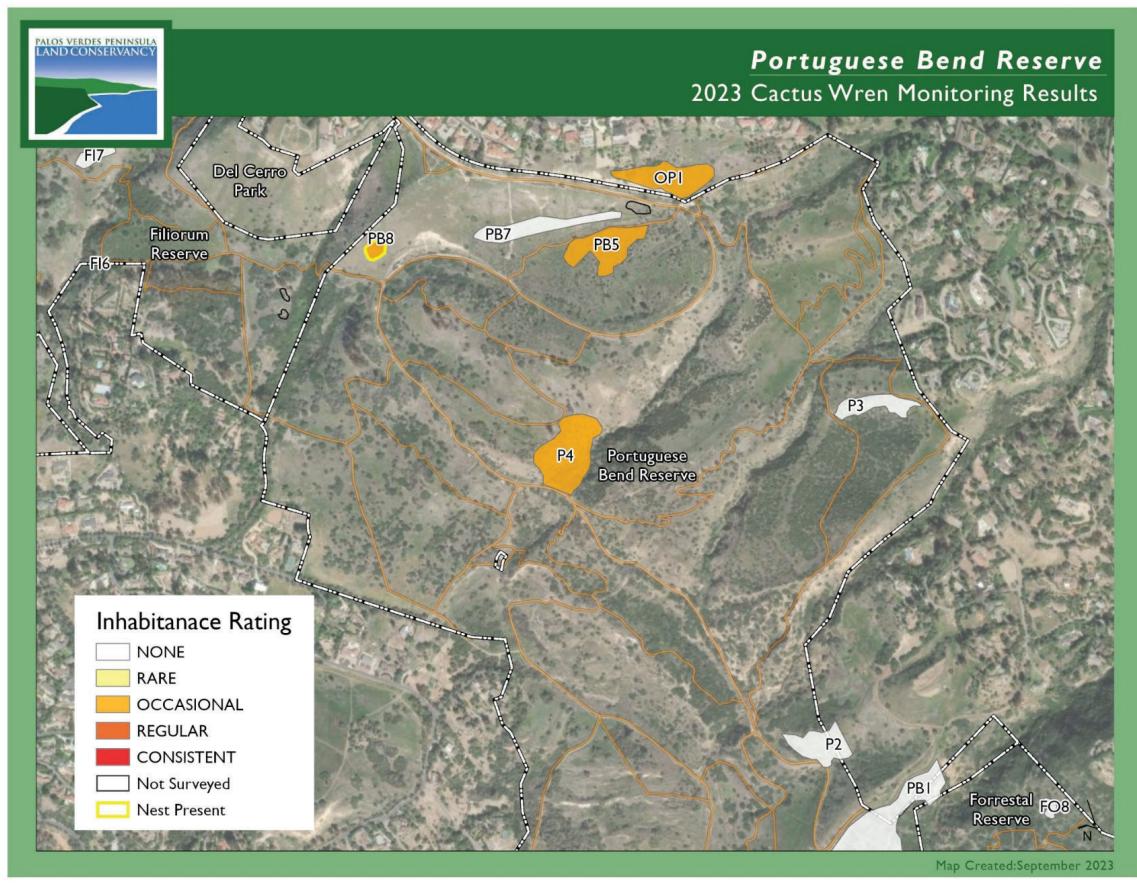


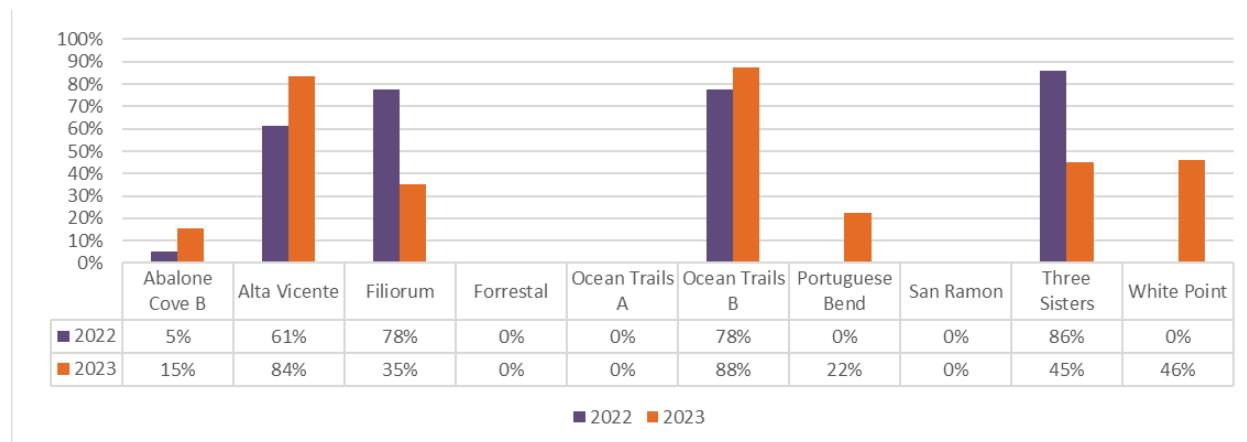
Figure 7: Inhabitance Rating in White Point Nature Preserve



Survey Summary Statistics

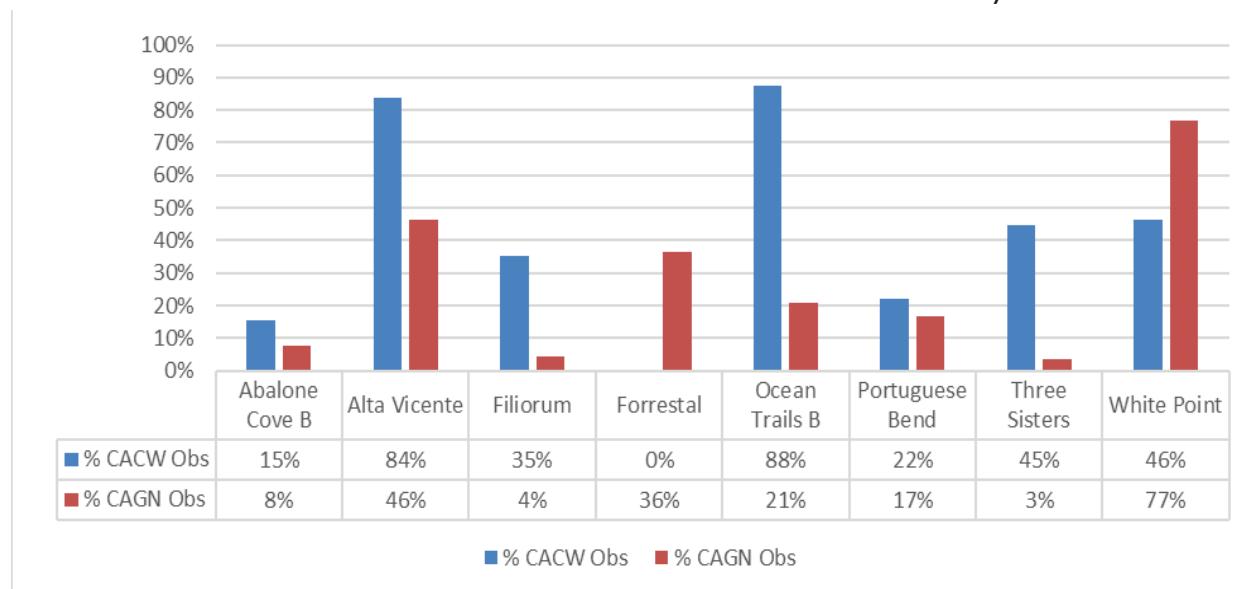
In 2023, the average observation rate of Cactus Wren increased from 2022 in three of five reserves with observations (Table 2), and Cactus Wren were recorded in White Point for the first time (Figure 7). In 2022, no Cactus Wren activity was observed in Portuguese Bend, but in 2023 observation rate increased to 22% (Table 2). While nesting material was seen in Portuguese Bend in 2023, no successful nesting was observed. Observations in Filiorum and Three Sisters Reserve decreased (Table 2), but this result may be misleading, as cactus patches in Filiorum and Three Sisters Reserves can be difficult to approach closely due to steep terrain. Cactus Wren were still not observed in San Ramon and Forrestal. Restoration is planned for San Ramon in 2024, which the Land Conservancy expects will increase the likelihood of future inhabitance.

Table 2: Overall Observation Rate (%) by Reserve 2022 vs. 2023



California Gnatcatcher were also surveyed within each reserve. The highest observation rate was in White Point at 77% (Table 3), followed by Alta Vicente and Forrestal Reserves. Persistence of California Gnatcatcher at Forrestal despite no Cactus Wren present signifies quality habitat still exists, as habitat needs for California Gnatcatcher overlap with those of Cactus Wren (Table 3).

Table 3: Percent Observation Rate of Cactus Wren and California Gnatcatcher by Reserve



In 2023, Cactus Wren activity peaked in April in the majority of reserves (Table 4). Activity and nesting continued past July (Table 4). The Land Conservancy will keep track of this trend to see if the breeding season is shifting earlier or later in the year, for example, or lasting longer than previous years. The decrease in observations in May (Table 4) could be caused by the rains in May (Table 5) that decreased bird activity and volunteers' ability to survey. One nest in Alta Vicente was still active in August, possibly signifying a second clutch. The significant increase in rain early in 2023 (over 7 inches in March) compared to March of 2022 (Table 5) could contribute to changes in habitat suitability breeding timing, but further research is needed.

Table 4: Monthly Cactus Wren Observation Rate by Reserve (March-July)

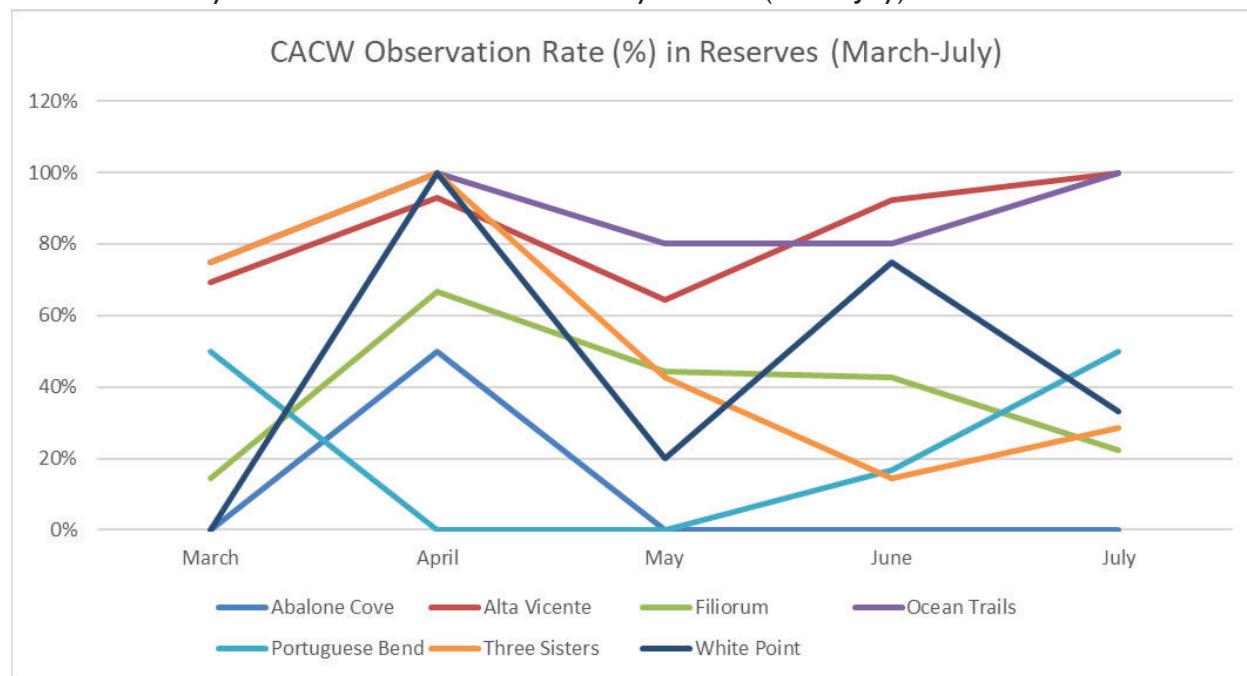
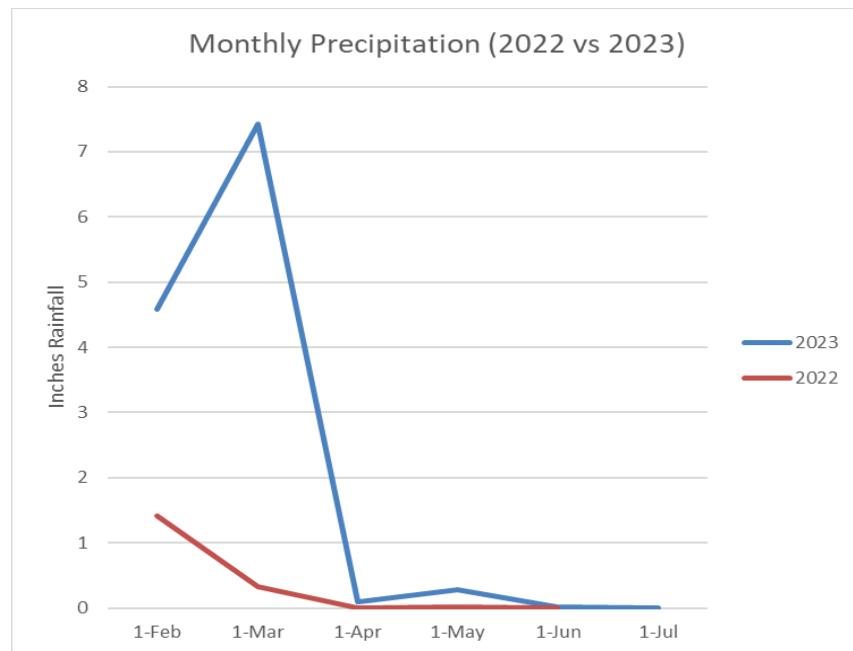


Table 5: Monthly Precipitation in 2022 and 2023



DISCUSSION

The 2023 breeding season for Cactus Wren was monitored by the Community Science Cactus Wren Monitoring Program coordinated by the Palos Verdes Peninsula Land Conservancy. Historically, the Cactus Wren was exclusively found in reserves providing the highest quality habitat with large expanses of cactus (*Opuntia littoralis*, *O. oricola*, and *Cylindropuntia prolifera*) and specifically mature cactus plants. These locations, Alta Vicente, Filiorum, Three Sisters and Ocean Trails are considered “core habitat” or locations of central importance to Cactus Wren breeding in previous years. In recent years the volunteer program noted an overall reduced number of Cactus Wren breeding territories as well as overall observations of the species. This year showed positive signs of relative population stability despite its small size.

Since 2021, observed Cactus Wren activity seems to be increasing in Reserves with suitable habitat, as evidenced by a higher average observation rate in the majority of surveyed Reserves in 2023. Overall average observation rate across all surveyed reserves increased from 21% in 2021 and 36% in 2022 to 48% in 2023. Cactus Wren were observed in new and recently rarely frequented territories like Portuguese Bend Reserve, Abalone Cove Reserve, and White Point Nature Preserve. It should be noted that more community scientists were deployed than previous years, which could result in a higher capacity and frequency of surveys, increasing the likelihood of Cactus Wren observations. Still, the presence of Cactus Wren in their core territories in addition to new locations is a good sign.

In 2023 the “core” areas of Alta Vicente, Three Sisters/Filiorum, and Ocean Trails were still occupied by Cactus Wren (Table I; Figures 2-7). In 2023, nests were present in Alta Vicente, Filiorum, Portuguese Bend and Ocean Trails Reserves. In 2022, nests were present in Alta Vicente, Filiorum, Three Sisters, and Ocean Trails. The confirmation of nesting activity in four Reserves and seven juveniles spotted in three different Reserves (Filiorum, Alta Vicente, and Ocean Trails Reserves) is an encouraging sign that the Cactus Wren population on the peninsula is at least persisting and potentially expanding. Many of the locations with the highest frequency of observations overlap with the Land Conservancy’s restoration and maintenance areas, including Abalone Cove, Alta Vicente, Portuguese Bend, Three Sisters, and Filiorum Reserves, indicating the importance of continued conservation efforts.

In 2021, a sole male that did not attract a mate was observed at Abalone Cove. In 2022, no Cactus Wren were observed in Abalone Cove. In 2023, a Cactus Wren was observed again in Abalone Cove. The Land Conservancy is continuing new restoration phases at Abalone Cove, planting coastal sage scrub and cactus scrub habitat and exposing overtopped mature cactus, so Cactus Wren activity is expected to increase in future years. Additionally, the acquisition of the Lower Filiorum property north of Abalone Cove may provide Cactus Wren easier access to the reserve through the habitat corridor linking Filiorum, Three Sisters, Portuguese Bend, Forrestal, and the Lower Filiorum Reserves.

Similar to last year, nesting was observed near the non-native cactus at the farm and Cactus Wren were sighted in non-native cactus habitat. We will monitor this area closely in future surveys, as the presence of Cactus Wren in the non-native cactus habitat may affect our restoration plans and any non-native cactus removal. PVPLC has access to the farm, which will enable closer monitoring of this area for Cactus Wren activity.

Several causes of Cactus Wren decline have been identified as potential and likely drivers of declining regional presence and nesting success of Cactus Wren. These include: invasion by non-native plant

species, heightened predation pressure in urban areas, unfavorable weather conditions (drought, seasonal shifts in rainfall, and cool early spring temperatures), and human disturbance. This program has found evidence to support each of these factors as present in the Preserve. It is expected that these issues are working synergistically creating a complex set of overlapping challenges. Certain reserves had multiple sightings of overtapped cactus and non-native mustard, which may also help explain the absence of Cactus Wren in some patches in Three Sisters and Filiorum.

Although 2022 and 2023 saw a slight increase in breeding activity and observations, these challenges still exist and management efforts will still be necessary to ensure the validity of the Cactus Wren in the Palos Verdes Peninsula. Since 2019 the land conservancy worked on opening up the vegetation around core habitat areas and previously inhabited patches to enhance the existing core populations and avoid a further decline in population.

To meet or mitigate challenges faced by Cactus Wren in the preserve, conservancy staff has determined several management activities to improve the viability of the Palos Verdes Cactus Wren population.

Recommended activities include:

- Continued removal of invasive non-native plants from cactus rich areas
- Continued installation of new cactus plantings, specifically in new restoration Phase 4 at Abalone Cove where Cactus Wren was spotted in 2023 and Lunada Canyon.
- Continued creation of foraging habitat (bare ground) surrounding cactus patches
- Possible implementation of nesting boxes
- Transplanting adult Cactus Wren individuals and swapping eggs from nearby Cactus Wren populations for genetic longevity purposes

PHOTO DOCUMENTATION



Cactus Wren near nest in Alta Vicente
Photo by: Randy Harwood
Date: 04-28-2023



Cactus Wren nest in AV-2
Photo by: Randy Harwood
Date: 05-03-2023



Cactus Wren pair mating in Alta Vicente
Photo by: Randy Harwood
Date: 05-03-2023



Cactus Wren courtship behavior in Alta Vicente
Photo by: Randy Harwood
Date: 05-03-2023



Cactus Wren calling from non-native mustard in
Alta Vicente
Photo by: Randy Harwood
Date: 06-20-2023



Cactus Wren at nest in AV-2
Photo by: Randy Harwood
Date: 06-20-2023



Cactus Wren on non-native cactus in Hatano Farm, Alta Vicente
Photo by: Randy Harwood
Date: 07-10-2023



Cactus Wren Nest in Alta Vicente
Photo by: Randy Harwood
Date: 07-10-2023



Cactus Wren defending territory from Northern Mockingbird
Photo by: Randy Harwood
Date: 07-19-2023



Cactus Wren foraging on Alta Vicente Trail
Photo by: Randy Harwood
Date: 07-19-2023



Cactus Wren foraging in *Artemesia californica*, Alta Vicente
Photo by: Randy Harwood
Date: 07-19-2023



Cactus Wren with nesting material in AV-9
Photo by: Randy Harwood
Date: 07-23-2023



Cactus Wren perched in Fi-4

Photo by: Jim Rassler

Date: 02-17-2023



Cactus Wren on overtopped cactus in Filiorum

Photo by: Jim Rassler

Date: 06-01-2023



Two Juvenile Cactus Wren in OT-13

Photo by: Silke von Bueren

Date: 06-21-2023



Adult Cactus Wren in OT-13

Photo by: Silke von Bueren

Date: 06-21-2023



Cactus Wren calling from *Rhus integrifolia* in OT-12
Photo by: Mike Bell
Date: 04-12-2023



Cactus Wren nest in OT-11
Photo by: Mike Bell
Date: 04-30-2023



Male California Gnatcatcher with nesting material in AV-7
Photo by: Randy Harwood
Date: 03-09-2023



California Gnatcatcher pair in Alta Vicente
Photo by: Randy Harwood
Date: 06-12-2023

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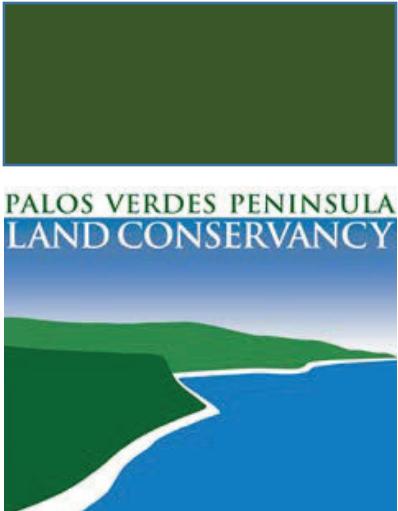
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Cooper Ecological Monitoring, Inc. ("CEM") 2021. Palos Verdes Nature Preserve survey for the California gnatcatcher and the Cactus Wren (2021), Palos Verdes Peninsula Land Conservancy, Los Angeles County. Final report to the PVPLC. November 29th, 2021.

<http://www.laamanac.com/weather/we10a.php>

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Wildlife Tracking Community Science Monitoring 2023-2024



INTRODUCTION

Top predators are an important ecological component of natural ecosystems. In the Palos Verdes Nature Preserve, coyotes are apex predators, where they control the population of several food web members. The regulation of intermediate predators is important to maintaining healthy populations of other wildlife species including protected songbirds such as the California gnatcatcher (*Polioptila californica californica* [FT]) and Cactus Wren (*Campylorhynchus brunneicapillus*).

The Community Science Wildlife Tracking program is a monitoring project that surveys the Preserve for the presence of wild canid species including coyotes, red fox, and the locally endangered gray fox, in addition to other mammal, reptile, and bird species. Volunteer participants walk trail segments in search of tracks or scat which are mapped and photographed. Results of this survey are compiled to create maps of areas used by coyotes and foxes within each reserve. Mapped observations of tracks and scat indicate locations of high and low coyote and fox activity.

The Wildlife Camera project was designed to complement the Community Science Wildlife Tracking Program and further investigate findings of the Tracking Program such as areas of exclusion or territorial boundaries. A sample of results from May to September 2023 are presented Section II and Appendix B of this report.

Section I: Wildlife Tracking Program

METHODS

Study Area:

The study area was within 11 reserves (Abalone Cove, Alta Vicente, Filiorum, Forrestal, Lunada Canyon, Ocean Trails, Portuguese Bend, San Ramon, Three Sisters, Vicente Bluffs, and Vista Del Norte) of the Palos Verdes Nature Preserve (PVNP) located in the cities of Rancho Palos Verdes and bordering Rolling Hills, CA. Three reserves outside of the PVNP were also surveyed, including George F. Canyon Preserve and Linden H. Chandler Preserve in Rolling Hills Estates, and White Point Nature Preserve in San Pedro, CA.



Figure 1. Wildlife Tracking Study Area Map

Data Collection:

The monitoring is conducted when the animals are most active, November through February by walking along specific trail routes in the preserves. While walking along marked trails, surveyors search for evidence of coyotes, gray fox, and red fox which is usually in the form of scat or track imprints. This year the Land Conservancy started tracking all species observed. Scat is the most frequent observation

made, with tracks a distant second. When tracks are found, the length and width of the track is observed and a ruler or other size reference is placed in the photo of the track or scat.

Training is required for participants to develop the necessary skills for optimal accuracy in identifying scat and tracks. At minimum, initial training requires at least two 3 hour sessions, which are conducted on Saturdays in October. Additionally Community Science participants are encouraged to accompany advanced trackers to enhance their skills. Photographs of observations are an important tool for confirming the accuracy of observations. The Conservancy provides additional support as needed to the wildlife tracking volunteers. Training included two field training days where the principles of tracking were taught. Follow up training in small groups in the field were also offered to create confidence in the volunteers and in the tracking observations.

Recorded data are submitted electronically to the Conservancy using a GIS-based mobile app called Survey123. This app streamlines the data collection and submission process by allowing all volunteers to save observations on their phones, including photos, notes, and geolocation. This data is then downloaded into an Excel sheet and analyzed. The points recorded at each observation are downloaded as a shapefile and mapped and analyzed using ArcGIS Pro.

As volunteers record observations throughout the season, they were able to write in the notes of the survey their confidence in the species, if necessary. The Land Conservancy Biologist was able to confirm or contest each observation, and ultimately update the observation data if necessary.

RESULTS

The 2023-2024 wildlife tracking survey identified a total of 414 wild canid observations in the survey area as of February 9, 2024, a small increase from 391 observations in the 2022-2023 season. Coyote observations were again the most common observation with 347 scat and tracks identified, while both species of fox tracks and scat totaled 67. Coyote observations were found across all reserves studied. Coyote tracks or scat were observed during 100% of the surveys performed in the following Reserves (Table 1, Figure 2): Alta Vicente, Chandler, Filiorum, Forrestal, George F Canyon, Lunada Canyon, Portuguese Bend, San Ramon, and Vista del Norte. The lowest coyote observation rate were in Three Sisters (0.60) and Vicente Bluffs Reserves (0.60) (Table 1, Figure 2). In total, for species were observed during 50% of the surveys, and in 10 of the 12 Reserves surveyed. No fox observations were made in Chandler or Vista del Norte.

The maps below, Figures 2 and 3, and Tables 1-2 show that the highest number and rate of coyote observations were in Forrestal (96 observations; observation rate of 1.0 or 100%). Coyote scat and tracks were primarily found on Mariposa Trail and Pirate Trail, and at trail intersections. George F Canyon had the second highest number and rate of coyote observations (47 observations; observation rate of 1.0 or 100%). Their tracks and scat were identified throughout the Preserve, along the length of the main trail. Significant water flow was present at times during the survey period, likely increasing activity of all wildlife at George F Canyon. San Ramon, a future restoration area in 2024, also was a hot spot for canids, with a 100% observation rate for both coyote and fox species, with observations made primarily along Switchback trail (Table 1, 2; Figure 2-4). Notably, 4 grey fox and 7 red fox scat were spotted in Forrestal (Table 2; Figure 3,4).

The highest diversity of species were identified in Forrestal, with 150 total observations (Table 2). It is important to note that Forrestal was also second-most frequently surveyed, therefore increasing the chance of wildlife observations (17 surveys; Table 1). The most observed species were coyote, raccoon, and domestic dog tracks and scat (Table 2).

Table 1. Number and rate of coyote observations by reserve Nov. 1, 2022 through Feb. 9, 2023.

Reserve	Totals Surveys	Total Observations	Coyote Observations	Coyote Observation Rate
Abalone Cove	21	38	19	0.9
Lunada Canyon	13	102	24	1.0
Alta Vicente	11	51	19	1.0
Chandler	12	45	38	1.0
Filiorum	8	20	12	1.0
Forrestal	17	158	96	1.0
George F Canyon	13	140	47	1.0
Portuguese Bend	7	42	27	1.0
San Ramon	7	52	32	1.0
Three Sisters	13	91	8	0.6
Vicente Bluffs	5	26	3	0.6
Vista del Norte	7	28	18	1.0
Total	134	802	347	0.9

Rate = (Total Species Observations / Total Surveys)

Table 2. Number and rate of fox observations by reserve Nov. 1, 2022 through Feb. 9, 2023.

Reserve	Totals Surveys	Total Obs.	Red fox Obs.	Red Fox Obs. Rate	Grey fox Obs.	Grey fox Obs. Rate	All Fox Sp. Obs.	All Fox Sp. Obs. Rate
Abalone Cove	21	38	1	0.03			1	0.05
Lunada Canyon	13	102	11	0.85			11	0.85
Alta Vicente	11	51	1	0.09			3	0.27
Chandler	12	45						
Filiorum	8	20					6	0.75
Forrestal	17	158	7	0.41	3	0.18	14	0.82
George F Canyon	13	140			2	0.15	2	0.15
Portuguese Bend	7	42	6	0.86			7	1.00
San Ramon	7	52	1	0.14			14	1.00
Three Sisters	13	91			5	0.38	5	0.38
Vicente Bluffs	5	26					4	0.80
Vista del Norte	7	28						
Total	134	802	27	0.20	10	0.07	67	0.50

Rate = (Total Species Observations / Total Surveys)

Sp. = Species

Obs. = Observation(s)

Table 2. Number of all species observations by reserve Nov. 1, 2022 through Feb. 9, 2023.

