SECTION 8

2021 ANNUAL REPORT

PALOS VERDES PENINSULA
LAND CONSERVANCY

Palos Verdes Peninsula Land Conservancy

January ~ December 2021

PALOS VERDES NATURE PRESERVE

ANNUAL REPORT

FOR THE

RANCHO PALOS VERDES

NATURAL COMMUNITY

CONSERVATION PLAN

March 2022

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2021 ANNUAL REPORT

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1.0 INTRODUCTION

The 2021 Palos Verdes Nature Preserve Annual Report for the Rancho Palos Verdes Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) fulfills annual submittal requirements by the Palos Verdes Peninsula Land Conservancy (PVPLC) for the Palos Verdes Nature Preserve (Preserve). Additionally this report details stewardship activities, research, funding, and community involvement in the Preserve during the period January 1 through December 31, 2021. This report also includes annual submittal requirements of the City of Rancho Palos Verdes including habitat tracking and updates on Covered Projects and Activities permitted under the NCCP/HCP.

PVPLC is the designated Habitat Manager for the Palos Verdes Nature Preserve for the City of Rancho Palos Verdes. The Preserve encompasses approximately 1,400 acres and is located on the southern side of the Palos Verdes Peninsula in the City of Rancho Palos Verdes, California. The Preserve was formed under the RPV NCCP/HCP (adopted by City Council in October 2018) to “maximize benefits to wildlife and vegetation communities while accommodating appropriate economic development within the City and region pursuant to the requirements of the NCCP/HCP Act and Section 10(a) of the ESA (URS 2004a).” As a primary component of the NCCP/HCP, a Preserve design was proposed to conserve regionally important habitat areas and provide habitat linkages in order to benefit sensitive plants and wildlife. PVPLC manages the habitat in the Preserve per the requirements of the NCCP/HCP as well as other Preserve management duties further detailed in a management agreement with the City.

The primary focus of management for the Preserve is to maintain or restore habitat for the covered plant and animal species listed in the NCCP/HCP. A Habitat Management Plan was adopted in 2007 that outlines the restoration of five acres per year for a total of 15 acres over a three-year period. This plan also outlined the methodology for removal of exotic plant species, a predator control plan, and the monitoring of covered plant and animal species. PVPLC seeks additional funding when possible, to perform restoration on more than the minimum five acres per year required in the NCCP/HCP as well as for invasive species removal. Several opportunities of this nature occurred during the reporting period that enabled PVPLC to implement additional restoration as detailed below. Additionally, PVPLC executes several trail projects and habitat protection and enhancement measures with the aid of staff, volunteers and additional funding sources.

PVPLC also facilitates scientific research through community science programs and academic research in the Preserve. Volunteers greatly support the implementation of management strategies for the Preserve by assisting in monitoring the properties, wildlife, and habitat as well as help restore habitat and maintain trails. Collaborating with regional high schools and colleges allows for scientific research that expands our understanding of the Preserve.

Annual Submittals (Included in This Report)

1. Restoration Plans for the NCCP/HCP and Other Projects
2. NCCP/HCP Restoration Monitoring Report
3. Tracking of Habitat Impacts
4. Targeted Exotic Removal Program for Plants (TERPP) Report
5. Community Science and Education Programs
6. Trail Maintenance Activities and Project List
7. Volunteer Involvement and Support

Site Description

The Preserve is located on the southern side of the Palos Verdes Peninsula in the City of Rancho Palos Verdes, California (Figure 1). The approximately 1,400-acre Preserve has been divided into twelve subareas referred to as Reserves (Table 1).

The topography of the Preserve is diverse, ranging from relatively flat lowland areas above steep coastal bluffs in the south, to very steep slopes, ridgelines and gullies on the slopes to the north. Elevations range from approximately sea level along the coastal edges of Vicente Bluffs, Abalone Cove, and Ocean Trails to approximately 1,300 feet above mean sea level at the northern most parcel, vista del Norte. Adjacent land uses include single-family residences on most sides, open space associated with neutral lands on the Peninsula, the Pacific Ocean to the south and west, and the Los Verdes and Trump National golf courses near the western and eastern ends of the Preserve area.

Figure 1. Map of the Palos Verdes Nature Preserve with associated Reserves locations

Table 1
Reserve Names of the Palos Verdes Nature Preserve. See Figure 1 for locations

Abalone Cove Reserve	Ocean Trails Reserve*
Agua Amarga Reserve	Portuguese Bend Reserve
Alta Vicente Reserve	San Ramon Reserve
Filiorum Reserve	Three Sisters Reserve
Forrestal Reserve	Vicente Bluffs Reserve
Malaga Canyon Reserve	Vista del Norte Reserve
* Not managed by PVPLC, but managed under Habitat Conservation Plan	

2.0 HABITAT RESTORATION PLAN

Restoration is the process of re-establishing or enhancing historical biological functions and values to degraded habitats. Section 7.5 of the NCCP/HCP requires that the City restore a minimum of 250 acres of habitat over the Permit Term within the Preserve. A minimum of 5 acres of native habitat shall be restored each year, or a total of 15 acres every three years if exigencies prevent restoration of 5 acres each year.

The initial Preserve Habitat Management Plan (PHMP) for the Draft NCCP/HCP was created in 2007. A component of the PHMP was the Habitat Restoration Plan for five acres per year for a total of 15 acres over the first three-year period. This plan was completed in April 2007 and concluded that Alta Vicente Reserve in the Preserve ranked the highest in terms of site suitability for an immediate restoration project. However, since a fire occurred at Portuguese Bend Reserve in August 2009, plans were adapted to focus immediate habitat restoration at Portuguese Bend, and only Phase 1 and 2 (10 acres) were implemented at Alta Vicente. The Restoration Plan for Portuguese Bend covered habitat restoration and monitoring of 25 acres over five years (2010 to 2015).

In 2015, PVPLC developed new habitat restoration plans to execute the final phases of the restoration at Alta Vicente, and these plans were included in the 2015 Comprehensive Report. Phase 3 was initiated in 2016 and Phase 4 initiated in 2017, with the installation of drip irrigation and coastal sage scrub vegetation species. In 2016, the Habitat Restoration Plan for the Abalone Cove Ecological Reserve was developed to continue with restoration at Abalone Cove Reserve. The plan includes three phases with site preparation of the first phase beginning in 2019. A fourth phase was added to the Abalone Cove plan in 2021 and is expected to be started in spring 2022. A new restoration plan will be completed in 2022 to continue with the goal of completing 250 acres of restoration within the permit term for the Palos Verdes Nature Preserve.

2.1 ALTA VICENTE RESERVE RESTORATION

The Habitat Restoration Plan for Alta Vicente Reserve outlined appropriate habitat revegetation locations and methodology to adequately comply with the Preserve Management requirements of the Rancho Palos Verdes NCCP/HCP. The Habitat Restoration Plan for Alta Vicente Reserve provided guidelines for the establishment of coastal sage scrub (CSS), coastal cactus scrub (CCS), and PVB butterfly habitat on a total of 15 acres during 3 consecutive years at the Alta Vicente Reserve with an additional 5 acres added to the project.

The habitat restoration conducted at the Alta Vicente Reserve consists of four phases, with one phase initiated each year. The first five-acre phase of restoration, Phase 1 (Figure 2) began with site preparation during the fall of 2007 and 2008 to minimize weeds after planting (as per the timeline in the Alta Vicente Restoration Plan, Table 2). Phase 1 plants were installed and hydroseeded during the winter of 2009/2010. Site preparation for Phase 2 began in fall 2008. In December 2010, staff removed *Acacia cyclops* and completed planting and seeding in the Phase 2 area. Staff weeded and maintained Phase 1 and 2. Additional container plants were installed from 2012 to 2017 to fill in areas with low native plant cover.

Phase 3 (Figure 3) was initiated in fall 2016 with the installation of drip irrigation system and container plants throughout the 5 acre area. Year 1 monitoring began in spring 2018. Preparation for Phase 4 planting began in summer 2017 with site clearing using goats and drip irrigation system installation. Phase 4 planting began in winter 2017 and extended through early 2018, Year 1 monitoring began in spring 2019.

Table 2

Restoration Project Schedule for Alta Vicente Reserve, based on the Alta Vicente Reserve Habitat Restoration Plan

	Task	Date
PHASE 1	Site clearing and soil preparation	Fall 2007, Fall 2008
	Installation of temporary irrigation system	Fall 2008
	Weed/exotic removal and grow-kill cycles	Fall 2008-Spring 2009
	Planting container stock	Early Winter 2009/2010
	Hydroseed application	Winter 2009/2010 (following planting)
	Completion of installation/assessment of site installation	Following completion of installation and seeding and 120 day maintenance period
	5-year biological monitoring and maintenance	To begin upon successful installation of restoration work
	Phase one completion	2015, end of Year 5
PHASE 2	Site clearing and soil preparation	Fall 2008, Fall 2009
	Installation of temporary irrigation system	Fall 2008, Fall 2009
	Weed/exotic removal and grow-kill cycles	Fall 2008, Fall 2009,-Spring 2010
	Planting container stock	Winter 2010/2011
	Seed application	Winter 2010/2011 (following planting)
	Completion of installation/assessment of site installation	Following completion of installation and seeding and 120 day maintenance period
	5-year biological monitoring and maintenance	To begin upon successful installation of restoration work
	Phase two completion	2016, end of Year 5
PHASE 3	Begin site preparation, weed removal	Fall 2016
	Install irrigation	Fall 2016
	Planting Container Stock	Fall and Early Winter 2016
	Seed application	Fall and Early Winter 2017
	Monitoring and Maintenance	Begin after planting, Winter 2016
	5-year biological monitoring and maintenance	Spring 2018-Spring 2022
	Begin site preparation, weed removal	Summer 2017
PHASE 4	Install irrigation	Fall 2017
	Planting Container Stock	Fall and Early Winter 2017
	Seed application	Fall and Early Winter 2017
	Monitoring and Maintenance	Began after planting, Winter 2017
	5-year biological monitoring and maintenance	Spring 2019-Spring 2023

Figure 2. Map of Phase 1-3 Restoration Areas at Alta Vicente Reserve

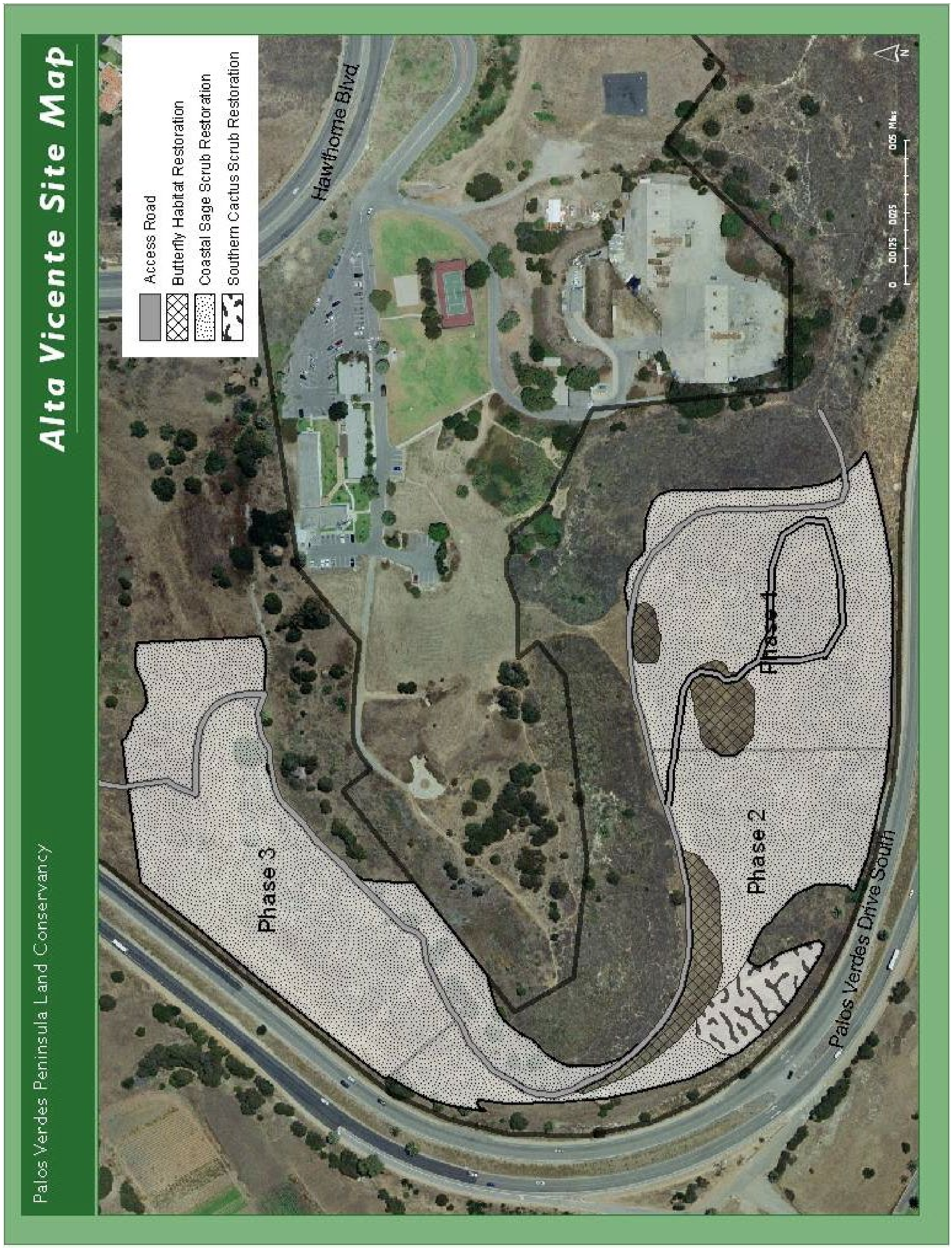


Figure 3. Map of Phase 3 and 4 Restoration Areas at Alta Vicente Reserve

2.2 PORTUGUESE BEND RESERVE RESTORATION

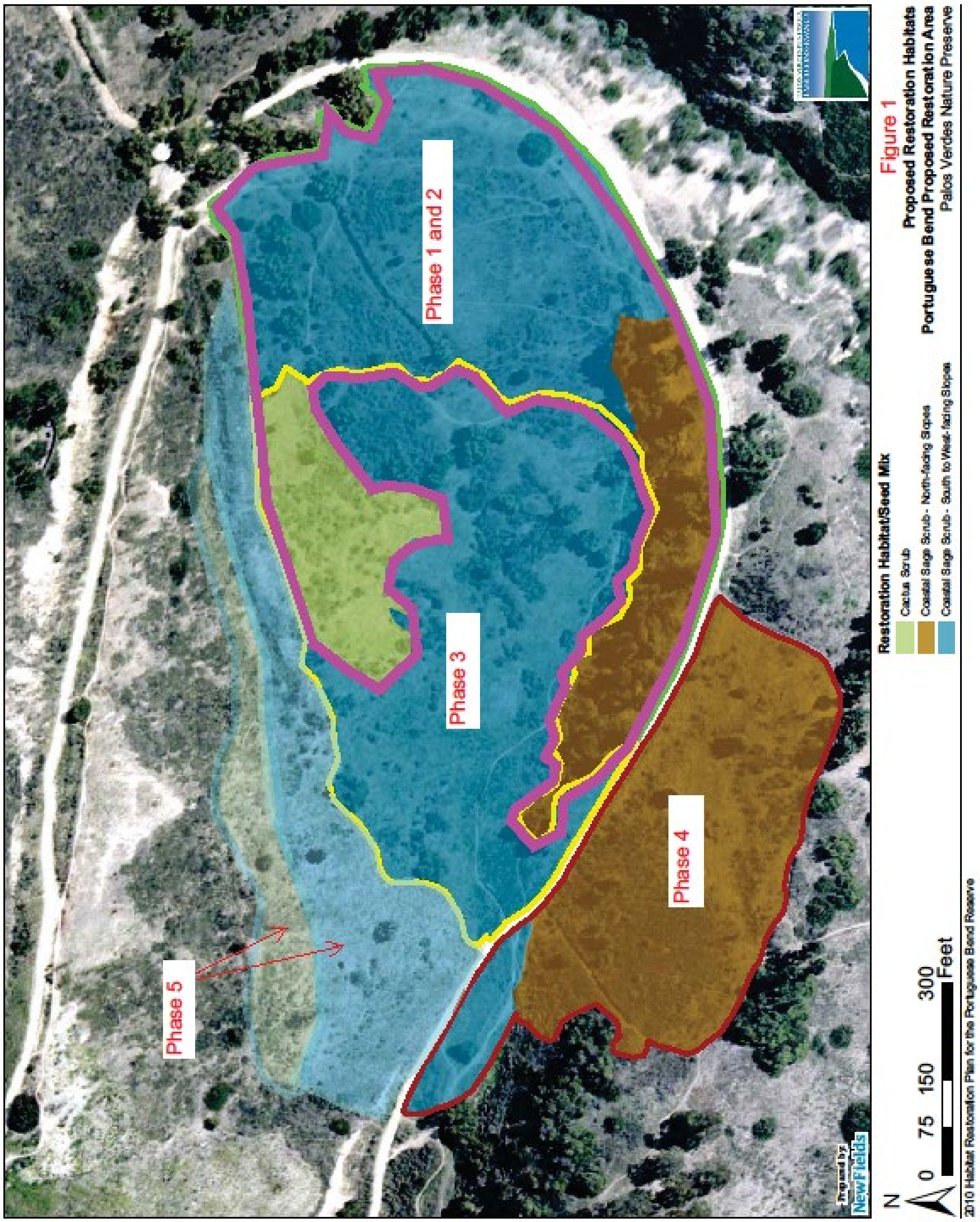
The habitat restoration plan for Portuguese Bend was to complete 25 acres in five phases (Table 3, Figure 4). Site preparation at Portuguese Bend began in February 2010. Field staff weeded (hand/herbicide) the burn area in 2010. In February 2011, goats were deployed to clear vegetation. Due to the high density of weeds, an additional year of weeding was implemented, and plants were installed on ten acres in fall 2012 (Phase 1 and Phase 2).

PVPLC implemented "grow and kill" prior to plant installation, and improve seed and plant survival after planting. Phases 1, 2 and 3 were irrigated with overhead sprinklers. Drip irrigation was installed for Phases 4 in fall 2014 and for Phase 5 in fall 2015, coinciding with the plant installation for those phases. Weed control is implemented in all phases for five years minimum after they are initiated. Table 3 provides the implementation schedule for Phase 1 through 5 at Portuguese Bend.