Species	Alta Vicente	Linden H. Chandler	Filiorum	Forrestal	Lunada Canyon	Portuguese Bend	Vista del Norte	Abalone Cove	San Ramon	Three Sisters	George F Canyon	Vicente Bluffs	Grand Total
Audubon's cottontail	1	2		9	6	1		3	1				23
Bird sp.	1			5				1		2			9
California ground				4							1	1	6
Coyote	19	38	12	96	24	27	18	19	32	8	47	7	347
Domestic dog	4				15			4	1	5	27	2	58
Fox sp.	2		6	4		1			13			5	31
Grey fox				3						5	2		10
Lizard				1				1		1			3
Opossum							2						2
Raccoon	1	1		9	9						34	8	62
Red fox	1			7	11	6		1	1				27
Rodet sp.	1			8				1	1			3	14
Southern pacific			1								1		2
Striped skunk		1		4	1								6
Grand Total	30	42	19	150	66	35	20	30	49	22	111	26	600

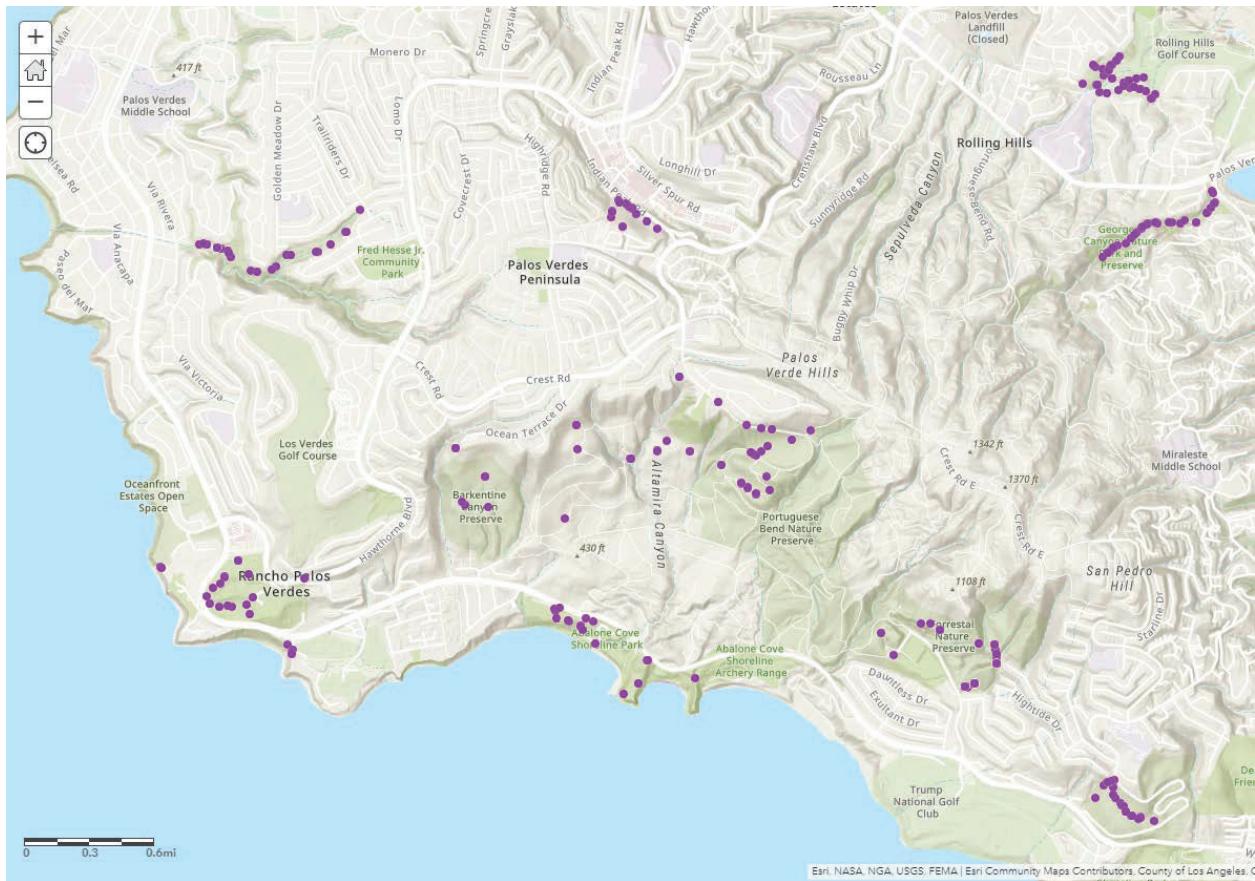


Figure 2. Coyote Observations Point Map (Nov 2023 – Feb 2024)

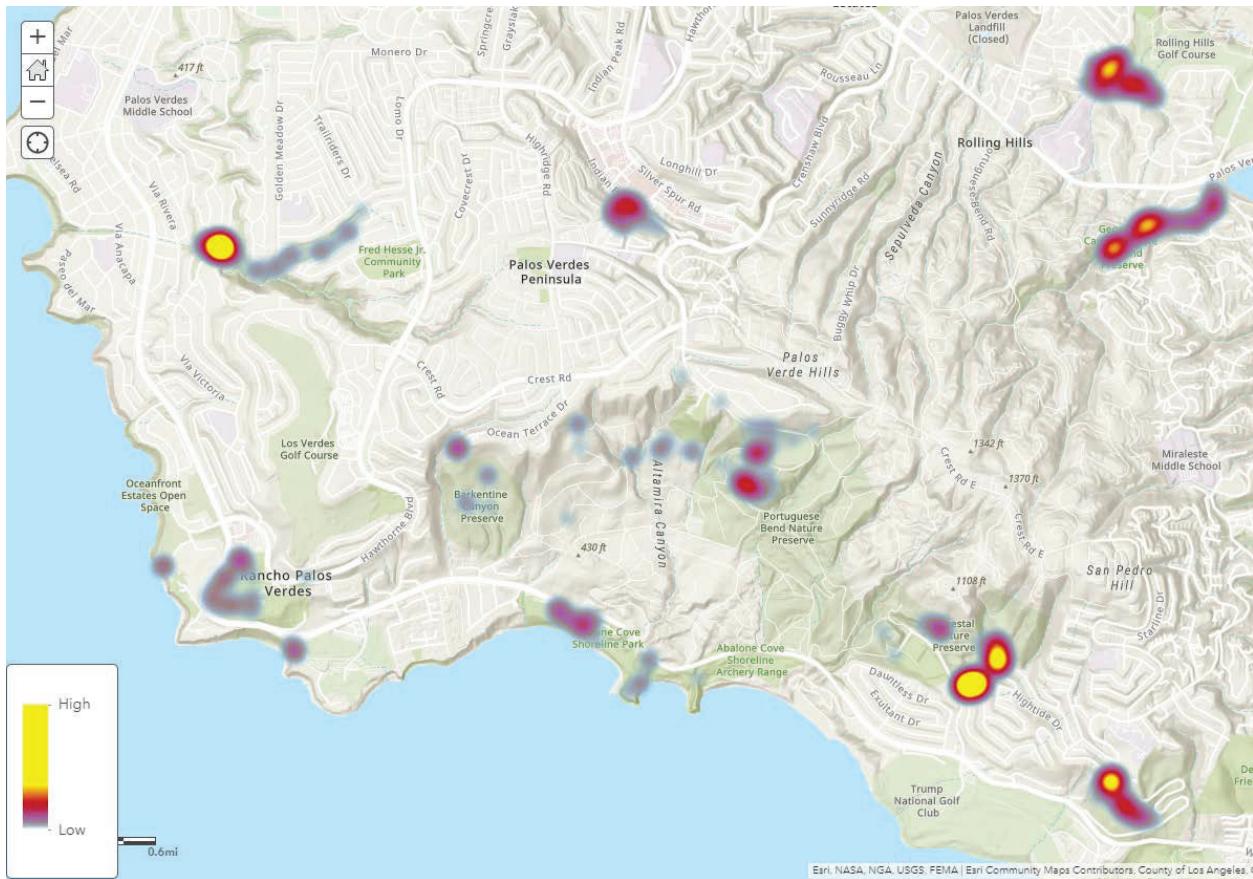


Figure 3. Coyote Observations Heat Map (Nov 2023 – Feb 2024)

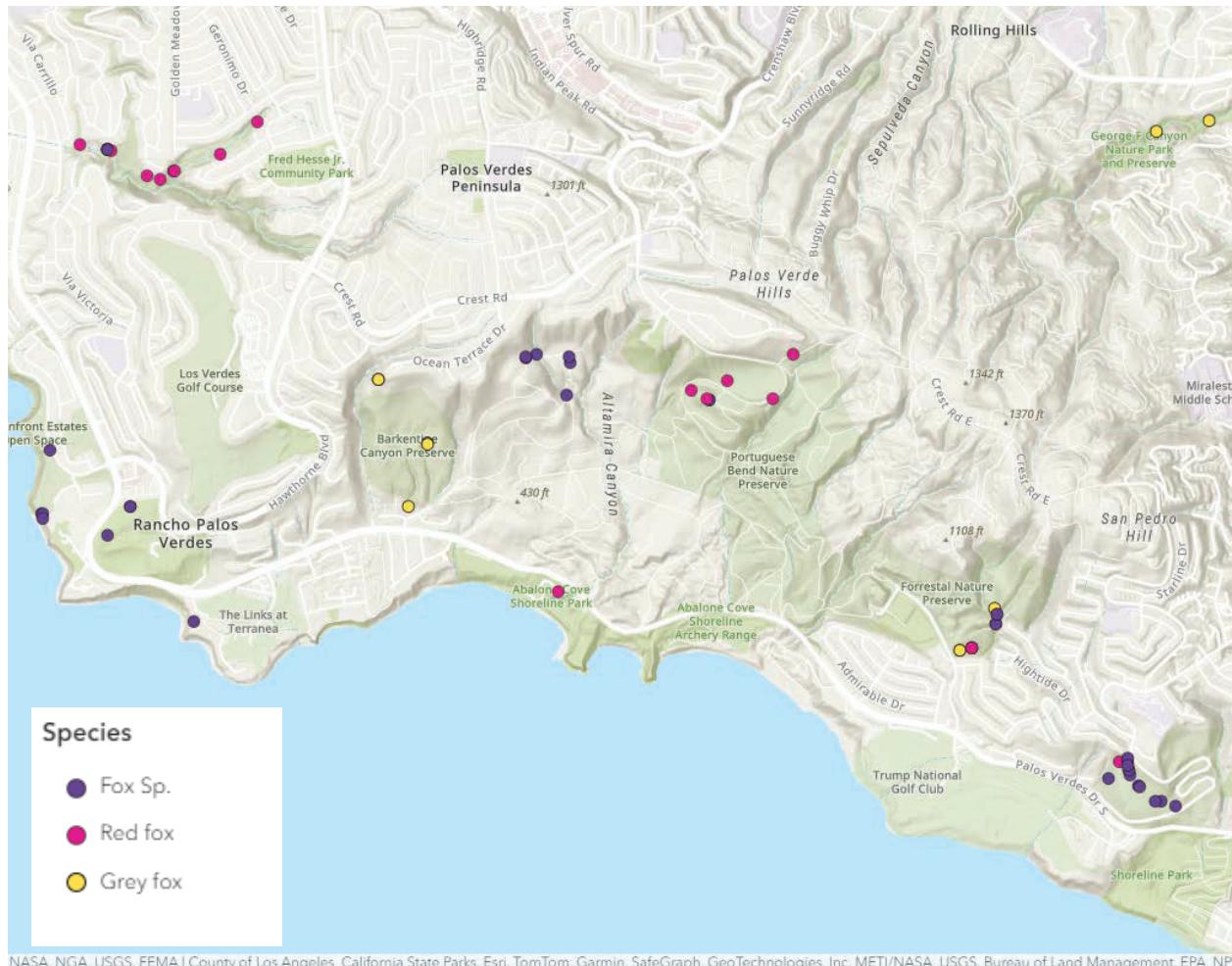


Figure 4. Fox Species Observations Point Map (Nov 2023 – Feb 2024)

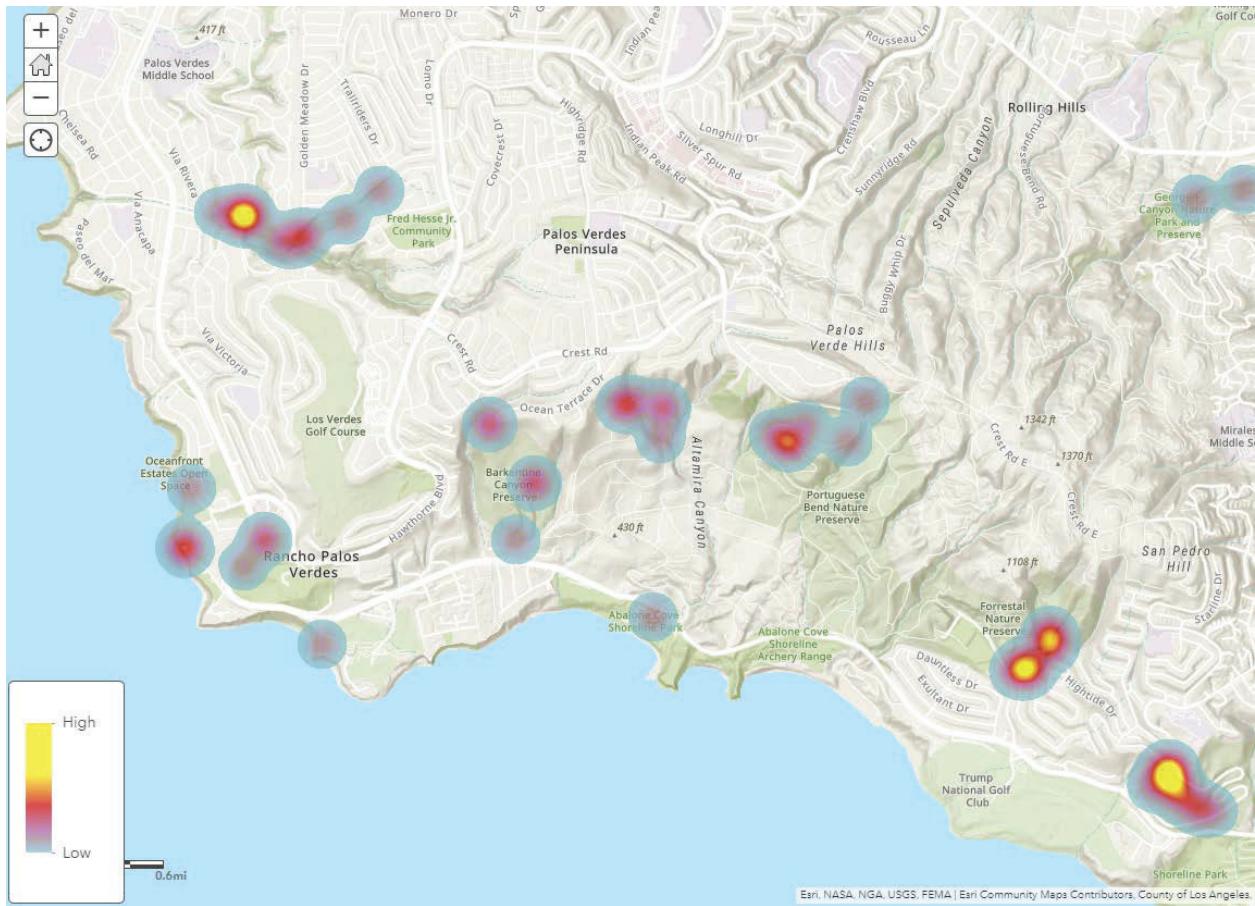


Figure 5. Fox Species Observations Heat Map (Nov 2023 – Feb 2024)

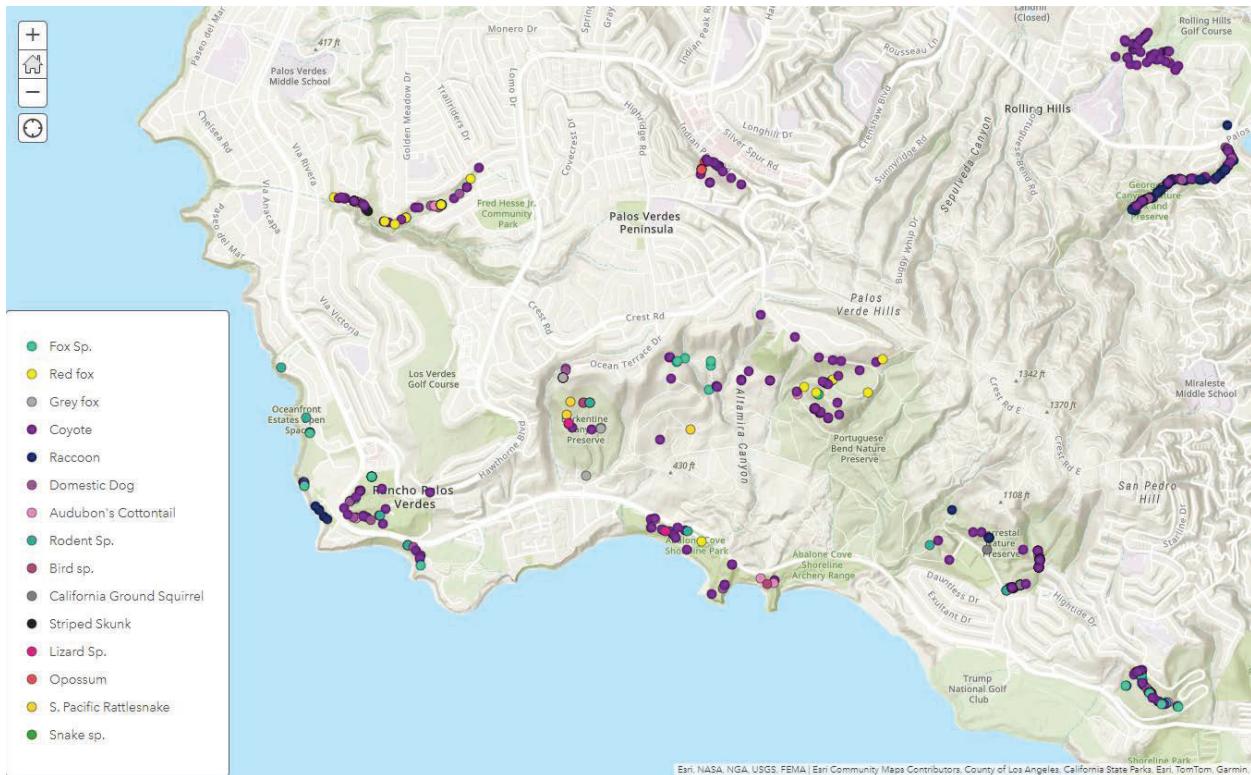


Figure 6: All Species Observations Point Map (Nov 2023 – Feb 2024)

DISCUSSION

The presence of canid predators within wildlife habitats has been documented as crucial to ensuring healthy ecosystem function. In the Palos Verdes Nature Preserve the success of nesting songbirds, namely the federally protected California gnatcatcher (*Polioptila californica*) and state protected coastal cactus wren (*Campylorhynchus brunneicapillus*), can be positively influenced by the presence of predators through their control of lower predator (i.e.: striped skunk, raccoon, domestic cats, etc.) populations. The presence of coyotes is specifically indicated by the Rancho Palos Verdes Natural Community Conservation Plan as an important ecological element necessary for successful nesting conditions. Considering the presence of coyotes in these terms, the broad range of the coyote observed within the Palos Verdes Nature Preserve indicates the existence of an important meso-predator control dynamic. Their population appears to be stable, given the rate of observations and presence within all reserves surveyed. Expectedly, volunteers noted more red fox than grey fox, but it is encouraging to still see evidence of grey fox given their vulnerable status. Plentiful prey appear to be present as well, given frequency observations of rodents by both volunteers and our trails cameras (see Section II).

Section II: Wildlife Camera Program

METHODS

From May through September 2023, the wildlife cameras were placed at several locations in Forrestal and Portuguese Bend Reserves of the Palos Verdes Nature Preserve (PVNP). The exact locations are not revealed to respect wildlife privacy. One camera was placed in Klondike Canyon bordering Forrestal and Portuguese Bend Reserve. The second camera was placed off Cristo que Viento Trail in Forrestal where coyote den has been in previous years. A third was placed in Gary's Gulch area in Portuguese Bend where water was recently present. Each year, five wildlife cameras are deployed in various locations, and are moved to different locations periodically throughout the year. Cameras are typically secured to trees and locked for safety (Figure 1). Wildlife tracking results often inform camera location selection. Cameras activate when movement is observed to capture wildlife (Figure 2,3). Data is regularly downloaded from the camera memory cards and analyzed by community scientists. Data is input into spreadsheets detailing the date, time, species, and activity seen in the videos (Appendix A).



Figure 1: Wildlife camera secured to tree



Figure 2: Coyote pup still from wildlife camera captured May 10, 2023



Figure 3: Adult coyote still from wildlife camera capture June 2, 2023

RESULTS

The following results provide a snapshot of the data recorded by the cameras. The quantity of data is too large to include in the report, so we selected three of our cameras' data between 5/12/23 and 9/1/23 to detail here (Table 1-3). Additional data can be provided upon request. Appendix A includes the camera data collected by volunteers in spreadsheets, including the date, time, species, description of what is happening in the video, and video ID.

The Cristo que Viento camera in Forrestal contains several adult coyote clips (Table 2; Figure 3), and was the only camera of the three to capture a coyote. The Klondike Canyon camera was visited by a variety of bird species, including less common species like Lazuli Bunting and Warbling Vireo (Table 1). The camera in Gary's Gulch was expected to see high wildlife activity due to its proximity to water. There was a moderate amount of activity, less than expected, with 116 videos with wildlife present during a one-week period (Table 3). For comparison, 42 videos included wildlife within a 9-day period on the Cristo que Viento camera (Table 2).

Table 1. Species observed by the Klondike Canyon, Forrestal Reserve camera from 5/12/23 – 5/14/23

Klondike Canyon

Species	Count
Allen's hummingbird - <i>Selasphorus sasin</i>	14
Avian species - unidentified	1
Coastal bushtit - <i>Psaltriparus minimus</i>	7
Common yellowthroat - <i>Geothlypis trichas</i>	4
Lazuli bunting - <i>Passerina amoena</i>	3
Lesser goldfinch - <i>Carduelis psaltria</i>	16
Orange-crowned warbler - <i>Vermivora celata</i>	8
Warbling vireo - <i>Vireo gilvus</i>	1
Total	54

Table 2. Species observed by the Cristo que Viento, Forrestal Reserve camera from 5/23/23-6/12/23

Cristo que Viento

Species	Count
Allen's hummingbird - <i>Selasphorus sasin</i>	1
CA towhee - <i>Pipilo crissalis</i>	1
Coyote - <i>Canis latrans</i>	3
Fence lizard - <i>Sceloporus occidentalis</i>	1
Gopher - <i>Thomomys bottae</i>	1
Ground squirrel - <i>Otospermophilus beecheyi</i>	1
Lesser goldfinch - <i>Carduelis psaltria</i>	2
Mourning dove - <i>Zenaida macroura</i>	2
Raccoon - <i>Procyon lotor</i>	8
Spotted towhee - <i>Pipilo maculatus</i>	9
Wood rat - <i>Neotoma macrotis</i>	13
Grand Total	42

Table 3. Species observed by the Gary's Gulch, Portuguese Bend Reserve camera from 8/25/23-9/1/23

Gary's Gulch	
Species	Count
Audubon's cottontail - <i>Silvilagus audubonii</i>	25
Bird species	6
CA Towhee - <i>Pipilo crissalis</i>	40
Chipping sparrow - <i>Spizella passerina</i>	3
Coyote - <i>Canis latrans</i>	1
Fox squirrel - <i>Sciurus n.</i> , Audubon's cottontail - <i>Silvilagus a.</i>	6
Fox Squirrel - <i>Sciurus niger</i>	30
Ground squirrel - <i>Otospermophilis beecheyi</i>	2
Spotted towhee - <i>Pipilo Maculatus</i>	3
Grand Total	116

DISCUSSION

Cameras are placed away from trails where public cannot access, including wildlife tracking volunteers, so the wildlife can be viewed relatively undisturbed by humans. Therefore, wildlife cameras provide valuable insight into mammal activity at the PVNP that otherwise would not be possible to observe, especially during the nighttime. It is notable that the camera placed in Klondike Canyon did not show any mammals (Table 1). It was removed after 2 days because the area was cleared for utility access to broken pipes. This activity may have disturbed some wildlife. PVPLC assessed damages to vegetation, but cannot assess impact to wildlife as easily. The wildlife cameras provide important insight. The cameras will be moved to new locations in 2024. Locations where water is present, canid activity has been observed, and/or restoration areas are nearby will be prioritized.

Appendix A

Wildlife Camera Data Sheets

Forrestal - Klondike Canyon Camera			
DATE	TIME	SPECIES NAME	COMMENT
5/12/2023	10:13am	Allen's hummingbird - <i>Selasphorus sasin</i>	#0007 One Allen's
		Lesser goldfinch - <i>Carduelis psaltria</i>	Two goldfinches
	10:14am	Allen's hummingbird - <i>Selasphorus sasin</i>	#0008
	10:18am	Unidentified bird call	#0018 Possibly common yellowthroat
	10:41am	Avian species - unidentified	#0062 Possibly lesser goldfinch
	12:57pm	Lesser goldfinch - <i>Carduelis psaltria</i>	#0082 Left of frame-move to center
	12:57pm	Lesser goldfinch - <i>Carduelis psaltria</i>	#0083 Left of center
	12:57pm	Lesser goldfinch - <i>Carduelis psaltria</i>	#0084 Right of center
	12:58pm	Common yellowthroat - <i>Geothlypis trichas</i>	#0087 Top center to bottom
	12:59pm	Common yellowthroat - <i>Geothlypis trichas</i>	#0088 Lower right. Bathing.
	01:00pm	Lesser goldfinch - <i>Carduelis psaltria</i>	#0091 Lower right
		Common yellowthroat - <i>Geothlypis trichas</i>	Appears at left. Crosses diagonally
	01:01pm	Common yellowthroat - <i>Geothlypis trichas</i>	#0092 Left of center
		Lesser goldfinch - <i>Carduelis psaltria</i>	Lower right. Bathing.
	01:02pm	Lazuli bunting - <i>Passerina amoena</i>	#0093 Left of center. Fly down
	01:03pm	Lesser goldfinch - <i>Carduelis psaltria</i>	#0096 Bottom left. Fly up.
	01:04pm	Lesser goldfinch - <i>Carduelis psaltria</i>	#0098 Bathing. Fly up left of center.
	01:47pm	Lesser goldfinch - <i>Carduelis psaltria</i>	#0118 Bottom center.
	01:55pm	Lesser goldfinch - <i>Carduelis psaltria</i>	#0119 Fly up from bathing.
	02:04pm	Lesser goldfinch - <i>Carduelis psaltria</i>	#0129 Up from bottom center, then back down.
	02:07pm	Lesser goldfinch - <i>Carduelis psaltria</i>	#0158 Bottom center
	02:27pm	Lesser goldfinch - <i>Carduelis psaltria</i>	#0180 Fly right to left
	02:31pm	Lazuli bunting - <i>Passerina amoena</i>	#0184 Left of center. Fly down.
	02:31pm	Lesser goldfinch - <i>Carduelis psaltria</i>	#0185 Bottom left
	02:33pm	Lazuli bunting - <i>Passerina amoena</i>	#0188 Fly up after bathing.
	06:45pm	Allen's hummingbird - <i>Selasphorus sasin</i>	#0192 Lower right to top center and back
5/13/2023	09:51am	Allen's hummingbird - <i>Selasphorus sasin</i>	#0233 Hover in front of cam
	09:52am	Allen's hummingbird - <i>Selasphorus sasin</i>	#0234 Hover lower right
	09:53am	Allen's hummingbird - <i>Selasphorus sasin</i>	#0238 Hover lower right
	10:41am	Allen's hummingbird - <i>Selasphorus sasin</i>	#0307 Two Allen's
	10:41am	Allen's hummingbird - <i>Selasphorus sasin</i>	#0308 One Allen's preening
	10:41am	Allen's hummingbird - <i>Selasphorus sasin</i>	#0309 More preening
	10:41am	Allen's hummingbird - <i>Selasphorus sasin</i>	#0310 Two Allen's
	10:42am	Allen's hummingbird - <i>Selasphorus sasin</i>	#0311 One Allen's. Hover.
	12:32pm	Orange-crowned warbler - <i>Vermivora celata</i>	#0335 Center left. Fly down.
	12:33pm	Orange-crowned warbler - <i>Vermivora celata</i>	#0336 Up from bathing
	12:33pm	Orange-crowned warbler - <i>Vermivora celata</i>	#0337 Center left. Fly down.
	12:34pm	Orange-crowned warbler - <i>Vermivora celata</i>	#0338 Up from bottom
	12:39pm	Coastal bushtit - <i>Psaltriparus minimus</i>	#0351 Two bushtits. Up, down & across.
	12:39pm	Coastal bushtit - <i>Psaltriparus minimus</i>	#0352 Left of frame
	12:40pm	Coastal bushtit - <i>Psaltriparus minimus</i>	#0353 Two bushtits. Left of frame
	12:40pm	Coastal bushtit - <i>Psaltriparus minimus</i>	#0354 One bushtit after bathing
	01:34pm	Orange-crowned warbler - <i>Vermivora celata</i>	#0371 Lower left center
	01:35pm	Orange-crowned warbler - <i>Vermivora celata</i>	#0373 Up from bathing
	01:37pm	Orange-crowned warbler - <i>Vermivora celata</i>	#0378 Center to left & down.
	01:38pm	Orange-crowned warbler - <i>Vermivora celata</i>	#0380 Up from bathing. Very wet.
	02:55pm	Allen's hummingbird - <i>Selasphorus sasin</i>	#0395 Female. Center & fly off cam
	03:38pm	Lesser goldfinch - <i>Carduelis psaltria</i>	#0421 Male. Big song.
	04:22pm	Coastal bushtit - <i>Psaltriparus minimus</i>	#0476 two bushtits. One at center, one upper left.
	04:23pm	Coastal bushtit - <i>Psaltriparus minimus</i>	#0477 Left of frame
	04:23pm	Coastal bushtit - <i>Psaltriparus minimus</i>	#0478 Lower left.
		Lesser goldfinch - <i>Carduelis psaltria</i>	Bottom center
	04:33pm	Allen's hummingbird - <i>Selasphorus sasin</i>	#0503 Center right & up
	04:52pm	Allen's hummingbird - <i>Selasphorus sasin</i>	#0517 Hover at center
5/14/2023	08:05am	Warbling vireo - <i>Vireo gilvus</i>	#0529 Left of center

Forrestal - Cristo que Viento Camera			
DATE	TIME	SPECIES	COMMENTS
5/23/2023	05:51pm	Spotted towhee - <i>Pipilo maculatus</i>	#0050 Female.
	08:14pm	Raccoon - <i>Procyon lotor</i>	#0051
5/24/2023	12:56pm	Spotted towhee - <i>Pipilo maculatus</i>	#0053 Female
5/25/2023	12:26am	Raccoon - <i>Procyon lotor</i>	#0054
	05:50am	CA towhee - <i>Pipilo crissalis</i>	#0055
	11:33am	Spotted towhee - <i>Pipilo maculatus</i>	#0056 Male
5/26/2023	03:37am	Raccoon - <i>Procyon lotor</i>	#0058
	02:31pm	Fence lizard - <i>Sceloporus occidentalis</i>	#0061
	10:58pm	Wood rat - <i>Neotoma macrotis</i>	#0063 Jump & up tree
5/27/2023	10:40am	Raccoon - <i>Procyon lotor</i>	#0064
	10:55am	Spotted towhee - <i>Pipilo maculatus</i>	#0065
	09:49pm	Raccoon - <i>Procyon lotor</i>	#0066
5/29/2023	06:10am	Raccoon - <i>Procyon lotor</i>	#0069
	03:25pm	Coyote - <i>Canis latrans</i>	#0070 White tip on tail
	08:51pm	Raccoon - <i>Procyon lotor</i>	#0071
5/31/2023	03:04am	Gopher - <i>Thomomys bottae</i>	#0073
	11:05am	Spotted towhee - <i>Pipilo maculatus</i>	#0074 Female. Run fast.
	09:21pm	Wood rat - <i>Neotoma macrotis</i>	#0075
6/1/2023	07:29pm	Spotted towhee - <i>Pipilo maculatus</i>	#0077 Two towhees. Male & female.
6/2/2023	01:55pm	Spotted towhee - <i>Pipilo maculatus</i>	#0078 Female
6/4/2023	02:11am	Wood rat - <i>Neotoma macrotis</i>	#0080
	08:26am	Lesser goldfinch - <i>Carduelis psaltria</i>	#0082
	07:03pm	Spotted towhee - <i>Pipilo maculatus</i>	#0085 Male
6/5/2023	09:43pm	Wood rat - <i>Neotoma macrotis</i>	#0086
	09:43pm	Wood rat - <i>Neotoma macrotis</i>	#0087
	09:44pm	Wood rat - <i>Neotoma macrotis</i>	#0088
6/6/2023	12:30am	Wood rat - <i>Neotoma macrotis</i>	#0089
	12:32am	Wood rat - <i>Neotoma macrotis</i>	#0090
	04:20am	Wood rat - <i>Neotoma macrotis</i>	#0091 Up tree
6/7/2023	05:13am	Wood rat - <i>Neotoma macrotis</i>	#0092
	08:46am	Lesser goldfinch - <i>Carduelis psaltria</i>	#0094
	08:52am	Allen's hummingbird - <i>Selasphorus sasin</i>	#0095
6/8/2023	08:24pm	Raccoon - <i>Procyon lotor</i>	#0096
	02:55am	Wood rat - <i>Neotoma macrotis</i>	#0097
	04:12am	Coyote - <i>Canis latrans</i>	#0098 Black tail tip. Up canyon.
6/10/2023	04:13am	Coyote - <i>Canis latrans</i>	#0099 Back down canyon.
	01:46pm	Ground squirrel - <i>Otospermophilus beecheyi</i>	#0100
	03:49pm	Spotted towhee - <i>Pipilo maculatus</i>	#0103 Male
6/12/2023	02:29am	Wood rat - <i>Neotoma macrotis</i>	#0104
	03:14am	Wood rat - <i>Neotoma macrotis</i>	#0105 On tree
06/10/2023	08:01pm	Mourning dove - <i>Zenaida macroura</i>	#0112
	08:02pm	Mourning dove - <i>Zenaida macroura</i>	#0113
06/12/2023	08:33am	Spotted towhee - <i>Pipilo maculatus</i>	#0116

Gary's Gulch Camera			
DATE	TIME	SPECIES NAME	COMMENT
8/25/2023	04:53pm	Fox Squirrel - <i>Sciurus niger</i>	#0023
8/26/2023	07:05am	Fox Squirrel - <i>Sciurus niger</i>	#0027
	07:06am	Fox Squirrel - <i>Sciurus niger</i>	#0028
	07:38am	Fox Squirrel - <i>Sciurus niger</i>	#0117 Chattering alarm. Audio only
	07:38am	Fox Squirrel - <i>Sciurus niger</i>	#0118 More chatter. Audio only
	07:45am	Fox Squirrel - <i>Sciurus niger</i>	#0136 Chatter-up close. Audio only
	07:45am	Fox Squirrel - <i>Sciurus niger</i>	#0137 Chatter. Audio only
	07:46am	Fox Squirrel - <i>Sciurus niger</i>	#0139 Chatter. Audio only
	07:46am	Fox Squirrel - <i>Sciurus niger</i>	#0140 Chatter. Audio only
	07:47am	Fox Squirrel - <i>Sciurus niger</i>	#0141 Chatter. Audio only
	07:54am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0162
	07:55am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0163 Two rabbits chase
	07:56am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0167
	07:56am	Fox squirrel - <i>Sciurus n</i> , Audubon's cottontail - <i>Silvilagus a</i>	#0168
	07:57am	Fox squirrel - <i>Sciurus n</i> , Audubon's cottontail - <i>Silvilagus a</i>	#0169 Challenge and chase
	07:57am	Fox squirrel - <i>Sciurus n</i> , Audubon's cottontail - <i>Silvilagus a</i>	#0170 Co-exist
	07:58am	Fox squirrel - <i>Sciurus n</i> , Audubon's cottontail - <i>Silvilagus a</i>	#0171 Squirrel runs off
	07:58am	Fox squirrel - <i>Sciurus n</i> , Audubon's cottontail - <i>Silvilagus a</i>	#0172 Squirrel leaps and runs
	07:59am	Fox squirrel - <i>Sciurus n</i> , Audubon's cottontail - <i>Silvilagus a</i>	#0173
	11:37am	CA Towhee - <i>Pipilo crissalis</i>	#0176
	11:38am	CA Towhee - <i>Pipilo crissalis</i>	#0177
8/27/2023	09:22am	Spotted towhee - <i>Pipilo Maculatus</i>	#0180
	09:28am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0188 Upper right of frame
	09:29am	Bird species	#0190
	09:30am	Bird species	#0191
	09:30am	Bird species	#0192
	09:46am	Fox squirrel - <i>Sciurus niger</i>	#0196
	09:46am	Fox squirrel - <i>Sciurus niger</i>	#0197 Digging at upper left
	09:47am	Fox squirrel - <i>Sciurus niger</i>	#0198
	11:00am	CA Towhee - <i>Pipilo crissalis</i>	#0203
	11:06am	CA Towhee - <i>Pipilo crissalis</i>	#0206
	11:07am	CA Towhee - <i>Pipilo crissalis</i>	#0207
	12:55pm	Fox squirrel - <i>Sciurus niger</i>	#0210
	01:30pm	Fox squirrel - <i>Sciurus niger</i>	#0213
	01:31pm	CA Towhee - <i>Pipilo crissalis</i>	#0215
	01:38pm	Fox squirrel - <i>Sciurus niger</i>	#0216
	01:39pm	Fox squirrel - <i>Sciurus niger</i>	#0217 Top left center
8/28/2023	08:32am	CA Towhee - <i>Pipilo crissalis</i>	#0219 Three towhees
	08:32am	CA Towhee - <i>Pipilo crissalis</i>	#0220 " "
	08:32am	CA Towhee - <i>Pipilo crissalis</i>	#0221 " "
	08:33am	CA Towhee - <i>Pipilo crissalis</i>	#0222 Two towhees
	08:33am	CA Towhee - <i>Pipilo crissalis</i>	#0223 " "
	08:34am	CA Towhee - <i>Pipilo crissalis</i>	#0224 " "
	08:34am	CA Towhee - <i>Pipilo crissalis</i>	#0225 One towhee
	08:38am	Fox squirrel - <i>Sciurus niger</i>	#0234 Upside down on tree upper right
	08:38am	Fox squirrel - <i>Sciurus niger</i>	#0235 53 second clip
	09:21am	Ground squirrel - <i>Otospermophilis beechey</i>	#0238
	09:25am	Coyote - <i>Canis latrans</i>	#0242 Male coyote with tail deformity
	09:53am	Ground squirrel - <i>Otospermophilis beechey</i>	#0245 Upper right at 15 second mark
	10:42am	Bird species	#0249 Foraging at left
	10:42am	Bird species	#0250
	10:43am	Bird species	#0251
	10:45am	Chipping sparrow - <i>Spizella passerina</i>	#0252 Foraging center left
	10:45am	Chipping sparrow - <i>Spizella passerina</i>	#0253
	10:46am	Chipping sparrow - <i>Spizella passerina</i>	#0254
	04:01pm	CA Towhee - <i>Pipilo crissalis</i>	#0255
8/29/2023	08:40am	Spotted towhee - <i>Pipilo Maculatus</i>	#0261 Upper left early frames
	09:15am	Fox squirrel - <i>Sciurus niger</i>	#0284 Upper right
	09:16am	Fox squirrel - <i>Sciurus niger</i>	#0285 Upper left
	10:16am	CA Towhee - <i>Pipilo crissalis</i>	#0299
	10:16am	CA Towhee - <i>Pipilo crissalis</i>	#0300 Upper left
	10:28am	CA Towhee - <i>Pipilo crissalis</i>	#0302
	10:29am	Spotted towhee - <i>Pipilo Maculatus</i>	#0304
	10:54am	CA Towhee - <i>Pipilo crissalis</i>	#0305 Two towhees chase
	10:54am	CA Towhee - <i>Pipilo crissalis</i>	#0306 Chase
	12:01pm	CA Towhee - <i>Pipilo crissalis</i>	#0308 Two towhees
	12:02pm	CA Towhee - <i>Pipilo crissalis</i>	#0309 Towhees in sunlight