Table 3
Restoration Project Schedule for Portuguese Bend Reserve Phases 1, 2, 3, 4 and 5, based on the Portuguese Bend Reserve Habitat Restoration Plan

	Task	Date
PHASE 1 and PHASE 2	Begin site preparation, weed removal	Fall 2010
	Install irrigation	Winter 2012
	Final site preparation: weed and thatch removal	Fall 2012
	Installation: Seeding and planting	Fall 2012-Early Winter 2013
	Maintenance weeding	Winter 2013-Spring 2014
	Fill-in planting, as needed	Fall 2013-Fall 2014
	5-year biological monitoring and maintenance	Spring 2013-Spring 2017
	Phase one and two completion	2017, end of Year 5
PHASE 3	Site preparation, weed removal	Fall 2012-Fall 2013
	Final site preparation: weed and thatch removal	Fall 2013
	Installation: Seeding and planting	Fall 2013-Early Winter 2014
	Maintenance weeding	Winter 2014-Spring 2015
	Remedial seeding, as needed	Fall 2014-Fall 2015
	5-year biological monitoring and maintenance	Spring 2014-Spring 2018
	Phase three completion	2018, end of Year 5
PHASE 4	Site preparation, weed removal	Fall 2013-Fall 2014
	Final site preparation: weed and thatch removal	Fall 2014
	Installation: Seeding and planting	Fall 2014-Early Winter 2015
	Maintenance weeding	Winter 2015-Spring 2016
	Remedial seeding, as needed	Fall 2015-Fall 2016
	5-year biological monitoring and maintenance	Spring 2015-Spring 2019
	Phase 4 completion	2019, end of Year 5
PHASE 5	Site preparation, weed removal	Fall 2014-Fall 2015
	Final site preparation: weed and thatch removal	Fall 2015
	Installation: Seeding and planting	Fall 2015-Early Winter 2016
	Maintenance weeding	Winter 2016-Spring 2017
	Remedial seeding, as needed	Fall 2016-Fall 2017
	5-year biological monitoring and maintenance	Spring 2016-Spring 2020
	Phase 5 completion	2020, end of Year 5

Figure 4. Map of Phase 1 – 5 Restoration Areas at Portuguese Bend Reserve



2.3 ABALONE COVE RESTORATION

The habitat restoration project at Abalone Cove Reserve will restore 20.3 total acres of mixed coastal scrub, and mixed Southern Coastal Bluff Scrub/Southern Cactus Scrub (Table 4, Figure 5-6). The project began in 2019, by introducing goats to graze the Phase 1 area to reduce the cover of invasive plants and prepare the site for the upcoming habitat planting effort set to occur in 2020. At the end of 2019 and through the end of 2020, PVPLC crews removed non-native woody shrubs such as acacia and peppertree. Planting in Phase 1 began in winter of 2019 following irrigation installation. Phase 2 planting began in fall of 2020 following site preparation and irrigation installation for that phase. Phase 3 site preparation began in spring 2021 and irrigation installation was finished at the end of 2021. Planting for Phase 3 will be started in early 2022. Phase 4 plans were submitted to the city for approval in summer of 2021 and site preparation is anticipated to begin in early spring of 2022, with the use of goats to clear a monoculture of black mustard. The full restoration plan can be found in Appendix A.

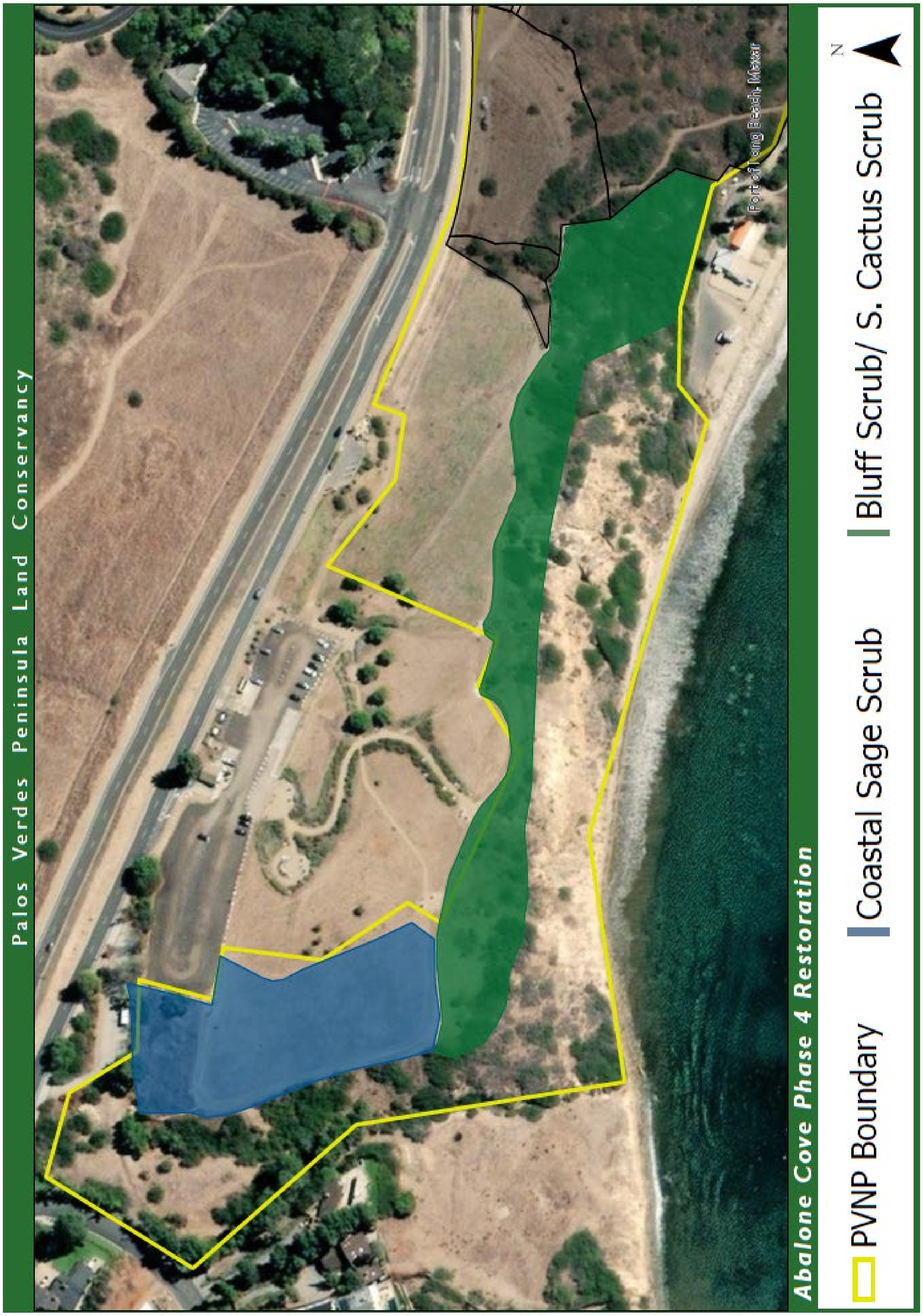
Table 4

Restoration Project Schedule for Abalone Cove Reserve, based on the Abalone Cove Reserve Habitat Restoration Plan

	Task	Date
PHASE I	Site clearing	Fall 2019
	Installation of supplemental watering system	Spring 2020
	Invasive weed species control and grow-kill cycles	Fall 2019 – Summer 2020
	Planting container stock	Spring 2020
	Seed application	Fall 2020
	Monitoring and maintenance	To begin upon successful installation of plants
PHASE 2	Site clearing	Spring 2020
	Installation of supplemental watering system	Summer 2020
	Invasive weed species control and grow-kill cycles	Spring 2020 – Fall 2020
	Planting container stock	Fall 2020
	Seed application	Fall 2020
	Monitoring and maintenance	To begin upon successful installation of plants
PHASE 3	Site clearing	Spring 2021
	Installation of supplemental watering system	Summer 2021
	Invasive weed species control and grow-kill cycles	Spring 2021 – Fall 2021
	Planting container stock	Winter 2021/2022
	Seed application	Fall 2021
	Monitoring and maintenance	To begin upon successful installation of plants
PHASE 4	Site clearing(manual and goats)	Spring 2022
	Installation of supplemental watering system	Spring-Summer 2022
	Invasive weed species control and grow-kill cycles	Spring 2022- Fall 2022
	Planting container stock	Fall 2022
	Seed application	Fall 2022
	Monitoring and maintenance	To begin upon successful installation of plants

Figure 5. Map of Phase 1 – 3 Restoration Areas at Abalone Cove Reserve

Figure 6. Map of Phase 4 Restoration Area at Abalone Cove Reserve



3.0 ADDITIONAL RESTORATION ACTIVITIES IN 2021

PVPLC seeks additional funding, to perform restoration on more than the minimum five acres per year required in the NCCP/HCP. Several funding opportunities were pursued during the reporting period. Three grants were received and implemented during 2021 and several other grants decisions are still being anticipated. Figure 7A-7C provides a site map for all restoration projects active in 2021, including the restoration at Alta Vicente, Portuguese Bend and Abalone Cove Reserves that fulfills the requirements of the NCCP/HCP Habitat Restoration Plan. A complete summary of all restoration work completed in the Preserve, along with maps of restoration sites, can be found in Table 5.

Table 5. PALOS VERDES NATURE PRESERVE RESTORATION PROJECTS THROUGH 2021

	Funding source	Location	Habitat Type	Acres	Status	Start Date	End Date
NCCP/HCP							
Alta Vicente	NCCP	Phase 1	CSS	4.5	completed	2007	2014
Alta Vicente	NCCP	Phase 1	PVB habitat	0.5	completed	2007	2014
Alta Vicente	NCCP	Phase 2	CSS	4	completed	2008	2015
Alta Vicente	NCCP	Phase 2	cactus scrub	0.5	completed	2008	2015
Alta Vicente	NCCP	Phase 2	PVB habitat	0.5	active	2008	2015
Alta Vicente	NCCP/LA County Grant	Phase 3	CSS	4.5	active	2016	2022
Alta Vicente	NCCP/LA County Grant	Phase 3	wildflowers	0.5	active	2016	2022
Alta Vicente	NCCP/LA County Grant	Phase 4	cactus scrub	1	active	2017	2023
Alta Vicente	NCCP/LA County Grant	Phase 4	PVB habitat	1	active	2017	2023
Alta Vicente	NCCP/LA County Grant	Phase 4	CSS	5	active	2017	2023
Portuguese Bend	NCCP	Phase 1 and 2	CSS	8	completed	2010	2017
Portuguese Bend	NCCP	Phase 1 and 2	cactus scrub	2	completed	2010	2017
Portuguese Bend	NCCP	Phase 3	CSS	5	completed	2012	2018
Portuguese Bend	NCCP	Phase 4	CSS	5	completed	2013	2019
Portuguese Bend	NCCP	Phase 5	CSS	4	completed	2014	2020
Portuguese Bend	NCCP	Phase 5	cactus scrub	1	active	2014	2020
Abalone Cove	NCCP	Phase 1	CSS	4.8	active	2019	2025
Abalone Cove	NCCP	Phase 2	Mixed CSS	4	active	2020	2026
Abalone Cove	NCCP	Phase 3	Mixed CSS	4.3	active	2021	2027
Abalone Cove	NCCP	Phase 4	CSS/Cactus Scrub	5	Active	2022	2028
Additional Projects							
Abalone Cove	Coastal Conservancy,		CSS	5	completed	2013	2016

	NFWF, SMBRC, USFWS						
Abalone Cove	Heritage Castle		CSS, Cactus Scrub, Butterfly habitat	1.5	Active	2020	2025
Agua Amarga	USFWS		CSS	2	completed	2001	2003
Agua Amarga	USFWS		riparian	0.5	completed	2004	2005
Agua Amarga	LACSD		riparian	0.25	completed	2011	2016
Agua Amarga	D&M		riparian	0.2	completed	2012	2017
Alta Vicente	PVPLC	Alta Vicente Trail	Cactus Scrub	0.82	Completed	2018	ongoing
Filiorum	PVPLC	Pony	Cactus Scrub	3.08	Completed	2018	ongoing
Portuguese Bend	El Segundo Mitigation	Ishibashi	CSS and grassland	9.5	completed	2010	2015
Portuguese Bend	HCF grant	Ishibashi	CSS	0.25	completed	2012	2015
Portuguese Bend	HCF grant	Peppertree	CSS	0.5	completed	2012	2015
Portuguese Bend	Local Assistance Grant		cactus scrub	3	completed	2010	2011
Portuguese Bend	PVPLC	Peacock Flats	cactus scrub	0.86	Active	2018	
Three Sisters	LAWA		CSS	13.3	completed	2007	2013
Three Sisters	LAWA		grassland	7.7	completed	2007	2013
Three Sisters/McCarrell's Canyon	Coastal Conservancy		riparian	0.5	completed	2009	2012
Three Sisters/McCarrell's Canyon	Coastal Conservancy		CSS	2	completed	2009	2012
Three Sisters	PVPLC	McCarrell Canyon Trail	Cactus Scrub	2.3	completed	2018	ongoing
Vicente Bluffs	Coastal Conservancy		coastal scrub	2	completed	2009	2014
Vicente Bluffs	PVPLC	Adopt-a-Plot	ESB habitat	0.1	active	2016	ongoing
			Total	**120.46**			
Fuel Load reduction	RPV	PVNP	Acacia	23	completed	2019	2019
Fuel Load reduction	RPV	PVNP	Black Mustard	15	Completed	2019	2019
Fuel Load Reduction	RPV	PVNP	Acacia	14	completed	2020	2020
Fuel Load Reduction	RPV	PVNP	Black Mustard	10.8	completed	2020	2020
Fuel Load Reduction	RPV	PVNP	Acacia	11.64	completed	2021	2021
Fuel Load Reduction	Rolling Hills	PVNP	Acacia	2	completed	2019	2019

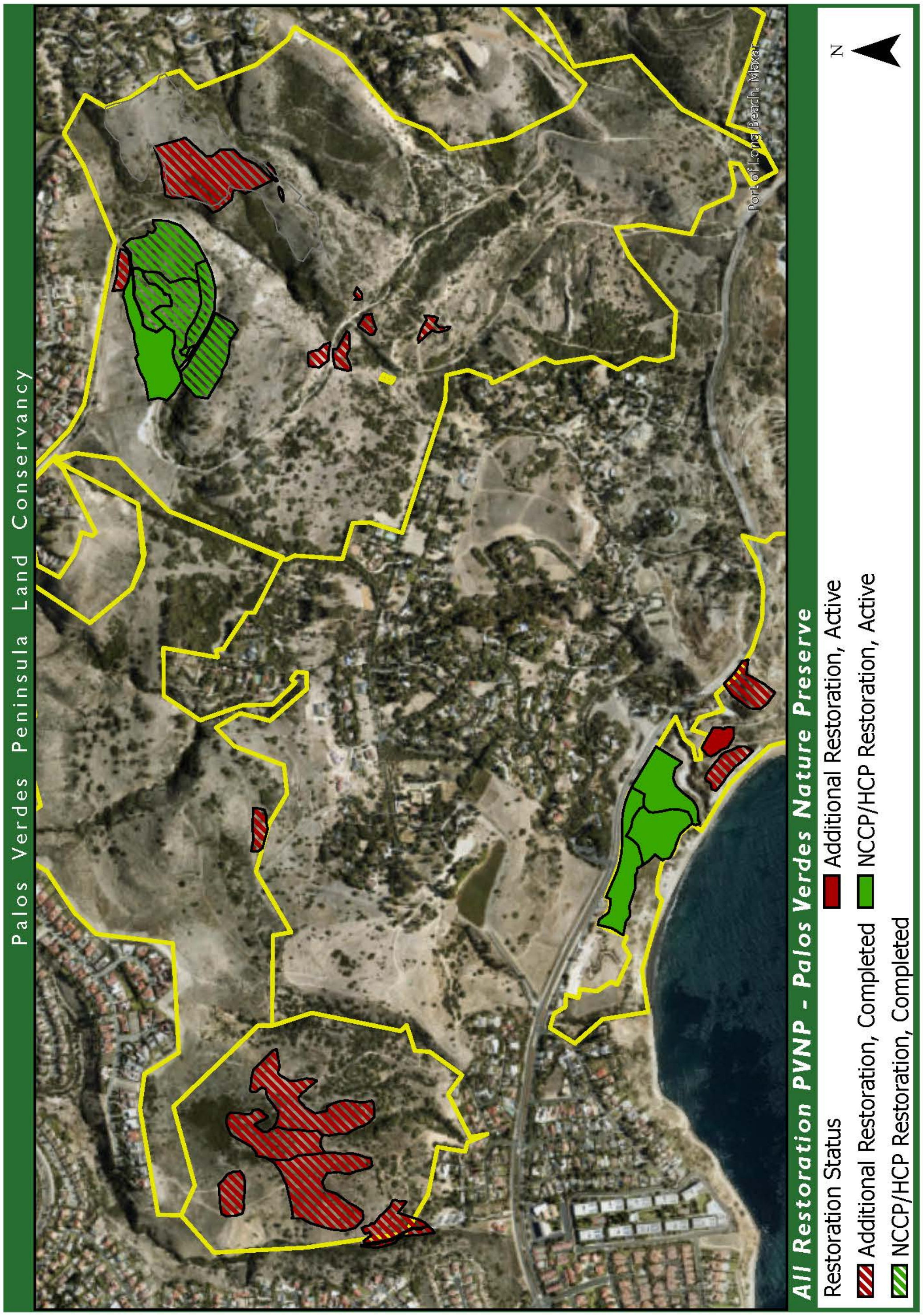
Fuel Load Reduction	Rolling Hills	PVNP	Black Mustard	16	completed	2019	2019
Fuel Load Reduction	Rolling Hills	PVNP	Acacia	1	completed	2020	2020
Fuel Load Reduction	Rolling Hills	PVNP	Black Mustard	14	completed	2020	2020
Fuel Load Reduction	Rolling Hills	PVNP	Acacia	2	completed	2021	2021
Fuel Load Reduction	Rolling Hills	PVNP	Black Mustard	5.5	completed	2021	2021
			Total Passive Restoration	**114.94**			

* NCCP Funding Sources include a combination of sources including the City of Rancho Palos Verdes Management Agreement,
community contributions, and grants to name a few.

FIGURE 7A. PALOS VERDES NATURE PRESERVE RESTORATION THROUGH 2021

FIGURE 7B. PALOS VERDES NATURE PRESERVE RESTORATION THROUGH 2021

FIGURE 7C. PALOS VERDES NATURE PRESERVE RESTORATION THROUGH 2021



3.1 ABALONE COVE

In 2015, illegal grading took place in the Abalone Cove Reserve. The city took action working closely with the US Fish and Wildlife Service to create a mitigation plan for the area. Project planning and design began and in 2019, site preparation started with the removal of non-native species. Irrigation installation and planting occurred in 2020 and is now being maintained for non-native species and fill-in planting as needed. Site maintenance started in 2021 and is set to occur for 5 years along with monitoring.