8/30/2023	07:12am	CA Towhee - <i>Pipilo crissalis</i>	#0313
	10:20am	CA Towhee - <i>Pipilo crissalis</i>	#0344
	10:20am	CA Towhee - <i>Pipilo crissalis</i>	#0345 Upper left
	10:21am	CA Towhee - <i>Pipilo crissalis</i>	#0346 " "
	10:21am	CA Towhee - <i>Pipilo crissalis</i>	#0347 Upper left. Two towhees chase
	11:12am	CA Towhee - <i>Pipilo crissalis</i>	#0349 Lower left & up
	04:29pm	Fox squirrel - <i>Sciurus niger</i>	#0351 Two squirrels vigorous chase
8/31/2023	07:42am	Fox squirrel - <i>Sciurus niger</i>	#0354 One squirrel upper left
	08:01am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0388
	08:02am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0389
	08:02am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0390
	08:03am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0391
	08:03am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0392
	08:04am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0393
	08:04am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0394
	08:04am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0395
	08:07am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0401 Frolic about
	08:07am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0402 Brief frolic
	08:08am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0403
	08:08am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0404 Frolic and scamper about
	08:26am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0408
	08:52am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0429
	08:53am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0432 Run and leap
	09:17am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0438
	09:18am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0439
	09:18am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0440 Upper left
	09:28am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0450
	09:28am	CA Towhee - <i>Pipilo crissalis</i>	#0451 Upper left
	09:29am	CA Towhee - <i>Pipilo crissalis</i>	#0452
	09:31am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0457 Hippity hop
	09:36am	Fox squirrel - <i>Sciurus niger</i>	#0458
	09:36am	Fox squirrel - <i>Sciurus niger</i>	#0459
	09:37am	Fox squirrel - <i>Sciurus niger</i>	#0460 Upper left
	09:37am	Fox squirrel - <i>Sciurus niger</i>	#0461 " "
	09:37am	Fox squirrel - <i>Sciurus niger</i>	#0462 Run off cam
	09:38am	Fox squirrel - <i>Sciurus niger</i>	#0463 Two squirrels chase
	09:50am	CA Towhee - <i>Pipilo crissalis</i>	#0470
	10:08am	Audubon's cottontail - <i>Silvilagus audubonii</i>	#0475
	10:41am	CA Towhee - <i>Pipilo crissalis</i>	#0492
	12:18pm	CA Towhee - <i>Pipilo crissalis</i>	#0499
	12:20pm	CA Towhee - <i>Pipilo crissalis</i>	#0504 Upper left
	02:44pm	CA Towhee - <i>Pipilo crissalis</i>	#0505 Two towhees - upper left & center right
	02:44pm	CA Towhee - <i>Pipilo crissalis</i>	#0506 Lower right
	02:44pm	CA Towhee - <i>Pipilo crissalis</i>	#0507 Bottom center
	02:45pm	CA Towhee - <i>Pipilo crissalis</i>	#0508 " "
	02:45pm	CA Towhee - <i>Pipilo crissalis</i>	#0509 " "
	02:45pm	CA Towhee - <i>Pipilo crissalis</i>	#0510 Two towhees - center left & fly in
9/1/2023	11:18am	CA Towhee - <i>Pipilo crissalis</i>	#0513
	12:47pm	Fox squirrel - <i>Sciurus niger</i>	#0523

APPENDIX F

TRAIL MANAGEMENT AND SIGNAGE ACTIVITIES

2023 UNAUTHORIZED TRAIL CLOSURES

Abalone Cove Reserve

 Vicinity of Spur Trail Closures

 Reserve Boundary

 P Parking Lot

 Restrooms

 Trailhead

 Vista Point

 Multiuse Trail

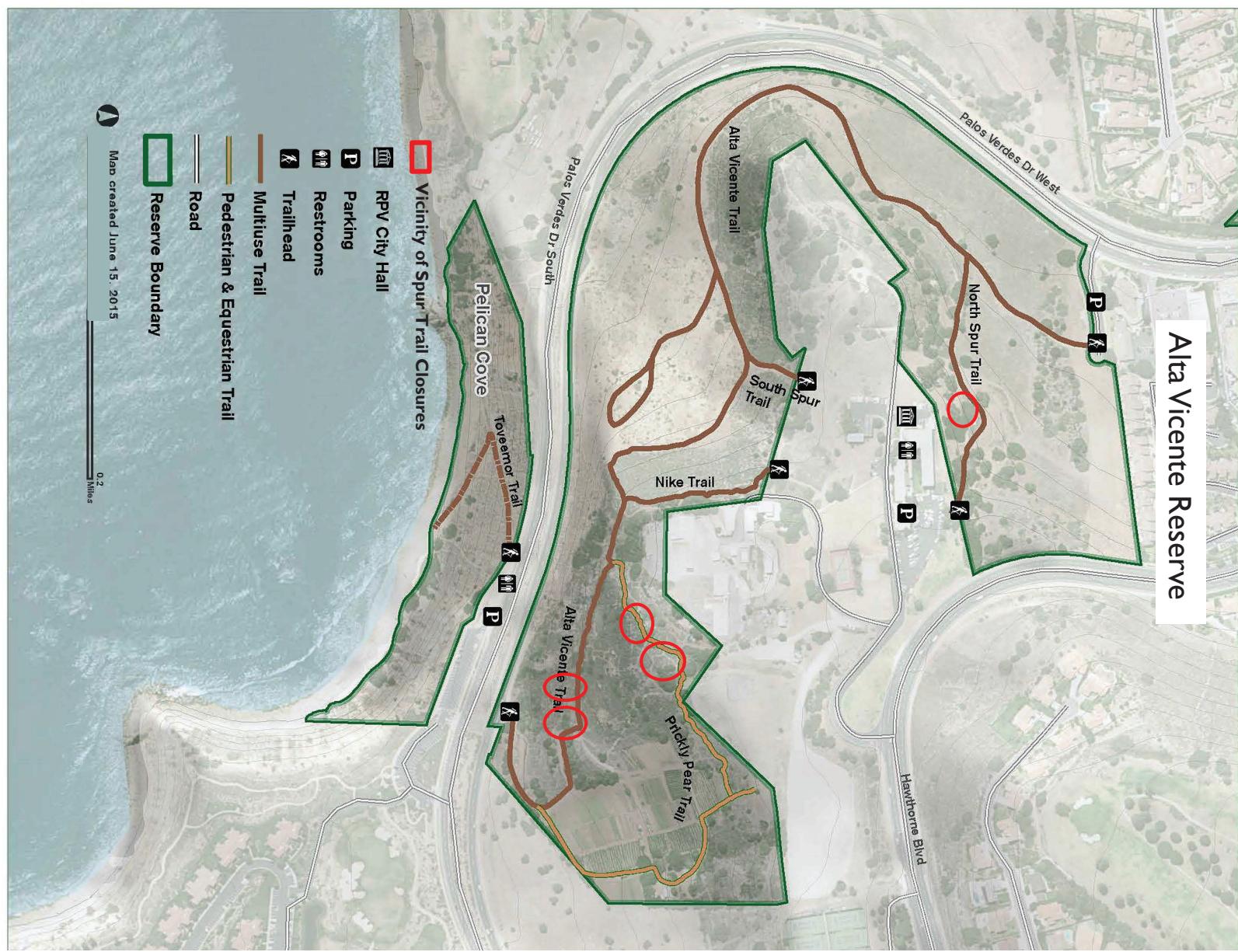
 Pedestrian Trail

 Pedestrian & Bike Trail

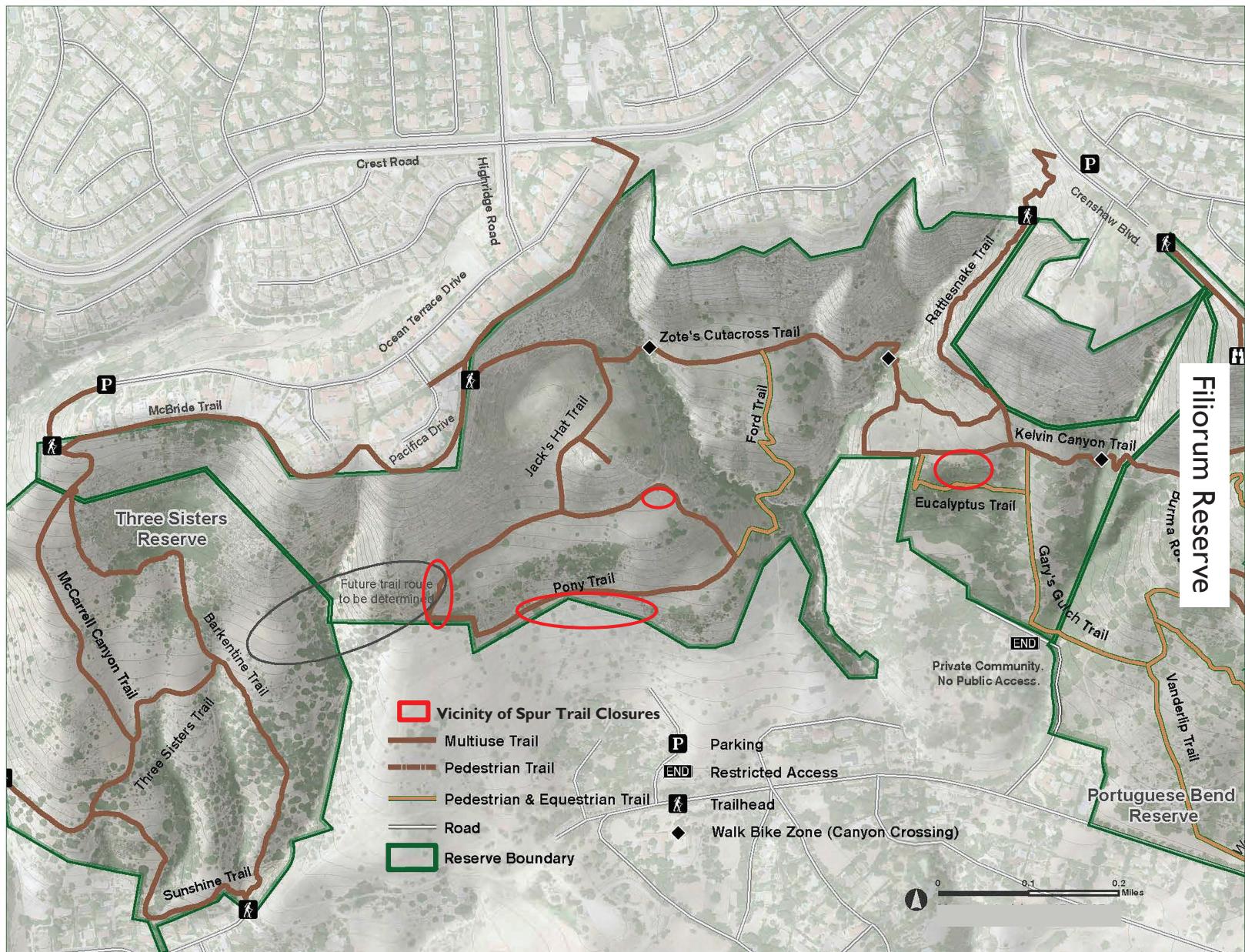
0 0.1 0.2 Miles



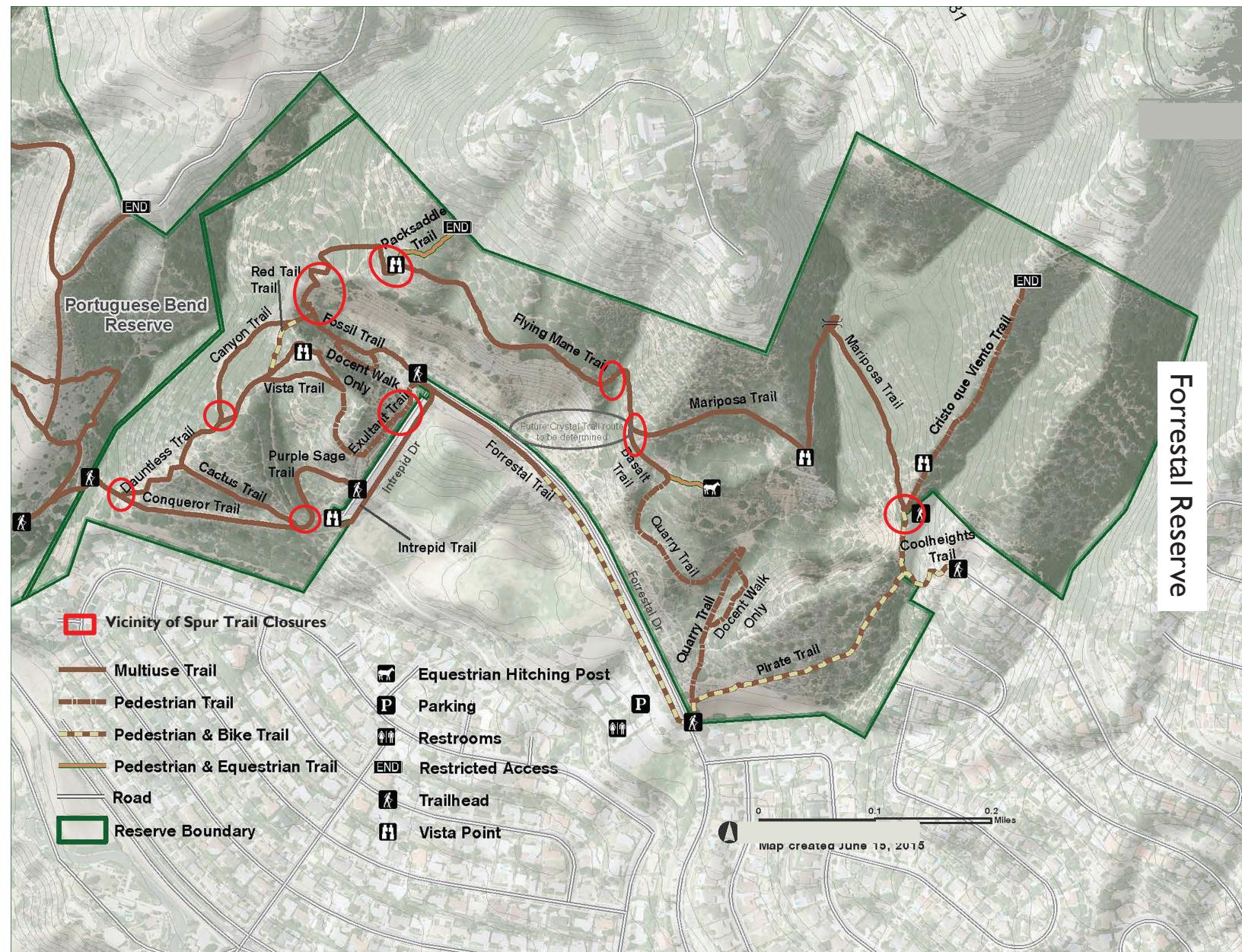
Alta Vicente Reserve



Filiorum Reserve



Forrestal Reserve

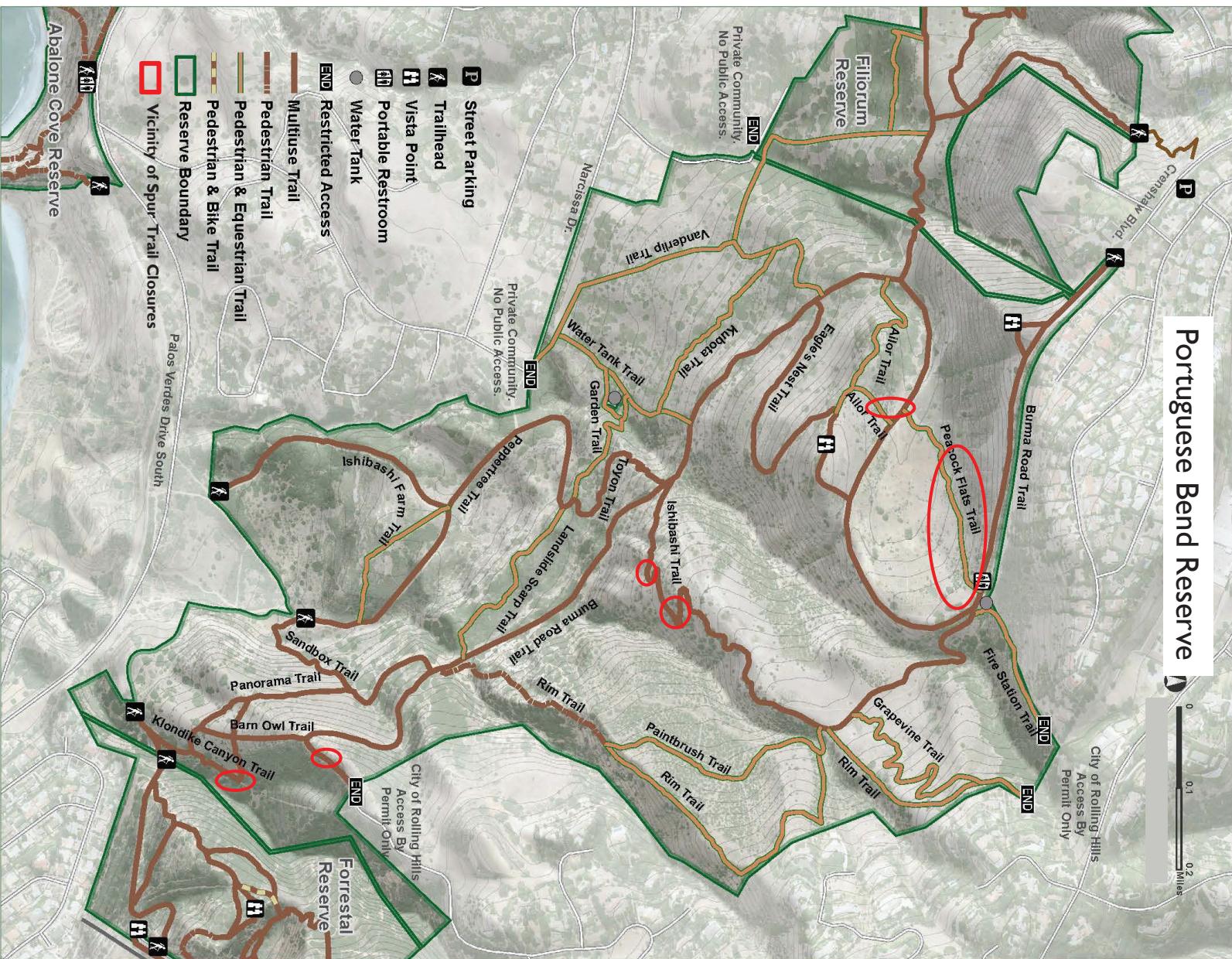


Portuguese Bend Reserve



City of Rolling Hills
Access By
Permit Only

0
0.1
0.2
Miles



San Ramon Reserve

Map updated May 10, 2016



0.1

0.2

Miles

Vicinity of Spur Trail Closures

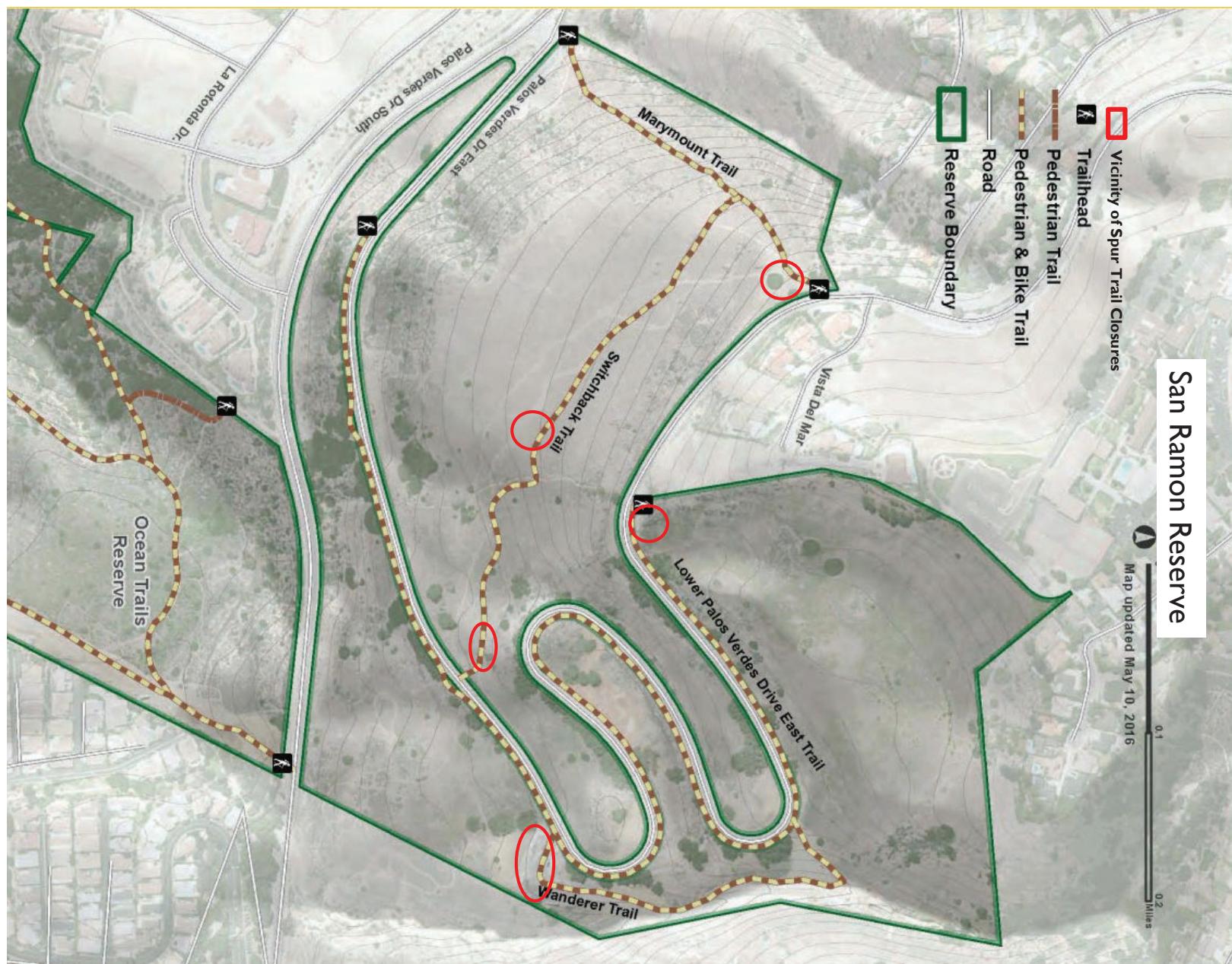
Trailhead

Pedestrian Trail

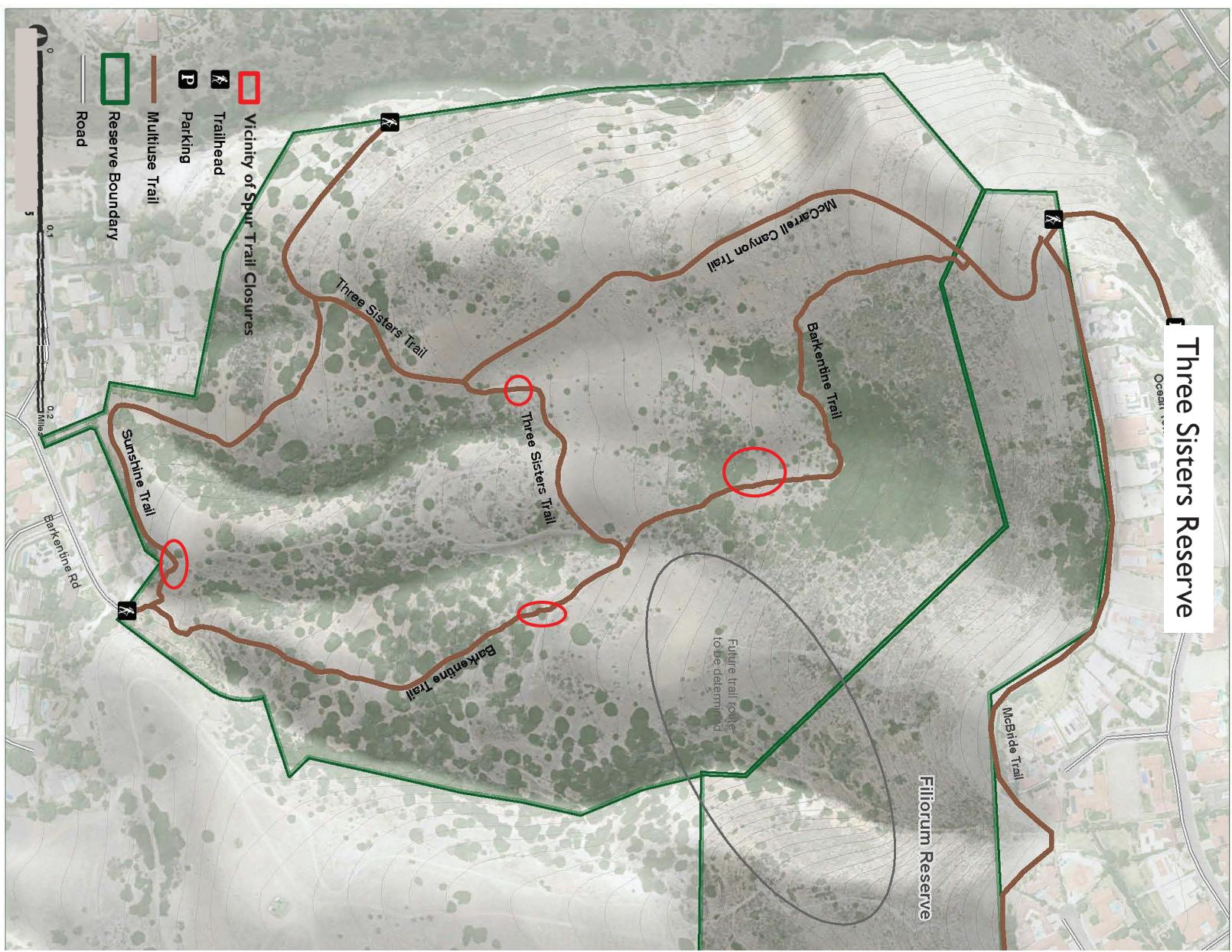
Pedestrian & Bike Trail

Road

Reserve Boundary



Three Sisters Reserve



VISTA DEL NORTE RESERVE



ONGOING/FUTURE TRAIL PROJECTS LIST

2024 Trail Projects List

The following is a list of trail projects planned for the year based on priority, resources available and funding opportunities. This list is intended to outline project needs including trail repairs and more major spur trail closures but may be amended as conditions may change. Projects not completed will carry over to the following year and projects may be added to the list on an ongoing basis. The list is reviewed at Monthly PVPLC/City meetings. In addition to the list below, smaller-scale projects including spur trail closures, signage repairs, tread repairs, etc. may be accomplished by the Volunteer Trail Crew, PVPLC Staff or City of Rancho Palos Verdes staff on an as-needed basis.

Priority Ranking:

The following projects are ranked low to high with consideration of impacts to habitat, user safety, severity of damage and other issues. These rankings also take other considerations such as funding, feasibility, availability of staff or volunteers to accomplish project, and other factors into account.

High = poses immediate public use concern, significant impact to habitat, trespassing, etc.

Medium = spur trails and erosion issues that affect trail quality, may cause user dissatisfaction, or mildly impact habitat

Low = spur trails and erosion issues that are minor and may not impact habitat, but may not meet user satisfaction

Reserve / Trail Name	Issues	Priority
Abalone Cove Reserve		
Unnamed Beach Trail	Install retaining walls along this unnamed trail to repair slope caused by rock fall and water erosion from high tide. Alternative route for Sea Dahlia Trail.	Medium
Abalone Cove Trail	Trail erosion. Create rolling grade dips near picnic benches	High
Beach School Trail	Approx 100 ft upon entry from gate at Palos Verdes Drive South, fissure runs along East to West, most visible at the Orientation Panel.	High
Cave Trail	Trail erosion. Temporarily closed.	TBD
Gorge 1	Falling rock. Temporarily closed.	TBD
Olmstead Trail	Drainage needs improvement. Rutting on lower half of the trail. May need grade dips to address water issues.	TBD
Sacred Cove Trail (west to beach)	Trail erosion. Temporarily closed.	High
Sea Dahlia Trail	Erosion at upper stair area. Temporarily closed.	TBD
Agua Amarga Reserve		
Lunada Canyon Trail	General trail maintenance as needed.	Low- ongoing
Alta Vicente Reserve		
Alta Vicente Trail	Repair trail erosion near farm	High
North spur Trail	Repair steps	High
Filiorum Reserve		
Rattlesnake Trail	At trailhead near Crenshaw Boulevard, assess slope and install steps or retaining walls.	High
Pony Trail	Adjust tread adjacent to acquired property.	High

Ford Tail	Repair at creek crossing; trail re-rout proposed	High
Zote's Cutacross	Pruning as needed; ongoing	Medium
Forrestal		
Dauntless Trail	Continue to maintain check dams and grade dips; on going	Low
Pirate Trail	At upper section, between Coolheights Trail and before Mariposa junction – wooden posts with cement base on Western side of trail are falling due to erosion.	Medium
Lower Filiorum		
Jack's Hat Connector between Filiorum and Three Sisters	Build connector trail.	High
Plumtree Trail Access	Create connectivity from Plumtree Rd to Pony Trail	Completed
Ocean Trails Reserve*		
Catalina Trail	Erosion at bridge. Temporarily closed.	High
Coastal Switchback Trail	Erosion and trail failure due to landslide. Temporarily closed.	High
Portuguese Bend Reserve		
Burma Road Trail	Various locations along trail – assess fissures, land movement, and erosion. City to coordinate with Geologist, PVPLC, and conduct repairs as needed. Coordinate with SoCal Edison / Cal Water on infrastructure due to land movement.	High – ongoing/TBD
Fire Station Trail	Continue to repair trail erosion caused by 2021 storms. Coordinate with Rolling Hills to continue to clear drainage.	Medium
Garden Trail	Trail erosion / land movement / fissures. Continue to monitor.	Medium – continue to monitor. TBD
Ishibashi Trail	Continue to maintain pruning to improve line of site. Continue to maintain erosion along tread as needed. Continue to delineate as needed.	Completed. Continue to monitor.
Rim Trail	Lower segment of trail temporarily closed due to erosion. Consider reroute site visit planned December 2022.	Low
Sandbox Trail	Continue to maintain check dams as needed.	High
Sandbox Trail	Install culvert at Sandbox Trail near Peppertree Trail for water flow.	Low
Vanderlip Trail	Continue to maintain grade dips made by Cal Water.	Completed. Continue to monitor.
San Ramon		
Marymount Trail	Maintain Grade dips: on going	Medium
Switchback Trail	Delineate single path	Low
Wanderer Trail	West of trail. Network of illegal bike trails needs to be closed.	Medium
Three Sisters		
Vicente Bluffs		
Toveemor Trail	Assess closure area and rock fall.	Low – ongoing

Seascape Trail	Puddling and rutting. Reduce puddling by resetting DG and out sloping it into the habitat	Medium
Vista del Norte		
Vista del Norte Trail		

*Trump National Golf Club is responsible for Ocean Trails Reserve trail maintenance per the City-Trump National Golf Club Agreement. A more comprehensive list is compiled separately.

PALOS VERDES NATURE PRESERVE SIGNAGE DESIGNS



PALOS VERDES NATURE PRESERVE

Jacqueline M. Glass Family Reserve & Dorothy and Allen Lay Reserve



2327 SOUTHWEST DR.
LOS ANGELES, CA 90043
T: 323.291.3333
F: 323.291.3704

STATE LIC. #1095798
U.L. LISTED # 141997

Representative:
Edgar Aceituno
Drawn by:
Alejandra Torres

Revisions:
① - 01-24-2023
② -
③ -
④ -
⑤ -

Project: Palos Verdes Nature Preserve
Jacqueline M. Glass Family Reserve &
Dorothy and Allen Lay Reserve.

COVER PAGE

SHEET 1

COLORS



Matthews Paint
MP27386
Verizon White



Matthews Paint
MP12636
Patta Green



Matthews Paint
MP12446
Indian Tea



Matthews Paint
MP07880
New Born Eyes



Matthews Paint
MP03066
Coy Grey



Matthews Paint
MP10161
Chocolate Bliss

FONTS

Gotham Book

ABCEFGHIJKLMNOPQRSTUVWXYZ
abcefghijklmnopqrstuvwxyz 1234567890

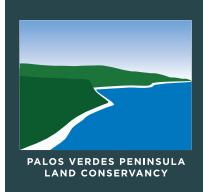
Gotham Medium

ABCEFGHIJKLMNOPQRSTUVWXYZ
abcefghijklmnopqrstuvwxyz 1234567890

TRAJAN PRO BOLD

ABCDEFGHIJKLM NOPQRSTUVWXYZ
ABCDEFGHIJKLM NOPQRSTUVWXYZ 1234567890

LOGOS



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Project: Palos Verdes Nature Preserve
Jacqueline M. Glass Family Reserve &
Dorothy and Allen Lay Reserve.

GRAPHIC STANDARDS

2.1 GENERAL

A. The work as herein identified, requires the manufacture and/or purchase of, and delivery, installation and/or application of: Palos Verdes Nature Reserve (P.V.N.P) Signage and Wayfinding.

2.2 MATERIALS – METALS

A. Steel (exterior):

1. Exposed, painted locations and bending/formed uses: Stretcher-leveled, stainless steel, galvanized steel, with phosphate or other specialty treatment for maximum paint adherence, ASTM A591, commercial or drawing quality, Coating Class C.
2. Steel shapes: ASTM A36, A53, A500, A501 hot-rolled or cold rolled shapes, plates and tubes in sizes indicated on Design Drawings.
3. CORE-TEN A or B" steel extrusion and sheeting to meet Federal Specifications ASTM A242 and ASTM A588. Finishes are as specified on Signage Design Drawings.
- B. Aluminum (exterior)
 1. Sheet and Extruded Aluminum: Provide alloy and temper consistent with specific fabrication and finishing processes.
 2. Bars, rod, wire and shapes: ASTM B221
 3. Pipe and tubing: Seamless, minimum Schedule 40 or equivalent wall thickness
- a. Non-structural: ASTM B210 and ASTM B241.
- b. Structural: ASTM B429.
- C. Metal thickness: Provide metal thickness indicated on Design Drawings.

2.3 MATERIALS – PLASTICS

A. Acrylic (exterior):

1. Made with methylmethacrylate polymers, as manufactured by:
- a. AutoHaas (Rohm & Haas)
- b. Or approved equal.
2. Provide tubing, solid sheet, laminated sheet, or cast acrylic in size, thickness, clarity, opacity, texture, and color required for work.
3. Provide ultra-violet resistant type, where exposed to sunlight.

2.4 MATERIALS – PHENOLIC RESIN PANELS

A. Interior grade digital high pressure phenolic laminate (DHP) panels as manufactured by Izone or approved equal.

1. Mechanical Performance Standards

a. Mechanical Property	ASTM	Test Standard
Compressive Strength	D695-84	1.800 x 104psi
Flexural Strength	D790-84a	Ultimate 1.877 x 104psi Modulus 1.690 x 104psi
Impact Strength	D256-84	0.64 ft-lbs/inch
Tensile Strength	D638-84	Ultimate 1.637 x 104psi Modulus 1.650 x 104psi
Bond Strength	D952-84	1.460 x 104psi
Bearing Strength	D953-84a	1.650 x 104psi
Rockwell Hardness	D785-65	70 (E Scale)
Liquid Absorption	D570-81	0.1%
Coefficient of Linear Expansion	D696-79	1.670 x 10-5in/F
UV Resistance	ASTM G26/A	No Change After 2000 Hours
Boiling Water Resist.	LD3 Test (3,5)	No Change

2.5 MATERIALS – DIGITAL PRINT MEDIA (exterior)

A. General: Provide professional exterior quality materials intended for high-quality, digital reproduction, by Eastman Kodak Company, Sign Tech USA Ltd., FujiFilm USA or approved equal.

2.6 MATERIALS – SCREEN PRINTING (exterior)

A. Opaque Inks

1. Provide opaque ink as manufactured by:
 - a. Matthews Paint Company
 - b. 3M Products, Inc.
 - c. Or approved equal.

SIGN SPECIFICATIONS



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STATE LIC. #1095798
U.L. LISTED # 141997

Representative:
Edgar Aceituno
Drawn by:
Alejandra Torres

Revisions:

1 - 01-24-2023

2 -

3 -

4 -

5 -

Project: Palos Verdes Nature Preserve
Jacqueline M. Glass Family Reserve &
Dorothy and Allen Lay Reserve.

2. Opaque inks: Multi-component, catalyzed, thermosetting, ultraviolet-curing, or similar high performance, chemical-resistant, colorfast screening inks. Provide specific types/versions suited for specific/intended applications as recommended by screening ink manufacturer (e.g., ultraviolet-resistant for exterior applications, flexible for fabric and similar soft substrates).

B. Transparent inks: As manufactured by 3M or approved equal.

C. Screen material for screen printing process:

- 1. Stainless steel, nylon or polyester with 250 lines per inch, or finer.
- 2. Use 16 XX screen for printing on cloth fabric.
- 3. Screen Printing for 3M retroreflective sheeting Series 3970:

a. 3M Ink Series 880 (not known equal)

b. Series 880 process colors can be screen processed at 60-100 F at relative humidity of 20-50%. Use of PE 157 screen mesh with a fill pass.

2.7 MATERIALS – ADHESIVE FILM (exterior)

A. Vinyl die-cut: Precision-cut, pre-spaced, computer-generated, pressure-sensitive type by 3M or approved equal.

B. Decalcomania (decal): Pressure sensitive adhesive type by 3M, or approved equal.

C. Sheet reflective materials: Pressure-sensitive or heat-activated adhesive backed, reflective plastic sheet.

1. Retroreflective signs: Provide 3M Scotchlite Reflective Vinyl #680-10.
2. Shrinkage: The retroreflective sheeting shall comply with the shrinkage requirements contained in ASTM D 4956 section 7.8, shall be weather resistant and show no appreciable cracking, blistering, crazing or dimensional change after three years unprotected outdoor exposure conducted according to ASTM G7.

2.8 MATERIALS – CONCRETE (exterior)

A. Formwork: Provide materials in accord with reference standard ACI 347.

B. Reinforcement: Provide concrete reinforcement in accord with reference standard CRSI.

C. Concrete: Provide concrete in accord with reference standard ASTM C94.

1. Mix proportions: As required to produce 28-day compressive strength of not less than 3,000 psi.

D. Grout: Non-shrink, high-strength, non-metallic hydraulic anchoring cement.

2.9 MATERIALS – STONE AND MASONRY MATERIALS

A. SPEC MIX Masonry Mortar preblended factory mix: ASTM C270

B. Water: Potable.

C. Gravel: Crushed or stone for placement at base of direct embedment. Nonshrink exterior grade grout for backfilling between stone joints.

D. Stone shall match existing stonework of trail fence columns, including a three color blend of stone and pitching of the individual stones. The contractor shall match the and/or other stone masonry work pattern, color and other characteristics at Salt Creek Trail.

E. These are Outline Specifications only. Complete specifications are required from the fabricator or design build contractor. Future specifications and design drawings shall follow standard CSI specifications and construction practices for stone masonry construction.

2.10 MATERIALS – PRIMERS AND PAINTS (exterior)

A. Provide and use linear polyurethane paint or manufacturer's equivalent by:

1. Matthews Paint Co., Kenosha, WI
2. PPG Paint Co., Pittsburgh, PA
3. Or approved equal.

B. Unless specified or directed otherwise, provide "clear coat" finish over all exposed, finish painted surfaces consisting of a two-component catalytic, clear, acrylic polyurethane enamel with ultraviolet inhibitors. Unless otherwise directed by P.V.N.P, provide satin for metal and plastic surfaces and flat/matte gloss for wood surfaces.

2.11 MATERIALS – ANTI-GRAFFITI COATINGS

A. Anti-Graffiti Coatings - General

1. Coatings shall consist of a solvent based, water resistant, highly durable application that can be sprayed, rolled or brushed onto any architectural or sign surface, such as concrete, plaster, brick, wallboard, steel, aluminum or wood. Once applied and cured, all coatings must also be impervious to damage by graffiti removers or cleaners. Coating and cleaner compatibility is paramount. The coating must come in low gloss or glossy and meet the following specifications as manufactured by Tradewinds International Inc, Ameron Coatings or approved substitution.

B. Anti-Graffiti Coatings – Removal

1. The graffiti remover must have the following characteristics: be easily sprayable by trigger or pump applicator; be of sufficient thixotropic or gelatinous consistency to hang on vertical or overhead surfaces without running; rinse off easily with water; be completely biodegradable; be non-toxic; be non-flammable; contain no petroleum distillates; and contain no ingredients classified as hazardous by any state or federal agency. Must be compatible with applied graphic elements to not smear, chemically react or damage the surface or material being repaired, pheno;lic

2.12 MATERIALS – MISCELLANEOUS

A. Cement for acrylic plastic: Weld-On Part No. 4 cement by Industrial Polychemical Co., or approved equal.

B. Epoxy: Two-part, catalyzed; provide fast-setting, high-strength, flexible, high-viscosity or other specific types as necessary and approved by Authority.

C. Tape: Double-coated, high strength acrylic adhesive foam tape, 3M VHB+ tape or approved equal.

SIGN SPECIFICATIONS



2327 SOUTHWEST DR.
LOS ANGELES, CA 90043
T: 323.291.3333
F: 323.291.3704

STATE LIC. #1095798
U.L. LISTED # 141997

Representative:
Edgar Aceituno
Drawn by:
Alejandra Torres

Revisions:
1 - 01-24-2023
2 -
3 -
4 -
5 -

Project: Palos Verdes Nature Preserve
Jacqueline M. Glass Family Reserve &
Dorothy and Allen Lay Reserve.

PART 3 EXECUTION

3.1 FABRICATION / INSTALLATION - GENERAL

A. It is intended that the workmanship be of the highest quality obtainable by the respective trades and crafts experienced in the fabrication of signs

B. Finished work shall be of highest quality to pass eye-level examination and scrutiny. Scratches, paint drips or sags and other visual defects are not acceptable.

C. Sign and Copy application: Elements shall be crisp, sharp, clean, and free from "ticks," discontinuous curves, line waver, and similar type imperfections.

1. Letterforms shall conform to prescribed proportions.
2. Whenever possible, messages shall be set full-size.
3. Letterforms shall be aligned so as to maintain a baseline parallel to sign format, with margins and layout as indicated on Design Drawings and approved shop drawings.
4. Finish welds on exposed surfaces to be imperceptible in the finished work.
5. Except as indicated or directed otherwise, finish surfaces smooth.
6. Surfaces that are intended to be flat shall be without bulges, depressions, oil canning, or other physical deformities; use thicker materials or other means of stiffening or reinforcement to achieve intended results.
7. Surfaces that are intended to be curved shall be smoothly free-flowing to required shapes.
8. Make signs tight fitting, between parts and sections, and with adjacent surfaces.
9. Isolate dissimilar materials. Exercise particular care to isolate non-ferrous metals from ferrous metals, including fasteners.

3.2 CONCRETE FOOTINGS AND MOW STRIPS

A. The Contractor shall perform all excavation necessary for footing construction to the elevations and dimensions shown in the plans. The sides of the excavation shall conform as nearly as possible to the required dimensions. Concrete shall be placed against undisturbed soil, unless otherwise permitted by the Contractor's Engineer. Depth of footing to be determined by Engineer's calculations for area frost depth.

B. The top 6 inches of footings shall be formed by methods approved by the Contractors Engineer. Supports shall be centered in the footings, securely braced, and held in proper position and alignment during placement of the concrete. Concrete shall be given a smooth surface finish.

C. For integral colored concrete and the accurate color, the quantity of concrete mixed should not be less than 3 cubic yards (or not less than 1/3 the capacity of the mixing drum) and should always be in full cubic yard increments. The integral color must not be less than 6" below the lowest or most visible part of the mowstrip or footing. Excess material should be discarded according to local regulations.

3.3 INSPECTION

A. Authority reserves the right to inspect work in the fabrication shop in progress and before it is shipped to the job site for installation.

B. Fabricator shall inspect installation locations for conditions that will adversely affect execution, performance and quality of work, and shall not proceed with installation until unsatisfactory conditions have been corrected.



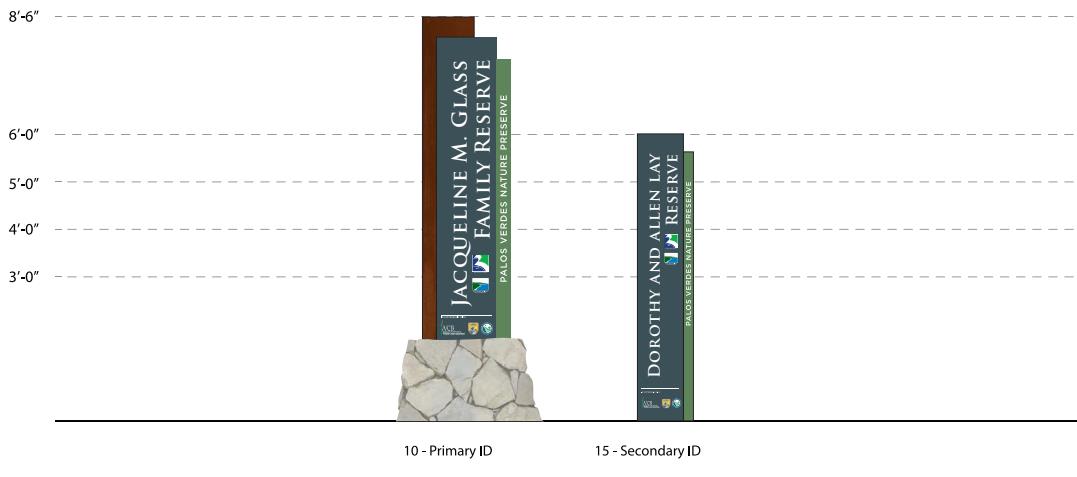
2327 SOUTHWEST DR.
LOS ANGELES, CA 90043
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STATE LIC. #1095798
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Representative:
Edgar Aceituno
Drawn by:
Alysonna Torres

Revisions:
1 - 01-24-2023
2 -
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5 -

Project: Palos Verdes Nature Preserve
Jacqueline M. Glass Family Reserve &
Dorothy and Allen Lay Reserve.

SIGN SPECIFICATIONS



10 - Primary ID

QTY 1

15 - Secondary ID

QTY 1

ELEVATION

SCALE: 1/2" = 1'-0"



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LOS ANGELES, CA 90043
T. 323.291.3333
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STATE LIC. #1095798
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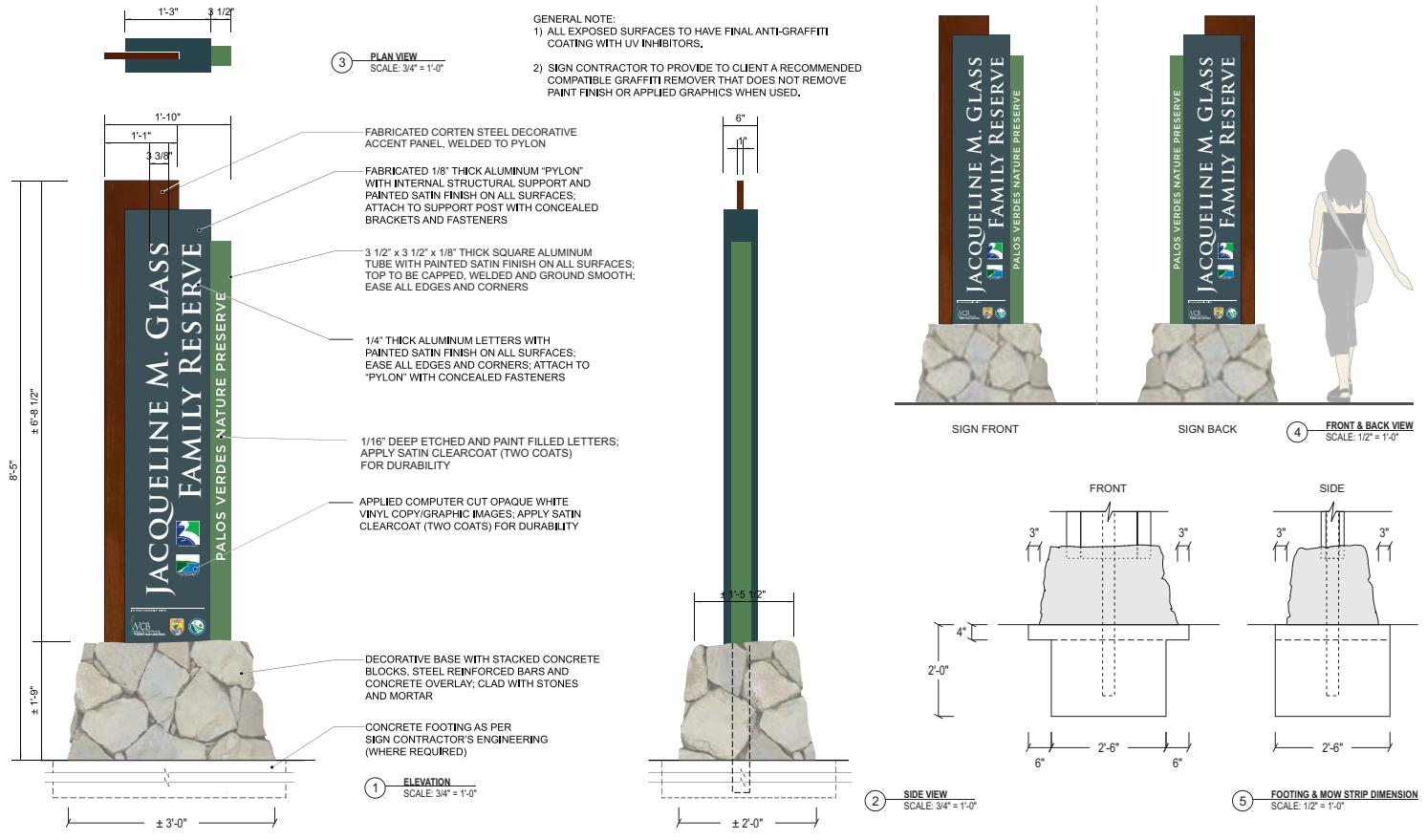
Representative:
Edgar Aceituno
Drawn by:
Alejandra Torres

Revisions:
[1] - 01-24-2023
[2] -
[3] -
[4] -
[5] -

Project: Palos Verdes Nature Preserve
Jacqueline M. Glass Family Reserve &
Dorothy and Allen Lay Reserve.

SIGN TYPES

SHEET 6



2327 SOUTHWEST DR.
LOS ANGELES, CA 90043
T: 323.291.3333
F: 323.291.3704

STATE LIC. #1095798
U.L. LISTED # 141997

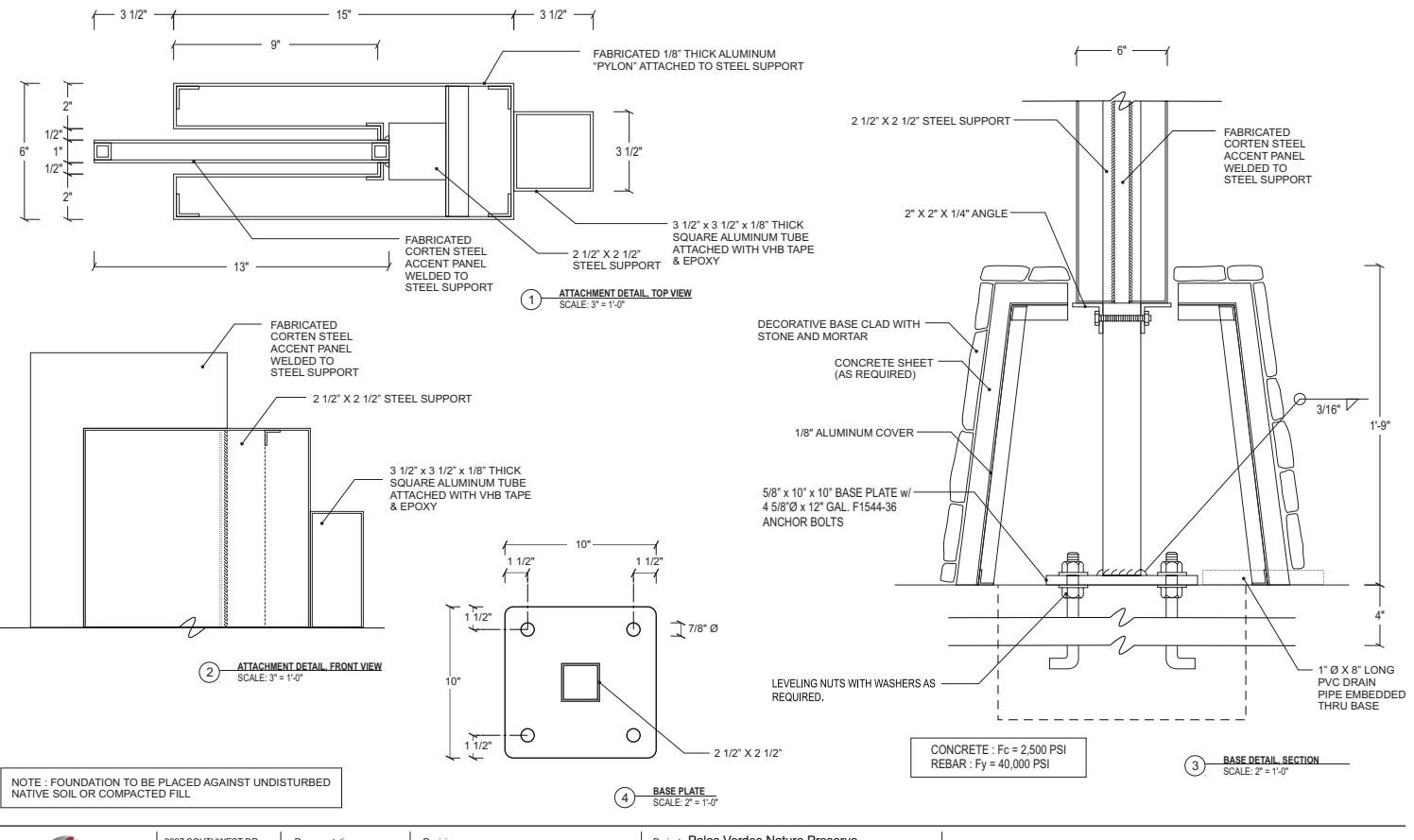
Representative:
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Alejandra Torres

Revisions:
 01-24-2023
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 -
 -
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Project: Palos Verdes Nature Preserve
Jacqueline M. Glass Family Reserve &
Dorothy and Allen Lay Reserve.

ST 10 - Primary Identification

SHEET 7



2327 SOUTHWEST DR.
LOS ANGELES, CA 90043
T: 323.291.3333
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STATE LIC. #1095798
U.L. LISTED # E141997

Representative:
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Revisions:
① - 01-24-2023
② -
③ -
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⑤ -

Project: Palos Verdes Nature Preserve
Jacqueline M. Glass Family Reserve &
Dorothy and Allen Lay Reserve.

ST 10 - Primary Identification

SHEET 8

ANANIAS M. AYROSO, P.E.
Structural Engineer

PROJECT: Palos Verdes Nature Preserve: Monument Signs
JOB NO. 17-1386.
CLIENT: EXPRESS SIGN & NEON
Sheet No. 1
SUBJECT: DESIGN CRITERIA
DATE: Sept. 29, 2017
LOCATION: Palos Verdes, County of Los Angeles, California

CODES:
1. CBC 2016
2. ASCE 7-10
3.

LOADINGS:

LIVE LOADS:
1. ROOF =
2. FLOOR =
3. BALCONY =

SEISMIC:
 $S_a = g$ $S_d = g$
 $V = \frac{C_s}{C_d} \cdot W$ Allowable Stress Design = 0.7E
 $C_s = \frac{S_d}{S_d + g}$ Or $C_d = \frac{S_d}{T(R)} \cdot 1$

WIND: Risk Category II

WIND VELOCITY = 110 MPH, EXPOSURE C, HT= 15 ft

$F = \rho g \cdot C_f \cdot C_d$ Allowable Stress Design = 0.6W

MATERIAL SPECIFICATION:

CONCRETE: $f_c = 2500$ psi
REINFORCING STEEL BAR: $f_y = 40,000$ psi
MASONRY: $f_m =$
STRUCTURAL STEEL SHAPES: ASTM A36
STRUCTURAL STEEL PIPES: ASTM A-53, Type E, Grade B
STRUCTURAL STEEL TUBES: ASTM A500, Grade B
COLD-FORMED STEEL STRUCTURAL MEMBER: ASTM A374
STRUCTURAL STEEL WELDING: ASTM A-307
STRUCTURAL STEEL WELDING: E 70 XX ELECTRODES
ALUMINUM: Alloy 6061 T62

FOUNDATION:

SOIL REPORT DONE BY: Not Applicable SOIL REPORT NO.: N/A
ALLOWABLE FOUNDATION PRESSURE: 1000 PSF LATERAL BEARING PRESSURE: 100 PCF/FT²

REFERENCES:

Ananias M. Ayroso, P.E., Inc.
Consulting Structural Engineer
P.O. Box 4774
CERRITOS, CALIFORNIA 90703-4774
(902) 924-2454

CLIENT: EXPRESS SIGN & NEON
JOB NO. 17-1386
SHEET NO. 1
SUBJECT: DESIGN CRITERIA
DATE: Sept. 29, 2017
CALCULATED BY: DA
CHECKED BY: DA
SUBJECT: MONUMENT SIGN

Ananias M. Ayroso, P.E., Inc.
Consulting Structural Engineer
P.O. Box 4774
CERRITOS, CALIFORNIA 90703-4774
(902) 924-2454

CLIENT: EXPRESS SIGN & NEON
JOB NO. 17-1386
SHEET NO. 1
SUBJECT: DESIGN CRITERIA
DATE: Sept. 29, 2017
CALCULATED BY: DA
CHECKED BY: DA
SUBJECT: MONUMENT SIGN

PALOS VERDES NATURE PRESERVE
POROGUESE LEND RESERVB (PRIMARY ID)
1'-10" x 0'-5" SIGN -

LATERAL LOAD FROM WIND
VEL = 110 MPH, EXP. C
 $F = \rho g \cdot C_f \cdot A_f$
 $\frac{F}{2} = 0.0028 \cdot k_2 \cdot k_{ct} \cdot k_d \cdot \frac{V}{2}$
 $= 0.0028 \cdot 0.85 \cdot 1.0 \cdot 0.85 \cdot 110$
 $= 22.38 \text{ PSF}$
 $G = 0.85$
 $\frac{C_f}{h} = 1.0$ $C_f = 1.65$
 $B/S = 1.83/8.5 = 0.22$
 $\therefore F = 22.38 \cdot 0.85 \cdot 1.65 \cdot A_f$
 $= 31.39 \text{ (PSF)} A_f$
 $F = 31.39 \times 1.83 \times 8.5 = 488.24 \text{ #}$
 $A_f = \frac{0.6D + 0.6W}{2}$
 $\therefore F = 0.6 \times 488.24 \text{ #} = 293 \text{ #}$

PALOS VERDES NATURE PRESERVE
OVERTURNING MOMENT = $293 \times \frac{8.5}{2}$
 $= 1245.3 \text{ #}$

USING CONCRETE FOUNDATION AS
RESISTING MOMENT
 $R_M = \frac{\sigma I M}{0.6} = 2075.4 \text{ #}$ (RECD)
 $R_M = \frac{B \times B \times D \times \frac{B}{2}}{2} \times 145 \text{ PCF}$
 $= \frac{B^3 \times 145}{2} = 2075.4$
 $\frac{B^3 \times D}{2} = \frac{2075.4 \times 2}{145} =$
 $B^3 \cdot D = 28.63$
TRY B = 2
 $D = \frac{28.63}{2^3} = 3.6 \text{ #}$
TRY B = 2.6
 $D = \frac{28.63}{2.6^3} = 1.832 \text{ #}$
Say $2\frac{1}{2}'' \times 2\frac{1}{2}'' \times 2\frac{1}{2}'' \text{ DEED}$
 $W/4-\#4 EW$



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F: 323.291.3704
STATE LIC. #1095798
U.L. LISTED # 141997

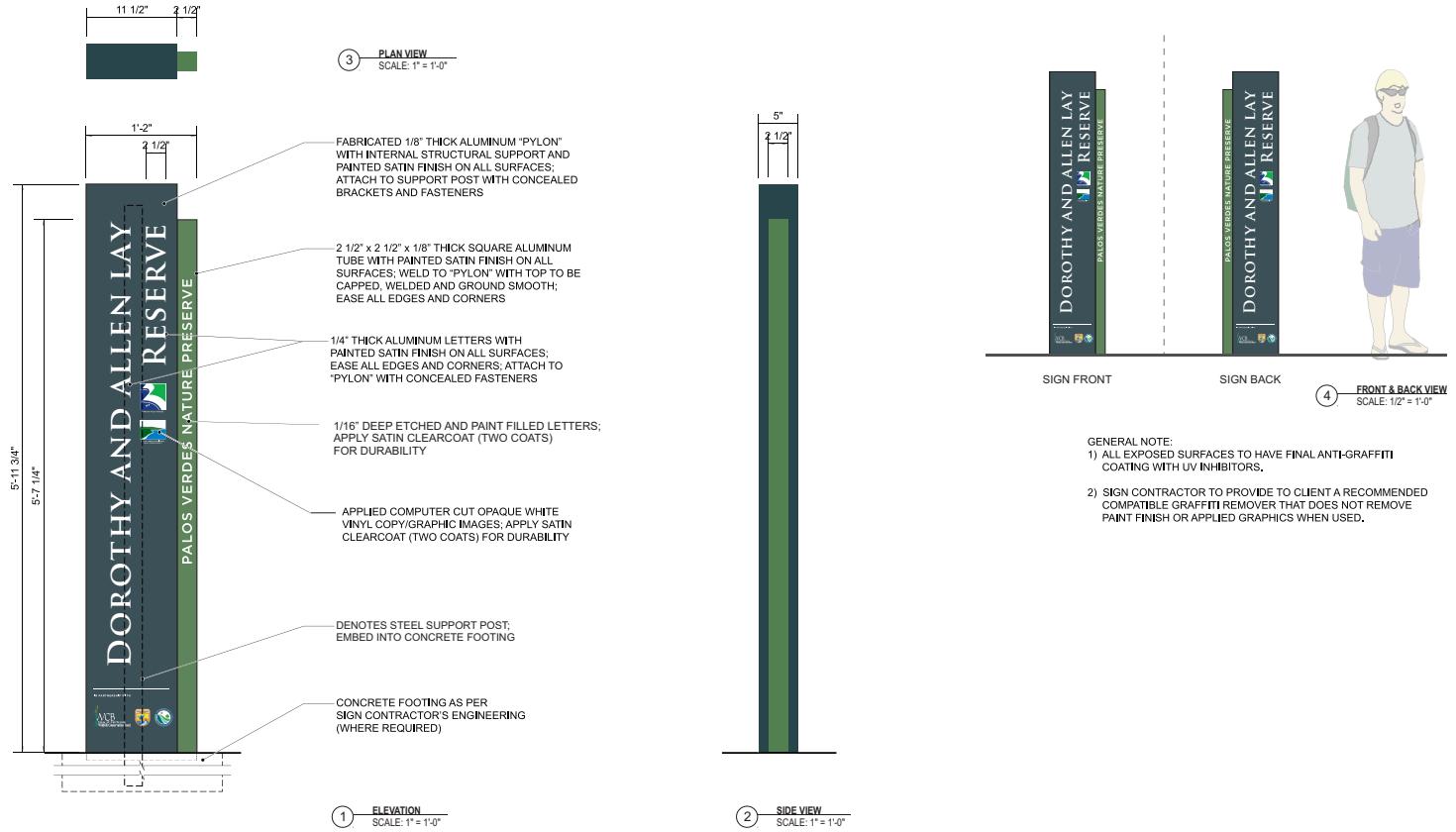
Representative:
Edgar Aceituno
Drawn by:
Alyson Torres

Revisions:
① - 01-24-2023
② -
③ -
④ -
⑤ -

Project: Palos Verdes Nature Preserve
Jacqueline M. Glass Family Reserve &
Dorothy and Allen Lay Reserve.