In 2021, PVPLC was awarded a NEEF grant to assist with funding of the third phase of the Abalone Core restoration project. The grant funding assisted in the paying for plants, setting up volunteer events on almost every weekend and in invasive species removal. The grant closes out at the end of 2022 and remaining funding will be used to help in maintenance and fill in planting all while creating educational opportunities for students to engage and learn about coastal ecosystems.

3.2 AGUA AMARGA

In 2012, an additional mitigation project (D&M Eight LTD) funded the planting of 147 riparian plants at Lunada Canyon. The plants were installed in January 2014 and irrigated with a drip irrigation system. Severe rains in 2014 caused torrential stream flows that removed some of the installed plants. PVPLC installed replacement plants and monitored the site's recovery in 2015, 2016, 2017, and 2018. The final report was submitted in 2019. Continued maintenance occurred at the site in 2020 and 2021 with light weeding and trash cleanup in the riparian zone.

3.3 VICENTE BLUFFS

In June 2008, a grant agreement was signed with the State Coastal Conservancy to provide habitat restoration at Vicente Bluffs Reserve. PVPLC restored three acres of coastal bluff scrub and El Segundo blue butterfly habitat by removing acacia, pampas grass and ice plant, and installing container plants with coastal bluff scrub and El Segundo blue butterfly host plants. PVPLC added plants to this site in 2013, 2014 and 2015 to fulfill the grant goals. Since then, volunteers have continued the effort to plant host plants and remove weeds through 2021 in order to expand habitat area for the El Segundo blue butterfly.

3.4 PORTUGUESE BEND

In 2012, PVPLC received funding from the Habitat Conservation Fund to create trail-side habitat consisting of coastal sage scrub and cactus scrub to close unauthorized trails. The closeout of this grant occurred in 2018. PVPLC continues to monitor the successful completed work and maintain closures on unauthorized trails.

3.5 FUEL LOAD REDUCTION PROJECTS

In the summer of 2019, PVPLC proposed a fuel load reduction project to the city of RPV which consisted of the removal of 23 acres of Acacia (Acacia cyclops) shrubs and 15 acres of non-native mustard. This approved project occurred in three locations in the Portuguese Bend Reserve near Portuguese Canyon and in the southern area of the preserve near Narcissa drive. Large Acacia shrubs were cut, chipped and taken offsite where possible. PVPLC has been monitoring the areas of Acacia removal and treating any regrowth and removing any seedlings. Goats were used in the San Ramon Reserve to reduce the large stands of non-native brush along the San Ramon Trail. In the winter of 2019, a second project was proposed to continue with the removal of Acacia and the mowing of mustard. A proposed 31 acres of high density Acacia stand removal and 16 acres of mowing was planned for Portuguese Bend, Forrestal, Vicente Bluffs, Filiorum, Three Sisters, and San Ramon for 2020. Locations were chosen based on surrounding vegetation types and native plant observations below the invasive species canopies. Due to access issues, stand density and native plant cover, only 14 acres of the Acacia were removed and 10.8 acres of mustard were mowed throughout 2020. Large stands of native plants were uncovered below the invasive species. PVPLC is monitoring these locations for Acacia regrowth and treating as needed. The final locations of the project were implemented in 2021 at Portuguese Bend totaling an additional 11.64 acres. The Acacia removal locations were along Burma Road and abutted the Portuguese Bend NCCP 25 acre restoration. PVPLC continues to monitor these locations for regrowth and treating as needed.

Following the successful Fuel Load Reduction project with the City of Rancho Palos Verdes, the City of Rolling Hills and PVPLC began conversations about Fuel Load Reduction abutting the city's boundaries and in 2019 the City of Rolling Hills funded the first phase of a Fuel Load Reduction Project. Phase 1 consisted of 2 acres of Acacia removal and 16 acres of dry brush mowing which consisted of Black mustard and non-native grasses. Seeing the success of the project and the previous City of RPV project, a second phase was funded in 2020, which consisted of 1 acre of Acacia removal and 14 acres of dry brush mowing. A third phase was funded in 2021 and 2 acres of Acacia were removed and 5.5 acres of dry brush were mowed.

All Acacia removal locations and mowing locations are being treated as passive restoration sites. Passive restoration is the process of removing environmental stressors, invasive species in this case, and allowing for natural succession to occur. The locations of these treatments are showing signs of regeneration of annual and perennial native plant species that were being choked out by the invasive species. A natural seed bank is still present and PVPLC will continue to monitor and maintain these sites, resources permitting, and will continue to pursue funding to remove acacia on the preserve and mow large stands of mustard.

The full details of the Acacia removal and fuel load reduction project can be found in the Targeted Exotic Removal Program for Plants, Appendix D.

4.0 MONITORING

4.1 HABITAT RESTORATION MONITORING

PVPLC's stewardship staff conducted surveys at the restoration sites throughout the Preserve including quantitative vegetation transects, qualitative vegetation assessments and photo point monitoring. Vegetation transect surveys were conducted using standardized methods (line intercept and CNPS Rapid Vegetation Assessment) that provide data on the cover of native and non-native plants in the habitat in order to evaluate success against criteria as determined in the habitat restoration plans. Quantitative point-intercept transect surveys are conducted in Year 3 and Year 5 after planting, whereas qualitative rapid vegetation assessments are conducted in Years 1, 2 and 4. In 2021, restoration monitoring was conducted at Alta Vicente, Portuguese Bend and Abalone Cove Reserves. Detailed monitoring reports are in Appendix B.

At Alta Vicente, the plants in all phases of the restoration area are healthy and growing. The cactus scrub has met success criteria. The coastal sage scrub in Phase 1 and 2 has achieved success criteria of 50% native plant cover. Over the years, PVPLC has adapted its approach to restoration and resulting low percent cover by increasing plant density and utilizing drip irrigation instead of overhead sprinklers in subsequent restoration projects. The Palos Verdes blue butterfly habitat has not met the success criteria (>10%), due to low numbers of host plants along either of the transects (1% and 1% qualitatively). In 2022 staff will continue to focus on controlling weeds on a regular basis to decrease competition and increase bare ground for seed germination. Targeted soil disturbance will also occur to stimulate early successional host plant species germination. PVPLC will continue to observe and control weeds in Phase 1 and Phase 2 to observe the rate of restoration and monitor butterfly habitat transects, but will stop monitoring CSS habitat transects since they are beyond Year 10 of restoration and are meeting qualitative measurements. Phase 4 was monitored for its Year 3 analysis in 2021. Using quantitative methods coastal sage scrub habitat was found to be at or just below Year 3 goals with native cover. Two new Coastal Sage Scrub monitoring transects were established in Phase 4 and were found to be 60% (AV9) and 36% (AV10). One butterfly habitat transect was established in 2021 (AV11). AV11 was found to have 10% cover of native plants including 4% cover of PVB host plant *A. trichopodus* var. *lonchus* and 2% cover of ESB host plant *E. parvifolium*. However, AV11 was also found to have 16% cover of non-native plants including 14% non-native grass species. AV11 fell short of Year 3 success criteria by 20% cover of native plants and 4% of butterfly host plants. Finally in 2021, one Cactus Scrub transect was monitored using quantitative methods. AV12 was found to have a 24% relative cover of native plants and a 4% relative cover of non-native plants. This transect fall short of Year

3 success criteria by 6%, but exceeds the >5% cactus cover criteria (20%). Cactus scrub is slow growing, with proper management and precipitation this area can meet Year 5 success criteria.

Phase 4 is believed to be on track to meet year 5 success criteria.
Phase 3 (Year 4) was monitored qualitatively and are believed to be approaching success criteria in CSS habitat areas (53%).

At Portuguese Bend, Phase 1 and 2 were installed the same year (2012), to allow for an additional year of weed control at the site prior to planting. Therefore, they both represent Year 9 after plant installation for the 2021 monitoring. Plants were healthy, and recruitment from seed was observed at the site, however several transects within coastal sage scrub habitat (north and south facing) of Phase 1 and 2 continued to struggle to meet success criteria. This is likely due to now-discontinued restoration methods of overhead irrigation and sparse planting arrays. After meeting success criteria after the qualitative monitoring, transects PB1, PB2 and PB3 will not be monitored again in the future. The cactus scrub restoration in Phase 1 and 2 had already met success criteria in 2018. In Phase 3, native plant cover achieved quantitative success criteria achieving Year 5 standards in 2018. In Phase 4 quantitative and qualitative measurements describe this transect as meeting criteria for both native and non-native plant cover in 2018 and transect PB7 (Phase 4) were removed from monitoring activities. In Phase 5 CSS habitat (PB8) both quantitative and qualitative methods were used to monitor the habitat. PB8 was found to have a native plant cover of 81% quantitatively and 58.5% qualitatively. Phase 5 transect PB8 has met success criteria and will be removed from monitoring activities. The cactus scrub habitat transect, PB9 (Phase 5) restoration was evaluated against success criteria in 2021 and was surveyed using qualitative (CNPS Rapid Vegetation Assessment) methods. Qualitative measurements describe this transect as meeting criteria for both native and non-native plant cover in Year 6 monitoring, however qualitative measurements describe this transect as not passing due to cactus species (5%) not meeting success criteria due to its slow growth. The transect PB9 will be monitored in 2022 (Year 7) using qualitative methods. PVPLC conducted infill planting in cactus scrub areas in 2019 in order to meet year 5 success criteria in 2020 (Year 5).

At Abalone Cove monitoring transects have not been established. The Abalone Cove restoration Phase I Quantitative monitoring will start in Year 3 (2023). Qualitative methods were used to monitor the Year 1 (2021) of restoration success. The total Native plant cover was estimated to be 26% relative cover, well on its way to meeting the 50% cover requirement of Years 3 and 5. However, the non-native cover was estimated at 20.5%. This higher than expected cover is largely due to late rain we received in 2021, the non-native plant species were removed by conservancy crews soon after.

4.2 COVERED SPECIES MONITORING

The NCCP/HCP requires surveys for covered species on the Preserve every three years. The next report on the status of covered plant species, California gnatcatcher, and cactus wren was completed in 2021 for the 2019-2021 reporting period. The surveys for El Segundo blue butterfly was completed for this reporting period in 2019 and will be conducted next in the 2022-2024 comprehensive report period.

The draft NCCP/HCP includes a total of six covered plant species. They are aphanisma (*Aphanisma blitoides*), south coast saltscale (*Atriplex pacifica*), Catalina crossosoma (*Crossosoma californicum*), island green dudleya (*Dudleya virens* ssp. *insularis*), Santa Catalina Island desert thorn (*Lycium brevipes* var. *hassei*) and woolly seablite (*Suaeda taxifolia*). Surveys for covered plant species will be triggered by precipitation that totals at least 9.75 inches (75% of the annual average), or the last year of the comprehensive reporting period. The survey for covered plants was conducted in 2019 due to the adequate precipitation levels. The Covered Plant species report is available in the 2019-2021 cumulative report.

4.3 REINTRODUCTION MONITORING RESULTS

Reintroduction monitoring took place in 2021 for the two areas in the PVNP that Palos Verdes Blue Butterfly (PVB) were released in 2020. The PVB coalition decided that the habitat at Alta Vicente Reserve and Filiorum Reserve exhibited adequate habitat for releases in April of 2020, after site visits to various historical PVB locations. These surveys did not yield any positive observations of PVB in either of the Release areas. Surveys will continue in 2022.

Two reintroductions of covered species of plants also occurred. Crossosoma was introduced into the Alta Vicente Phase 3 and Phase 4 restoration area with a high survival rate and Phase 3 plants have produced seed in 2021. More Crossosoma is planned for installation at Abalone Cove. Outside of the PVNP, Crossosoma has been planted at the White Point Nature Preserve.

4.4 COVERED PROJECT/ACTIVITY TRACKING

PVPLC provided monitoring and consultation for 35 projects in 2021. Six of those 35 projects were expected to have impacts to the habitat and five of those projects were completed in the reporting period for this report. City staff and PVPLC continued to work on updating a Preserve Project Form for any projects occurring within the preserve. The form includes a comprehensive summary of the NCCP/HCP covered species regulations and minimization measures for covered projects and activities that serves as a guide for anyone completing projects in the preserve. PVPLC and RPV staff coordinated site visits with all parties proposing projects in the preserve and assisted in filling out the form where needed. Minimization of biological resource impacts were discussed at every meeting and most projects were able to avoid any impacts. Continued communication and coordination is essential for impact minimization for projects. All impacts are documented in Table 6 and in the RPV NCCP Habitat Loss Tracking table containing information through 2021 in Appendix C.

In November of 2020, a water main belonging to Cal Water broke and drained onto Vanderlip Trail. The trail was heavily eroded and closed for repair. Various site visits worked out the best solution to the project with minimal impacts to the preserve. The impacts were documented pre and post work and PVPLC coordinated closely with the contractor during the project duration. The project was completed in 2021 with a restoration required of .11 acres along the edges of trails were water had caused erosion. PVPLC worked closely with the contractor to install seed for the required amount of area. Impacts were categorized as temporary.

In July 2021, a CalWater hydrant failure caused water to enter the Portuguese Bend Reserve and erode sections of trail and habitat. The location of the impacted areas are along and adjacent to Burma Road near the entry gate; on Kelvin Canyon Trail where it crosses Kelvin Canyon Creek; and on Gary's Gulch Trail where it crosses Kelvin Canyon Creek. According to the NCCP, this impact requires restoration at a 2:1 ratio for coastal sage scrub (CSS) and Riparian habitat. The measured area of impact is 0.44 acres of therefore the resulting restoration required is 0.88 acres of CSS/Riparian habitat. Since the project seems to have caused water flow to stop at the Kelvin Canyon Crew crossing at Gary's Gulch Trail, the cities geologist has been involved in the assessment. Repairs are expected to be completed in 2022 with an updated impact measurement and the project won't be included in the 2021 habitat impact chart.

In December 2021, Southern California Edison (SCE) repaired multiple power lines along Burma Rd. in Portuguese Bend. This project was approved and the impacts were discussed before the work began. Most of the areas near the pole were just trimmed back, but damage to habitat did occur from the trucks backing into the area over native plants.
According to the NCCP, this impact requires restoration at a 2:1 ratio for coastal sage scrub (CSS) and Riparian habitat. The measured area of impact is 0.06 acres of therefore the resulting restoration required is 0.12 acres of CSS/Riparian habitat. Impacts were categorized as temporary.

In December 2021, a CalWater infrastructure failure caused water to damage the Portuguese Bend Reserve and erode sections of trail and habitat. The location of the impacted area is adjacent to Vanderlip Trail. According to the NCCP, this impact requires restoration at a 2:1 ratio for coastal sage scrub (CSS) habitat. The measured area of impact is 0.012 acres of habitat therefore the resulting restoration required is 0.024 acres of CSS habitat. Impacts were categorized as temporary.

In the summer and fall of 2021, CalWater repaired a few locations of pipeline along Burma Rd. in the Portuguese Bend Reserve. Damage to hillside habitat occurred above the pipe. The measured area of impact is 0.12 acres of therefore the resulting restoration required is 0.24 acres of CSS/Riparian habitat. Impacts were categorized as temporary.

In December of 2021, a PVPLC contractor damaged plants in the vicinity of Portuguese Canyon. The measured area of impact is .036 acres of habitat therefore resulting the resulting restoration required is .072 acres of CSS/Riparian habitat which has already been started. Impacts were categorized as temporary.

Section 9.3.1 of the NCCP/HCP requires that habitat annual tracking take place accounting for acreage, type, and location of habitat and species conserved or lost within the Plan Area.

Table 6. Habitat Impacts in the PVNP in 2021

Date	Project	Impact	Location and Vegetation Type	Size
November 2020-2021	CalWater Vanderlip Erosion	Vanderlip trail damaged with surrounding habitat impacts	Coastal Sage Scrub	.11 acres
Summer/Fall 2021	CalWater Rim/Burma Pipe Replacement	Damage to hillside habitat adjacent to pipeline	Coastal Sage Scrub	.24 acres
December 2021	SCE Burma Pole Repair	Habitat damage to access pole	Coastal Sage Scrub/Riparian	.12 acres
December 2021	CalWater Vanderlip erosion	Erosion to trailside habitat	Coastal Sage Scrub	.024 acres
December 2021	PVPLC Fuel Load Reduction Access	Damage to native plants through access	Coastal Sage Scrub/Riparian	.072 acres

5.0 UTILITY AND CONTRACTOR ACCESS

Protocols are currently in place to ensure that utilities and contractors accessing the Preserve follow guidelines to implement minimization measures and remain on permitted trails to avoid damaging the habitat. PVPLC continues to collaborate with the City to create more effective protocols and outreach techniques. For example, a Preserve Project Form helps communicate all aspects of contractor, City, and PVPLC projects that are planned to take place in the preserve. Additionally, a Preserve Access Protocol will be developed after adoption of the NCCP/HCP to address where authorized vehicles may travel in the Preserve. The City also hosts quarterly Peninsula Project Coordination Meetings to receive updates on upcoming projects throughout the City and provide reminders for protocols to follow while conducting work in the Preserve. The Preserve Project Form is presented at the Peninsula Project Coordination Meetings and sent out to the participating agencies.

6.0 TARGETED EXOTIC REMOVAL PROGRAM FOR PLANTS

The Targeted Exotic Removal Program for Plants (TERPP) is an element of the Preserve Habitat Management Plan for the NCCP/HCP that requires the annual removal of exotic plant species of twenty individual populations or five acres in the Preserve. The TERPP provides a protocol for ranking the degree of threat to native vegetation, the feasibility of eradication, and the invasiveness of each exotic species found in the Preserve. Populations of exotic plant species are then targeted for removal based on the results of the ranking outcome.

In 2021, PVPLC met the objectives for the TERPP program by treating approximately 14 acres of *Acacia cyclops* (Coastal Wattle) throughout the Palos Verdes Nature Preserve. Mowing of the highly invasive *Brassica nigra* (Black Mustard) also took place at one location totaling 5.5 acres. Acacia seeds can persist in the soil for an indefinite amount of years, and treatment needs to be repeated for several years to successfully control these species on the Preserve. Acacia are very serious invasive species, and their expansion in the Preserve must be controlled. Therefore, many of the TERPP sites will be treated for many years under the same site name. Several areas treated for Acacia in previous years were also visited and seedlings were hand pulled.

All of the populations previously targeted by TERPP continue to be monitored yearly for new germination or regrowth. The species targeted by TERPP tend to have long lived seedbanks and also tend to regrow without stump treatments. In 2021, due to the immense workload, previously treated sites were not visited by PVPLC staff. Rather, volunteers were asked to pull any Euphorbia or other herbaceous invasive species when they frequented the area. Continued monitoring of all known populations will continue into the indefinite future to minimize the return of targeted exotic species to those locations and to achieve eradication.

The full details of the TERPP accomplishments for 2021 can be found in Appendix D.