ST 10 - Primary Identification

SHEET 9



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U.L. LISTED # 141997

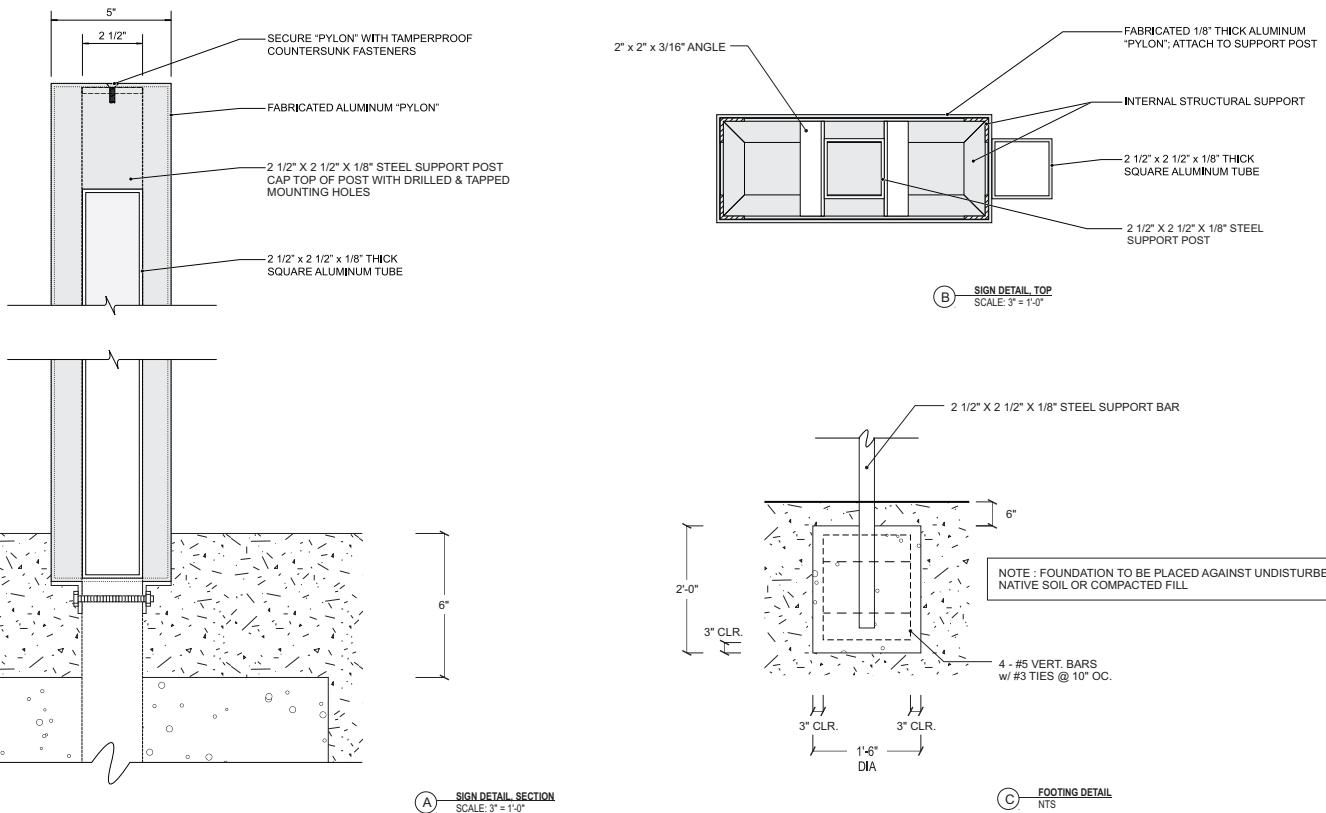
Representative:
Edgar Aceituno
Drawn by:
Alejandra Torres

Revisions:
① - 01-24-2023
② -
③ -
④ -
⑤ -

Project: Palos Verdes Nature Preserve
Jacqueline M. Glass Family Reserve &
Dorothy and Allen Lay Reserve.

ST 15 - Secondary Identification

SHEET 10



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Representative:
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Drawn by:
Alejandra Torres

Revisions:
 01-24-2023
 -
 -
 -
 -
 -

Project: Palos Verdes Nature Preserve
Jacqueline M. Glass Family Reserve &
Dorothy and Allen Lay Reserve.

ST 10 - Primary Identification

SHEET 11

ANANIAS M. AYROSO, P.E.
Structural Engineer

PROJECT: Palos Verdes Nature Preserve: Monument Signs
JOB NO. 17-1386
CLIENT: EXPRESS SIGN & NEON
SUBJECT: DESIGN CRITERIA
LOCATION: Palos Verdes, County of Los Angeles, California

CODES:
1. CBC 2016
2. ASCE 7-10
3.

LOADINGS:

LIVE LOADS:
1. ROOF =
2. FLOOR =
3. BALCONY =

SEISMIC:
 $S_a = g$ $S_d = g$
 $V = \frac{C_s}{C_d} \cdot W$ Allowable Stress Design = 0.7E

WIND: Risk Category II

WIND VELOCITY = 110 MPH, EXPOSURE C, HT= 15 ft

$F = g_z \cdot G \cdot C_f \cdot A_f$ Allowable Stress Design = 0.6W

MATERIAL SPECIFICATION:

CONCRETE: $f_c' = 2500$ psi
REINFORCING STEEL BAR: $f_y = 40,000$ psi
MASONRY: $f_m' =$
STRUCTURAL STEEL SHAPES: ASTM A36
STRUCTURAL STEEL PIPES: ASTM A-53, Type E, Grade B
STRUCTURAL STEEL TUBES: ASTM A500, Grade B
COLD-FORMED STEEL STRUCTURAL MEMBER: ASTM A374
STRUCTURAL STEEL WELTS: ASTM A-307
STRUCTURAL STEEL WELDING: E 70 XX ELECTRODES
ALUMINUM: Alloy 6061 T62

FOUNDATION:

SOIL REPORT DONE BY: Not Applicable SOIL REPORT NO.: N/A
ALLOWABLE FOUNDATION PRESSURE: 1000 PSF LATERAL BEARING PRESSURE: 100 PCF/FT²

REFERENCES:

Ananias M. Ayroso, P.E., Inc.
Consulting Structural Engineer
P.O. Box 4774
CERRITOS, CALIFORNIA 90703-4774
(902) 924-3454

CLIENT: EXPRESS SIGN & NEON
JOB NO. 17-1386
SUBJECT: DESIGN CRITERIA
DRAWING NO. 3-3
DATE: 9/29/17
CALCULATED BY: *[Signature]*
CHECKED BY: *[Signature]*
SUBJECT: SECONDARY I.P. SIGN

Ananias M. Ayroso, P.E., Inc.
Consulting Structural Engineer
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CERRITOS, CALIFORNIA 90703-4774
(902) 924-3454

CLIENT: EXPRESS SIGN & NEON
JOB NO. 17-1386
SUBJECT: DESIGN CRITERIA
DRAWING NO. 3-4
DATE: 9/29/17
CALCULATED BY: *[Signature]*
CHECKED BY: *[Signature]*
SUBJECT: SECONDARY I.P.

PALOS VERDES NATURE PRESERVE

1'-2" WIDE X 6'-0" HIGH
PALOS VERDES NATURE PRESERVE (SECONDARY I.P.)

LATERAL LOAD FROM WIND

VEL = 110 MPH, EXP. C.

$F = 82 \cdot G \cdot C_f \cdot A_f$

$g_z = 0.00256 \cdot k_z \cdot k_{zt} \cdot k_d \cdot \frac{V}{2}$
 $= 0.00256 \cdot 0.85 \cdot 1.0 \cdot 0.85 \cdot 110$
 $= 22.38 \text{ PSF}$

$G = 0.85$

$C_f =$

$\frac{S_h}{h} = 1.0$ $C_f = 1.05$

$\frac{B}{S} = \frac{1.7}{4} = 0.2$

$F = 22.38 \times 0.85 \times 1.05 \cdot A_f =$
 $= 31.39 \text{ (PSF)} \cdot A_f$

$F = 31.39 \times 1.12' \times 6' = 211 \text{ #}$

$ASD = 0.6D + 0.6h$

$\therefore F = 0.6 \times 211 = 126.6 \text{ #}$

OVERTURNING MOMENT = $126.6 \times \frac{c}{2} = 379.8 \text{ # ft}$

USING CONCRETE FOUNDATION AS
RESISTING MOMENT

REQ'D RM = $\frac{379.8}{0.6} = 633 \text{ # ft}$

$RM = \frac{B \times B \times D \times \frac{B}{2} \times 145}{2} = \frac{B^3 D 145}{2}$

$633 = \frac{B^3 D \times 145}{2}$

$\frac{B^3 D}{145} = \frac{633}{2} = 873$

TRY $D = 1.0 \text{ ft}$
 $\therefore B = \sqrt[3]{873} = 2.06 \text{ ft}$

USE 2'-0" X 2'-0" X 12"
 $\sqrt[3]{3 \cdot 4 \text{ ft}^2}$

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U.L. LISTED # 141997

Representative:
Edgar Acielano
Drawn by:
Alyssandra Torres

Revisions:

- 1 - 01-24-2023
- 2 -
- 3 -
- 4 -
- 5 -

Project: Palos Verdes Nature Preserve
Jacqueline M. Glass Family Reserve &
Dorothy and Allen Lay Reserve.

ST 10 - Primary Identification

SHEET 12

Ananias M. Ayoso, P.E., Inc.
Consulting Structural Engineer
P.O. Box 4774
CERRITOS, CALIFORNIA 90703-4774
(562) 224-3454

CLIENT: EXPRESS SIGN & NEON
JOB: PALOS VERDES NATURE PRESERVE
SHEET: 3.3 JOB NO: 11386
CALCULATED BY: DATE: 2/27/19
CHECKED BY: DATE: 2/27/19
SUBJECT: SECONDARY I - D.

<p>POST DESIGN -</p> <p>$STM > 380 \text{ ft}'$</p> <p>$SX = \frac{380 \times 12}{0.6 \times 26000} = 0.211 < 0.668$</p> <p>$\boxed{\text{HSS } 2 \times 2 \times \frac{3}{16}}$</p> <p>$S = 0.668$</p> <p>$I = 0.668$</p>	
<p>ALTERNATE FOOTING USING 18" ϕ</p> <p>PIER (NON CONSTRAINED)</p> <p>$d = 0.5A \left(1 + \frac{436h}{A}\right)^{\frac{1}{2}}$</p> <p>TRY $d = 2\frac{1}{3}$"</p> <p>$A = \frac{2.34P}{S_I B} = \frac{2.34 \times 126.4}{2 \times 102 \times 2.25 \times 1.5} = 1.32$</p> <p>$d = 0.5 \times 1.32 \left[1 + \frac{436 \times 31}{1.32}\right]^{\frac{1}{2}}$</p> <p>$= 2.18' < 2\frac{1}{3}$" SK</p> <p>use 18" ϕ X 2$\frac{1}{3}$" DEEP</p>	

DELUXE FOR BUSINESS 1-800-888-4227

Act No. 5, version 2



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STATE LIC. #1095798
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Representative:
Edgar Aceituno
Drawn by:
Alyajandra Torres

Revisions:
1 - 01-24-2023
2 -
3 -
4 -
5 -

Project: Palos Verdes Nature Preserve
Jacqueline M. Glass Family Reserve &
Dorothy and Allen Lay Reserve.

ST 10 - Primary Identification

SHEET 13

APPENDIX G

Volunteer Program



I. INTRODUCTION AND SUMMARY

I.1 Volunteer Programs

This report describes the components included within the larger Volunteer Program that serviced the Palos Verdes Nature Preserve. Specific activities are detailed for the reporting period January 1, 2023 to December 31, 2023.

Since 1988, volunteers have played an essential role in fulfilling the Palos Verdes Peninsula Land Conservancy's (PVPLC) mission to preserve land and restore habitat for the education and enjoyment of all. PVPLC is a non-profit organization that relies heavily on the support of community involvement to perform many of the tasks necessary to manage the Nature Preserves. Volunteers donate thousands of hours each year to help with office assistance, event planning, community education, habitat restoration, trail maintenance, and much more. This report divides the various volunteer programs into two categories: Community Involvement Volunteers and Stewardship Volunteers.

The first category, Community Involvement Volunteers, supports volunteer activities that focus on friend making, fundraising, and recommendations to staff on a variety of topics. This category is further divided into four sections which are detailed within the report:

- Committees and Advisory Boards
- Special Events and Office Assistance
- Education Docents and Nature Walk Leaders
- Interns

The second category, Stewardship Volunteers, supports activities that are performed on the land to assist with habitat management of the Preserve. In all, there are seven elements within this category that are described in more detail in the Stewardship Volunteer section of this report. The backbone of the program is our regularly scheduled Saturday Outdoor Volunteer Days that are open to participation by all and require no long-term commitment. Periodically, there are also individuals or groups that complete stewardship projects outside of the normally scheduled outdoor events. Boy Scouts and Girls Scouts interested in obtaining their final awards are two such groups. There are also several Stewardship Volunteer opportunities that require long term commitments. The seven programs are listed below:

- Outdoor Volunteer Days
- Team Leaders
- Scout Projects
- Adopt-a-plot
- Trail Crew (break out)
- Volunteer Trail Watch
- Community Science

In 2023, volunteers provided a grand total of 22,772.85 hours of service to support conservation, restoration and management of the Palos Verdes Nature Preserve. This represents a 20.15% increase over 2022. According to the Independent Sector, volunteer time in California is valued at \$37.32 per hour (based on Dollar Value of a Volunteer Hour, by State: 2022, Independent Sector), thus generating a total of \$849,882.76 of in-kind services. The amount of volunteer hours donated at each Nature Preserve or for a specific volunteer category depends on the size of property or specific projects that transpired during the reporting period.

2. COMMUNITY INVOLVEMENT

2.1 Committees and Advisory Boards

PVPLC is driven and supported by a fourteen-member volunteer board, which meets on a regular basis to strategize and direct the organization's mission. The PVPLC maintains numerous committees and advisory boards as well for the following purposes:

- To provide review and recommendations regarding organizational plans and policies
- To provide assistance with the operations of the organization
- To provide community input for PVPLC activities
- To provide a training and evaluation ground for potential members of the Board of Directors

This year, the Conservancy's committees contributed 1,836.7 hours in serving the Land Conservancy's mission. Hours for committee-involved board members are compiled with their board volunteer time. The committees that were active during the reporting period are listed below:

- Board of Directors
- Audit Committee
- Finance Committee
- Development Committee
- Investment Committee
- Stewardship Committee
- Special Events Committee(s)

2.2 Special Events and Office Assistance Volunteers

The PVPLC relies on volunteers to assist with community engagement and other outreach events. Volunteers contributed 607.5 hours in 2023 to support events including numerous Earth Day events, Nature Walks, National Public Lands Day, Wild & Scenic Film event, Pastoral Dinner, native plant distribution, and tabling at community events. Office volunteers support day-to-day volunteer operations and donated 298.75 hours to the Conservancy.



2.3 Nature Walks

Nature Walk Leaders donated a total of 677 hours in 2023. PVPLC Board of Directors member Allen Franz and volunteer, Cindy Akiyama co-ordinate this group of dedicated volunteers and each prospective walk leader must have a high level of knowledge the local ecosystem, particularly the native and non-native plants found on the Peninsula. Leaders must go through extensive training and be willing to research and learn about local history, geology, flora and fauna. Continued research and exploration serves to add

to a walk leader's knowledge base, preparing them to give accurate and in-depth presentations to the public.

Walks are held all over the Peninsula, from the edge of the coast to deep within the canyons. Each leader designs his or her presentation to include special attributes and stories particular to a site. Nature walks occur once a month every month throughout the year, featuring a different location every time. With the pandemic affecting group gatherings, nature walk opportunities were adapted and many of the walks were held digitally.

2.4 Internships

Interns dedicate much of their volunteer time to helping the Land Conservancy's mission to educate and restore. In 2023, interns dedicated a total of 1,211.3 hours to various projects such as educational outreach, field trips, weed removal, native plant propagation, wildlife monitoring and much more.



3. STEWARDSHIP VOLUNTEERS

Volunteers play an integral part in helping PVPLC staff exceed our goals for restoring land in the Preserve. Outdoor volunteer days provide an opportunity for public volunteers to contribute to habitat and trail restoration efforts. Team Leaders provide leadership on Saturday events, the Trail Crew class volunteers build skills to maintain the trail system, and Volunteer Trail Watch reports vandalism and trail maintenance needs. The Adopt-a-Plot program, Citizen Science wildlife monitoring, scout projects, local environmental clubs and nursery volunteers are also Stewardship volunteers that support Conservancy conservation efforts within the Palos Verdes Nature Preserve, the native plant nursery and other management areas (PVNP and nursery are the only metrics outlined for this report).

Palos Verdes Nature Preserve Stewardship volunteer highlights in 2023:

- 22,772.85 hours of volunteer time, a 20.15% increase from 2022.
- Volunteers planted 1,540 plants to assist with critical habitat restoration projects such as installing PVBB host plants and removing invasive species.
- Hosted monthly guided nature walks at various locations throughout the peninsula.
- Trained 130 advanced/specialized volunteers.
- Distributed hundreds of native plants purchased by community members to create wildlife-friendly gardens on private land.
- Hosted 3 Companies - PWC, Lufthansa, and HCTV - at corporate Outdoor Volunteer Days in Rancho Palos Verdes to support the conservancy's work restoring land and maintaining public nature preserves.

3.1 Outdoor Volunteer Days

The PVPLC holds outdoor volunteer days nearly every Saturday of the year, held from 9am-12pm, excluding holiday weekends. The focus of these events is to restore native habitat, maintain the trail system, and do general maintenance of lands. We engage and empower young people through these programs to ensure education and stewardship on the Preserves in perpetuity. We work with local schools and colleges to have teachers bring groups of students or give incentives such as extra credit and service-learning hours for students who participate on the Saturday volunteer events. Also included in this summary are events catered for special groups and corporations. Rapid Response is an Outdoor Volunteer Opportunity held almost every Friday and Saturday from 9am to 12pm. During these events volunteers are invited to work alongside staff closing spur trails. Rapid Response volunteers contributed 678 hours maintaining trails within the PVNP.

3.1.1 Native Plant Nursery

Activities in the Native Plant Nursery include transplanting seedlings from flats into individual containers, removing weeds from the containers. On occasion, groups and scouts help maintain the shade structure, build plant benches and repair the weed barrier cloth. Volunteers help at the

nursery during the week throughout the year. A total of 3,370 volunteer hours were contributed to nursery efforts in 2023.

3.2 Team Leader Program

The Team Leader program began in 2007 in response to the growing number of volunteers that were attending the Outdoor Volunteer Days. Team Leaders are volunteers, sixteen years or older, who assist in supervising the Saturday outdoor volunteer activities. They ensure that volunteers have adequate instruction and the tools necessary to complete the task. They also assist in educating the public about the PVPLC.

The program requires that interested volunteers attend a half-day weekend workshop where they learn the skills necessary to motivate and supervise volunteers during Saturday Outdoor Volunteer Days. Training involves practicing leadership skills and communicating restoration techniques. Team Leaders commit to working at least four volunteer days within one season or half-year.

The Team Leader Program has helped develop leadership skills in participants and has greatly contributed to the success of our Outdoor Volunteer Days. The quality of work from regular volunteers has increased with the guidance of Team Leaders. In addition to adult participants, many of the Team Leaders attend local high schools and universities. During the reporting period, the program has allowed these students to build leadership skills that they will find useful in their future.

3.3 Scout Projects

The PVPLC encourages Boy Scouts and Girl Scouts who are looking for projects to complete their final awards, Eagle Awards for Boy Scouts and Gold Awards for Girl Scouts, by providing them with opportunities to complete their projects on preserves the PVPLC manages. This collaboration is beneficial to the scout groups, the PVPLC, and the public that uses the preserves. Scouts work under the mentorship of one of the PVPLC staff to complete their projects and are steered toward objectives that meet the PVPLC stewardship goals. In 2023, Scouts donated thousands of dollars of materials, planted hundreds of native plants, built tables and protective cages for nursery plants, installed trail baseboards and donated 1,339.4 hours of time.



3.4 Trail Crew Program

The Volunteer Trail Crew class offered is based on the Basic Trail Maintenance class developed by Frank Padilla, Jr. (retired California State Parks Supervisor), and Kurt Loheit. Originally started in 1992, the class focused on both volunteer and agency skill building. Adopted by the Los Angeles District of California State Parks and later the Southern California Trails Coalition, it became the first step in advanced classes for crew leader

training and design and construction classes, allowing a structured path for participants to build skills associated with trails from basic maintenance to highly advanced techniques. The class is a combination of classroom and hands-on training to familiarize the participants in all aspects of trail maintenance. The course emphasizes safety, assessments, basic maintenance skills, water control, erosion sources, terminology, proper tool use, basic survey skills, resource considerations, and user experience and maintenance value. Volunteers who demonstrate proficiency in each learned skill and fulfill a yearly indoctrination will maintain status as a qualified Trail Crew member.

In 2023, the volunteer Trail Crew contributed a total of 605 hours to maintaining the Preserve's trail system. These hours include the second-Saturday monthly class trainings as described below, as well as additional trail work, such as weed whacking or spur trail closures, executed by Trail Crew members outside of the classes.

Participants must be at least 18 years old and must first take the introductory class. The course can be taken at the participant's own pace and it is estimated to take about a year to complete. There are scheduled Trail Crew Skills Classes that coordinate with the trail instructor's availability and the PVPLC Outdoor Volunteer Workday schedule.

Trail Crew Events			
Month	# Volunteer Hours	Location	Project/Skill Learned
January	0	--	Cancelled due to weather
February	62	Hesse Park	Trail Crew Introductory Class.
February	48	Lower Portuguese Bend	Tread repair and grade dips on Sandbox Trail
March	46	Abalone Cove & Forrestal	Heavy rain caused a slope failure on Cliffside Trail. Emergency Repair / tread repair / bench cut. Tread repair at Conqueror Trail.
April 8 & 22	54.5	Portuguese Bend and Abalone Cove	Abalone Cove: Cliffside Trail erosion. Removed debris that fell onto trail and reset tread. Portuguese Bend: Heavy rains damaged Garden and Landslide Scarp Trail. Completed tread repairs and filled fissures.
May	40	Portuguese Bend	Emergency repairs to reopen sections of the Vanderlip Trail.
June	43	Portuguese Bend	Pruning and brushing on Sandbox Trail.
July	34	Filiorum	Check dam work on Ford Trail.
August	36	Hess Park	Trail Crew Introductory Class
August	52	Lower Three Sisters Reserve	McCarrel Canyon and Sunshine Trail: Reset grade dips and tread work
September	48	Portuguese Bend	Repaired 6 fissures in Klondike Canyon and Panorama trails.
October	39	Filiorum	Cleaned up overhanging brush on trails

November	55	Portuguese Bend	Trail repair / rebuild at Vanderlip Trail
December	46	Forrestal	Tread repair and trimmed plant overgrowth at Dauntless Trail and performed maintenance and trimmed overgrowth on Conqueror Trail.

3.5 Volunteer Trail Watch Program

The mission of the Palos Verdes Nature Preserve Volunteer Trail Watch Program is to serve as eyes and ears of the City of Rancho Palos Verdes and the Palos Verdes Peninsula Land Conservancy with a view to 1) protect the natural resources of the Palos Verdes Nature Preserve, including the flora and fauna as well as the geology, topography and scenic landscape, and 2) enhance the safety of, and promote an enjoyable experience for all Preserve visitors. The Volunteer Trail Watch Program was initiated in 2013 to help educate trail users about appropriate trail use and monitor preserve misuse. In 2023, volunteers dedicated 3,104.7 hours to the program through field implementation activities and reporting observations through the web portal for record keeping.

3.6 Community Science

Volunteers help the PVPLC monitor wildlife on the Preserve in order to document populations and their response to restoration efforts. Community Science volunteers contributed 1,151.5 hours to documenting the behavior of cactus wrens and the evidence of mammalian populations like coyotes and foxes through tracking efforts

APPENDIX H

QUARTERLY ENFORCEMENT

REPORTS

MEMORANDUM

Date: April 10, 2023

To: Katie Lozano, Sr. Administrative Analyst, City of Rancho Palos Verdes

Norma Saldaña, Recreation Supervisor, City of Rancho Palos Verdes

From: Taylor Fox, Senior Park Ranger

Subject: 1st Quarter Rancho Palos Verdes Park Ranger Enforcement Report

PRESERVE VISITOR CONTACTS SUMMARY

January 1 – March 31, 2023

4 Full-time Park Rangers patrolled the Preserve approximately 1,560 hours during this period.

3 Part-time Parking Enforcement assisted with education and enforcement of Park Mobile Reservation System at Crenshaw Boulevard.

This reporting period was marked by significant rainfall and storms resulting in significant periods of facility closures and trail damage. There were also significant instances of animal abandonment and lost pets.

Agency Coordination, Trainings, and Interpretive Events:

3 Monthly City-PVPLC NCCP/HCP Coordination Meetings: City and PVPLC staff meet monthly to coordinate Palos Verdes Nature Preserve (Preserve) operations and maintenance, and to implement the City's Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP).

3 Monthly City-PVPLC Volunteer Trail Crew Coordination Meetings: The City's OSM Staff has begun monthly meetings with the Volunteer Trail Crew to coordinate future trail maintenance and building projects.

2 Monthly City-PVPLC Volunteer Trail Watch Coordination Meetings: The City's OSM Staff holds bi-monthly meetings with the Volunteer Trail Watch to coordinate on public use and public education topics.

Los Angeles Water Waterkeeper (February 3): Park Rangers rode along by boat with the Los Angeles Waterkeeper Ride to coordinate operations and learn more about Marine Protected Areas off the City's coast.

Park Rangers Association of California Conference (March 6-9): Senior Park Ranger Fox and Recreation Supervisor Saldaña attended the Park Rangers Association of California Conference in Yosemite from March 6-9. Rangers met with agencies from California and Nevada to learn about park operations post- COVID-19, as well as participate in a variety of training and discussions covering various topics, including search and rescue and customer service.

Project/Operations Coordination & Emergency Work:

OSM Staff help to coordinate multiple projects within the Preserve to ensure NCCP / HCP compliance together with the Preserve Habitat Manager, the Palos Verdes Peninsula Land Conservancy (PVPLC). Some of these coordination tasks include project management, implementing trail closures, public safety measures, and providing public notification. Below are a list of projects OSM staff helped coordinate with the Public Works Department, PVPLC, and public utilities in the first quarter:

December 14 – February 22: Rattlesnake Gate and Fence construction.

December 23-Present: Burma Gate bollard construction ongoing. Work stalled due to weather.

December 31 – January 18: Preserve temporarily closed due to significant rain.

February 23 – March 2: Preserve temporarily closed due to significant rain.

March 10 – 17: Preserve temporarily closed due to significant rain.

March 21 –March 24: Preserve temporarily closed due to significant rain.

March 23: South Bay City Council of Governments General Assembly. Park Rangers staffed a table to provide information about the Preserve.

March 29 –March 31: Palos Verdes Nature Preserve temporarily closed due to significant rain.

March 30 – June 4: Fuel Modification Coordination with Public Works Department and PVPLC Preserve-wide.

The following is a list of maintenance projects and events that transpired during the first Quarter. Maintenance work was performed by OSM Staff, and may include litter abatement, spur trail closures, signage repairs, and tread repairs, within the Preserve and Abalone Cove Park.

- Vegetation Trimming: 19
- Installing Signs: 9
- Removal of Graffiti (Additional graffiti deferred to GPC): 19
- General Maintenance: 87
- Total: 134

OVERALL VISITOR CONTACTS:

Total Contacts: 4,612

Hikers: 3,872

Dog Walkers: 495

Cyclists: 214

Equestrians: 31

Warnings: 159

Education: 753

Calls for Assistance: Transports 1

Heat exhaustion & heat stress: 1

Preserve Information and Reporting Hotline Calls: 51

Trail Status and General Information: 18

Maintenance Issue Reported: 7

Lost / Found: 5

Gate Unlocked / Condition: 3

Animals Off Leash: 3

Transients / Encampments: 3

Electric Motorcycle / Bicycle: 2

Off Trail: 2

After Hours: 2

Injured Animal: 2

Parking Inquiry: 1

Trapping / Hunting: 1

BBQ Grills: 1

Weapon: 1

Social Media Educational Outreach

OSM Staff proactively searches social media sites for group gatherings scheduled within the Preserve to educate visitors on Preserve rules and group size restrictions. Groups over twenty participants are not allowed in the Preserve for the purpose of natural resource protection. Over the last quarter, OSM Staff contacted 15 groups to monitor activity planned for the Preserve and to proactively provide information on Preserve regulations, including temporary closures.

ENFORCEMENT SUMMARY:

Parking Citations Issued: 186

By Violation:

Park by Permit – 150

Posted Temporary No Parking / Fire Lane – 28

ADA Zone – 5

After Hours – 1

Other- 2

By Location:

Crenshaw Boulevard (Portuguese Bend / Filiorum adjacent) –120
Del Cerro Park –32
Abalone Cove Reserve – 24
Forrestal Reserve – 5
Other – 2

Notice to Appear Citations Issued: 11

By Violation:

Closed Area – 9
Dogs off Leash - 2

By Location:

Portuguese Bend Reserve -8
Abalone Cove Reserve – 2
Hesse Park - 1

ACTIVITY REPORT BY RESERVE:

The next section provides further information on projects, reports, and Ranger activity/observations organized by Reserve. Trail counter data is provided for Portuguese Bend Reserve, Filiorum Reserve and Forrestal Reserve, where the City has placed a total of five counters combined. It is important to note that trail counters are placed at the most popular entry points, but do not cover every entry point. Park Ranger public contacts do not reflect actual number of individuals in the Reserve, rather those spoken to while on foot and/or vehicle patrols. Information does not include routine maintenance.

Abalone Cove Reserve:

	Public Contact	Education	Warning	Enforcement
Hikers	325	105	36	2
Dogs	22	7	5	0
Bicyclist	0	0	0	0

On January 18, L.A. County Lifeguards reported the presence of domesticated rabbits at the Beach School Trail to OSM Staff. OSM Staff confirmed and captured six rabbits that had been abandoned on the trails. It is not known how long the rabbits had been in the area. The rabbits were malnourished, tick-infested, and dehydrated. They were taken to the L.A. County Animal Care and Control Center.



On January 20, OSM Staff, with the assistance of the Volunteer Trail Crew, conducted repairs to clean out the slough from a landslide that had impeded access to Sacred Cove Beach.



BEFORE



AFTER

On January 23, PVPLC staff cut and removed several branches that had fallen over and had been blocking access to the upper section of Smuggler's Trail.



BEFORE



AFTER

On January 23, OSM Staff added an additional 12-foot section of fencing along the temporarily closed western section of Sacred Cove View Trail (closest to Smuggler's Trail). The City continues to assess temporarily-closed areas throughout the Preserve on an ongoing basis in coordination with the PVPLC to ensure public safety and habitat preservation while balancing the provision of public use. The eastern section of Sacred Cove View Trail (closest to Inspiration Point Loop Trail) remains open to the public and provides access to Sacred Cove Beach via Cliffside Trail.



BEFORE



AFTER

On January 24, OSM staff repaired a damaged "Area Closed" sign at Abalone Cove Beach. The large sign had been damaged by a combination of strong winds and high tides.



On February 4, Staff identified several instances of graffiti on overlook areas, roads, and rock steps. Staff removed some of the graffiti and submitted a report to the City's contractor for graffiti removal to address the remaining items.



On February 7, Staff was notified by the Los Angeles County Fire Department of two German Shepherds seen in the Reserve. The dogs were unleashed, with no collar or other identification tags to locate their owner. Another hiker assisted Staff and Lifeguards in identifying and informing the owner, who had been searching for the dogs a few hours before. The two dogs were returned to their owner.

On February 20, Staff was approached by two hikers who had captured an injured seagull on Abalone Cove Trail. The full extent of its injuries was unknown, however, there was a clear bone fracture, and the bird was unable to fly on its own. Staff contacted International Bird Rescue in San Pedro for medical care.

On February 27, Staff was notified of an unattended dog tethered to a nearby pole across from Sacred Cove. It is unknown how long or who may have captured the dog. However, the dog was returned to its owner.



On February 27, Rangers observed a secondary landslide/erosion event causing damage to Cliffside Trail, making it impassable until the slough is cleared and the trail bed is stabilized. Staff worked with PVPLC and the Volunteer Trail Crew on repair options.



On March 5, Staff coordinated with personnel from Marine Animal Rescue to remove an injured seal from the beach.

On March 13, a vehicle driving on Palos Verdes Drive South lost control and swerved into the perimeter of the Abalone Cove parking lot. The driver did not need medical attention. The vehicle was removed by a tow truck.



Aqua Amarga Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	0	0	0	0
Dog	0	0	0	0

No issues observed during this reporting period.

Alta Vicente Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	30	8	5	0
Dog	4	1	0	0

On February 3, Park Rangers contacted an individual using pinecones and needles on a City-provided barbecue grill at Upper Point Vicente Park. The use of pinecones and needles created a large flame, smokey conditions, and a strong smell. The individual put out the fire when asked.

On March 23 and 24, Rangers contacted two separate individuals who were seen collecting *Foeniculum vulgare* (fennel) and bagging it up in plastic bags. This plant is an invasive species within the Preserve, however, damaging or taking of any plants is not permitted. City Staff and PVPLC volunteers work to identify and remove invasive and non-native species with care taken to minimize damage to the habitat.

Filiorum Reserve

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	8,192	27	6	2	0
Dog	NA	2	1	1	0
Biker	720	1	1	0	0
Equestrian	0	0	0	0	0

On January 19, OSM Staff cleared the slough from several rockslides caused by the recent rains. The larger rocks were broken down into smaller pieces and moved off the trail.



On January 20, OSM Staff trimmed back acacia branches that had fallen onto Kelvin Canyon Trail and made it impassable for equestrians and bicycle riders.



On February 28, Staff installed regulatory and informational signage on the newly installed Rattlesnake Gate to remind visitors of the gate hours. Approximately 150 ft of fencing was added to the existing green fencing to deter after hours use.



Forrestal Reserve

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	9,545	232	33	0	0
Dog	NA	57	11	0	0
Biker	53	30	8	0	0

On January 1, Rangers observed and reported two portable restrooms located at the end of Forrestal Drive had been knocked over. Public Works was notified and assisted in notifying the contractor and uprighting the portable restrooms.

On January 13, Rangers received a call on the Preserve Information Reporting Hotline reporting a missing dog. It is believed that the dog may have accessed a nearby canyon in Forrestal Reserve. Staff searched for the dog as well as inspected the condition of the trails before the next rain event, which was forecast for that night. The dog was not found, and the individual who placed the original call was updated.