7.0 FUEL MODIFICATION

Fuel modification is the clearing or thinning of vegetation in areas that occur immediately adjacent to residential structures and roads as mandated by County Department of Agriculture Weights and Measures. As land owner, the City is responsible for brush clearance within the Preserve (with the exception of Lunada Canyon owned by PVPLC), to provide an appropriate level of fire protection, emphasizing the protection of public safety in the urban-wildlife interface areas while minimizing environmental impacts of fire suppression and control. PVPLC has collaborated with RPV to develop clear protocols to ensure that all Best Management Practices associated with fuel modification activities are consistently followed.

In 2021, RPV staff continued to successfully collaborate with PVPLC to ensure that bird surveys were completed prior to fuel modification activities and sensitive habitat areas were avoided. Stewardship Associate Biologist, Austin Parker, worked with RPV to establish clear nesting bird survey and reporting protocols. All sites that had observed nesting birds within the Fuel Modification Zone or within an NCCP/HCP determined buffer area (300ft for nesting birds and 500ft for nesting California gnatcatchers and cactus wrens), were postponed until after the bird breeding season (February 15th – August 31st). During the bird surveys, any natural resource concerns, including animal dens or rare plants, were flagged and the city was notified in each report. Maps of each site with GPS coordinates of any concerns were provided in each report.

The 20-acre Lunada Canyon property located within the larger Agua Amarga Reserve is owned by PVPLC, which maintains brush clearance requirements. All of these requirements were met throughout 2021. No other fuel modification areas within the Preserve fall under the responsibility of PVPLC.

As of the writing of this report, expanded fuel modification as mandated by the County Department of Agrigulture Weights and Measures is being determined for the city owned properties. Any new fuel modification zones and/or impacts will be assesed and reported in the Comprehensive Management and Monitoring Report for 2019 – 2021.

8.0 COMMUNITY SCIENCE AND EDUCATION

The Preserve is an ideal setting for an outdoor laboratory because it provides scientists and students with access to a variety of habitat types and wildlife. Student research topics are often chosen to answer questions informing improved restoration practices and to better understand the local ecology. Community Science volunteer programs assist the PVPLC with annual monitoring of the presence and abundance of cactus wren and mesopreditors (coyote, grey fox and red fox) as part of the NCCP/HCP Predator Control program. A report of 2021 research projects and community science monitoring programs is located in Appendix E.

9.0 TRAIL MANAGEMENT AND MONITORING

9.1 PRESERVE TRAILS PLAN

The Preserve Trails Plan is a part of the City's Public Use Master Plan (PUMP), which is a NCCP/HCP-covered activity, and must follow certain avoidance measures and guidelines to protect covered species. The RPV City Council approved the latest version updates of PUMP in March 2013 after the designation of trails in Filiorum Reserve. A revision to the PUMP is required in order to adopt trail alignment and user designations for Malaga Canyon Reserve, and incorporate other changes including the Preserve Access Protocol and other minor trail amendments. It is anticipated that the PUMP may be revised and updated in summer of 2022 with public input and City Council approval.

9.2 TRAIL MANAGEMENT

PVPLC has paused on printing trail maps since major changes have occurred to parking rules. Maps will need to be assessed and language revised for any future reprinting. Recently, QR codes were installed at brochure boxes to provide a quick link to the maps on a personal device. PVPLC regularly refreshes carsonite signs and decals in the Preserve to better delineate trails and provide a positive user experience. A full-time PVPLC field operations technician focuses on unauthorized trail closure, trail delineation, graffiti removal and general trail maintenance as well as assisting on Volunteer Trail Crew projects. With the help of the Volunteer Trail Watch, a weekly report is submitted to staff, where tasks are prioritized and addressed on the preserve. The following represent the accomplishments in 2021 for trail management:

Area Closed Signs Installed	3 signs
Decals Replaced	151 decals
Graffiti Removed	38 locations
New/Repaired Carsonite Markers	11 markers
Trail Maintenance Projects(Brush/Weed Clearance)	523 projects
Spur Trail Closures (New/Old)	98 closures
Trail Crew Events (Maintenance Projects and Classes)	13 events
Rapid Response Volunteer Days	54 events

With support of grants from Habitat Conservation Fund, PVPLC worked with the City of Rancho Palos Verdes to design a master plan for Preserve signage to include designs for primary trailhead markers, interpretive panels and regulatory signage (Appendix F). The signage plan was approved by City Council in July 2016. In 2017, the Los Angeles County Regional Parks and Open Space District provided funds to implement the new Preserve signs at Alta Vicente Reserve and HCF funded signs at Portuguese Bend Reserve and Agua Amarga Reserve. In 2018, signage was installed at Vicente Bluffs, Vista del Norte and San Ramon Reserves and in 2019, signage was installed at Filiorum, Forrestal and Three Sisters Reserves. In 2020, signage was installed at Malaga Reserve and Ocean Trails Reserve. The remaining Reserve signs are planned to be installed in 2022.

9.3 UNAUTHORIZED TRAIL CLOSURES

Implementing the Preserve Trails Plan involves closing many social trails that were previously in use and are no longer authorized in the PUMP. PVPLC's priorities are to close newly created unauthorized trails before they become established and damage habitat. PVPLC has also developed techniques to reduce trail widening, particularly at trail intersections. Maintaining closures of unauthorized trails is intensive work, which requires continuously reinforcing and replacing trail closures when signage, branches, and plants are removed. Rapid Response Team volunteers assist in maintaining closures by reclosing sections on a regular basis. Additionally, the Volunteer Trail Watch assists with some of these tasks when they encounter them.

In 2021, focal areas were Abalone Cove Reserve (Olmstead Trail and Smugglers Trail; Alta Vicente Reserve (Alta Vicente Trail and Prickly Pear Trail); Filiorum Reserve (Pony Trail and Eucalyptus Trail); Forrestal Reserve (Flying Mane Trail and Dauntless Trail); Portuguese Bend Reserve (Rim and Ishibashi Trail); San Ramon Reserve (Wanderer Trail and Switchback Trail) and Three Sisters Reserve (Barkentine Trail and Three Sisters Trail) (Appendix F).

9.4 TRAIL REPAIR

The PVPLC volunteer Trail Crew assists in much of the trail work on the Preserve. A complete summary of the PVPLC Volunteer Trail Crew Program's accomplishments can be found in the Volunteer Involvement section of the report (Appendix G). PVPLC staff or RPV staff including Open Space Management, Recreation and Parks, and Public Works personnel were also involved in trail enhancements. Trail projects that may be completed in the future, based on funding, are listed in Appendix F.

9.5 TRAIL MONITORING

PVPLC stewardship staff and volunteers from the Volunteer Trail Watch (VTW) Program conducted trail monitoring to educate trail users and to report maintenance and safety issues to City and PVPLC staff during the reporting period. The mission of the Palos Verdes Nature Preserve Volunteer Trail Watch Program is to serve as eyes and ears of the City 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. Volunteers educate the public about Preserve rules and etiquette; and enter observations of infractions into a web portal (i.e. dogs off leash, off-trail activity, user on non-designated trail, etc.) to allow enforcement personnel and Preserve managers to track time and location of these activities. In 2021, volunteers dedicated 4,100 hours to the program through training and field implementation activities, and reporting observations through the web portal for record keeping. The VTW usually meets every quarter to provide additional training and information to share with Preserve visitors, but only had one set of trainings in 2021 due to Covid-19 restrictions. Additional details of the VTW program are described in detail in the Volunteer Annual Report section of the report (Appendix G).

In 2018, PVPLC was awarded a California Department of Fish and Wildlife Local Assistance (LAG) Grant. The grant supports the implementation of the Trail Baseline Monitoring Program required by the NCCP/HCP to monitor and manage trail widening impacts to habitat. The initial tasks of the grant were started in 2019 and were completed by the end of 2020 with a report being submitted in 2021. The report is be available in the Comprehensive Management and Monitoring Report for 2019 – 2021.

9.6 SUMMARY OF NIGHTTIME USE

The City of RPV grants permission for night hikes in the Preserve with preapproved routes. In 2021, 8 night hikes were permitted with a total of 162 attendees and a detailed list can be found in Appendix I.

9.7 PUBLIC USE IMPACTS AND RECOMMENDATIONS

Continued spur trail creation is a major concern especially during bird breeding season and when they occur in high quality habitat areas or near documented NCCP/HCP covered species. The PVPLC Field Operations Specialist (FOPS) is a full time position that addresses many of the reported issues in a timely manner alongside with the Rapid Response program and RPV's Open Space Management department. Continued support for these positions and programs is essential in addressing issues before they become long term and irreversible problems. The FOPS position is 80% reactive to problems while the Volunteer Trail Watch, being proactive, attempts to educate users about preserve rules before issues occur. The RPV Park Rangers enforce the rules with warnings and citations as needed. It is recommended that these groups continue to be fully staffed and provided the resources needed to minimize public use impacts with their combined efforts. Continued coordination, communication and planning in the VTW bimonthly meetings is essential so that target areas are addressed and impacts are minimized. It is also recommended that regulatory signage continue to be maintained and repaired of any vandalism. New locations for regulatory signage should also be identified where needed while old signs that are no longer needed be removed. It is also recommended that PVPLC continue to hold annual trainings for rangers on especially sensitive areas and species.

10.0 VOLUNTEER INVOLVEMENT

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 Preserve. In 2021, volunteers contributed over 16,080 hours of service totaling $540,452.16 of in-kind service in support of conservation, restoration, education and management of the Palos Verdes Nature Preserve. Despite the challenges during the pandemic, total volunteer hours saw a 29.8% increase from 2020. The 2021 Volunteer Annual Report detailing the volunteer programs is located in Appendix G.

11.0 CONTRIBUTIONS TO PRESERVATION

In 2021, no new acquisitions or donations of land were conserved in the Plan area or enrolled into the Preserve for the purposes of habitat restoration.

12.0 EVALUATION OF MANAGEMENT ACTIVITIES

In the 2006 initial Management and Monitoring Report for the NCCP/HCP, potential threats and disturbance factors were identified for each NCCP/HCP covered species occurrence. This section gives recommendations for any improvements needed to be made to current management or enforcement activities in order to ensure long-term sustainability of Covered Species and their habitats.

Threats/disturbance factors that were identified in the 2006 initial Management and Monitoring Report for the NCCP/HCP-covered plants species include trails/trampling, invasive plants, erosion (coastal bluff and canyon), and herbivory. NCCP/HCP-covered wildlife species threats/disturbance factors include trails
or other
invasive plants, proximity to houses, parks,

developed areas, potential for predation from feral cats and red fox, potential nest parasitism from brown headed cowbirds, and agricultural or disking activities. A summary of management recommendations that have been implemented and improvements that can be made are listed below:

Trails: The initial plan recommends that trails not appropriate for the preserve be closed following recommendations set in the Public Use Master Plan (PUMP). Following the PUMP document, redundant and unauthorized trails have been closed and continue to be monitored for use. Appropriate signage and trail restorations has been implemented and assessment and monitoring for future unauthorized closure projects. Continued education of the public on authorized trail use is recommended as well as enforcement from rangers.

Invasive Plants: The initial plan recommends the removal of invasive plant species in accordance with the TERPP and Habitat Restoration Plan since invasive plants pose a substantial threat to the integrity of the vegetation communities of the PVNP. The TERPP program continues to be implemented yearly, controlling and eradicating invasive plant populations, while invasive species control occurs within all restoration project sites. PVPLC continues to pursue funding opportunities to go above and beyond in invasive species removal. Staff continues to monitor and document new occurrences of invasive species within the PVNP and surrounding areas. Volunteers assist with invasive species control where appropriate.

Erosion: The initial plan documented coastal bluff erosion throughout the PVNP. While the majority of coastal bluff erosion was naturally occurring, some of the erosion problems were a consequence of unauthorized unstable coastal bluff trails. Recommendations were to establish replacement trails, removing invasive species on coastal bluffs, installing check dam or weirs and revegetating eroded slopes. PVPLC has worked on a variety of projects to address all recommendations and continues to monitor for erosion issues throughout the PVNP. In addition, trail delineation has been implemented in targeted areas to keep trail users away from erosive trails.

Herbivory: The initial plan recommends continued monitoring of this potential threat. As part of the Wildlife Tracking program and the Wildlife Camera Remote Monitoring project, rabbits and other mammals are documented. No rabbit population increases have been observed in the PVNP. PVPLC will continue to document rabbits and monitor covered plant species for impacts due to herbivory. In addition, caging around new plantings has been implemented in certain areas to limit herbivory until plants reach maturity. This tactic can be implemented for covered plant species if impacts are observed.

Proximity to Houses, Parks, and other Developed Areas: The 2006 report recommends that edge effects due to proximity to houses, parks and other developed areas be monitored over the long term to determine if they are problematic and if so, to document where the problems are occurring. As part of PVPLC's annual Easement Monitoring, these edge effects are documented, and reported to the appropriate city department for follow up. PVPLC will continue to monitor for edge effects.

*Potential Predation from Feral Cats and Red Fox***:** A Predator Control Plan was developed in accordance with the NCCP/HCP. Monitoring for red fox and feral cats continues and those occurrences are documented and reported in Triennial Comprehensive Report along with recommendations for predator control.

Potential Nest Parasitism by Brown-Headed Cowbird: Ongoing monitoring for cowbirds has continued throughout the preserve as part of the Predator Control Plan. No cowbirds have been observed within this reporting period.

Agricultural Land and Disking: Only one location of permitted agricultural land continues to operate within the PVNP. PVPLC coordinates throughout the year with the operator to minimize disturbance to covered species and to determine whether or not they are a source of non-native, invasive plant species. They have not been determined to be a source and work cooperatively with PVPLC. Land Disking has been phased out as a fuel modification tool within the preserve. Current weeding techniques include grazing or mechanical removal and are monitored to limit disturbance and invasive species spreading into the preserve. A Cactus Wren territory has been documented within the permitted agricultural land. PVPLC plans to include that location in its monitoring and to educate the operator on best practices when working near the nest.

12.1 EVALUATION OF ENFORCEMENT ACTIVITIES

In 2019, the City of RPV created a Park Ranger program which replaced the Lomita Sheriffs contract for patrolling the preserve. Park Rangers patrol the PVNP and educate users on the proper use of the preserve. In addition they are able to cite user infractions as needed. In 2021, there were 34,751 user contacts, 45 calls for medical/transport service, 2,393 parking citations, 104 notices to appear and 143 calls to the Preserve Information and Reporting Hotline. It is recommended that Park Rangers continue to work with PVPLC to target areas of concern where covered species have the greatest threats of impact. PVPLC conducted training on sensitive species and their behaviors in 2021. PVPLC plans to provide additional training on areas of heightened biological sensitivity in 2022.

Trail Counter Data

The City of Rancho Palos Verdes installed trail counters in key locations in late 2017 to better understand the level of use of the Preserve and to provide data to help guide Preserve management decisions. In 2018, the City installed two trail counters at Burma Road Trail and Rattlesnake Trailhead. These two Portuguese Bend Reserve trailheads are the City's most popular Preserve entry point. In June 2021, the City installed additional trail counters at three of the four entry points to the Forrestal Nature Reserve. The City will be purchasing additional trail counters and installing them at key Preserve entry points to augment data. Below is data captured by the trail counters. Increases in trail use were observed during the Coronavirus Pandemic in the Preserve, as well as across Los Angeles County. The City is continuing to monitor use levels and to use this data to guide management decisions.

Burma Road Trail and Rattlesnake Trailhead

2018: 257,000

2019: 230,000

2020: 302,000

2021: 308,000

E-bikes

In 2021, the City saw a significant increase in e-bike use in the Preserve. This trend has been observed by open space managers throughout Los Angeles County. To address the increase in use, the City coordinated with LA County open space managers, the Wildlife Agencies, and PVPLC; and ultimately decided to ban the use of e-bike in the Preserve. The City Council adopted an ordinance formally prohibiting e-bike use in the Preserve on August 17, 2021. Park Rangers increased public education and installed regulatory signage at key Preserve entry points clarifying that e-bikes are prohibited in the Preserve. The City is observing a significant reduction in e-bike violations and will continue to monitor the situation.

PVPLC would benefit from continued funding to control highly invasive species on the Preserve that are causing impacts to covered species territories, current and historical. Funding to restore historical habitat locations is essential to the survival of covered species, as well. PVPLC continues to apply for funding from federal, state and private sources to increase the amount of acreage restored for NCCP/HCP covered species.

12.3 EVALUATION OF ABILITY TO ACCOMPLISH RESOURCE MANAGEMENT GOALS

PVPLC, City staff and Wildlife Agency representatives successfully achieved the adoption of the final Draft NCCP/HCP in 2019. Wildlife agencies have issued federal permits while the state permit is pending. State and Federal wildlife agency permits are needed in order to give take authorization to the City to conduct projects in the NCCP/HCP area and Preserve.

PVPLC has been successful at completing restoration under the NCCP/HCP, monitoring NCCP/HCP covered species, and meeting the goals for targeted invasive plant removal. With the start of the Abalone Cove Restoration project at the end of 2019 and the continued maintenance of the previous restoration projects, more contiguous high quality habitat will be available throughout the Preserve. PVPLC will continue to assess and choose a new restoration project site in 2022 so that planning and funding can begin. Working alongside with the city, PVPLC also recommends the evaluation of areas where more Acacia can be removed and where dry mustard and non-native grasses can mowed to enhance native habitats in order to support the natural recovery of covered species.

Concerns about habitat damage in the future continue to include the ability to successfully close unauthorized trails and to prevent new trails from being created. Closing unauthorized trails is time consuming and expensive because of continuous vandalism, drought conditions, and repeat use by a limited number of individuals. PVPLC is taking information collected by staff and the VTW to coordinate with City of RPV staff, and city rangers to help determine which areas need more enforcement and maintenance attention. This combined approach will prove to be effective in limiting impacts to the preserve.

13.0 SUMMARY OF CLERICAL CHANGES AND CHANGES TO MONITORING/REPORTING

No clerical changes or changes to monitoring/reporting have been made to the NCCP/HCP.

14.0 PALOS VERDES PENINSULA LAND CONSERVANCY BOARD AND STAFF

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Adrienne Mohan

Office Administration

Jill Wittman, Administrative Assistant

Land Stewardship

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Louise Olfarnes, Manager of Marketing Communications
Julian Ponce, Development Associate

15.0 REPORT CERTIFICATION STATEMENT

I certify under penalty of law that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete.

Adrienne Mohan

Adrienne Mohan
Executive Director

City Official
City of Rancho Palos Verdes

APPENDIX A

ABALONE COVE

RESTORATION PLAN

Habitat Restoration Plan for the

Abalone Cove Ecological Reserve in the Palos Verdes Nature Preserve

FEBRUARY 2016

PREPARED BY:

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Rolling Hills Estates, CA 90274

and

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

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FEBRUARY 2016

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APPENDIX

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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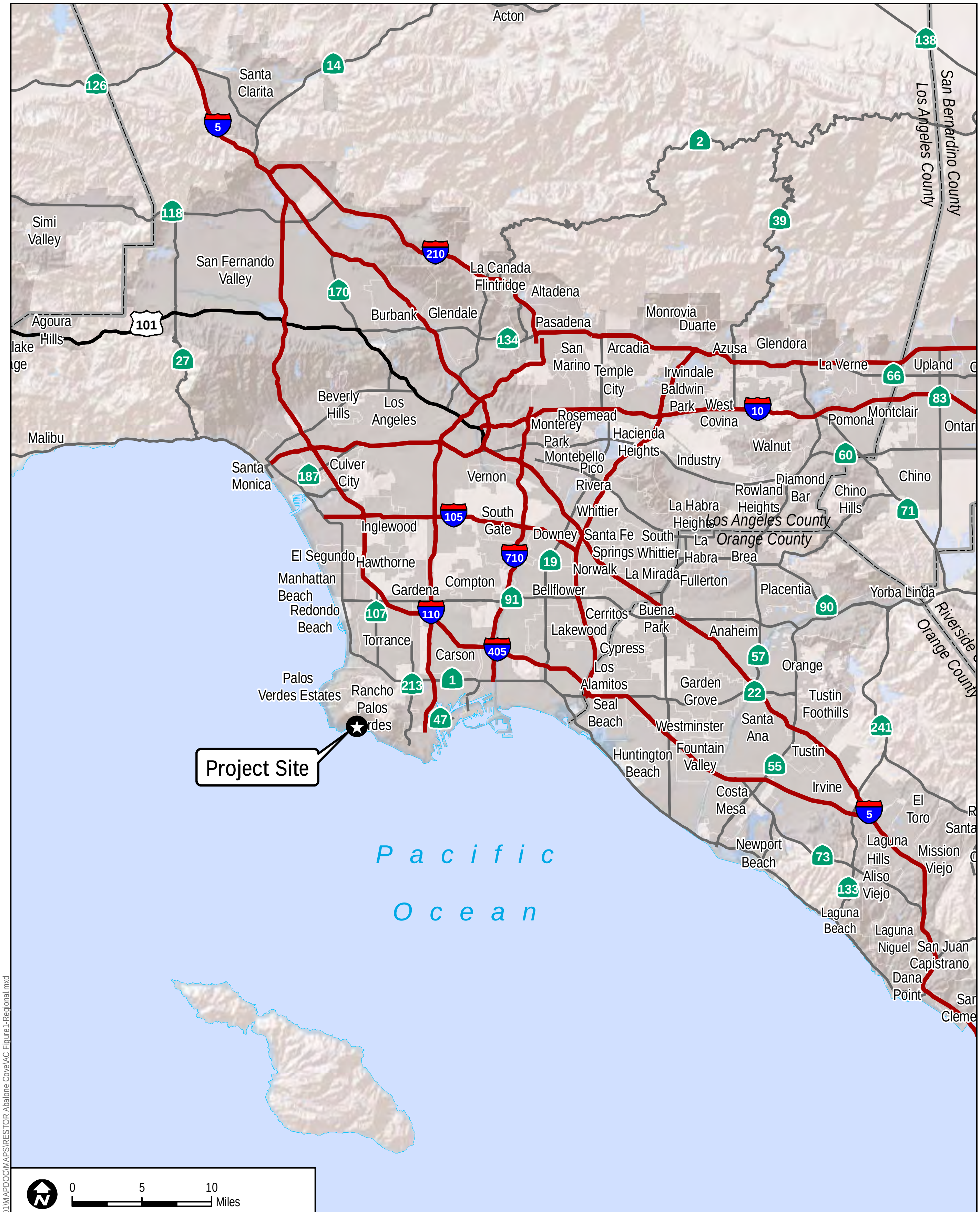

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FIGURE 1

Regional Map

Habitat Restoration Plan for the Abalone Cove Ecological Reserve in the Portuguese Bend Nature Preserve

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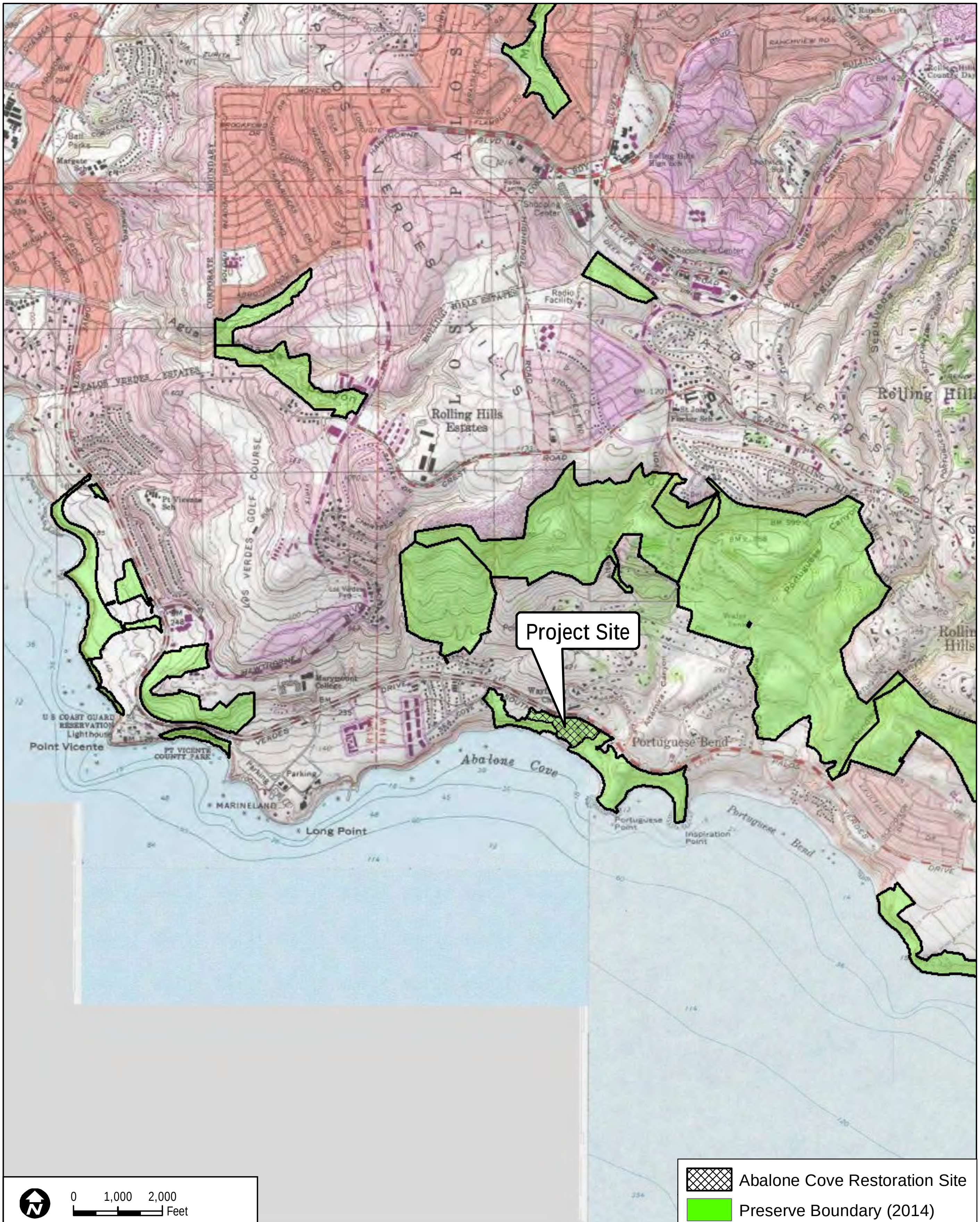

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SOURCE: USGS 7.5-Minute Redondo Beach, San Pedro Series Quadrangles.

FIGURE 2
Vicinity Map

Habitat Restoration Plan for the Abalone Cove Ecological Reserve in the Portuguese Bend Nature Preserve

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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-Artemisia 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 (*Artemisia 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.

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 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 (pH = 7.69-7.76) and the salinity is low (ECe = 0.44-0.72). 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 saltscale (*Atriplex pacifica*), woolly sea-blite (*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.

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

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

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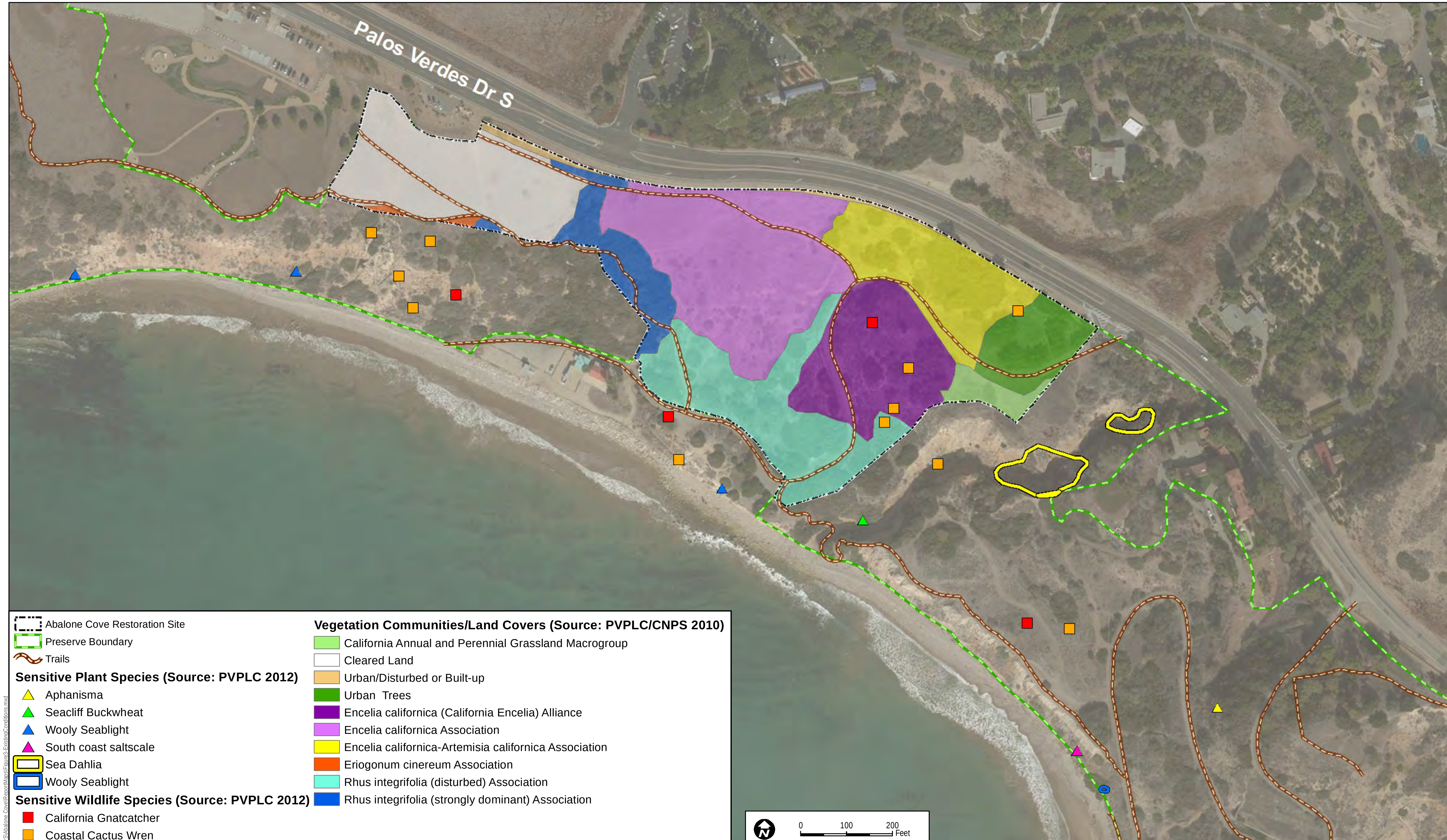

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SOURCES: Palos Verdes Peninsula Land Conservancy 2012; Bing Maps, 2015

FIGURE 3

Existing Conditions

Habitat Restoration Plan for the Abalone Cove Ecological Reserve in the Portuguese Bend Nature Preserve

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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);

- 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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FIGURE 4
Site Photographs

Habitat Restoration Plan for the Abalone Cove Ecological Reserve in the Portuguese Bend Nature Preserve

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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
Container Plants						
Artemisia californica	California sagebrush	D40	5	5	348	1,220
Astragalus trichopodus var. *lonchus*	Ocean locoweed	D40	3	7	184	645
Baccharis pilularis	Coyote brush	D40	5	3	87	305
Brickellia californica	California bricklebush	D40	5	3	87	305
Corethrogyne filaginifolia	Common sandaster	D40	3	3	24	85
Cylindropuntia prolifera	Coastal cholla	1-gallon	4	5	27	95
Dudleya virens	Bright green dudleya	D40	3	3	24	85
Elymus condensatus	Giant wildrye	D40	6	3	24	85
Encelia californica	California brittlebush	D40	5	5	261	915
Eriogonum cinereum	Coastal buckwheat	D40	5	5	87	305
Eriogonum fasciculatum	California buckwheat	D40	5	5	157	549

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
Eriogonum parvifolium	Seacliff buckwheat	D40	5	5	87	305
Eriophyllum confertiflorum	Golden yarrow	D40	3	3	145	508
Isocoma menziesii	Coast goldenbush	D40	5	3	87	305
Mirabilis laevis var. *crassifolia*	Wishbone bush	D40	4	5	54	191
Opuntia littoralis/oricola	Chaparral prickly-pear	1-gallon	6	3	24	85
Peritoma arborea	Bladderpod	D40	5	5	35	122
Rhus integrifolia	Lemonadeberry	D40	15	1	4	14
Salvia leucophylla	Purple sage	D40	5	5	87	305
Salvia mellifera	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.*
Eschscholzia californica var. *maritima*	California poppy	85	2	7
Lupinus bicolor	Miniature lupine	90	2	7
Lupinus succulentus	Arroyo lupine	90	4	14
Stipa lepida	Foothill needlegrass	65	1	3.5
Stipa pulchra	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

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
Container Plants						
Artemisia californica	California sagebrush	D40	5	5	227	249
Astragalus trichopodus var. *lonchus*	Ocean locoweed	D40	3	7	111	123
Brickellia californica	California bricklebush	D40	5	3	52	57
Corethrogyne filaginifolia	Common sandaster	D40	3	3	24	27
Cylindropuntia prolifera	Coastal cholla	1-gallon	4	10	272	299
Encelia californica	California brittlebush	D40	5	5	87	96
Eriogonum fasciculatum	California buckwheat	D40	5	3	174	192
Isocoma menziesii	Coast goldenbush	D40	5	3	35	38
Mirabilis laevis var. *crassifolia*	Wishbone bush	D40	4	5	54	60
Opuntia littoralis/ oricola	Coast prickly-pear	1-gallon	6	30	363	399
Peritoma (=Isomeris) arborea	Bladderpod	D40	6	5	36	40
Rhus integrifolia	Lemonadeberry	D40	15	1	2	2
Salvia mellifera	Black sage	D40	5	3	87	96
				Total Container Plants (per acre)	**1,524**	**1,678**
Seed Mix						
Botanical Name	*Common Name*	*Pure Live Seed*	*Lbs. Per Acre*			*Total Lbs.*
Eschscholzia californica var. *maritima*	California poppy	74	2			2.2
Lupinus bicolor	pygmy lupine	78	2			2.2
Lupinus succulentus	arroyo lupine	81	4			4.4
Phacelia ramosissima	branching phacelia	80	0.25			0.275
Stipa lepida	foothill needlegrass	54	1			1.1
Stipa pulchra	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 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
Container Plants						
Artemisia dracunculus	Tarragon	D40	4	3	136	27
Baccharis pilularis	Coyote bush	D40	5	3	87	17
Baccharis salicifolia	Mulefat	1-gallon	6	3	605	121
Elymus condensatus	Giant wildrye	D40	5	3	174	35
Isocoma menziesii	Coast goldenbush	D40	5	3	87	17
Muhlenbergia rigens	Deergrass	D40	3	3	242	48
Sambucus nigra	Blue elderberry	1-gallon	8	1	102	20
Verbena lasiostachys	Western vervain	D40	3	3	242	48
Total Container Plants (per acre)					**1,675**	**333**
Seed Mix						
Botanical Name	*Common Name*	*Pure Live Seed*		*Lbs. Per Acre*		*Total Lbs.*
Ambrosia psilostachya	Western ragweed	8		2		0.4
Artemisia douglasiana	Mugwort	5		1		0.2
Eschscholzia californica var. *maritima*	California poppy	78		2		0.4
Isocoma menziesii	Coast goldenbush	80		1		0.2
Lupinus succulentus	Arroyo lupine	54		2		0.4
Stipa pulchra	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 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.

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 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.