On January 21, Recreation and Parks Staff reported evidence of vandalism to the entry chain at the Forrestal Drive gate to Park Rangers. Upon further inquiry, it was confirmed one of the links had been tampered with and broken, and a storage shed on School District property had been burglarized. A police report was submitted, the school district was notified, and the chain was repaired.

On February 12, Park Rangers were notified of two dogs off-leash and unattended. One of the dogs had a collar, and the other did not. The two dogs were secured and returned to the owner without further incident.

In December, Rangers were notified of damage to Flying Mane switchbacks, including new spur trails, and posts and cables on both sides of the trail dug out and tossed aside. The vandalism persisted in this reporting period, with the most recent incident occurring in late March. Rangers continue to monitor this area, and are coordinating with PVPLC on ongoing repairs.



On February 16, Staff installed an additional “No Bike” sign at the bottom of Exultant Trail and Forrestal Drive to remind bicyclists that no bicycles are permitted on this trail as misuse has been observed and reported.



On February 20, Park Rangers received a call from the Los Angeles County Sheriff's Department regarding a report of a lost hiker. The hiker had wandered off trail near Cristo Que Viento and was unable to return to her vehicle. Rangers assisted Sheriff Deputies in the search for the individual, who was located within an hour, and escorted back to her vehicle.

On February 28, Staff received a report of damage to the trail counter located on Purple Sage Trail. The cap on the top had been pried off during the strong winds and was found in the adjacent habitat. The trail counter will be repaired.

Ocean Trails Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	193	9	0	0
Dog	16	4	2	0
Biker	0	0	0	0

On February 2, Trump National Golf Club notified the City of recent issues at the public restrooms managed by Trump National. Club staff has seen an increase in individuals locking themselves in the restrooms, vandalizing the walls, and flooding the sinks. Trump National is working with the Los Angeles County Sheriff's Department to address this issue, and Park Rangers are increasing patrols in the area to monitor activity.

On February 19, Park Rangers contacted a patron with a digging tool at Rancho Palos Verdes Beach. The patron indicated they wanted to collect sea glass but was not aware of the rules and was compliant in returning the tool to their vehicle before resuming their hike.

Portuguese Bend Reserve

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	16,529	2,614	382	56	8
Dog	NA	331	107	37	0
Biker	559	177	23	3	0
Equestrian	59	31	0	2	0

On February 14, Staff inspected and filled in a fissure on the temporarily closed section of Rim Trail. The trail remains temporarily closed while Staff coordinates with the PVPLC to assess alternative routes and trail conditions.



On February 17, a hiker reported a leak on the fire hydrant at Barn Owl Trail and Burma Road Trail. Rangers confirmed the leak was a slow leak and notified California Water Services.



On February 26, an off-leash, unattended dog was found near Burma Rd Trail. The dog did not have any identification tags, and Los Angeles County Animal Control was notified.

On March 3, Staff and local trail expert and volunteer Kurt Loheit removed several large boulders from Burma Road. The boulders were part of a significant rock fall during the recent storms and had been blocking vehicle access on this fire road. Staff and Mr. Loheit spent approximately five hours breaking the enormous boulders into smaller boulders that could be moved out of the fire road.



BEFORE



AFTER

On March 17, Staff worked to clear debris from a mudslide and rockslide on Burma Road Trail to ensure the trail remains accessible for authorized vehicles. Staff continue to monitor trail conditions after rains to conduct repairs.



On March 19, Rangers repaired the lower sections of Burma Road Trail near the Barn Owl Trail by creating a small grade dip to help water flow away from the trail bed and into the adjacent habitat.



On March 19, the bottom section of Peppertree Trail between Ishibashi Farm Trail and Sandbox Trail is temporarily closed. An approximately 7-foot-deep trench has been created by the recent rains, resulting in the narrowing of the trail.



On March 19, a rockslide occurred on Peppertree, halfway between Sandbox Trail and Klondike Canyon Trail. As a result, trail users are advised to use caution.



On March 20, Garden Trail was temporarily closed due to land movement and fissures that have opened up on the trail. The City will be working with the City Geologist and PVPLC to discuss solutions.



On March 20, Rangers filled in a fissure on Peppertree Trail just below Landslide Scarp Trail that had caused an 18-inch step down from the trailbed. The trailbed has been repaired and will continue to be monitored.



On March 24, Rangers identified a water leak on Cal Water infrastructure located on Burma Road Trail. Cal Water was notified, and crews arrived shortly after to perform repairs. Crews worked approximately 5 hours to realign the pipe, which had moved due to land movement.



On March 25, Rangers performed repairs on a section of Burma Road Trail located above Landslide Scarp Trail to smooth out the road, as it continues to be eroded by a nearby pipe.



On March 28, Staff was informed of three motor bikes seen on Ishibashi Trail. Hikers on the trail were able to contact the riders, informed them of the City's Municipal Code regarding no motorized vehicles in the Preserve and turned the riders around towards the exit.



San Ramon Reserve

No contacts made or issues observed during this reporting period.

Three Sisters Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	19	8	2	0
Dog	4	3	1	0
Biker	0	0	0	0

No issues observed during this reporting period.

Vicente Bluffs Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	432	31	1	0
Dog	59	1	0	0
Biker	6	4	6	0

On February 9, Park Rangers received a report from a patron of unidentified organs on the trails. The reporting party was concerned they could belong to a human, and wanted to report the issue in the event additional investigation was warranted. OSM Staff proceeded to the reported location, Seascapes Trail, and did confirm the presence of organs, likely a stomach and liver. Due to the size and inside contents, the organs were believed to be that of small herbivorous animal, such as a rabbit.

On February 11, Park Rangers identified a water leak on Golden Cove Trail. Park Rangers worked with the Public Works Department, monitored the condition of the trail, and worked with the public to address concerns.

On February 16, Staff installed a “No Bike” sign on Seascapes Trail and Interpretive Trail to remind bicyclists entering from Lower Point Vicente Park that bicycles are not permitted in this Reserve as misuse has been observed and reported. Bicycles are permitted in Lower Point Vicente Park.

Vista del Norte Reserve

No contacts made or issues observed during this reporting period.

City Parks and Beaches

Rangers educated patrons in City Parks and beaches regarding the City’s Municipal Code, including homeless individuals locked in restrooms, dogs off leash, photography without a permit, and after hours use.

MEMORANDUM

Date: July 19, 2023

To: Katie Lozano, Sr. Administrative Analyst, City of Rancho Palos Verdes

Norma Saldaña, Recreation Supervisor, City of Rancho Palos Verdes

From: Taylor Fox, Senior Park Ranger

Subject: 2nd Quarter Rancho Palos Verdes Park Ranger Enforcement Report

PRESERVE VISITOR CONTACTS SUMMARY

April 1 – June 30, 2023

4 Full-time Park Rangers patrolled the Preserve approximately 640 hours during this period.

3 Part-time Parking Enforcement assisted with education and enforcement of Park Mobile Reservation System at Crenshaw Boulevard.

Agency Coordination, Trainings, and Interpretive Events:

3 Monthly City-PVPLC NCCP/HCP Coordination Meetings: City and PVPLC staff meet monthly to coordinate Palos Verdes Nature Preserve (Preserve) operations and maintenance, and to implement the City's Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP).

3 Monthly City-PVPLC Volunteer Trail Crew Coordination Meetings: The City's OSM Staff holds monthly meetings with the Volunteer Trail Crew to coordinate future trail maintenance and building projects.

3 Monthly City-PVPLC Volunteer Trail Watch Coordination Meetings: The City's OSM Staff holds monthly meetings with the Volunteer Trail Watch to coordinate on public use and public education topics.

Verbal Judo Institute (May 16-17): Park Rangers participated in a 16 hour training session hosted by the Verbal Judo Institute to learn about verbal de-escalation, and verbal compliance. Open Space Management Staff also participated in an 8 hour session.

Los Angeles Marine Protected Areas Collaborative Team: The City met with representatives from LAMPACT to discuss and review operations and observations within the City's two Marine Protected Areas and share resources.

Project/Operations Coordination & Emergency Work:

OSM Staff help to coordinate multiple projects within the Preserve to ensure NCCP / HCP compliance together with the Preserve Habitat Manager, the Palos Verdes Peninsula Land Conservancy (PVPLC). Some of these coordination tasks include project management, implementing trail closures, public safety measures, and providing public notification. Below are a list of projects OSM staff helped coordinate with the Public Works Department, PVPLC, and public utilities in the second quarter:

March 30 – June 4: Fuel Modification Coordination with Public Works Department and PVPLC Preserve-wide.

The following is a list of maintenance projects and events that transpired during the Second Quarter. Maintenance work was performed by OSM Staff, and may include litter abatement, spur trail closures, signage repairs, and tread repairs, within the Preserve and Abalone Cove Park.

- Vegetation Trimming: 65
- Installing Signs: 8
- Removal of Graffiti (Additional graffiti deferred to GPC): 35
- General Maintenance: 99
- Total: 207

OVERALL VISITOR CONTACTS:

Total Contacts: 7,503

Hikers: 6,578

Dog Walkers: 557

Cyclists: 299

Equestrians: 69

Warnings: 80

Education: 968

Calls for Assistance: 7 Transports

Heat exhaustion & heat stress: 3

Other (i.e. underlying condition, sprained ankle): 4

Preserve Information and Reporting Hotline Calls: 46

Parking Inquiry / Violation: 10

Maintenance Issue Reported: 7

Trail Status and General Information: 6

Injured Animal: 6

Gate Unlocked / Condition: 3

Animals Off Leash: 3
Wildlife Issues on Private Property: 3
First Aid Response / Rescue: 2
After Hours: 2
Transients / Encampments: 1
Electric Motorcycle / Bicycle:
Off Trail: 1
Poaching / Digging: 1
Fire / Smoking: 1

Social Media Educational Outreach

Open Space Management was featured in an RPVtv segment in May 2023. Watch RPVtv's "Around the Peninsula Springtime Edition" to learn more about the Palos Verdes Nature Preserve.



Park Rangers were featured in an RPVtv segment in June 2023. Watch RPVtv's "Palos Verdes Blue Butterfly" to learn more about the Palos Verdes Nature Preserve.



ENFORCEMENT SUMMARY:

Parking Citations Issued: 370

By Violation:

Park by Permit – 338
Posted Temporary No Parking / Fire Lane – 27
ADA Zone – 6
After Hours – 0
Other- 0

By Location:

Crenshaw Boulevard (Portuguese Bend / Filiorum adjacent) –250
Del Cerro Park –86
Abalone Cove Reserve – 25
Forrestal Reserve – 5
Other – 4

Notice to Appear Citations Issued: 3

Court Dates: 2

By Violation:

Dogs off Leash – 2
Special Event Permit - 1

By Location:

Ocean Trails Reserve – 1
Portuguese Bend Reserve – 1
Marilyn Ryan Sunset Park - 1

ACTIVITY REPORT BY RESERVE:

The next section provides further information on projects, reports, and Ranger activity/observations organized by Reserve. Trail counter data is provided for Portuguese Bend Reserve, Filiorum Reserve and Forrestal Reserve, where the City has placed a total of five counters combined. It is important to note that trail counters are placed at the most popular entry points, but do not cover every entry point. Park Ranger public contacts do not reflect actual number of individuals in the Reserve, rather those spoken to while on foot and/or vehicle patrols. Information does not include routine maintenance.

Abalone Cove Reserve:

	Public Contact	Education	Warning	Enforcement
Hikers	818	134	6	0
Dogs	29	11	4	0
Bicyclist	4	3	1	0

On April 5, Park Rangers contacted and warned two individuals parking on the red, whom were seen carrying camera like equipment. The individuals had told volunteers they were filming in the area, and claimed to have a film permit. Upon contact by Rangers, the individuals failed to provide a permit, and were provided information regarding the City's permit policy for commercial filming and photography, as well as alternative parking locations. The vehicle was cited for parking in the red and the group was educated as they had not yet begun filming.

On April 5, Park Rangers received a report regarding an individual with orange chaps using a chainsaw on the beach. Park Rangers made contact with the individual and confirmed that they were attempting to cut a washed up piece of wood to modify it into a bench for the public. Rangers informed the individual about the use of power tools.

On April 9, Staff contacted a group of individuals that had taken trimmings from *Artemesia californica* from within the restoration area in the Reserve. The individuals returned the trimmings to Staff. Earlier that day, Staff had observed several trimmings of *Encelia californica* and non-native *Brassica nigra* on top of one of the trash cans by the beach. The public is encouraged to practice the "leave no trace and take only pictures" approach.



On April 5 and 6, Staff continued to trim and cut back overgrowth caused by recent rains to improve visibility of existing trails. This will help the public to stay on trails as well as to keep an eye out for potential hazards such as ticks or rattlesnakes this spring!



On April 8, Palos Verdes Peninsula Land Conservancy's Volunteer Trail Crew conducted additional work to continue to stabilize Cliffside Trail after recent landslides in January and in March.



On April 12, Staff cleared the perimeter of the picnic areas from tall grasses. This helps Staff and visitors keep an eye out for potential critters such as snakes!



On April 19, Staff observed a deceased rattlesnake on Olmsted Trail. Rattlesnakes are one of many species of animals you may encounter while hiking. They can be found inland and along coastal locations! Rattlesnakes are venomous; and they will defend themselves if they feel threatened. Always stay on trail (including your dog, as they too can get bit by a rattlesnake) and create distance or turn around if you do not feel safe.

On May 1, Staff received various reports of a red fox wandering the trails. As with all wildlife, use caution, and keep a safe distance. Never feed wildlife, and make sure all pets stay on the trail.

On May 1, Staff continued to weed and clear overgrowth seen on the Sea Dahlia Trail and Beach School Trail.



On May 5, a call was made to Park Rangers reporting a deceased dolphin washed ashore this week. Staff contacted several partner agencies to remove it, with little success due to logistical issues.

On May 13, Staff was notified of a vehicle break-in at the Abalone Cove parking lot. The party filed a report with the Los Angeles County Sheriff's Department.

On May 17, Staff was observed evidence of a vehicle break-in at the Abalone Cove parking lot. The party had already filed a report with the Los Angeles County Sheriff's Department.

Vehicle break-ins occurred at the Abalone Cove parking lot on May 20, and 21. Los Angeles County Sheriff Department Deputies were notified and assisted those on scene.

A vehicle break-in occurred at the Abalone Cove parking lot on May 27. Los Angeles County Sheriff's Department deputies were notified, however, the reporting party refused additional assistance.

On May 27, Staff was notified of a patron with a possible broken ankle on Olmsted Trail. Los Angeles County Fire Department provided medical assistance.

On May 27, Staff reported 2 patrons in the Beach School Trail who had previous injuries or conditions that had hiked down to the beach but were unable to hike back up to their vehicles and were requesting assistance. Park Rangers were able to transport the individuals.

On May 27, staff was notified of a vehicle break-in at the Abalone Cove parking lot. The party did not want to file a report with the Los Angeles County Sheriff's Department.

On May 31, Public Works and Recreation and Parks Staff worked collaboratively to install a new commemorative bench near Via de Campo Trail.

Staff continued to clear back overgrowth along the trails, as shown in the before and after photos of the Via de Campo Trail shown below.



On June 7, Staff continued to clear overgrowth along park trails.



On June 15, Staff reported a stranded / injured pinniped at Abalone Cove closer to Olmsted Trail. The Marine Animal Rescue had been contacted and staff continued to monitor the pinniped and educate the public about safe distance. It is unknown what time the pinniped was able to return back to the ocean without the assistance of rescuers.

On June 16, Staff conducted litter abatement and took pictures of damage caused to vegetation from a vehicle collision. It is unknown when the vehicle collision occurred. Vehicle debris had remained from the crash, including the side view mirror and glass.

On June 17, Park Rangers conducted a transport of an individual suffering from heat exhaustion. The hiker was seen sitting in the middle of the trail upon initial contact.

On June 18, Staff removed two instances of graffiti along the rock walls, pictured below. Both are located at the bottom of Abalone Cove Trail.

On June 19, Staff replaced trash cans at various locations as many of these trash cans sustained damage over the last year as a result of vehicle crashes, or strong wind events.

On June 23, the Beach School Trail was temporarily closed for road repairs. The Department of Public Works led the project, while Recreation and Parks assisted with signage and trail closures. Abalone Cove Trail and Chapel View Trail were also temporarily closed while the work took place.



On June 25, Staff was notified by a member of the public of a distressed pinniped that was on Abalone Cove Beach. Several agencies were called by Staff to assist. Signage was placed to advise the public to keep their distance.



On June 25, Park Rangers were notified by Los Angeles County Fire Department of a rescue that took place at the gorge. A transient had fallen into the Gorge and had sustained minor injuries before being pulled from the water.

Aqua Amarga Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	9	1	0	0
Dog	1	1	0	0

Bicyclist	4	3	0	0
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On June 13, Park Rangers were notified of human bones found within the Reserve. Los Angeles County Sheriff Deputies had also been called and conducted an investigation. No trails were closed as this was located off trail.

On June 28, Park Rangers found a metal animal trap with a deceased ground squirrel appeared to have been trapped inside.

Alta Vicente Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	57	23	0	0
Dog	5	2	1	0

On April 18, Park Rangers secured one dog off leash, a pitbull, who had been seen following a hiker along the upper portion of the trail. After 15 minutes of searching, the owner was located. Per the owner, both dogs were in the large dog enclosure, when they jumped over the chain link fence. Both dogs ran in opposite directions, and the owner was not able to find them. One of the dogs had run towards the South Spur Trail before being captured by his owner.

On May 3, Park Rangers received a report from the dog owner that his dogs had gotten loose in the area of Upper Point Vicente Park. The dogs, described as pit bull mixes, dark brown or black, 2 with collars but no leashes. It was later confirmed that the individual had been attempting to train his dogs on how to respond to verbal cues and had been intentionally hiking off trail in / near Prickly Pear Trail. After a 2 hour search, the dogs were not located. 8 hours after the initial report was received, Park Rangers received a call regarding 2 found dogs, and requested to pick up the dogs. The dog owner could not be located or contacted, and the dogs were taken to Los Angeles County Animal Control.

On June 14, Staff was received a report of an encampment in the City Yard, located by the trails in the Alta Vicente Reserve. Staff conducted a foot patrol of several areas but were unable to identify any encampments or evidence of such activity.

On June 20, Staff temporarily closed Prickly Pear Trail while Los Angeles County Fire Department conducted a helicopter exercise at Ken Dyda Civic Center. The trail was temporarily closed between 10am to 1pm, and reopened after.

Filiorum Reserve

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	14,417	36	26	0	0
Dog	NA	4	1	0	0
Biker	1,004	2	0	0	0
Equestrian	0	0	0	0	0

On March 29, Rangers found an uprooted Eucalyptus Tree near Gary's Gulch Trail. The tree was not on the trail, and the trail remained passable. OSM Staff trimmed the feet of the branches to clear visibility of the trail as it turned 90 degrees and begins to ascend upwards towards Eucalyptus Trail.



Before (left) and after (right) clearing the debris off the bottom section of Gary's Gulch Trail



Before (left) and after (right), cutting back some Eucalyptus Tree branches near Gary's Gulch Trail.

On April 8, Park Rangers were contacted by Los Angeles County Fire Department regarding assistance for a rescue. The hiker was believed to be at Zote's Cutacross. Park Rangers provided information related to trails, conditions, and vehicle access. It was determined the individual would need to be airlifted to be transported to a hospital.

On April 23, Park Rangers assisted Los Angeles County Fire Department personnel in responding to a report of a hiker with a broken leg at Kelvin Canyon Trail. The individual was located and escorted out by paramedics.

On May 2, Staff was notified of graffiti on a stone pilaster near Crenshaw Blvd. The City reported the incident to RPVClean for removal.



On May 22, Park Rangers investigated several reports of snail bait used on McBride Trail. The findings were reported to the City's Code Enforcement Division for further action.

On May 25, Park Rangers received a call for a possible injured lost hiker within Filiorum Reserve, as the hiker hikes within 2 hour period, and it had already been 9 hours past their expected arrival time. Park Rangers had begun a search of the area to look for the individual, and was updated within 90 minutes by the initial caller that the individual had returned home safely.

On June 15, Park Rangers confiscated a small plastic cage and litter near Eucalyptus Trail. Volunteers had sighted the cage several days prior. No additional information was provided.

Forrestal Reserve

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	24,914	720	34	6	0
Dog	NA	102	12	6	0
Biker	273	44	9	1	0

On April 18, Rangers received a report of a water leak on Forrestal Drive. Park Rangers were able to confirm the location, and notified Cal Water Services of the issue. Staff at Cal Water indicated that this is likely anormal process intended to purge the air in the valve, but will make a follow-up inspection.



On April 22, Park Rangers contacted 3 young hikers seen off-trail along Forrestal Drive. The hikers were warned for being in a closed area, and were seen holding a shovel and 2 pickaxes. The group was educated about the rules within the Nature Preserve.

On May 1, Park Rangers were notified of a call made to Los Angeles County Fire Department and paramedic. A participant with the docent-led tour was feeling unwell, and requested medical assistance as they began to have trouble breathing. The individual was able to walk back to Forrestal Drive.

On May 20, Park Rangers were informed of a water main break in Forrestal Reserve near Klondike Canyon. Cal Water was contacted and was able to repair the pipe.



On May 30-June 2, Purple Sage Trail and Conqueror Trail were temporarily closed to allow contractors to perform repairs caused by the May 20 water main break.

On June 23, Park Rangers received a report from hikers who heard snoring on Mariposa Trail. Park Rangers conducted a foot patrol to ensure no individuals or encampment was within the described location. No evidence was found of an encampment or of snoring taking place.

Ocean Trails Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	495	21	1	0
Dog	23	7	4	1
Biker	0	0	0	0

Sunrise Trail was temporarily closed effective April 10. An irrigation leak caused a mudslide that impacted the top section of the trail. Trump National Golf Course Staff has been notified and repairs are anticipated to be completed by the end of the week.

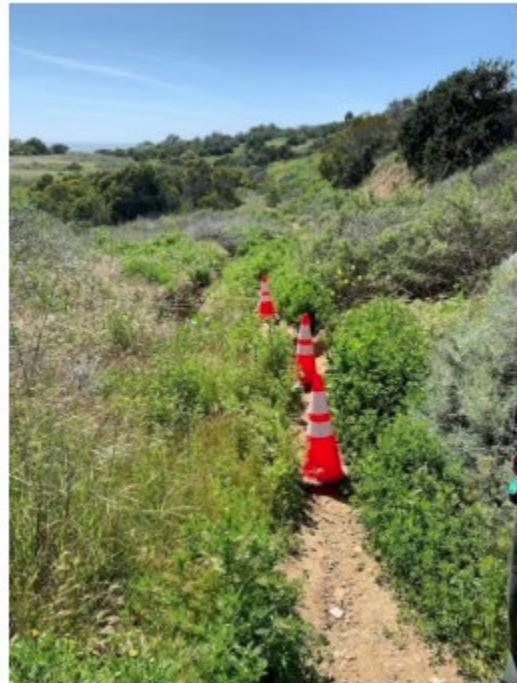


On May 14, Park Rangers were notified by Trump National Golf Club security personnel about public reports of a turtle on the trails. Park Rangers conducted a foot patrol of the area but were unable to locate the turtle.

Portuguese Bend Reserve

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	43,115	4,245	520	15	0
Dog	NA	363	67	16	1
Biker	2,113	243	27	12	0
Equestrian	21	69	15	0	0

On March 29, Rangers were notified of additional water damage to an unnamed trail connecting the lower section of Peppertree Trail (near Sandbox Trail) to the lower section of Ishibashi Farm Trail (near Cherryhill Lane). The section included a gap of approximately 3 feet deep and 3 feet wide. As a result, this trail will be temporarily closed, with repairs made in conjunction with those on Peppertree Trail.



On April 10, Rangers began repairing eroded sections of existing check dams on Barn Owl Trail. The public is advised to use caution until repairs are complete.



On April 19, Park Rangers received a report of a snake on the trail that appeared to be lethargic and non-responsive. The snake was believed to have neurological damage as it

was slow-moving. After monitoring for several minutes, the snake was brought to Los Angeles County Animal Control for further medical assessment.

On April 23, Park Rangers were notified of an injured hiker. Los Angeles County Fire Department was already on scene. The injured hiker was believed to be on Kelvin Canyon Trail. Rangers assisted with escorting ambulance down Burma Road Trail to the closest location to provide medical assistance to the individual.

On April 24, Staff were notified of a water leak on Vanderlip Trail. Park Rangers confirmed there was a water main break and notified Cal Water Services to perform repairs. Vanderlip Trail and Kubota Trail were temporarily closed until repairs can be made. Closure signage has been placed at all respective trailheads. The southern section of Vanderlip Trail and Kubota trail was reopened on May 13, after repairs were made by Trail Crew members.



On April 29, Park Rangers contacted a wedding party attempting to take pictures with professional equipment on Burma Road Trail. The group was informed of the Nature Preserve status and rules, and provided alternative scenic locations within in the City that complies with the City's film permit.

Staff continued to trim back and prune overgrowth areas, primarily focused on removing mustard and other non-natives to allow the public to continue enjoying the views while providing access through trails.



On May 5, a water leak was reported at the junction of Rim Trail and Burma Road Trail. The leak was reported to Cal Water Services and repaired by the end of day. No trail closures took place.



On May 11, Park Rangers spotted a group of 5-6 mini dirt bike riders about to enter Portuguese Bend Reserve from Klondike Canyon Trail. The Park Ranger was not able to make verbal contact to educate / warn the group of use of motorized vehicles, however, the group turned around and proceeded back to Palos Verdes Drive South.

On May 15, Park Rangers were notified of an abandoned backpack found on Burma Road Trail between Eagle's Nest Trail and Ishibashi Trail. Park Rangers proceeded to search for the backpack, but were unable to find it.

On May 20, Los Angeles County Fire Department personnel and Park Rangers became aware of an individual in need of assistance in the Portuguese Bend Reserve. The individual was located and brought to a local hospital.

Park Rangers continue to fill in fissures and repairs to Burma Road Trail. The public is advised to use caution and stay on the trail as there is active land movement.



On May 29, Park Rangers received a report from a resident who lost his dog, a yellow Labrador. Park Rangers requested additional information and provided a call back number. The individual was later reunited with its dog.

On June 1, Park Rangers received a report of an injured cat on Burma Road Trail. It is unknown how the cat received its injuries or how it made its way to the trail. Park Rangers contacted Los Angeles County Animal Care and Control, who captured the cat for further medical assessment.

Beginning June 8, Park Rangers coordinated and directed brush clearance of trails in the Portuguese Bend Reserve by landscaping crews. Trails prioritized for clearing included trails historically used as fire roads for vehicular access by public safety agencies and higher-use trails. Due to the proliferation of non-native vegetation caused by winter storms, trail clearing will continue into the Fall. A total of 4.51 miles of trails were cleared on the following trails:

- Burma Road Trail
- Ishibashi Farm Trail
- Panorama Trail
- Klondike Canyon Trail
- Peppertree Trail
- Vanderlip Trail (partial)
- Kelvin Canyon Trail (partial)
- Gary's Gulch Trail (partial)

OSM staff continued to clear debris and inspect overgrowth along the trails.

On June 14, Park Rangers were notified by several hikers of water seen on Vanderlip Trail. A water main break had occurred, prompting the temporary closure of the Northern section of Vanderlip Trail and Kubota Trail due to damage on the trail. The Southern section of Vanderlip Trail had already been closed since the last water main break the month prior.

On June 16, Park Rangers received a report from 2 exhausted hikers having difficulty breathing on Burma Road Trail. The individuals refused medical treatment, but had been carrying a 36 pound backpack and requested assistance. It was later relayed that both individuals were with the Armed Forces and were training for basic training. One individual had not eaten earlier in the day.

On June 28, Park Rangers identified a water leak on Cal Water Services infrastructure on Burma Road Trail and Rim Trail junction. A report was made to Cal Water Services.

On June 30, Park Rangers were notified from a hiker who recommended that bicyclists should notify hikers when they are coming down the trail. The hiker reported a recent incident of a collision between a cyclist and hiker that occurred last week on Burma Road Trail when a speeding cyclist turned the corner and did not stop. The reporting party, the hiker, showed several cuts and bruises sustained from the collision.

San Ramon Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	2	0	0	0
Dog	0	0	0	0
Biker	0	0	0	0

Three Sisters Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	1	7	0	0
Dog	0	0	0	0
Biker	2	0	0	0

No issues observed during this reporting period.

Vicente Bluffs Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	195	24	7	0
Dog	30	20	0	0
Biker	0	0	0	0

On March 30, OSM Staff located a turtle crossing Calle Entradero. It is unknown whether the turtle escaped from a nearby property or was abandoned. The turtle was turned into a nearby shelter for care.

On April 28, Park Rangers patrolled the reserve to follow up on a report of homeless activity. No evidence of homeless activity was found.

On April 28, Park Rangers received a report of a broken sprinkler. Public Works Department was notified and confirmed that an individual was on scene already.

On May 18, Park Rangers were notified of individuals suspected of digging up rocks near the Pelican Cove parking lot area. There have been two instances of late night activity seen by the reporting party.

Vista del Norte Reserve

No contacts made or issues observed during this reporting period.

City Parks and Beaches

Rangers educated patrons in City Parks and beaches regarding the City's Municipal Code, including homeless individuals locked in restrooms, amplified music, dogs off leash, photography without a permit, and after hours use.

MEMORANDUM

Date: October 1, 2023

To: Katie Lozano, Sr. Administrative Analyst, City of Rancho Palos Verdes
Norma Saldaña, Recreation Supervisor, City of Rancho Palos Verdes

From: Taylor Fox, Senior Park Ranger

Subject: 3rd Quarter Rancho Palos Verdes Preserve Enforcement Report

PRESERVE VISITOR CONTACTS SUMMARY

July 1 – September 30, 2023

4 Full-time Park Rangers patrolled the Preserve approximately 2,080 hours during this period.

3 Part-time Parking Enforcement assisted with education and enforcement of Park Mobile Reservation System at Crenshaw Boulevard and the Residential Recreational Parking Program on Park Place.

Agency Coordination, Trainings, and Interpretive Events:

4th of July Event: The Open Space Management (OSM) Division participated in the City's 4th of July Celebration to share information about the trails and wildlife seen in the Peninsula. An estimated 300 people visited the OSM Booth.



Troop 378 Eagle Court of Honor: Park Rangers attended the event to recognize and celebrate the completed projects of 3 Eagle Scouts whose work took place at Abalone Cove Park: Shubham Waldiya, Ethan Chao, and Aaron Chee.



B.A.R.K. Ranger Event: On August 19, Staff hosted a booth to share information on how dogs can become a B.A.R.K. Ranger. B.A.R.K. stands for Bag your pet's waste, Always on Leash, Respect Wildlife, and Know where you can go. Dogs and their owners received information on foxtails, ticks, rattlesnakes, and the importance of staying on a leash and on trail.



3 Monthly City-PVPLC NCCP/HCP Coordination Meetings: City and PVPLC staff meet monthly to coordinate Palos Verdes Nature Preserve (Preserve) operations and maintenance, and to implement the City's Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP).

3 Monthly City-PVPLC Volunteer Trail Watch Coordination Meetings: The City's OSM Staff holds monthly meetings with the Volunteer Trail Watch to coordinate on public use and public education topics.

Cityworks Implementation / Training (Summer 2023): Open Space Management began the process to implement CityWorks: a system that helps track maintenance related

work, capture labor, equipment, and materials cost, as well as assess priority levels for work in the Preserve.

Los Angeles County-Wide Trails Task Force Quarterly Meeting (September 7): The City is a member of the Los Angeles County-wide Trails Task Force. Main topics of the meeting included discussion on the impacts of winter rains on trails and multilingual signage on regulatory and interpretive panels.

Eagle Scout Project: Christopher Kinoshita (September 16) Scout Kinoshita from Troop 378 completed his Eagle scout project at Abalone Cove Park. Mr. Kinoshita led a group of scouts installing a 100-foot section of 5-foot tall vertical posts that were 8 feet long to match the existing fencing.

MPA Training for Officers and Enforcement Partners (September 20): Park Rangers participated in a half day training to learn about the science of MPAs, MPAs of Los Angeles County, and local practices and perspectives.

Beach Clean-Up: Cub Scout Pack 970 and Boy Scout Troop 783 (September 23): Park Rangers assisted several volunteers by providing information and clean-up supplies to conduct a beach clean-up at Vicente Bluffs Reserve in honor of National Public Lands Day and Coastal Clean-up Day.

Eagle Scout Project: Graham Johnson (September 24): Scout Johnson from Troop 128 completed his Eagle scout project at Prickly Pear Trail in the Alta Vicente Reserve. Mr. Johnson led a group of scouts installing a wooden fencing to delineate the trail and discourage off trail use given high activity of cactus wren.

Project/Operations Coordination & Emergency Work:

OSM Staff help to coordinate multiple projects within the Preserve to ensure NCCP / HCP compliance together with the Preserve Habitat Manager (PVPLC). Some of these coordination tasks include project management, implementing trail closures, public safety measures, and providing public notification. Below are a list of projects OSM staff helped coordinate with the Public Works Department, PVPLC, and public utilities in the third quarter:

December 14 – February 22: Rattlesnake Gate and Fence construction.

December 23- July: Burma Gate bollard construction resumed. Backorder of parts for the gate in addition to weather stalled the project.

August 19-22: Preserve temporarily closed due to significant rain associated with Hurricane Hilary.

July 26 – Ongoing: Fuel Modification Coordination with Public Works Department and PVPLC Preserve-wide for the second time this year due to significant regrowth.

Maintenance

The following is a list of maintenance projects and events that transpired during the Third Quarter. Maintenance work was performed by OSM Staff, and may include litter abatement, spur trail closures, signage repairs, and tread repairs, within the Preserve and Abalone Cove Park.

- Vegetation Trimming: 69
- Installing Signs: 3
- Removal of Graffiti (Additional graffiti deferred to GPC): 27
- General Maintenance: 127
- Total: 226

Additionally, effective August 30, the Open Space Management Division has begun implementation of CityWorks to track all maintenance work performed within the Preserve to effectively implement maintenance tasks and capture expenses, including labor and equipment.

OVERALL VISITOR CONTACTS:

Total Contacts: 5586

Hikers: 4,932
Dog Walkers: 338
Cyclists: 262
Equestrians: 54

Warnings: 77
Education: 771

Calls for Assistance: 11 Transports

Heat exhaustion & heat stress: 9
Other (i.e. underlying condition, sprained ankle): 2

Preserve Information and Reporting Hotline Calls: 42

Trail Status and General Information: 9

Parking Inquiry / Violation: 6

Electric Motorcycle / Bicycle: 8

Maintenance Issue Reported: 5

Wildlife Issues: 2

First Aid Response / Rescue: 2

Lost and Found: 2

Gate Unlocked / Condition: 2

Dumping: 2

Poaching / Digging: 1

Cutting: 1

Graffiti & Vandalism: 1

Homeless: 1

Social Media Educational Outreach

The City has reached out to Google Maps 4 instances to report a data problem on 3 trails within the Portuguese Bend Reserve and Abalone Cove Reserve. These suggestions are received by the Google Maps Team and reviewed for accuracy.

Additionally, the City is part of a Beta test in AllTrails as a land manager to provide suggestions for accuracy of information.

ENFORCEMENT SUMMARY:

Parking Citations Issued: 195

By Violation:

Park by Permit – 159
Posted Temporary No Parking / Fire Lane – 30
ADA Zone – 6
After Hours – 0
Other- 2

By Location:

Crenshaw Boulevard (Portuguese Bend / Filiorum adjacent) - 88
Del Cerro Park – 72
Abalone Cove Reserve – 29
Forrestal Reserve – 6
Other –

Notice to Appear Citations Issued: 5

By Violation:

Off Trail – 3
Filming without a Permit – 1
Motorized Vehicles - 1

By Location:

Portuguese Bend Reserve – 2
Abalone Cove Park / Reserve – 2
Vicente Bluffs Reserve - 1

ACTIVITY REPORT BY RESERVE:

The next section provides further information on projects, reports, and Ranger activity/observations organized by Reserve. Trail counter data is provided for Portuguese Bend Reserve, Filiorum Reserve and Forrestal Reserve, where the City has placed a total of five counters combined. It is important to note that trail counters are placed at the most popular entry points, but do not cover every entry point. Park Ranger public

contacts do not reflect actual number of individuals in the Reserve, rather those spoken to while on foot and/or vehicle patrols. Information does not include routine maintenance.

Abalone Cove Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	807	122	18	2
Dog	20	2	1	0
Biker	4	1	1	0

On July 17-19, Olmsted Trail and Portuguese Point Loop Trail were temporarily closed while the Los Angeles County Fire Department began trail repairs and the installation of a secondary lifeguard tower on Abalone Cove Beach. Abalone Cove Beach remained opened to the public via Beach School Trail.



On July 15, Park Rangers found both trash cans at the 30-minute parking lots emptied, with trash strewn across the pathway. It is not believed to be animal related, as both lids were entirely removed. Park Rangers disposed of the litter.



On July 31, Abalone Cove Trail and the bottom section of Beach School Trail were temporarily closed to allow SCE to perform work on several power poles located in this area. Signage was placed at corresponding trailheads, and the public was advised that access to Abalone Cove Beach was still accessible via Sea Dahlia Trail or Olmsted Trail.



On August 1, Staff trimmed low-hanging branches from several Peppertrees above the picnic area.



On August 5, Staff was notified of a patron with an injury sustained while hiking up Abalone Cove Trail. The injured party was escorted out by first responders.

Cliffside Trail sustained some damage from the recent rain. The trail was briefly closed on August 25 to make repairs.



Before / after pictures of Cliffside Trail.

On August 26, Staff made repairs to Chapel View Trail due to rising berm in trail from land movement.



After picture showing smooth tread on Chapel View Trail.

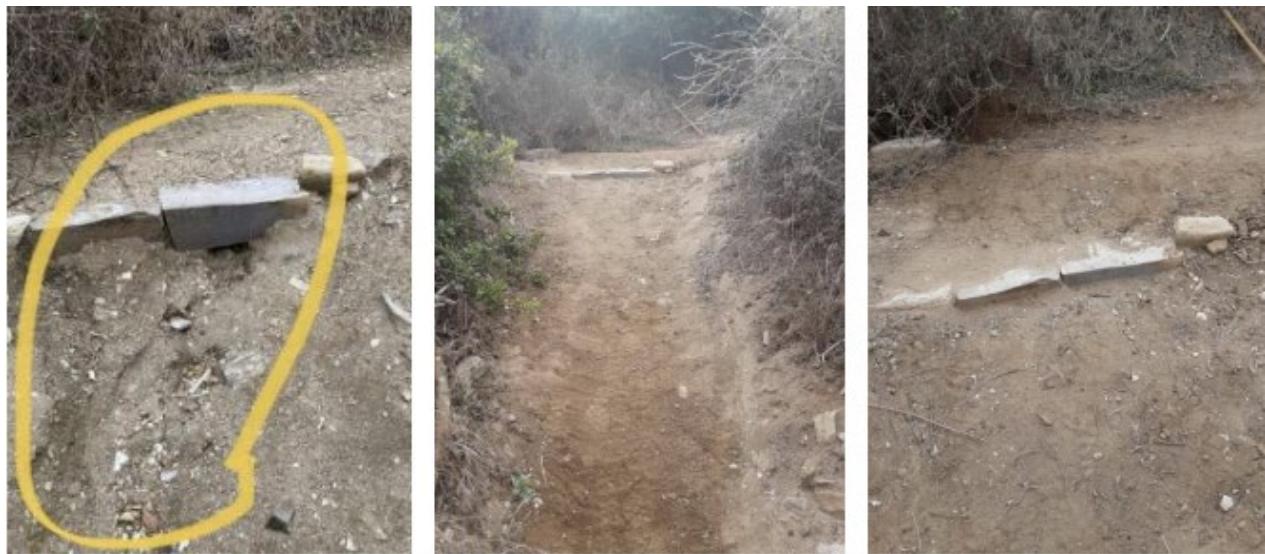
On August 26, Staff trimmed back overgrown lemonade berry and made repairs to the tread of Beach School Trail.



Before / after pictures of Beach School Trail.

On August 28, Staff removed one instance of graffiti on an irrigation pipe.

On September 1, Staff constructed a small grade dip and filled a rut at the bottom of Sea Dahlia Trail near Altamira Canyon. This will aid in minimizing damage to the rock steps on the trail.



Before (left) and after (center and right) picture of the uppermost rock steps on Sea Dahlia Trail.

On September 2, Staff repaired erosion on the tread of Olmsted Trail.



Before picture of Olmsted Trail.

On September 5, Staff trimmed back overgrown lemonade berry brush along Beach School Trail.

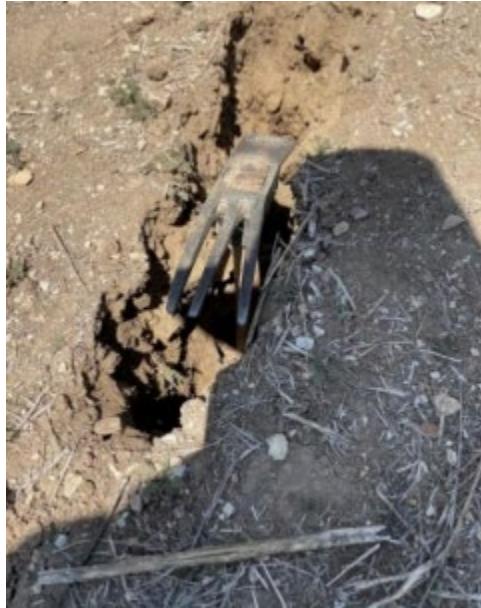


Before and after trimming on Beach School Trail.

On September 5, Staff cleared debris obstructing regulatory signage on Sea Dahlia Trail.



On September 19, Staff identified a fissure that ran parallel to the Inspiration Point Loop Trail. The deepest section measured 4 feet in depth, with an estimated length of 25 feet along the trail. Staff consulted with the City's Geologist to assess impacts and determine recommendations for repairs.



Aqua Amarga Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	0	0	0	0
Dog	0	0	0	0
Bicyclist	0	0	0	0

No issues observed during this reporting period.

Alta Vicente Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	44	16	4	0
Dog	4	0	1	0

On July 14, Park Rangers received a report of overgrowth on the stairs at North Spur Trail. OSM Staff cleared dandelions which had partially blocked the stairs. No trail closures took place while trimming was conducted.



On July 19, Staff installed two no e-bike signs on Alta Vicente Trail and North Spur Trail. E-bikes and motorized vehicles are not permitted within the Preserve.



Filiorum Reserve

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	9,096	18	7	0	0
Dog	NA	2	0	0	0
Biker	864	0	0	0	0
Equestrian	NA	0	0	0	0

On August 29, a water leak near Gary's Gulch Trail and Vanderlip Trail was confirmed. This area had already been temporarily closed off to the public as repairs are needed to Vanderlip Trail prior to reopening. CalWater was notified of the incident.



Gary's Gulch Trailhead with water running down the trail.

On September 13, Park Rangers received a report of improper disposal of green waste and the creation of unauthorized trail near McBride Trail. Park Rangers are working with Code Enforcement to address this issue.



Forrestal Reserve

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	16,079	437	55	4	0
Dog	NA	65	6	0	0
Biker	206	27	10	3	0

On July 1, Park Rangers dug out and removed one exposed metal posts that was protruding on Mariposa Trail.



On August 5, the Los Angeles County Fire Department held a training on Forrestal Drive and on trails within the Reserve. There was a temporary closure of Forrestal Drive as helicopter units participated in the training. Park Rangers and City Staff were in the area to assist with the temporary closures.



On August 10, Staff dug out two concrete slabs with metal posts embedded on the trail bed. A third post was protruding from the trail bed but could not be dug out entirely. The exposed part was cut back and covered back up with dirt. Lastly, an exposed section of chain link fence was cut back and covered. All work was performed on the Mariposa Trail.

On August 16, a water main break occurred near Conqueror Trail. The break was reported in the early morning hours and was identified by 8 a.m. As a result of trail damage caused by the water main break, on August 18, Purple Sage Trail, Cactus Trail, Conqueror Trail, and Dauntless Trail were temporarily closed. Cal Water and contractors had several vehicles on the trails repairing damage to the canyon and repairing the pipe. The trails were reopened on August 29.





Three Trail Closed A-frames remain on Conqueror Trail.

On August 23, City Staff were notified of a fallen willow tree on Mariposa Trail. Staff was able to trim back part of the tree that was blocking access. On September 12, Park Rangers met with an arborist to determine the health and safety of the tree and coordinate next steps.

On September 13, Park Rangers reported several instances of graffiti on a stone wall, and signs on Forrestal Drive. A report was submitted to GPC, the City's graffiti removal consultant.



On September 14, Park Rangers received a report of improper disposal of cut sections of pine tree on Mariposa Trail. The trail was temporarily closed while Staff investigated. There are at least 5 cut sections on the trail. Due to their size and weight, Park Rangers are unable to remove these from the trails, however, they were moved to the side to

ensure the trail remained passable. Staff will work with contractors to remove and properly dispose of these tree sections.



On September 19, Park Rangers repaired a grade dip on Klondike Canyon Trail.



On September 19, Park Rangers trimmed overgrown lemonade berry on the Sandbox Trail.



Ocean Trails Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	274	2	0	0
Dog	14	5	4	0
Biker	0	0	0	0

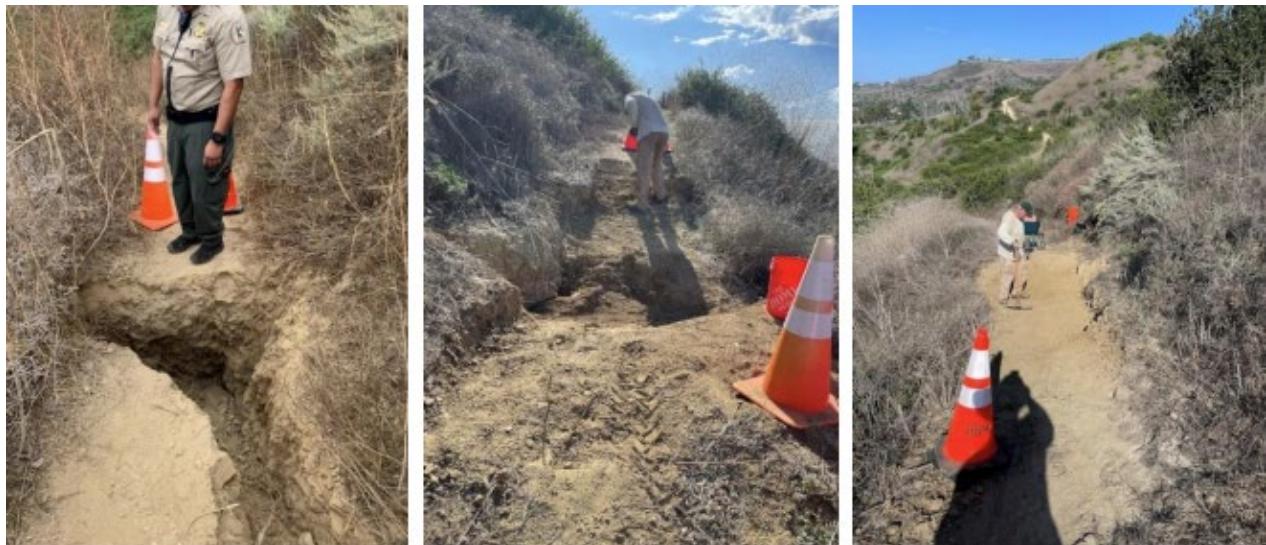
Portuguese Bend Reserve

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	29,734	3,050	422	10	2
Dog	NA	225	44	16	0
Biker	1,971	230	41	12	0
Equestrian	0	54	16	0	0

On July 4, Park Rangers found and discarded a tire near Peppertree Trail.

On July 7, Park Rangers received a report of a fissure on Ishibashi Trail. Park Rangers inspected the trail and temporarily closed the Southern section of the trail. The trail was

repaired on September 9 with the assistance of PVPLC Volunteer Trail Crew. Staff assisted in staging piles of dirt to use to fill in the fissure and repair the tread.



Before, during, and after photos of Ishibashi Trail repair project.

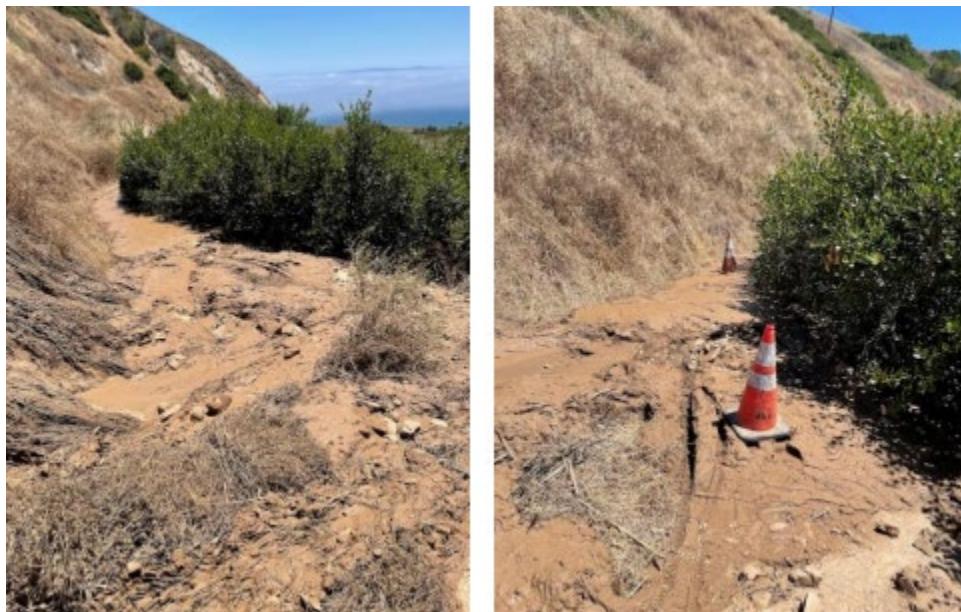
Throughout the week, Park Rangers continued to identify and repair fissures emerging from land movement in the area. One such fissure, shown below, was found on Burma Road Trail. Cones are placed to advise the public, and vehicle access through the Southern section of the Reserve is limited.



On July 14, Park Rangers were notified of damage to the Panorama Trail and the Sandbox Trail as a result of a discharge from the fire hydrant at Barn Owl Trail the day before. Park Rangers repaired the Panorama Trail damage area without having to close the trail.



The Sandbox Trail was not closed. However, caution signage was placed along the 12-foot section of trail that was muddy to advise users to proceed with caution.



On July 20, several areas on Crenshaw Blvd were tagged with graffiti. GPC, the City's graffiti contractor, was contacted.



Park Rangers continued to monitor land movement in the trails in this area, including on Burma Road Trail. Where feasible, staff fills in fissures with rock and dirt. Additionally, signage has been placed to advise the public of these areas.



On July 22, Park Rangers identified a newly planted specimen near Burma Road Trail. The plant, believed to be scrub oak, was not authorized and was removed.



Over the weekend, Park Rangers assisted several patrons and their pets who were experiencing symptoms of heat exhaustion. With upcoming temperatures in the high seventies to low eighties with high humidity, the public is advised to stay hydrated and avoid hiking during the hottest parts of the day.

On July 30, Park Rangers observed a downed wire cable leading into Ishibashi Trail. Upon further investigation, Park Rangers confirmed that an unauthorized vehicle had driven into the trails and had gotten stuck. Park Rangers educated and escorted the driver and passenger out of the Reserve and issued a citation for a motorized vehicle in the Preserve.

Beginning August 1, Park Rangers coordinated and directed brush clearance of trails in the Portuguese Bend Reserve by landscaping crews. Trails prioritized for clearing included trails historically used as fire roads for vehicular access by public safety agencies and higher-use trails. Due to the proliferation of non-native vegetation caused by winter storms, trail clearing is a continuation from this spring. Approximately 4 miles of trails were cleared on the following trails:

- Paintbrush Trail
- Ishibashi Trail
- Peacock Flats Trail
- Ailor Trail

- Kubota Trail
- Eagle's Nest Trail
- Middle section of Rim Trail
- Zote's Cutacross Trail
- Peppertree Trail (partial)
- Vanderlip Trail (partial)
- Kelvin Canyon Trail (partial)
- Ford Trail (partial)

OSM staff continued to clear debris and inspect overgrowth along the trails.

On August 3, Staff trimmed a section of Gary's Gulch Trail adjacent to Vanderlip Trail. Two truckloads were hauled out. Before and after pictures are shown below.



On August 4, Staff trimmed a section of Landslide Scarp Trail to prune back the overgrowth of both natives and non-native vegetation on the trail. A truckload was hauled out. A picture depicting staff pruning lemonade berry bush is seen below.



On August 4, Staff reset a check dam on Barn Owl Trail that had been undercut.



On August 8, the Los Angeles County Fire Department held a training in the lower trails within the Reserve. No trail closures took place. The training took place from approximately 12 p.m. to 3 p.m.

On August 9, a contractor will begin work to repair the lower section of Peppertree Trail. This trail has been temporarily closed due to severe rutting caused during significant rain events from January to March 2023. The section of Peppertree Trail from Sandbox Trail to Ishibashi Farm Trail (upper junction) will remain temporarily closed as crews work to make repairs, including grading, backfilling ruts, and creating a rock-armored swale to improve drainage issues in the area.



On August 9, Staff repaired the tread on Burma Road Trail. This section continues to move due to land movement. Staff brought rock and dirt to fill in and compact the dirt to reduce the grade for vehicles.



Before / After repairs of Burma Road Trail

On August 14, a contractor completed work to repair the lower section of Peppertree Trail. This trail had been temporarily closed due to severe rutting caused during significant rain events over the course of January – March 2023. The section of Peppertree Trail from Sandbox Trail to the upper junction of Ishibashi Farm Trail is now open. Additionally, the pedestrian-only section of Ishibashi Farm Trail that had been temporarily closed is now open.



Before / After repairs of Peppertree Trail looking up toward Burma Road Trail



Before / After repairs of Peppertree Trail looking down toward Palos Verdes Drive South

Adjacent to the Reserve, this unnamed trail was also repaired by contractors on August 14 and is now reopened. The trail had also sustained damage due to severe rutting caused by significant rain events over the course of January – March 2023.

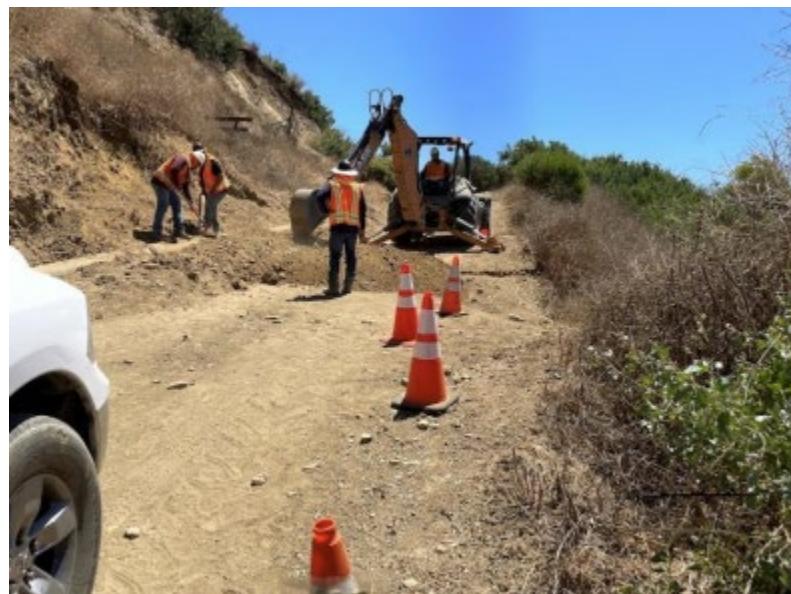


Before / After repairs of trail looking toward Ishibashi Farm Trail



Before / After repairs of trail looking toward Sandbox Trail

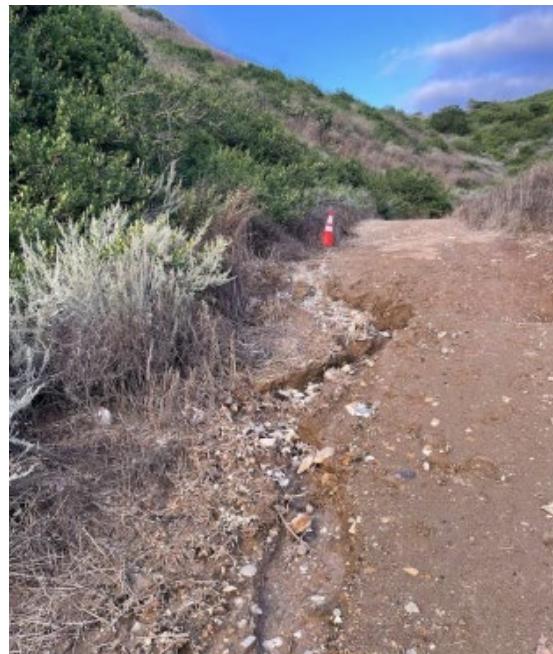
On August 18, Cal Water repaired a section of Burma Road Trail near Rim Trail junction to ensure maintenance of their existing infrastructure. No trail closures took place.



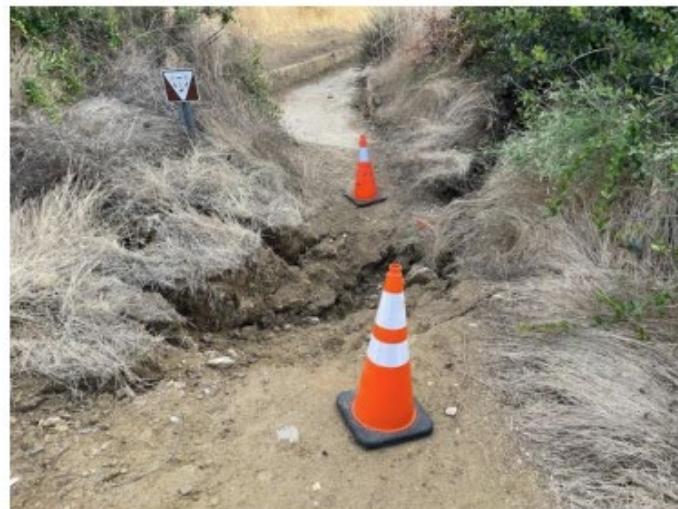
On August 18, a water leak was observed on Burma Road Trail near Ishibashi Trail. CalWater was notified and was able to make repairs to resolve the issue.



On August 21, a water leak was observed on Burma Road Trail near Rim Trail. CalWater was notified. However, due to trail conditions impacting vehicle access, repairs were not made the day of. Cal Water was able to complete repairs by August 23.



On August 21, Toyon trailhead (by Burma Road Trail junction) sustained some damage from the recent rain. Rock and dirt were used to make repairs to ensure the trailhead remained opened.



Before repairs of Toyon Trail and Burma Road Trail junction



After repairs of Toyon Trail and Burma Road Trail junction.

On August 21, Panorama Trail (by Burma Road Trail junction) sustained some damage from the recent rain. Rock and dirt were used to make repairs. During this time, the upper segment of the trail was temporarily closed between Burma Road Trail to Sandbox Trail. The trail was reopened on August 25.



Before / After repairs of two sections of Panorama Trail.

On August 24, Park Rangers resumed work on Eagle's Nest Trail to clear overgrowth trimmed back by contractors earlier in the month. The majority of the trimmings cleared were non-native mustard and tocalote.



Wheelbarrow seen filled with trimmings gathered on Eagle's Nest Trail.

On August 25, Staff began work on the upper section of Peppertree Trail to clear overgrowth trimmed back by contractors earlier in the month. The majority of trimmings cleared were non-native mustard and tocalote. Several piles were staged on the trail and were cleared within the week.



Staging area on Peppertree Trail.

On August 26, Park Rangers were notified of a bunny seen on Burma Road that appeared to have had internal injuries. The bunny was unable to move and shortly after had passed away. Cause of death was unknown.

Park Rangers continued to make repairs to fissures that open up along Burma Road Trail. One such instance is notable on the lower section of Rim Trail and Burma Road Trail. One of the holes was measured to be at least 6 feet deep. With the assistance of contractors, the section was repaired.



Before picture (left) was taken on August 25 with cones placed around the opened fissures compared to the picture after repairs (right) taken on August 28.

On August 27, Park Rangers observed an electric motorcycle riding on Burma Road Trail near Landslide Scarp Trail. Park Rangers were unable to make contact as the rider changed direction twice to evade Park Rangers. The individual was last seen on Burma Road Trail.

On August 27, Park Rangers found an Acacia tree that had fallen on Ishibashi Farm Trail. The tree was cut back and removed, allowing through access on the trail.



Before / after tree was cleared on Ishibashi Farm Trail.

On September 1, Park Rangers trimmed back overgrowth on the lower segment of Peppertree Trail.



Park Ranger is performing trimming on Peppertree Trail.

On September 4, Park Rangers placed cones to advise the public of land movement on Klondike Canyon Trail. Additionally, some areas were repaired.



Before and after picture of fissure located on Klondike Canyon Trail.

On September 5, Park Rangers were notified by the public of a water main break on Burma Road Trail. Rangers confirmed the leak was near Barn Owl Trail junction and temporarily closed a portion of Burma Road Trail, and Barn Owl Trail through September 7. CalWater was notified. The trail was reopened on the 8 after repairs were completed.



The water main break (left) and the damage on Burma Road Trail is depicted (right).



Before and after pictures of Burma Road Trail.

Park Rangers trimmed overgrowth along the Burma Road Trailhead on September 8.



On September 12, Park Rangers trimmed a fallen acacia tree that had blocked the trail. Vanderlip Trail continues to remain temporarily closed as trail repairs are still needed after damage from various water main breaks.



On September 16, Park Rangers received a report of a water main break on Vanderlip Trail. The trail remains closed until repairs can be made.



San Ramon Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	2	2	1	0
Dog	0	0	0	0
Biker	0	0	0	0

On July 4, Park Rangers identified significant graffiti on the storm drain within San Ramon Reserve. The findings were reported to the City's contractor, GPC, for removal.



On August 15, Park Rangers observed damage to the Wanderer Trail gate. The damage had been caused by a vehicle accident in the early morning hours. The trail remains open to hikers and bicyclists only.



Three Sisters Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	33	0	0	0
Dog	4	0	0	0
Biker	1	0	1	0

No issues observed during this reporting period.

Vicente Bluffs Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	264	15	0	1
Dog	4	2	1	0
Biker	0	0	0	0

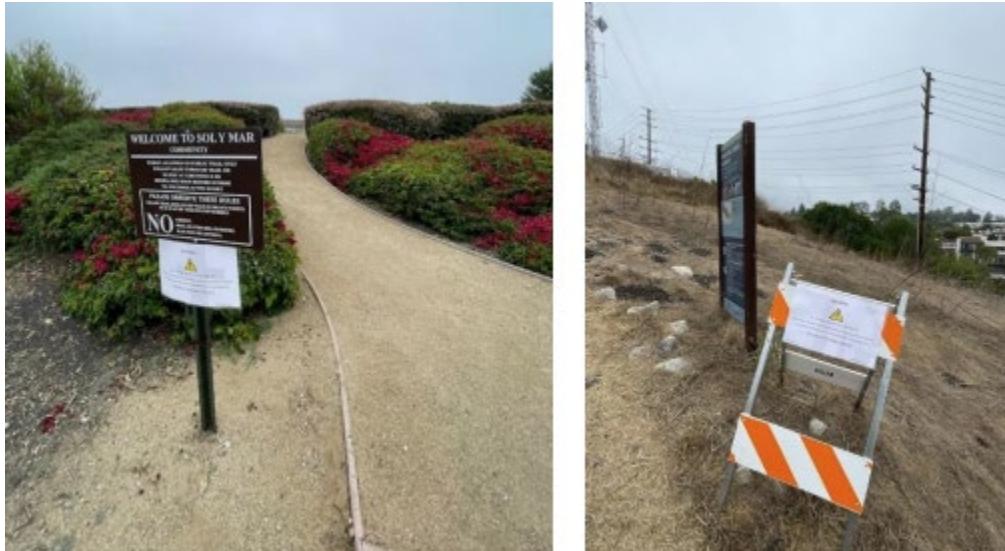
On July 12, Recreation and Parks Department and Public Works Department Staff placed several A-frames and water buffalo barriers to advise the public to use caution and stay on designated trails. There was damage to a 130-foot section of coastal blufftop fence installed along Golden Cove Trail. No trail closures are in effect, as the public sidewalk remains open as an alternative route.



On July 13, Park Rangers were notified of a wooden structure on Seaside Trail. The item was retrieved and discarded.



From August 14 – September 1, Sol Y Mar Community Association performed road maintenance including streets and crosswalks. The public trail providing through access between Indian Peak Road and Crestridge Road will be temporarily closed. Indian Peak Trail and Vista del Norte Trail remained opened. Advisory signage was placed to notify the public.



On September 16, Park Rangers found damage to the fencing along the Pelican Cove parking area. The issue was reported to Terranea Resort and caution tape was placed to alert the public.



Vista del Norte Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	3	3	0	0
Dog	0	0	0	0
Biker	0	0	0	0

No contacts made or issues observed during this reporting period.

City Parks and Beaches

Rangers educated patrons in City Parks and beaches regarding the City's Municipal Code, including homeless individuals, unauthorized parking, and use of barbecue grills.

MEMORANDUM

Date: January 5, 2024

To: Katie Lozano, Sr. Administrative Analyst, City of Rancho Palos Verdes
Norma Saldaña, Recreation Supervisor, City of Rancho Palos Verdes

From: Taylor Fox, Senior Park Ranger

Subject: 4th Quarter Rancho Palos Verdes Preserve Enforcement Report

PRESERVE VISITOR CONTACTS SUMMARY

October 1 – December 31, 2023

4 Full-time Park Rangers patrolled the Preserve approximately 1,600 hours during this period.

3 Part-time Parking Enforcement assisted with education and enforcement of Park Mobile Reservation System at Crenshaw Boulevard and the Residential Recreational Parking Program on Park Place.

Agency Coordination, Trainings, and Interpretive Events:

2 Monthly City-PVPLC NCCP/HCP Coordination Meetings: City and PVPLC staff meet monthly to coordinate Palos Verdes Nature Preserve (Preserve) operations and maintenance, and to implement the City's Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP).

3 Monthly City-PVPLC Volunteer Trail Watch Coordination Meetings: The City's OSM Staff holds monthly meetings with the Volunteer Trail Watch for coordination on public use and public education topics.

2 Monthly City-PVPLC Volunteer Trail Crew Coordination Meetings: The City's OSM Staff holds monthly meetings with Volunteer Trail Crew for coordination on trail maintenance projects.

Cityworks Implementation Meetings: Open Space Management began tracking maintenance related work via Cityworks to capture labor, equipment, and materials cost, as well as assess priority levels for work in the Preserve in August 2023. Management Staff continued to meet with representatives biweekly to continue to provide feedback on operations.

Rattlesnake Safety (October 18) Open Space Management participated in a rattlesnake safety presentation hosted by Central Coast Snake Services to learn about snake identification and dispelling myths about rattlesnakes.