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

Chart 1
Average Monthly Precipitation for the Portuguese Bend Nature Preserve

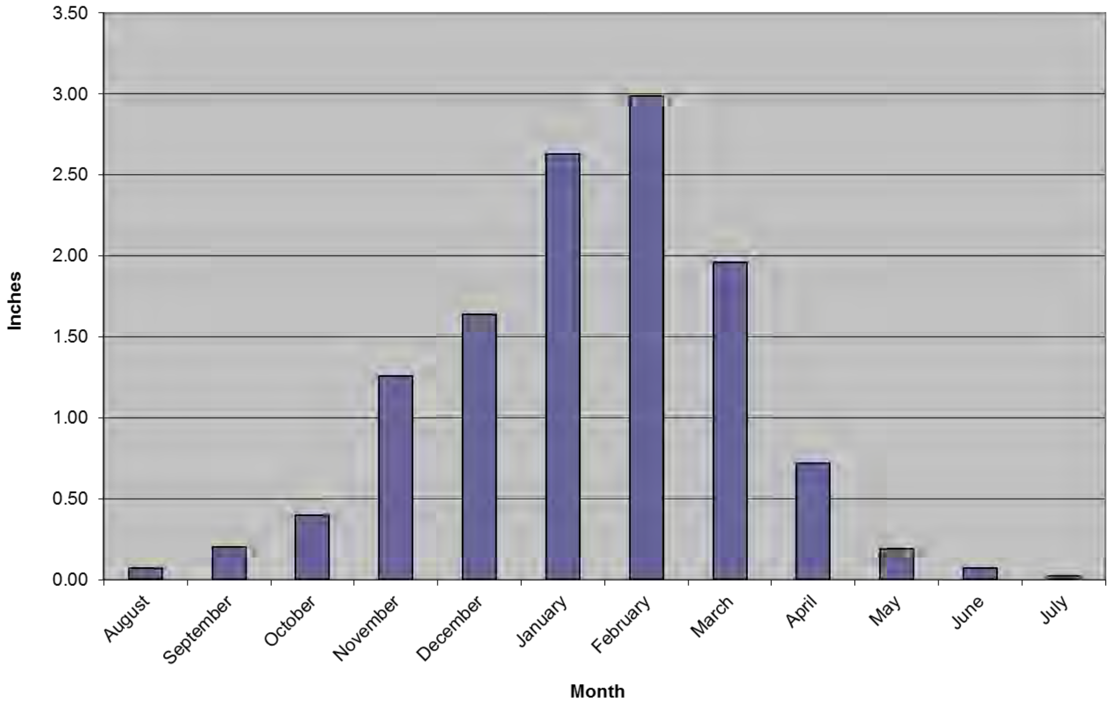
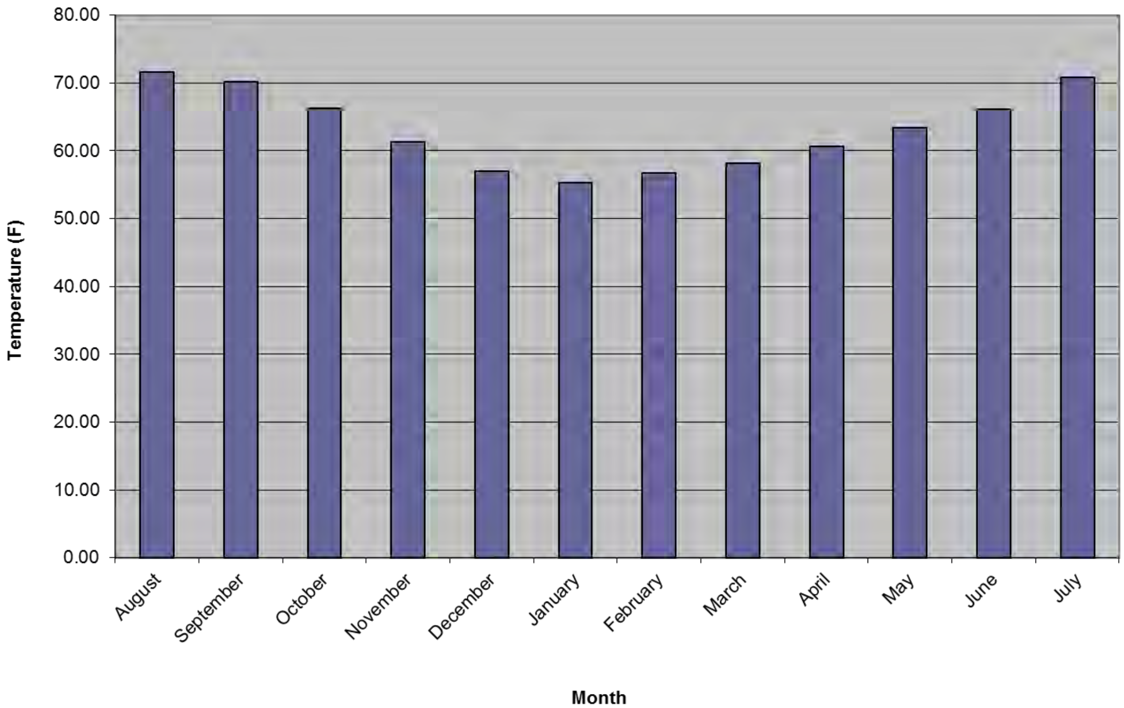


Chart 2
Average Monthly Temperatures for the Portuguese Bend Nature Preserve



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.

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.

DUDEK

9085

SOURCE: Palos Verdes Peninsula Land Conservancy, 2014; Bing Maps, 2015

FIGURE 5

Abalone Cove Restoration Area

Habitat Restoration Plan for the Abalone Cove Ecological Reserve in the Portuguese Bend 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.

- 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 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.

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.

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.

Table 6
Performance Standards

Year	Percent Cover of Native Species (%)*			Non-native Cover (for all habitat types)	
	Coastal Sage Scrub	*Cactus Scrub*	*Mulefat Scrub*	*Invasive Perennial Species Cover*	*Total Non-native Species Cover*
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 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 * * * * high, * * * * * very high

extractable - mg/kg soil	**Sample ID Number**	15-198-07		15-198-08		15-198-09	
Interpretation of data	**Sample Description**	AC #1		AC #2		AC #3	
low medium high	**elements**		graphic		graphic		graphic
0 - 7 8-15 over 15	**phosphorus**	10.35	***	10.25	***	9.20	***
0-60 60 -120 121-180	**potassium**	522.13	*****	318.32	*****	247.26	*****
0 - 4 4 - 10 over 10	**iron**	1.38	*	1.45	*	1.38	*
0- 0.5 0.6- 1 over 1	**manganese**	2.01	****	2.01	****	1.61	****
0 - 1 1 - 1.5 over 1.5	**zinc**	2.45	****	2.40	****	11.62	*****
0- 0.2 0.3- 0.5 over 0.5	**copper**	6.19	*****	5.50	*****	6.36	*****
0- 0.2 0.2- 0.5 over 1	**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	**aluminum**	n d	*	n d	*	n d	*
elements may be toxic	**arsenic**	0.07	*	0.01	*	0.03	*
The degree of toxicity	**barium**	2.41	*	1.81	*	2.97	*
depends upon the pH of	**cadmium**	1.46	**	0.99	*	1.00	*
the soil, soil texture,	**chromium**	n d	*	n d	*	n d	*
organic matter, and the	**cobalt**	0.06	*	0.04	*	n d	*
concentrations of the	**lead**	2.51	**	2.10	**	4.20	**
individual elements as	**lithium**	0.40	*	0.40	*	0.43	*
well as to their interactions.	**mercury**	n d	*	n d	*	n d	*
	selenium	n d	*	n d	*	n d	*
The pH optimum depends	**silver**	n d	*	n d	*	n d	*
upon soil organic	**strontium**	0.61	*	0.68	*	0.75	*
matter and clay content-	**tin**	n d	*	n d	*	n d	*
for clay and loam soils:	**vanadium**	1.28	**	1.20	**	1.38	**
under 5.2 is too acidic							
6.5 to 7 is ideal	**Saturation Extract**						
over 8.0 is too alkaline	**pH value**	7.69	****	7.76	****	7.68	****
The ECe is a measure of	**ECe (milli-**	0.72	**	0.45	**	0.44	**
the soil salinity:	**mho/cm)**		millieq/l		millieq/l		millieq/l
1-2 affects a few plants	**calcium**	61.1	3.1	38.8	1.9	41.3	2.1
2-4 affects some plants,	**magnesium**	14.3	1.2	8.7	0.7	9.7	0.8
> 4 affects many plants.	**sodium**	43.6	1.9	32.9	1.4	26.5	1.2
	potassium	11.4	0.3	2.3	0.1	2.5	0.1
	cation sum		6.4		4.2		4.1
problems over 150 ppm	**chloride**	128	3.6	48	1.3	49	1.4
good 20 - 30 ppm	**nitrate as N**	12	0.9	7	0.5	5	0.3
	phosphorus as P	0.2	0.0	0.3	0.0	0.1	0.0
toxic over 800	**sulfate as S**	7.6	0.5	8.5	0.5	11.3	0.7
	anion sum		5.0		2.4		2.4
toxic over 1 for many plants	**boron as B**	0.28	**	0.16	*	0.22	**
increasing problems start at 3	**SAR**	1.3	*	1.2	*	1.0	*
est. gypsum requirement-lbs./1000 sq. ft.		37		54		58	
	relative infiltration rate	slow/fair	sand - 19.6%	slow	sand - 18.0%	slow	sand - 18.1%
	soil texture	clay	silt - 34.3%	clay	silt - 33.1%	clay	silt - 35.9%
	lime (calcium carbonate)	slight	clay - 46.1%	low	clay - 48.9%	slight	clay - 46.0%
	organic matter	fair		fair		fair	
	moisture content of soil	14.5%	gravel over 2 mm	15.2%	gravel over 2 mm	15.4%	gravel over 2 mm
	half saturation percentage	41.3%	8.8%	40.8%	8.4%	46.3%	8.9%

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

Table 2

Southern Coastal Bluff Scrub/Southern Cactus Scrub Planting Pallete (3 acres)						
Botanical Name	**Common Name**	**Container Size**	**Spacing (on center)**	**Group Size**	**Quantity (per acre)**	**Total Plants**
Aphanisma blitoides	Aphanisma	as available	3	3	35	105
Atriplex pacifica	South Coast saltscale	as available	3	3	23	69
Cylindropuntia prolifera	Coastal Cholla	1 gal	5	5	122	366
Cylindropuntia prolifera	Coastal Cholla	5 gal	5	3	45	135
Cylindropuntia prolifera	coastal Cholla	15 gal	10	3	12	36
Dudleya virens	Bright Green Dudleya	1 gal	4	3	34	102
Eriogonum parvifolium	Seacliff Buckwheat	D40/4"	5	3	87	261
Lycium brevipes	Baja Desert Thorn	1 gal	10	3	23	69
Lycium californica	California Boxthorn	1 gal	7	3	34	102
Mirabilis laevis var. crassifolia	Desert Wishbone-bush	1 gal	5	3	54	162
Opuntia littoralis	Coastal Pricklypear	1 gal	5	5	157	471
Opuntia littoralis	Coastal Pricklypear	5 gal	5	3	70	210
Opuntia littoralis	Coastal Pricklypear	15 gal	10	3	12	36
Opuntia oricola	Chaparral pricklypear	1 gal	3	3	157	471
Opuntia oricola	Chaparral pricklypear	5 gal	5	3	70	210
Opuntia oricola	Chaparral pricklypear	15 gal	10	3	12	36
Peritoma arborea	Bladderpod	D40/4"	4	3	35	105
Rhus integrifolia	Lemonadeberry	D40/4"	15	1	5	15
Suaeda taxifolia	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	July 2022
Planting of container stock	Fall and early winter of second year	November 2022
Seed Application	Fall and early winter of 3rd year	November 2022 or before large rain event
Monitoring and Maintenance	To begin upon successful installation of container plants	Five years after planting

APPENDIX B

2021 RESTORATION MONITORING REPORT

In 2021 vegetation surveys were conducted at restoration sites within currently-managed NCCP/HCP restoration projects located at Abalone Cove, Alta Vicente, and Portuguese Bend 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.

1.0 ALTA VICENTE SURVEY METHODS

Restored habitat areas were surveyed through qualitative and photographic vegetative assessment techniques along 50m permanent transect lines (location of transects: Appendix B1 and B2) within three habitat types (coastal sage scrub, cactus scrub, and Palos Verdes blue butterfly habitat). Transects were surveyed in May 2021 by PVPLC Biologist Austin Parker. 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-m buffer of the transect.

1.1 ALTA VICENTE PHASE 2 SURVEY RESULTS (YEAR 11)

Cactus Scrub

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

PVB Butterfly Habitat

Two monitoring transects (AV2 and AV5) were surveyed within the PVB butterfly habitat of Phase 2 restored areas. AV2 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 46% with 1% cover by PVB host plants (Table 1). Native plant cover is within the success criteria range for Year 5 goals (Table 5) but host plant cover falls below Year 5 goals.

At AV5, qualitative survey methods (CNPS Rapid Vegetation Assessment Method) found percent cover by native plant species to be 40% with 1% cover by PVB host plants (Table 1). Qualitative assessments indicate that habitat along AV5 is within success criteria goals for native cover (30-60% in Year 5) but the host plant cover falls below Year 5 goals.

Coastal Sage Scrub

Qualitative methods describe AV6 as achieving success criteria goals for native plant cover in 2020 and was subsequently removed from monitoring.

1.2 ALTA VICENTE SURVEY RESULTS PHASE 3 (YEAR 4)

Phase 3 restoration in Alta Vicente was officially monitored in 2020 (Year 3) for the first time (AV7 and AV8) using quantitative monitoring methods as well as the Grassland area within Phase 3 using qualitative monitoring methods (CNPS Rapid Assessment Methodology).

In 2021, Phase 3 was monitored using qualitative monitoring methods.

Using qualitative methods (CNPS Rapid Assessment) two coastal sage scrub habitats were found to be at 53% for the entirety of Phase 3.

1.3 ALTA VICENTE SURVEY RESULTS PHASE 4 (YEAR 3)

Phase 4 restoration in Alta Vicente was officially monitored in 2021 (Year 3) for the first time (AV9, AV10, AV11, and AV12) using quantitative monitoring methods. (Table 2)

Coastal Sage Scrub

In 2021, two coastal sage scrub transects (AV9 and AV10) were surveyed using quantitative methods. AV9 was found to have 60% cover of native plants and 2% cover of non-native plants. AV10 was found to have 36% cover of native plants and 6% cover of non-native plants. AV9 and is already meeting Year 3 success criteria and appears to be on track to meet final success criteria (>50% native cover) in Year 5 (2023). AV10 is falling short of Year 3 success criteria by 4%, but will likely meet Year 5 success criteria with proper management and precipitation.

Butterfly Habitat

In 2021, one butterfly habitat transect was monitored using quantitative methods. AV11 was found to have 10% cover of native plants including 4% cover of PVB host plant *A. trichopodus* var. *lonchus* and 2% cover of ESB host plant *E. parvifolium*. However, AV11 was also found to have 16% cover of non-native plants including 14% non-native grass species. AV11 fell short of Year 3 success criteria by 20% cover of native plants and 4% of butterfly host plants. With proper management, such as removal of non-native grasses and annuals as well as infilling of butterfly host plants, this area can meet Year 5 success criteria.

Cactus Scrub

In 2021, one Cactus Scrub transect was monitored using quantitative methods. AV12 was found to have a 24% relative cover of native plants and a 4% relative cover of non-native plants. This transect fall short of Year 3 success criteria by 6%, but exceeds the >5% cactus cover criteria (20%). Cactus scrub is slow growing, with proper management and precipitation this area can meet Year 5 success criteria.

1.4 ALTA VICENTE CONCLUSIONS AND RECOMMENDATIONS

In 2021, Phase 3 CSS restoration met success criteria standards, while three transects from other Phases (AV2, AV5, AV10, AV11, and AV12) did not (Tables 1 and 2). In phase 3, Perennial species such as *Artemisia californica*, as well as species of Salvia appear to be well established and in good health and on track to meet Year 5 success criteria in 2022. Two species of cactus were observed at the site in Phase 4, with highest presence by *Opuntia littoralis and O. oricola*. The cactus scrub habitat areas in Phase 1 and 2 restoration at Alta Vicente also received additional cactus planting in 2018 in connection with coastal cactus wren recovery efforts at the site. The recent success at these transects could be attributed to an increased in precipitation in 2017, 2019, and 2020. Watering and maintenance of these cactus plantings occurred in 2018, 2019, 2020, and again in 2021.

Palos Verdes blue butterfly restoration areas failed to meet success criteria in 2021, likely due to a very dry winter. Considerable effort was given to the removal of the invasive plant, crystalline ice plant, in 2016, which was promptly followed by non-native annual grasses colonizing the site. This persistent weed encroachment has required frequent visits from field technicians to reduce weed cover. Following the observed absence of host plant along PVB transects (AV2, AV5) in 2017 monitoring, infill planting later that year (October) reintroduced PVB host plants to the site. It is thought that these infill plants and their progeny comprised the majority of host plants detected in the 2018 through 2021 monitoring and produced 1% and 1% cover by host plant species at transects AV2 and AV5. It is recommended that weed removal continue and 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. Along with potential infill planting of butterfly host plants, future thinning of shrubs may be necessary to keep these areas within Butterfly habitat success criteria percent cover.

2.0 PORTUGUESE BEND SURVEY METHODS (PHASE 1, 2, 3, 4 AND 5)

Restored habitat areas were surveyed through qualitative, quantitative, and photographic vegetative assessment techniques. Qualitative measurements of percent cover for native, non-native, species-specific, and bare/litter were collected through use of an adapted form of the CNPS Rapid Vegetation Assessment Method across nine transects (PB1 - PB9). Quantitative measurements of percent cover and plant size (height and width) were collected through use of the point-intercept method across two transects in their third or fifth year of establishment. Photopoint documentation of all restored areas continued, and typically included a photograph being taken at the beginning and end of each monitoring transect. Monitoring surveys were conducted in May 2021. Locations of monitoring transects and photopoints can be found in Appendix B3.

2.1 PORTUGUESE BEND SURVEY RESULTS FOR PHASES 1 AND 2

South-facing Coastal Sage Scrub (CSS)

All transects within Phase 1 and 2 South-facing CSS have met final success criteria in 2020 or earlier. Phase 1 and 2 South-facing will no longer be monitored.

North-facing Coastal Sage Scrub (CSS)

All transects with Phase 1 and 2 North-facing CSS have met final success criteria for native plant cover in 2020 or earlier. Phase 1 and 2 North-facing CSS will no longer be monitored.

Cactus Scrub

All Cactus Scrub transects situated within cactus scrub of Phase 1 and 2 restoration have met the success criteria and were removed from monitoring activities.

2.2 PORTUGUESE BEND SURVEY RESULTS FOR PHASE 4

North-facing Coastal Sage Scrub (CSS)

All North-facing Coastal Sage Scrub transects situated within cactus scrub of Phase 1 and 2 restoration have met the success criteria and were removed from monitoring activities.

2.3 PORTUGUESE BEND SURVEY RESULTS PHASE 5 (YEAR 6)

South-facing Coastal Sage Scrub (CSS)

All transects in South-facing CSS in Phase 5 have met success criteria and will no longer be monitored in the future.

Cactus Scrub

One monitoring transect (PB9) within cactus scrub of Phase 5 (Year 6) restoration was evaluated against success criteria in 2021 and surveyed using a qualitative (CNPS Rapid Vegetation Assessment) method.

At PB9, Qualitative methods (CNPS Rapid Vegetation Assessment) were used to identify the presence of 13 native plants, a total native plant cover of 64.5%, and non-native cover of 3% (Table 3). Native species with the highest percent cover were *Artemisia californica* (20%) and *Encelia californica* (15%) (Table 7). Quantitative measurements describe this transect as meeting criteria for both native and non-native plant cover for Year 5 monitoring, however qualitative measurements describe this transect as not passing due to the total Cactus species (8% qualitatively) not meeting success criteria. The transect PB9 will be monitored in 2022 (Year 7) using qualitative methods.

2.4 PORTUGUESE BEND CONCLUSIONS AND RECOMMENDATIONS

One transect within restored habitat of Portuguese Bend were evaluated for success criteria in 2021. This transect (PB9) was monitored under qualitative evaluation Year 6 after failing to meet Year 5 requirements.