Los Angeles County-Wide Trails Task Force Quarterly Meeting (December 7): The City is a member of the Los Angeles County-wide Trails Task Force. Main topics of the meeting included discussion on fuel modification, stabilizing landscapes and hillsides, project grants, and trail maintenance projects. The meeting also featured a roundtable discussion from various agencies and organizations in attendance, during which representatives from Open Space Management reported on 2023 events and projects, such as the completion of multiple Eagle Scout projects and the acquisition of the Wildlife Corridor.

Project/Operations Coordination & Emergency Work:

OSM Staff help to coordinate multiple projects within the Preserve to ensure NCCP / HCP compliance together with the Preserve Habitat Manager (PVPLC). Some of these coordination tasks include project management, implementing trail closures, public safety measures, and providing public notification. Below are a list of projects OSM staff helped coordinate with the Public Works Department, PVPLC, and public utilities in the fourth quarter:

October 2 – 10: Fuel Modification Resumed: Work previously postponed in Spring 2023 season due to active bird nesting activity resumed.

November 13 – 17: Removal of non-native trees in Alta Vicente Reserve: PVPLC began removal of non-native Acacia trees within this Reserve near Nike Trail, Prickly Pear Trail, and Alta Vicente Trail.

November 20-December 8: Removal of Non-Native Trees in Filiorum Reserve: PVPLC began removal of non-native Acacia trees within this Reserve near Pony Trail between Ford Trail and Jack's Hat Trail. The work was later postponed by the City's Geologist given proximity to land movement.

December 1-2: Temporary Trail Closure of Olmsted Trail due to land movement remediation work.

December 1: Lower Segment of Vanderlip Trail between Water Tank Trail to Gary's Gulch Trail reopened.

December 12- Present: Temporary Trail Closure of Beach School Trail due to land movement remediation work.

December 15: Terranea Resort performed rock scaling measures to inspect and safely remove any hazards along the cliffs in the area through December 15. Terranea Beach Cove and the Shoreline Access Trail from Cielo Pool down to the beach cove were temporarily closed during this time.

December 20-25: Preserve closed due to significant rain.

December 30-January 2: Preserve closed due to significant rain.

The following is a list of maintenance projects and events that transpired during the Fourth Quarter. Maintenance work was performed by OSM Staff, and may include litter abatement, spur trail closures, signage repairs, and tread repairs, within the Preserve and Abalone Cove Park.

By Activity:

	No. of Projects
Vegetation Trimming	45
Installing Signs	17
Graffiti & Vandalism	36
General Maintenance	111
Total	209

By Location:

	No. of Projects
Abalone Cove Park / Reserve	83
Agua Amarga Reserve	2
Alta Vicente Reserve	13
Filiorum Reserve	29
Forrestal Reserve	22
Lay Reserve	2
Portuguese Bend Reserve	35
Ocean Trails Reserve	6
San Ramon Reserve	6
Three Sisters Reserve	3
Vicente Bluffs Reserve	7
Other: Marilyn Ryan Sunset Park	1

Additionally, effective August 30, the Open Space Management has begun implementation of City Works to track all maintenance work performed within the Preserve more effectively and to capture expenses, including labor and equipment.

OVERALL VISITOR CONTACTS:

Total Contacts: 2,142

Hikers: 1,818

Dog Walkers: 172

Cyclists: 136

Equestrians: 16

Warnings: 107
Education: 478

Calls for Assistance: 6 Transports

Heat exhaustion & heat stress: 0
Pet: 1
Other (i.e. underlying condition, sprained ankle): 5

Preserve Information and Reporting Hotline Calls: 40

Trail Status and General Information: 9
Gate Unlocked / Condition: 8
Parking Inquiry / Violation: 6
Lost and Found: 4
Maintenance Issue Reported: 3
Aggressive Dogs / Dogs off Leash: 2
Homeless: 2
Closed Area: 1
Poaching / Digging: 1
Cutting: 1
Dumping: 1
Camping: 1
Wildlife Issues: 1

ENFORCEMENT SUMMARY:

Parking Citations Issued: 142

By Violation:

Park by Permit – 116
Posted Temporary No Parking / Fire Lane – 24
ADA Zone – 2
After Hours – 0
Other- 0

By Location:

Crenshaw Boulevard (Portuguese Bend / Filiorum adjacent) - 40
Del Cerro Park – 78
Abalone Cove Reserve – 11
Forrestal Reserve – 12
Other – 1

Notice to Appear Citations Issued: 7*

By Violation:

Closed Area – 7

Dog Off Leash – 1

*One individual cited for several violations.

By Location:

Vicente Bluffs Reserve – 6

Abalone Cove Park / Reserve – 1

ACTIVITY REPORT BY RESERVE:

The next section provides further information on projects, reports, and Ranger activity/observations organized by Reserve. Trail counter data is provided for Portuguese Bend Reserve, Filiorum Reserve and Forrestal Reserve, where the City has placed a total of five counters combined. It is important to note that trail counters are placed at the most popular entry points, but do not cover every entry point. Park Ranger public contacts do not reflect actual number of individuals in the Reserve, rather those spoken to while on foot and/or vehicle patrols. Information does not include routine maintenance.

Abalone Cove Reserve:

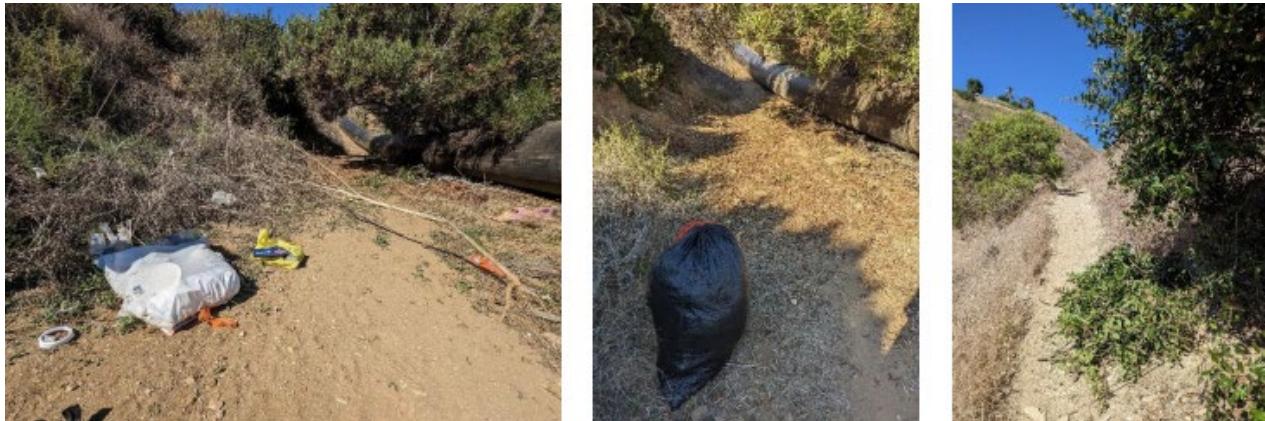
	Public Contact	Education	Warning	Enforcement
Hikers	489	84	14	1
Dogs	14	3	1	0
Bicyclist	2	2	0	0

On October 1, Staff filled in and repaired a fissure on Chapel View Trail.



On October 3, Staff continued to clear out Russian thistle (also known as tumbleweed) growing along Cliffside Trail.

On October 8, Staff conducted litter abatement and filled up a 50-gallon bag with items found along the temporarily closed section of Sacred Cove View Trail. The items were hauled out and disposed of.



On October 12, Staff removed graffiti from the backside of an informative sign on Abalone Cove Trail and from a cable housing unit on Sea Dahlia Trail. Additionally, one unauthorized decal on a traffic regulatory sign near Palos Verdes Drive South was removed.

On October 13, Smuggler's Trail was temporarily closed due to a fissure. The fissure was filled with rocks and dirt, and the trail reopened the following day. The City's geologist was notified.



On October 14, Park Rangers retrieved and discarded the remains of a piano found on Olmsted Trail.



On October 15, Staff covered up a spur trail near Olmsted Trail with vegetation to deter unauthorized use. Visitors are reminded to stay on designated trails to minimize impacts to native vegetation and wildlife.

On October 16, Staff removed graffiti on a regulatory sign on Inspiration Point Trail.

On October 17, Staff added a vegetation barrier to temporarily close access to Cave Trail. The trail is temporarily closed, and public access is not permitted.

On October 18, Park Rangers were notified of a break-in at the Abalone Cove facility resulting in damage to the window and alarm panel. The Los Angeles County Sheriff's Department was notified and took a police report.

On October 19, Staff removed graffiti and a decal from a yellow advisory sign on the California Coastal Trail segment along Palos Verdes Drive South. That same day, Staff covered up carvings made on several trees. These carvings can make the tree prone to sickness. Staff also removed graffiti from the bridge located at the upper section of Abalone Cove Trail.

On October 23, Staff trimmed back lemonade berry bushes near Olmsted Trail to improve the line of sight towards the ocean for Los Angeles County Lifeguards.



That same day, Staff used lemonade berry bush trimmings from Olmsted Trail to cover up an unauthorized trail near Portuguese Point Loop Trail. Vegetation is used to create a natural barrier to deter and minimize habitat damage.

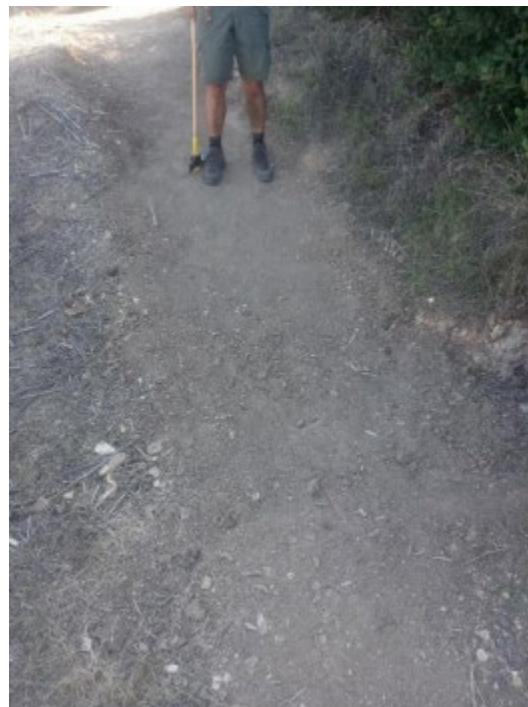
On October 24, Staff repaired a picnic bench located near Abalone Cove Trail.

On October 24, Staff coordinated with a Los Angeles County Sheriff Deputy at the Parking Lot. The Deputy was monitoring a stolen vehicle, which was later found in Palos Verdes Estates.

On October 28, Staff repaired a fissure on Olmsted Trail. Both pictures below were taken after repairs were completed.



On October 28, Staff repaired a fissure on Smuggler's Trail.



On October 28, Staff removed two instances of graffiti from the ruins at Olmsted Trail.





On October 28, Staff repaired a fissure on the bottom of Abalone Cove Trail.



On October 30, Staff trimmed overgrowth of lemonade berry bush along Beach School Trail.



On October 31, Staff performed work on Cliffside Trail to clean up slough material that had fallen on the trail.



On November 1, Staff replaced the lid of a trash can. The lid was broken, resulting in increased litter around the trash can and attracted animals.



On November 5, Staff removed graffiti on remnants of an old utility infrastructure near Beach School Trail.

On November 5, Staff trimmed back overgrowth of lemonade berry bush on Sacred Cove View Trail.



On November 12, Staff performed repairs on two fissures on Smuggler's Trail.



On November 12, Staff performed repairs on the bottom and upper sections of Olmsted Trail.



On November 13, Staff found and discarded an abandoned car bumper from an unknown vehicle in the parking lot.

On November 14, Staff removed thorny acacia, a non-native plant, seen growing along several areas within the park.

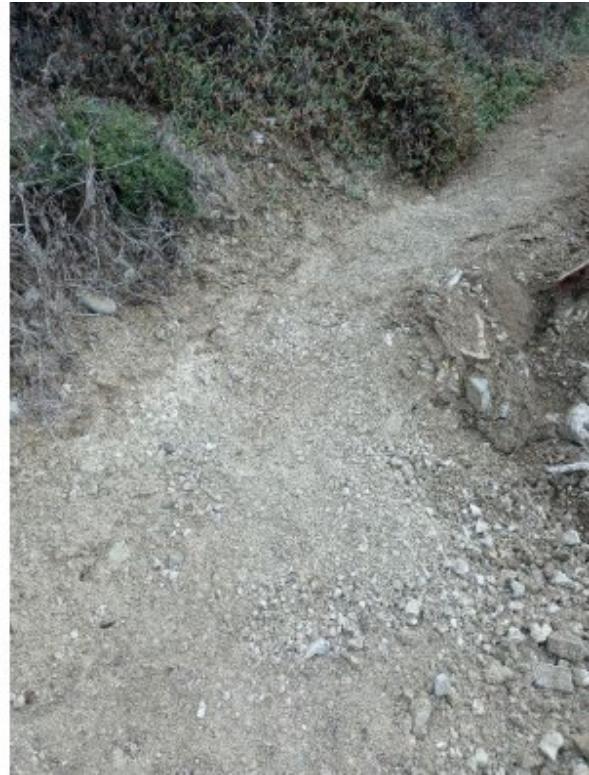
On November 18, Staff worked on the beach path near Olmsted Trail to repair damage caused by erosion and high tides.



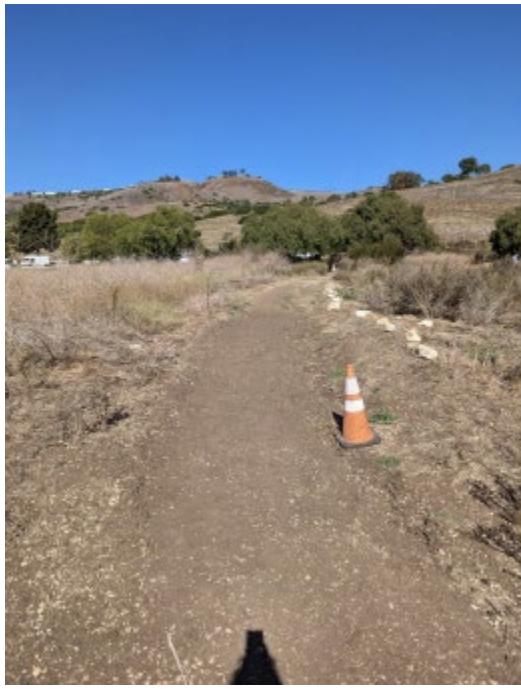
On November 18, Staff removed graffiti from the backside of a sign on Beach School Trail.



On November 18, Staff continued to perform repairs on the bottom section of Olmsted Trail to soften the incline from the beach.



On November 19, Staff repaired the tread on one of the parkside trails caused by rutting during significant rain.



On November 26, Staff performed inspections and repaired a fissure on the upper segment of Olmsted Trail.



On November 26, Staff removed Russian thistle, also known as tumbleweed from Sacred Cove Trail. The plant is both a non-native and invasive plant that grows in highly disturbed areas.



On November 26, Staff performed inspections and repaired a fissure at the bottom of Bow and Arrow Trail and Sacred Cove View Trail.



On November 27, Staff removed a pile of debris, including a pallet, multiple plants with nails, and other wooden boards at Abalone Cove Beach.



On December 7, Staff cleared out a block culvert underneath the bridge on Abalone Cove Trail.

On December 10, Staff hosted a booth at Abalone Cove beach during low tide to educate the public about the Marine Protected Area (MPA) and give out some OSM swag. Staff addressed several MPA violations in the area, including educating an individual who was repeatedly lifting an octopus out of the water and dropping it. The public was very receptive and thanked Staff for their presence, which provided protection for the beautiful and vibrant tidepools.

On December 11, Staff trimmed back overgrown lemonade berry bushes on Abalone Cove Trail. Trimmings were used to cover up an unauthorized trail.





On December 12, a section of Beach School Trail between Chapel View Trail to Abalone Cove Trail was temporarily closed to allow crews to access and perform land movement related work in the adjacent habitat. The trail is anticipated to remain closed through December 23.

On December 12, Staff removed graffiti from the stone overlook area near the 30- minute parking lot.

Aqua Amarga Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	3	0	0	0
Dog	2	0	0	0
Bicyclist	0	0	0	0

On October 10, Staff cleared out trimmings along Lunada Canyon Trail.

Alta Vicente Reserve

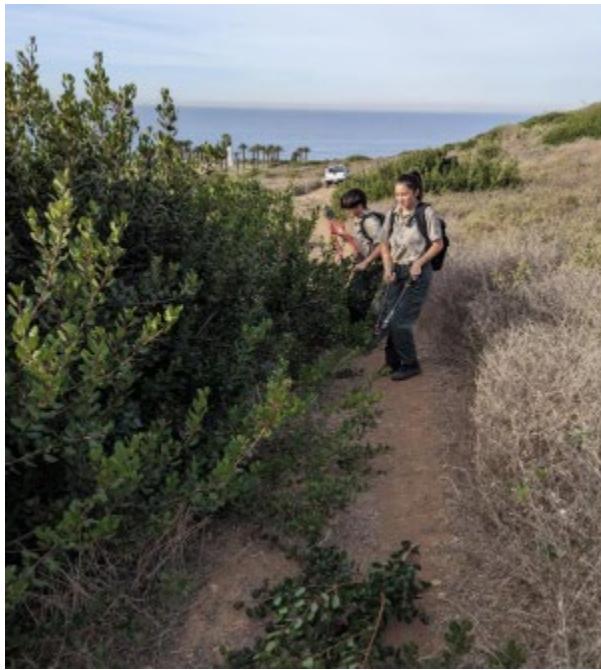
	Public Contacts	Education	Warnings	Enforcement
Hikers	6	2	4	0
Dog	3	3	2	0

On November 3, Staff removed Russian thistle / tumbleweed along a 400-foot section of Prickly Pear Trail. The plant is both non-native and invasive and caused the trail to narrow.

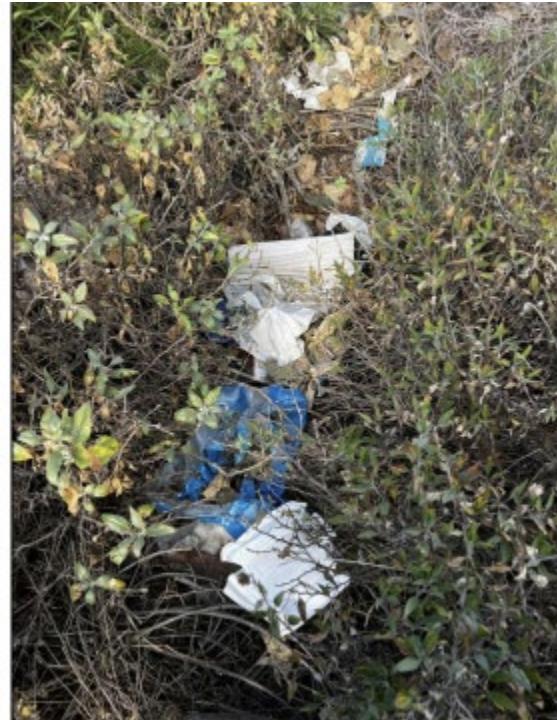


On November 8, Staff removed several items including plastic lawn chairs and a discarded car battery near Prickly Pear Trail.

On November 10, Staff trimmed back overgrowth of lemonade berry bush on Alta Vicente Trail. Some of the trimmings were used to deter use of a developed spur trail, thereby encouraging users to stay on designated trails.



On December 7, Staff conducted litter abatement along Prickly Pear Trail and replanted cacti that had been pulled out of the ground.



On December 18, Staff repaired a bent u-post at North Spur Trailhead.



On December 18, Staff trimmed an overgrown sunflower bush on Prickly Pear Trail.



Filiorum Reserve

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	9,531	20	12	0	0
Dog	NA	4	0	0	0
Biker	791	0	0	0	0
Equestrian	NA	0	0	0	0

On October 6, Staff continued to trim sections of Rattlesnake Trail with overgrowth.

On October 12, Staff was notified of a fissure on Pony Trail, with an estimated 2-foot drop. The City's geologist was notified.

On November 6, Staff trimmed back low hanging branches on Zote's Cutacross Trail.





On November 8, Staff removed one instance of graffiti on Ford Trail.



On November 9, Staff trimmed back overgrowth of lemonade berry bush on Jack's Hat Trail.



On November 14, Staff removed graffiti on the stone bench on Ford Trail.



Throughout this reporting period, Staff performed inspections and repaired a fissure on Ford Trail.



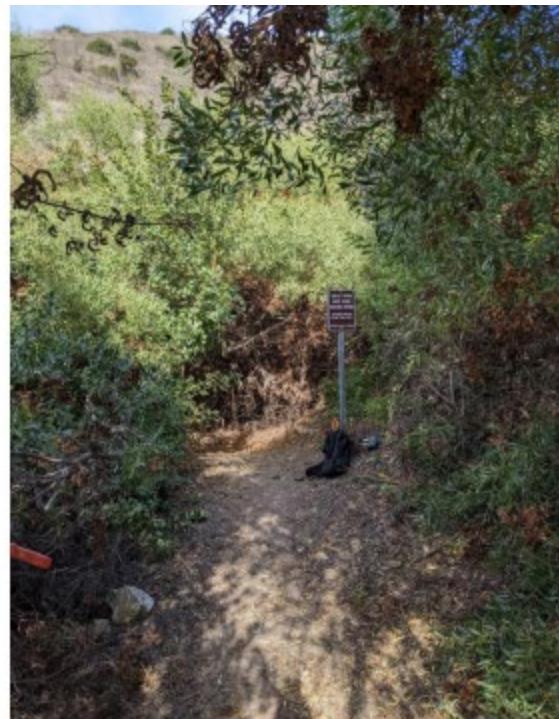
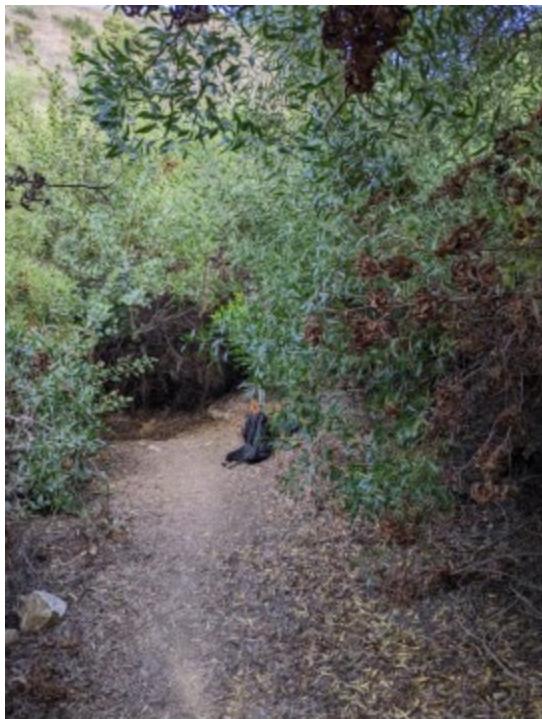
Throughout this reporting period, Staff inspected and repaired a fissure on Gary's Gulch Trail.



On November 24, Staff cleared out Russian thistle which was narrowing Zote's Cutacross Trail.



On November 29, Staff trimmed back vegetation to improve visibility of a "Walk Your Bike" sign on Zote's Cutacross Trail. Staff also removed overgrowth along Kelvin Canyon Trail.



On December 2, Staff removed two instances of graffiti on a "Walk Your Bike Zone" sign on Kelvin Canyon.



On December 4, Staff trimmed back overgrown vegetation on Eucalyptus Trail.



Forrestal Reserve

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	13,635	93	18	0	0
Dog	NA	28	3	0	0
Biker	199	7	0	0	0

On October 1, a large tortoise located at the Mainsail Drive cul-de-sac was reported to Staff. Contact information for its owner was found written on the tortoise's back, the owners were contacted, and the tortoise was reunited and brought home. The tortoise had inadvertently escaped from its home in Rolling Hills two months earlier.

Staff continued to work with contractors to remove several large tree stumps located on Mariposa Trail. Park Rangers received a report of improper disposal of cut sections of pine tree on Mariposa Trail. The trail was temporarily closed while Staff investigated. There are at least five cut sections on the trail. Due to their size and weight, Park Rangers are unable to remove these from the trails. However, they were moved to the side to ensure the trail remained passable. Staff will work with contractors to remove and properly dispose of the tree sections.



PVPLC volunteers removed old segments of chain link fencing embedded within the habitat near Purple Sage Traill. Staff assisted with disposal.



On October 18, Staff conducted litter abatement on Intrepid Trail and moved a trash can that had been moved back to the back of a nearby portable restroom.

On November 9, Staff removed several instances of graffiti on regulatory and directional signage on Quarry Trail and Basalt Trail.

On November 13, Staff dug out a protruding t-post with cement base from the trail and disposed of it.



On November 29, Staff repaired a fissure on Flying Mane Trail.



On December 2, Staff repaired sections of Mariposa Trail.



On December 6, Staff trimmed overgrown sections of Mariposa Trail.

On December 10, Park Rangers repaired the tread of Klondike Canyon Trail for improved vehicle access.



Ocean Trails Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	90	20	0	0
Dog	9	1	1	0
Biker	0	0	0	0

On November 2, Staff retrieved six lobster traps that washed ashore and several wooden posts that were discarded on Rancho Palos Verdes Beach.



On November 9 and 19, Staff received multiple calls regarding the unauthorized removal of closure signage at Catalina Trail. Park Rangers escorted several individuals off the temporarily closed area and reinforced the signage. Additionally, Trump National Golf Club personnel were notified to reinforce the fencing material. For the most up to date information on trail closures, visit rpvca.gov/trailalerts or contact the Palos Verdes Nature Preserve Hotline 310-491-5775.



On November 15, Staff removed a blanket, a large pallet, a damaged A-frame, and other miscellaneous items found on East Portal Trail.



Portuguese Bend Reserve

	Trail Counter	Public Contacts	Education	Warnings	Enforcement
Hikers	26,301	1,043	243	57	0
Dog	NA	104	28	9	0
Biker	1,369	127	53	19	0
Equestrian	0	16	3	0	0

Park Rangers trimmed back brush at six locations in Portuguese Bend Reserve to allow survey markers to be accessible to surveying crews. Due to heavy rain throughout the year, survey markers needed to be cleared of brush for land surveyors.

Park Rangers performed maintenance on a section of Landslide Scarp Trail to compact and level part of the trail tread.



On October 9, Park Rangers assisted PVPLC Trail Crew repair the tread on Burma Road Trail at the Rim Trail junction.



Park Rangers continue to monitor land movement and impacts on Preserve trails. Ishibashi Trail has shown additional signs of movement and was repaired by the PVPLC Trail Crew.



Based on recommendations by the City's geologist, several trails in the Portuguese Bend Reserve have been temporarily closed due to the potential for hazardous natural conditions associated with increased land movement observed in the greater Portuguese Bend landslide area. A map and list of the trail closures can be viewed at <https://www.rpvca.gov/1007/Trail-Conditions-Alerts>

On October 26, Park Rangers installed temporary fencing at Klondike Canyon Trail for the temporary closure.



On October 31, Park Rangers installed temporary fencing at Ishibashi Trail for the temporary closure.



On November 10, additional trail closures in the Portuguese Bend Reserve included portions of Peppertree Trail and Ishibashi Farm Trail. These trails were closed until further notice for public safety due to the potential for hazardous natural conditions associated with the active landslide, such as land movement, sink holes, unstable trails and surfaces, erosion, steep cliffs, and falling rocks.



On November 11, the PVPLC Trail Crew and Staff performed repairs on the lower section of Vanderlip Trail. The trail had been previously damaged with rutting up to 5 feet deep caused by several water main breaks in the area. The trail was reopened on December 1, after geologist review. This segment allows connectivity between Portuguese Bend Reserve and Filiorum Reserve.

Cal Water installed several signs to advise the public who to contact in the event a water leak is observed in the Portuguese Bend Reserve.



On November 27, Staff and PVPLC Volunteer Trail Crew inspected and repaired a fissure on Peppertree Trail.



San Ramon Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	0	0	0	0
Dog	0	0	0	0
Biker	0	0	0	0

On November 1, Staff removed several instances of graffiti on the Reserve Monument sign and traffic regulatory signs.

Three Sisters Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	6	2	0	0
Dog	0	0	0	0
Biker	0	0	0	0

No issues observed during this reporting period.

Vicente Bluffs Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	68	1	0	6
Dog	8	0	0	0
Biker	0	0	0	0

Throughout this reporting period, Park Rangers continued to monitor the temporary barricades near Golden Cove area.

On November 9, Park Rangers received a report of damage to the wooden fencing at Seascapes Trail. The fence had wood rot and had collapsed. Caution tape was placed to caution the public and a work order was submitted for Public Works Department to repair the posts.



On November 18, Park Rangers were notified by Los Angeles County Sheriff Department of a paraglider and in a closed area near Golden Cove parking lot.

Vista del Norte Reserve

	Public Contacts	Education	Warnings	Enforcement
Hikers	0	0	0	0
Dog	0	0	0	0
Biker	0	0	0	0

No contacts made or issues observed during this reporting period.

City Parks and Beaches

Rangers educated patrons in City Parks and beaches regarding the City's Municipal Code, including special events without a permit, improper disposal of vegetation trimmings, trespassing on construction zones, capture and release of snake in park facility, camping on the beach, dogs off leash, after hours use of lights near the Preserve, and found chainsaw on public trails (later returned to owner).

APPENDIX I

CITY OF RPV
2023 NIGHT HIKE ACTIVITY

2023 Night Hike Activity

Palos Verdes Nature Preserve

Sierra Club Night Hikes via City Permit:

January 16, 2023 -Portuguese Bend Reserve / Filiorum Reserve - **13 attendees**

January 23, 2023 - Portuguese Bend Reserve / Filiorum Reserve - **13 attendees**

February 6, 2023 - Portuguese Bend Reserve / Filiorum Reserve - **16 attendees**

February 12, 2023 - Portuguese Bend Reserve / Filiorum Reserve - **8 attendees**

October 23, 2023 - Portuguese Bend Reserve / Filiorum Reserve - **18 attendees**

October 30, 2023 - Portuguese Bend Reserve / Filiorum Reserve - **17 attendees**

November 6, 2023 - Portuguese Bend Reserve / Filiorum Reserve - **17 attendees**

November 13, 2023 - Portuguese Bend Reserve / Filiorum Reserve -**20 attendees**

December 4, 2023 - Portuguese Bend Reserve / Filiorum Reserve - **15 attendees**

December 11, 2023 - Portuguese Bend Reserve / Filiorum Reserve - **16 attendees**

December 18, 2023 - Portuguese Bend Reserve / Filiorum Reserve - **11 attendees**

Total Night Hike Participation: 164 attendees

APPENDIX J

FINANCIALS

DESCRIPTION	2016/17 NCCP/HCP	FY 2022/23
COSTS RELATED TO FULFILLING CONSERVATION REQUIREMENTS		
Misc. City Restoration Activities	30,000	4,578
Senior Administrative Analyst* (15%)	43,784	24,141
Recreation Specialist - (10%)***	21,126	-
Non-wasting Endowment paid to PVPLC	10,000	12,740
PVPLC Contract	144,300	166,636
Wildlife Corridor Acquisition	-	1,304,578
SUB-TOTAL COSTS RELATED TO FULFILLING CONSERVATION REQ.	249,210	1,512,673
COSTS RELATED TO PUBLIC ACCESS AND LAND OWNERSHIP		
Public Safety (70%)	567,000	260,200
Senior Administrative Analyst (55%)	145,946	88,516
Recreation Supervisor I (Norma Saldana) (70%)	-	55,689
PT OSM Staff Positions (70%)	219,528	19,315
Reporting Line/Phone Service	2,400	926
Parking Services (50% Skidata and 90% ParkMobile)**	-	19,101
Professional Services (Geologist, Trail Counters, Willscott and Radio Rentals)	-	45,460
Regulatory Literature	2,500	-
Other - Misc. Supplies	31,000	65,775
Maintenance Superintendent (10%)	16,227	14,306
Maintenance Workers (3) (10%)	20,316	20,703
Vehicles (maintenance and fuel)	2,197	18,678
Fuel Modification	108,000	377,427
Bird Surveys	30,000	5,265
Portable Restrooms	15,000	26,156
Landslide Abatement Districts	60,096	174,903
Road Maintenance	25,000	28,740
Trail/Misc. Maintenance	31,000	165,345
Signage	10,000	55,400
SUB-TOTAL COSTS RELATED TO PUBLIC ACCESS & LAND OWNERSHIP	1,286,210	1,441,905
TOTAL PRESERVE ANNUAL BUDGET	1,535,420	2,954,578

2023 Preserve Expenditures of the Palos Verdes Peninsula Land Conservancy

Expenses for Preserve Activities		
Staff Costs and Interns*	\$	458,378
Irrigation	\$	88,591
Plants for restoration	\$	27,412
Acacia and Nonnative Plant Removal Contractors	\$	115,307
Goat Grazing	\$	11,180
Restoration Supplies, Equipment and Vehicles	\$	93,051
Signage	\$	27,123
GIS and mapping	\$	2,322
Overhead (insurance, permits, accounting, office)**	\$	58,113
TOTAL EXPENSES	\$	881,477

In-Kind Services		
Pro-bono Professional Services	\$	85,827
Volunteer In Kind (22,773 hours @ \$37.32/hr)	\$	849,883
TOTAL ADDITIONAL PRESERVE PROJECTS	\$	935,710

* Palos Verdes Peninsula Land Conservancy Staff Allocations by Position

Executive Director (35%)
 Conservation Director (50%)
 Biologist (70%)
 Stewardship Manager (25%)
 Stewardship Technicians, 4 (50%)
 Native Plant Nursery Manager (20%)
 Trail Technician (75%)
 Volunteer Program Manager (20%)
 Volunteer Coordinator (30%)

** Overhead costs reflect the percentage of staff time allocated for work on Preserve activities

*** Volunteer In-Kind Value is determined by the Independent Sector valuation for a volunteer hourly rate in California for 2023