Monitoring transects in all restoration phases, except for Phase 5, have now met success criteria measures and display good overall health of the vegetation. As mentioned in the 2017-2020 reports, several factors had been preventing transects within these phases from being successful; namely the invasion by the non-native black mustard (*Brassica nigra*) and drought conditions. With the efforts to clear black mustard from the restoration area, native plants were slow to recover following the strong mustard influx in 2017 and 2019, but all CSS restoration areas have passed success criteria.
The cactus restoration in Phase 5 also failed to meet criteria in the qualitative methods again in 2021. Infill planting of native species, mostly cactus species, occurred in 2018 and early 2019, before the growing season. It is recommended that Phase 5 cactus restoration area continue to be monitored and maintained to remove non-native plant cover and allow the cactus species to grow and increase their relative cover so that the area can pass the qualitative monitoring in 2022. Even with infill planting efforts and supplemental irrigation, cactus scrub is notoriously slow-growing and will take longer than the allotted 5 year project timeline to reach success criteria. It is recommended that areas throughout all phases with qualifying success criteria evaluations continue to receive nonnative plant control to maintain positive native plant growth and establishment.

3.0 ABALONE COVE SURVEY METHODS

Restored habitat areas were surveyed through qualitative and photographic vegetative assessment techniques along 50m permanent transect lines. Phase 1 was surveyed in May 2021 by PVPLC Biologist Austin Parker. 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.

3.1 ABALONE COVE SURVEY RESULTS FOR PHASE 1

Coastal Sage Scrub (CSS)

Monitoring transects have not been established in Phase 1 the Abalone Cove restoration as Quantitative monitoring will start in Year 3 (2023). Qualitative methods were used to monitor the Year 1 (2021) of restoration success. The total Native plant cover was estimated to be 26% relative cover, well on its way to meeting the 50% cover requirement of Years 3 and 5. However, the non-native cover was estimated at 20.5%. This higher than expected cover is largely due to late rain we received in 2021, the non-native plant species were removed by PVPLC crews soon after.

3.2 ABALONE COVE CONCLUSIONS AND RECOMMENDATIONS

One Phase within the restored habitat of Abalone Cove was evaluated for success criteria in 2021. This area was monitored under qualitative evaluation Year 1. 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 Survey Data

Percent cover along each 50m transect as observed along 10m swath on each side of the transect.

	Phase 1+2		Phase 3		
Species	AV2	AV5	Phase 3 (year 4)	Wildflower	CalWater
Acmispon glaber			1		1
Amsinckia memziesii					
Artemisia californica	8	15	30	1	30
Asclepias fascicularis					
Astragalus trichopodus	1	1			
Atriplex lentiformis					
Baccharis pilularis					0.5
Baccharis salicifolia			1		
brickelia					
Cucurbita foetidissima		0.5			
Cylindropuntia prolifera		1			
Deinandra paniculata					
Descurainia pinnata					
Elymus condensatus		0.5	1		
Encelia californica	20	2	2	1	7
Eriogonum cinereum	1	1	5	1	5
Eriogonum fasciculatum			3		
Eriogonum parvifolium	3	3	1	0.5	6
Eschscholzia californica				1	
Euphorbia albomarginata					
Hazardia squarrosa					1
Heteromeles arbutifolia			1		1
Isocoma menziesii var. sedoides			1		1
Lupinus succulentus					
Malosma laurina	1				
Malacothrix saxatilis					
Marah macrocarpa					
Melilotus indicus					
Mirabilis laevis		0.5			0.5
Opuntia littoralis	1		0.5		
Opuntia oricola					
Peritoma arborea	1	0.5	0.5		0.5
Rhus integrifolia	8	15	1	2	
Rhus ovata					
Ricinus communis					
Salsola sp.					
Salvia leucophylla			3	1	1
Salvia mellifera	2		1		1
Stipa sp.			1	20	1
Solanum douglasii					
Verbena sp					
Total Native Cover	**46**	**40**	**53**	**27.5**	**56.5**
NNAG	2	0.5	10	1	10
NNP	0	1	3.5	24.5	3
Total Non-native Cover	**2**	**1.5**	**13.5**	**25.5**	**13**
Bare	15	10	5	5	5
Litter	37	48.5	28.5	41.5	25.5
Total Bare and Litter	**52**	**58.5**	**33.5**	**46.5**	**30.5**
Total Plant Cover	**48**	**41.5**	**66.5**	**53**	**69.5**

Table 2. Alta Vicente Quantitative Survey Data for Phase 4

Relative % Cover	**AV9**	**AV10**	**AV11**	**AV12**
Astragalus trichopodus lonchus			4	
Artemisia californica	32	10		4
Chenopodium sp.		2		
Encelia californica	4	2	2	
Eriogonum cinereum				
Eriogonum fasciculatum				
Eriogonum parvifolium	16	8	**2**	
Foeniculum vulgare				4
Helminthotheca echioides		2		
Isocoma menziesii	8			
Mirabilis laevis		4		
Melilotus indicus		2	2	
Opuntia oricola				20
Peritoma arborea		2		
Rhus integrifolia		6		
Salvia leucophylla		4		
Salvia mellifera			2	
Total Native Plants	**60**	**36**	**8**	**24**
NNAG	2	0	14	0
NNP	0	6	2	4
Total Non-native Plants	**2**	**6**	**16**	**4**
Bare	4.00	4.00	4.00	4.00
Litter	34.00	54	72	68
Total Bare and Litter	**38.00**	**58.00**	**76.00**	**72.00**
Total Plant Cover	**62**	**42**	**24**	**28**

Sampling dates for Alta Vicente 2021 CNPS Rapid Vegetation Assessment and quantitative monitoring:

AV2, AV6, AV 9, 10, 11, 12, Phase 3, Grassland: May 2021

Table 3. Portuguese Bend

Percent cover along each 50m transect as observed along 10m swath on each side of the transect.

2021 Vegetation Assessment	
	Percent Cov
Species	PB9
Acmispon glaber	
Alium angustifolium	
Ambrosia psilostachya	
Artemisia californica	20.0
Asclepias fascicularis	
Astragalus trichopodus	
Baccharis pilularis	
Baccharis salicifolia	
Calystegia macrostegia	
Castilleja exserta	
Corethrogyne filaginifolia	
Chamaesyce albomarginata	
Cylindropuntia prolifera	
Deinandra fasciculata	
Dichelostemma capitatum	
Elymus condensatus	
Encelia californica	15.0
Eriogonum cinereum	3.0
Eriogonum fasciculatum	5.0
Eriogonum parvifolium	1.0
Ericameria ericoides	
Erigeron canadensis	
Eschscholzia californica	
Hazardia squarrosa	
Heteromeles arbutifolia	0.5
Isocoma menziesii var. sedoides	5.0
Lupinus succulentus	
Malacothrix saxatilis	2.0
Malosma laurina	
Marah macrocarpa	
Melica imperfecta	
Mirabilis californica	0.5
Opuntia littoralis	8.0
Phacelia cicutaria	
Plantago sp.	
Pseudognaphalium biolettii	
Pseudognaphalium californicum	
Pseudognaphalium sp	
Rumex spp	
Rhus integrifolia	
Salivia leucophylla	
Salivia mellifera	
Salix gooddingii	
Salvia leucophylla	3.0
Salvia mellifera	0.5
Sambucus nigra subsp caerulea	1.0
Sisyrinchium bellum	
Solanum douglasii	
Stipa sp.	
Stephanomeria virgata	
Unidentified No 1	
Total Native Cover	**64.5**
NNAG	0.5
NNP	2.5
Total Non-native Cover	**3.0**
Bare	1.0
Litter	31.5
Total Bare and Litter	**32.5**
Total Plant Cover	**67.5**

Sampling dates for Portuguese Bend 2021 Qualitative:

PB9: May 2021

Table 4. Abalone Cove Phase 1 Qualitative data

Species	AC Phase 1
Acmispon glaber	
Amsinckia menziesii	
Artemisia californica	6
Asclepias fascicularis	
Astragalus trichopodus var. lonchus	1
Atriplex lentiformis	
Baccharis pilulefra	2
Baccharis salicifolia	0.5
brickelia	
Cylindropuntia prolifera	0.5
Deinandra paniculata	
Descurainia pinnata	
Dudleya virens insularis	0.5
Elymus condensatus	
Encelia californica	3
Erigeron foliosus	0.5
Eriogonum cinereum	0.5
Eriogonum fasciculatum	
Eriogonum parvifolium	
Eschscholzia californica	
Euphorbia albomarginata	
Euphorbia polycarpa	1
Hazardia squarrosa	
Heteromeles arbutifolia	
Isocoma menziesii var. sedoides	
Lupinus succulentus	
Malosma laurina	
Malacothrix saxatilis	0.5
Marah macrocarpa	
Mirabilis laevis	
Opuntia littoralis	1
Opuntia oricola	0.5
Peritoma arborea	1
Rhus integrifolia	5
Rhus ovata	
Ricinus communis	
Salsola sp.	
Salvia leucophylla	0.5
Salvia mellifera	2
Stipa sp.	
Solanum douglasii	
Verbena sp	
Total Native Cover	**26**
NNAG	5
NNP	15.5
Total Non-native Cover	**20.5**
Bare	10
Litter	43.5
Total Bare and Litter	**53.50**
Total Plant Cover	**46.50**

Sampling dates for Abalone Cove 2021 Qualitative:

Phase 1: May 2021

Table 5. Abalone Cove, Alta Vicente and Portuguese Bend success criteria measures.

		Percent Cover of Native Species (%)			Percent Cover of Non-native Species (%)	
Preserve	Year	CSS	Cactus Scrub[1]	PVB Habitat[2]	CSS	Cactus Scrub
Alta Vicente	Year 1*	10%	10%	10%		
	Year 2*	20%	20%	20%		
	Year 3	>40%	>30%	30%-60% max		
	Year 5	>50%	>40%	30%-60% max		
Portuguese Bend	Year 3	>40% (≥30% perennial)	>30% (≥20% perennial and 5% cactus)			
	Year 5	>50%	>40% (≥ 10% cactus)		<25% (<5% perennials w/ no CAL-IPC List A except NNAG)	<25% (<5% perennials w/ no CAL-IPC List A except NNAG)

* Percentage based on visual estimates.

[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.

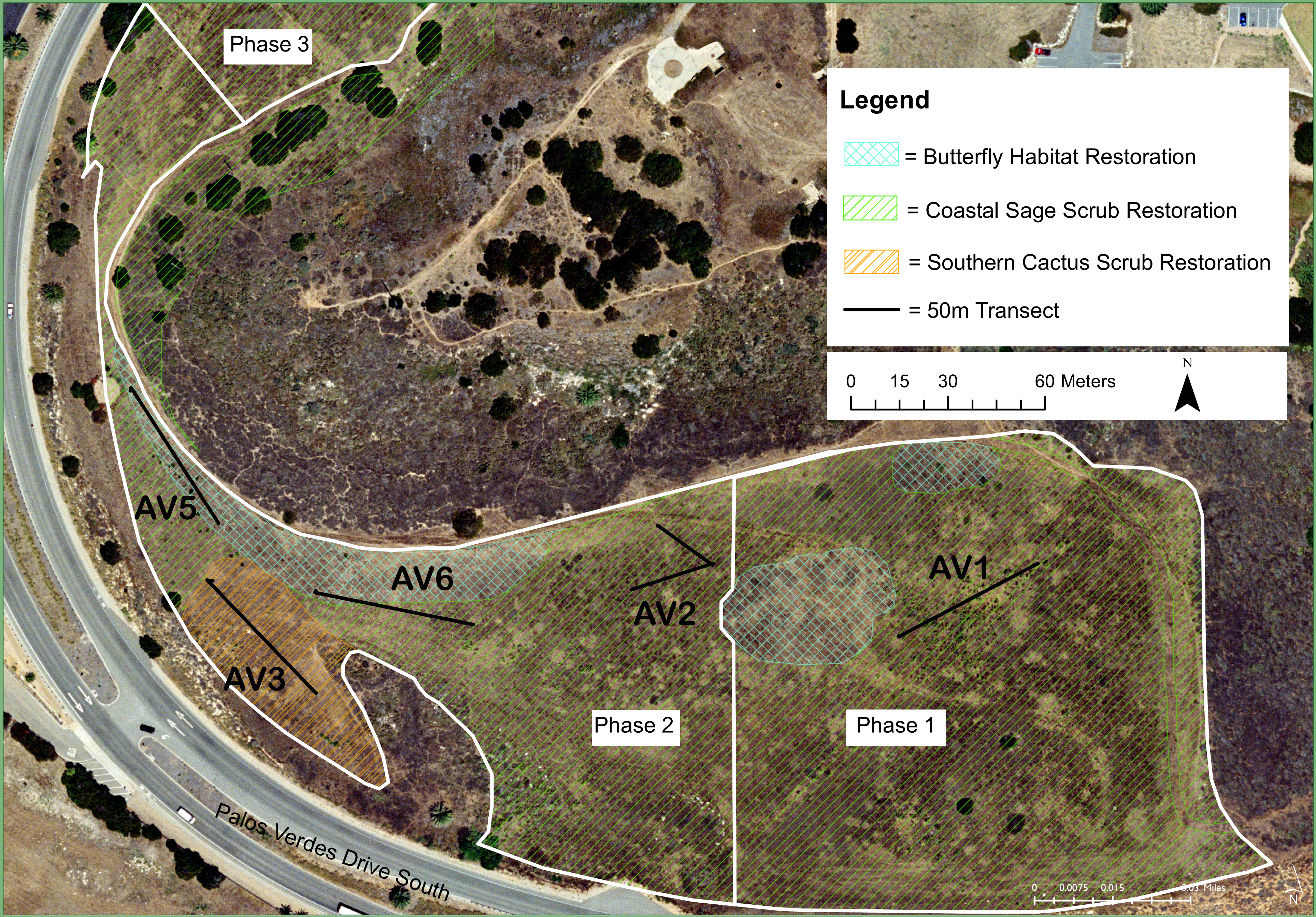
[2] From Year 3 on, there should be at least 10% coverage from *Acmispon glaber* and/or *Astragalus trichopodus* and the woody shrubs should be maintained at 10-20%.

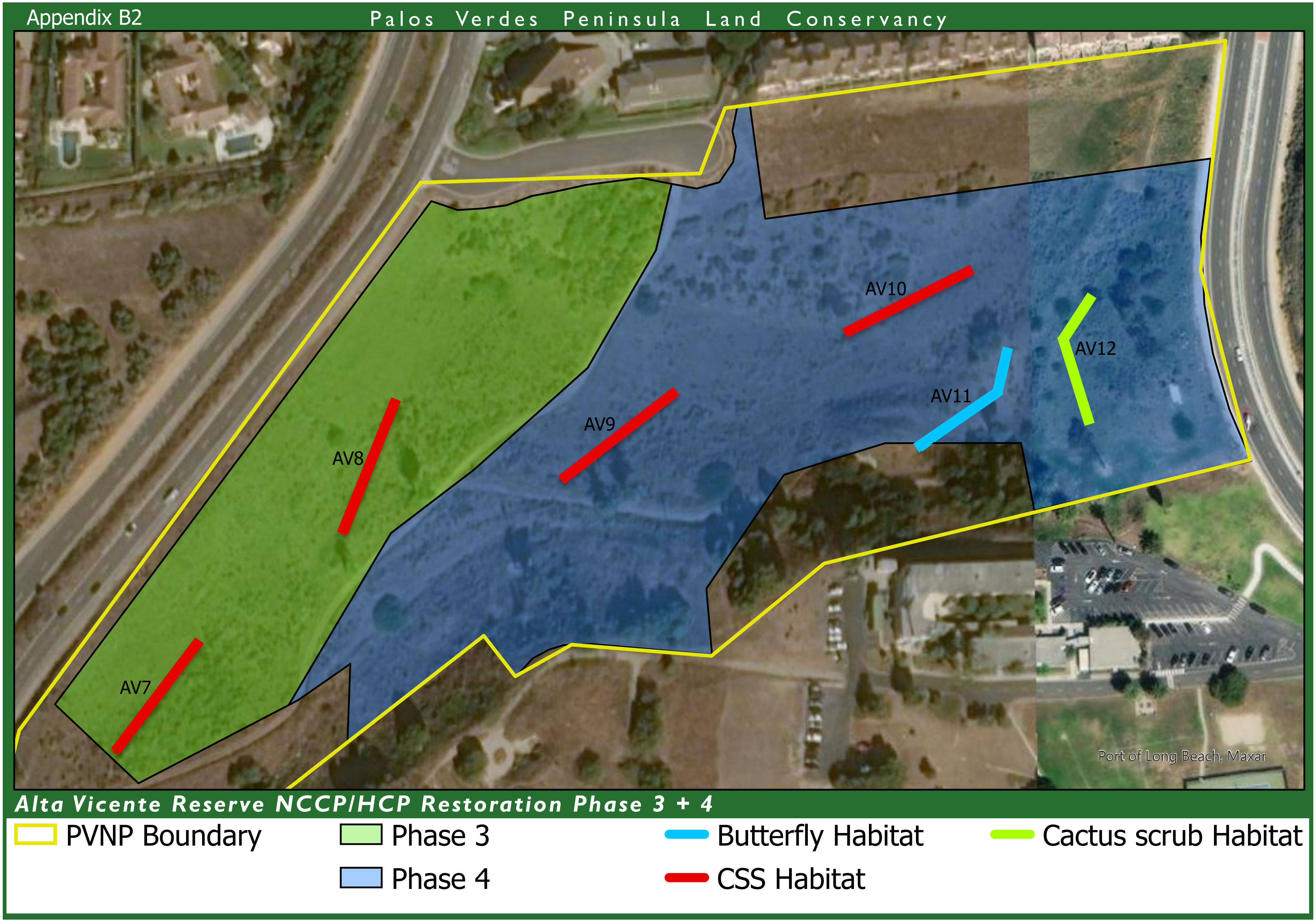
CAL-IPC = California Invasive Plant Council

NNAG = non-native annual grass

Appendix B1

Alta Vicente Monitoring Transects



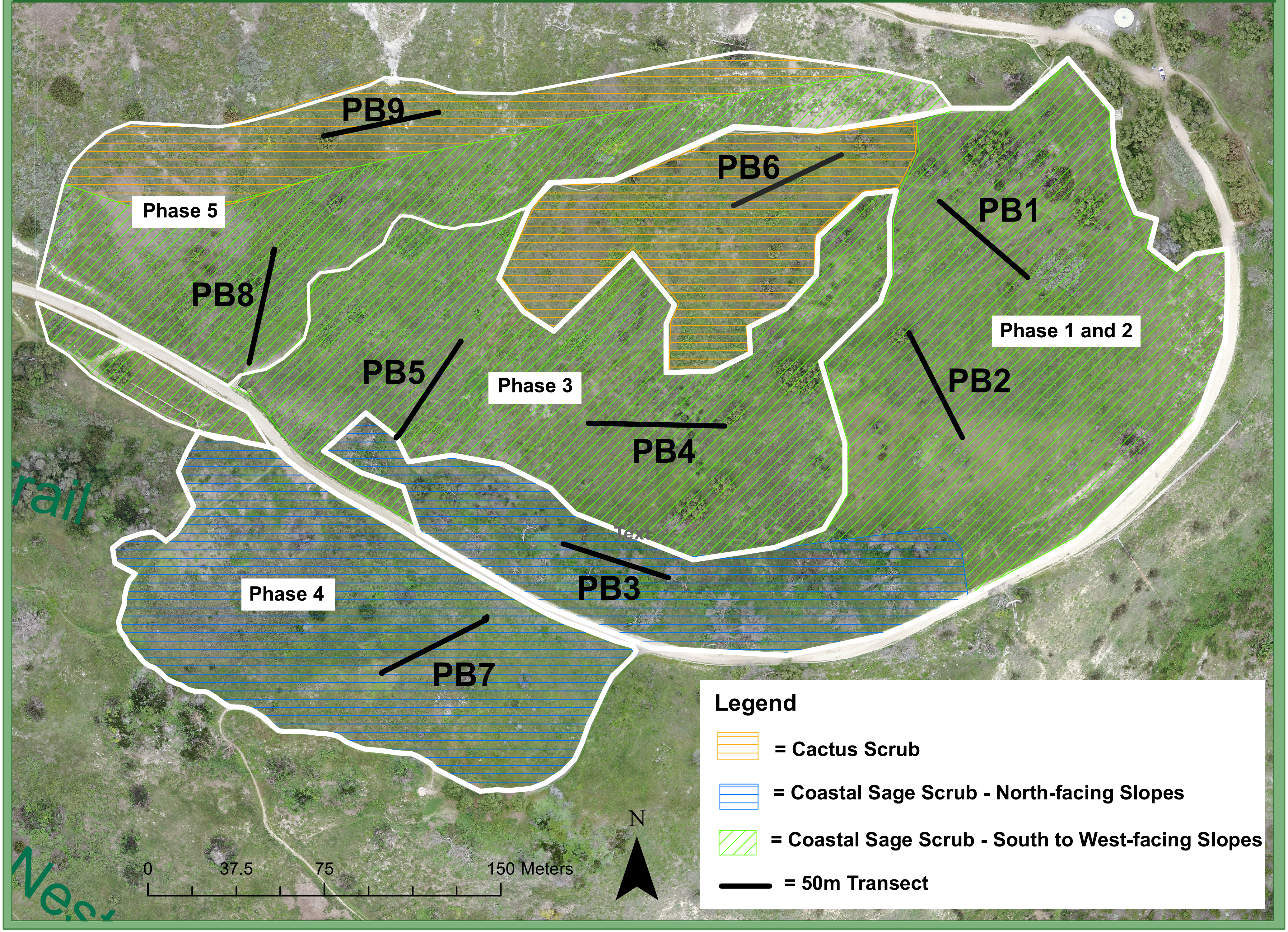


Appendix B2
Palos Verdes Peninsula Land Conservancy
AV7
AV8
AV9
AV10
AV11
AV12
Port of Long Beach, Maxar
Alta Vicente Reserve NCCP/HCP Restoration Phase 3 + 4
PVNP Boundary
Phase 3
Phase 4
Butterfly Habitat
CSS Habitat
Cactus scrub Habitat

Appendix B3

Portuguese Bend Reserve

NCCP Restoration Transects



APPENDIX B4

2021 RESTORATION MONITORING PHOTOS


Abalone Cove Phase 1

Abalone Cove Phase 1

Abalone Cove Phase 1


Abalone Cove Phase 1

Abalone Cove Phase 1


Abalone Cove Phase 2

Abalone Cove Phase 2

Alta Vicente Phase 3

Alta Vicente Phase 3

Alta Vicente AV2

Alta Vicente AV2

Alta Vicente AV5


Alta Vicente AV5

Alta Vicente AV9

Alta Vicente AV9

Alta Vicente AV10

Alta Vicente AV10


Alta Vicente AV11


Alta Vicente AV11


Alta Vicente AV11

Alta Vicente AV11


Alta Vicente AV11

Alta Vicente AV12

Alta Vicente AV12

Alta Vicente AV12


Alta Vicente AV12

Portuguese Bend PB9


Portuguese Bend PB9


Portuguese Bend PB9


Portuguese Bend PB9

APPENDIX C

HABITAT IMPACTS

Preserve Projects and Habitat Impacts Summary

PVPLC provided monitoring and consultation for 35 projects in 2021. Six of those projects were expected to have impacts to the habitat and five of those projects were completed in the reporting period for this report. Below are summaries of projects that had impacts to the preserve. All other projects not reported had no impacts.

In November of 2020, a water main belonging to Cal Water broke and drained onto Vanderlip Trail. The trail was heavily eroded and closed for repair. Various site visits worked out the best solution to the project with minimal impacts to the preserve. The impacts were documented pre and post work and PVPLC coordinated closely with the contractor during the project duration. The project was completed in 2021 with a restoration required of .11 acres along the edges of trails were water had caused erosion. PVPLC worked closely with the contractor to install seed for the required amount of area

In July 2021, a CalWater hydrant failure caused water to enter the Portuguese Bend Reserve and erode sections of trail and habitat. The location of the impacted areas are along and adjacent to Burma Road near the entry gate; on Kelvin Canyon Trail where it crosses Kelvin Canyon Creek; and on Gary's Gulch Trail where it crosses Kelvin Canyon Creek. According to the NCCP, this impact requires restoration at a 2:1 ratio for coastal sage scrub (CSS) and Riparian habitat. The measured area of impact is 0.44 acres of therefore the resulting restoration required is 0.88 acres of CSS/Riparian habitat. Since the project seems to have caused water flow to stop at the Kelvin Canyon Crew crossing at Gary's Gulch Trail, the cities geologist has been involved in the assessment. Repairs are expected to be completed in 2022 with an updated impact measurement and the project won't be included in the 2021 habitat impact chart.

In December 2021, Southern California Edison (SCE) repaired multiple power lines along Burma Rd. in Portuguese Bend. This project was approved and the impacts were discussed before the work began. Most of the areas near the pole were just trimmed back, but damage to habitat did occur from the trucks backing into the area over native plants.
According to the NCCP, this impact requires restoration at a 2:1 ratio for coastal sage scrub (CSS) and Riparian habitat. The measured area of impact is 0.06 acres of therefore the resulting restoration required is 0.12 acres of CSS/Riparian habitat.

In December 2021, a CalWater infrastructure failure caused water to damage the Portuguese Bend Reserve and erode sections of trail and habitat. The location of the impacted area is adjacent to Vanderlip Trail. According to the NCCP, this impact requires restoration at a 2:1 ratio for coastal sage scrub (CSS) habitat. The measured area of impact is 0.012 acres of therefore the resulting restoration required is 0.024 acres of CSS habitat.

In the Summer and Fall of 2021, CalWater repaired a few locations of pipeline along Burma Rd. in the Portuguese Bend Reserve. Damage to hillside habitat occurred above the pipe. The measured area of impact is 0.12 acres of therefore the resulting restoration required is 0.24 acres of CSS/Riparian habitat.

In December of 2021, a PVPLC contractor damages plants in the vicinity of Portuguese Canyon. The measured are of impact is .036 acres of habitat therefore resulting the resulting restoration required is .073 acres of CSS/Riparian habitat which has already been started.

Table 1. Habitat Impacts in the PVNP in 2021

Date	Project	Impact	Location and Vegetation Type	Size
November 2020-2021	CalWater Vanderlip Erosion	Vanderlip trail damaged with surrounding habitat impacts	Coastal Sage Scrub	.11 acres
Summer/Fall 2021	CalWater Rim/Burma Pipe Replacement	Damage to hillside habitat adjacent to pipeline	Coastal Sage Scrub	.24 acres
December 2021	SCE Burma Pole Repair	Habitat damage to access pole	Coastal Sage Scrub/Riparian	.12 acres
December 2021	CalWater Vanderlip erosion	Erosion to trailside habitat	Coastal Sage Scrub	.024 acres
December 2021	PVPLC Fuel Load Reduction Access	Damage to native plants through access	Coastal Sage Scrub/Riparian	.073

RPV NCCP/HCP Habitat Impact Tracking

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	2.5	3	0	0
2. Dewatering Wells (Ongoing)	2.5	2.5	2.5	2.5
2014 City of RPV			*0.08*	
2016 ACLAD			*0.1*	
Remaining	2.5	2.42	2.32	2.5
3. Landslide Abatement Measures (Ongoing)	5	15	3.3	9.9
2012 City of RPV			*0.04*	
2015 City of RPV				*0.1*
2018 City of RPV			*0.22*	
Remaining	5	14.86	3.04	9.8
4 Misc. Drainage Repair in Landslide Areas (Ongoing)	10	15	6.6	9.9
2011 Repair "Archery Range" Area		*0.009*		
2013 City of RPV			0.009	
Remaining	10	14.982	6.591	9.9
5. PVDE Drainage Improvement Project (Future Project)	5	15	0	0
Remaining	5	15	0	0
-	-	-	-	-
6. Misc. Drainage Improvements (Ongoing)	20	60	6.6	20
2013 City of RPV			*0.005*	
Remaining	20	59.995	6.595	20
7. Abalone Cove Beach Project (Ongoing)	1	2	1	2
City of RPV				
Remaining	1	2	1	2
8. RPV Trails Plan Implementation (Future Project)	4	10	2	5
Remaining	4	10	2	5
9. Lower San Ramon Canyon Repair (Complete)	5	15	2.5	7.5
2011 San Ramon Project		*0.34*		
Remaining	5	14.66	2.5	7.5

10. Lower Point Vicente (Future Project)	1.5	11.2	0	0
Remaining	1.5	11.2	0	0
11. Palos Verdes Drive South Road Repair	5	15	5	15
2010 PVDS Repair				*1.4*
Remaining	5	13.6	5	13.6
12. Upper Point Vicente (Future Project)	2	22	1	11
Remaining	2	22	1	11
13. Preserve Fuel Modification	12	18	12	18
2012 City of RPV			*0.7*	
Remaining	12	17.3	11.3	18
14. Utility Maintenance and Repair	10	20	5	10
2006 SCE			*0.03*	
2008 LA County Sanitation			*0.01*	
2009 Cox Cable			*0.01*	
2011 Cal Water			*0.1*	
2012 Cal Water			*0.1*	
2012 Sanitation District			*0.02*	
2013 Sanitation District			*0.02*	
Remaining	10	19.71	4.71	10
15. Unimproved City Parks (Future Project)	10	20	0	0
Remaining	10	20	0	0
16. Malaga Canyon Drainage Improvements (Future Project)	5	15	5	15
Remaining	5	15	5	15
17. Other Misc. Projects	20	60	10	30
2010 Lightman				*0.9*
2010 Cal Water/City Burma Road Repair			*0.4*	
2010 Ginsburg Grading			*0.5*	
2012 Fire			*12.7*	
2012 Sunshine			*0.01*	
2012 Fire				*0.2*
2012 Unauthorized Trail Creation			*0.12*	
2013 Private Resident			*unknown*	*unknown*
2013 Chase Bank			*0.45*	

2016 Toyon/Peppertree Grading			*0.3*	
2016 CalWater			*0.1*	
2018 CalWater (Forrestal)			*0.1*	*0.02*
Remaining	20	45.67	8.02	28.88
Total Acreage of Habitat Loss Allowed	120.5	318.7	62.5	155.8
Habitat lost	5.5	20.643	3.424	2.62
Remaining Acreage of Habitat Loss Allowed	115	298.057	59.076	153.18

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

2021 TARGETED EXOTIC REMOVAL PROGRAM FOR PLANTS (TERPP)

1.0 INTRODUCTION

The Palos Verdes Peninsula Land Conservancy (PVPLC), as manager of 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 draft Rancho Palos Verdes Natural Communities Conservation Plan (NCCP), 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 that includes a specific protocol for ranking exotic species populations and strategically removing those species over time (Appendix D1-D7). The 2021 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 through the Geographic Information System (GIS), ArcGIS, 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 145 individual TERPP sites since 2006. As *Euphorbia terracina* is a high priority invasive and may take multiple treatments to control, these populations are treated in numerous years. In 2021, invasive species focus was centered on the large perennial, Acacia (*Acacia cyclops*) with 9 removal sites which totaled approximately 14 acres as well as mowing of 5.5 acres of mustard at 1 site. Previous TERPP sites were visited by staff and volunteers and hand pulling of any seedlings was implemented.

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;
- Hand 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;
- Growth and seed maturation, and;
- Disposal - City of Rancho Palos Verdes staff coordinate with waste companies to supply green waste and trash containers.

Qualified Licensed Applicator(s) develop 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 2021 TREATMENTS

In 2021, PVPLC treated 9 populations of Acacia which totaled approximately 14 acres and mowed an additional 5.5 acres of mustard at 1 location.

Table 1. 2021 TERPP Sites and Treatment Description

Stand ID	Reserve	Name	Stand Size	Number of Individuals	Treatment	Percent Treated
PB_AcCy_17 (Area 1)	Portuguese Bend	*Acacia cyclops*	>1000 ft^2 1.56 acres	10-25	Tree Removal	75 - 100%
PB_AcCy_18 (Area 2)	Portuguese Bend	*Acacia cyclops*	>1000 ft^2 1.28 acres	10-25	Tree Removal	75 - 100%
PB_AcCy_19 (Area 3)	Portuguese Bend	*Acacia cyclops*	>1000 ft^2 .5 acres	10-25	Tree Removal	75 - 100%
PB_AcCy_20 (Area 4)	Portuguese Bend	*Acacia cyclops*	>1000 ft^2 5.3 acres	10-25	Tree Removal	75 - 100%
PB_AcCy_21 (Area 5)	Portuguese Bend	*Acacia cyclops*	>1000 ft^2 .24 acres	10-25	Tree Removal	75 - 100%
PB_AcCy_22 (Area 6)	Portuguese Bend	*Acacia cyclops*	>1000 ft^2 1.3 acres	10-25	Tree Removal	75 - 100%
PB_AcCy_23 (Area 7)	Portuguese Bend	*Acacia cyclops*	>1000 ft^2 1.06 acres	10-25	Tree Removal	75 - 100%
PB_AcCy_24 (Area 8)	Portuguese Bend	*Acacia cyclops*	>1000 ft^2 .40 acres	10-25	Tree Removal	75 - 100%
PB_AcCy_25	Portuguese Bend	*Acacia cyclops*	>1000 ft^2 2 acres	200-500	Tree Removal	75 - 100%
PB_BrNi_01	Portuguese Bend	*Brassica Nigra*	>1000 ft^2 5.5 acres	1000+	Mowing	75 - 100%
VB_PhCa_01	Vicente Bluffs	*Phoenix canariensis*	1ft^2-10ft^2	1-10	Tree Removal	75-100%
FI_AcCy_02	Filiorum	*Acacia cyclops*	300ft^2-600ft^2	200-500	Handpull	75-100%
FI_AcCy_03	Filiorum	*Acacia cyclops*	300ft^2-600ft^2	100-200	Handpull	75-100%
FI_AcCy_04	Filiorum	*Acacia cyclops*	100ft^2-300ft^2	200-500	Handpull	75-100%
FI_AcCy_05	Filiorum	*Acacia cyclops*	>1000 ft^2	500-1000	Handpull	75-100%

5.0 REFERENCES

California Invasive Plant Council 2006. California Invasive Plant Inventory. February. California Invasive Plant Council: Berkley, CA.

Palos Verdes Peninsula Land Conservancy 2007a. 2007 Targeted Exotic Removal Plan for Plants for the Portuguese Bend Nature Preserve For the Rancho Palos Verdes Draft Natural Community Conservation Plan and Habitat Conservation Plan. April.

Palos Verdes Peninsula Land Conservancy 2008. 2008 Annual Report for the Targeted Exotic Removal Program for Plants for the Portuguese Bend Nature Preserve For the Rancho Palos Verdes Draft Natural Community Conservation Plan and Habitat Conservation Plan. September.

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

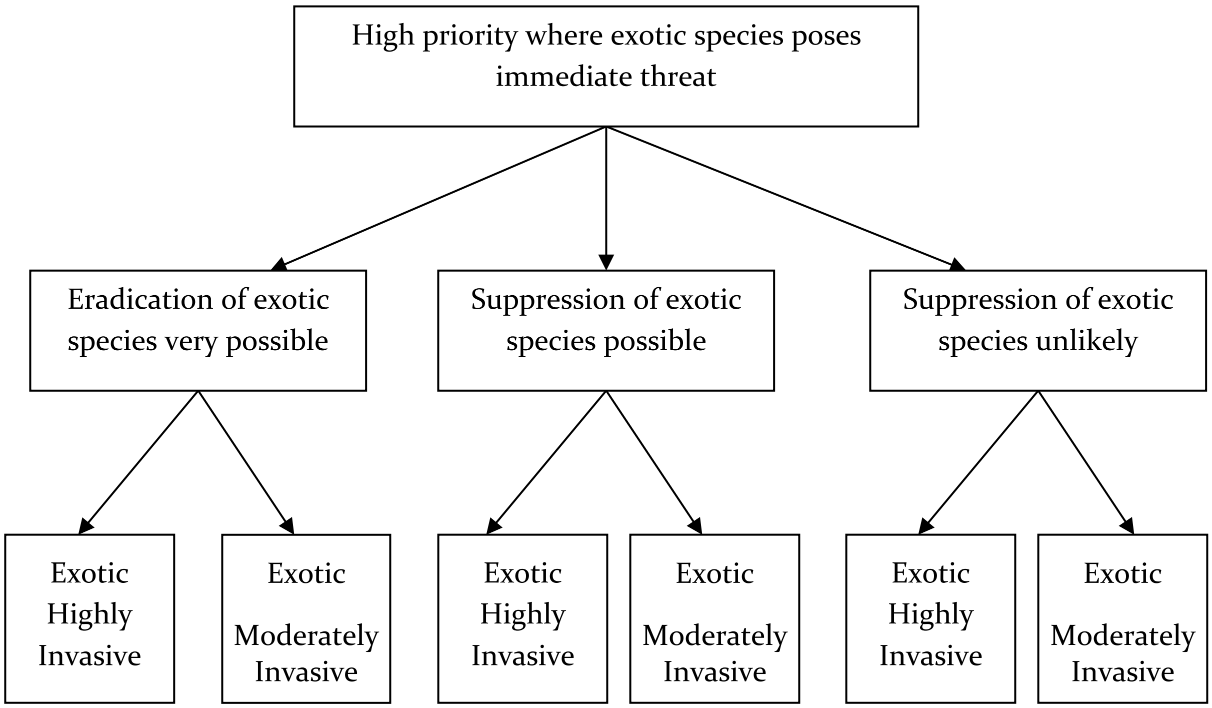
Survey Type New Infestation Assesment Treatment	**Surveyor's Name**
Date	**Location Description:**
Species	
Preserve	
Stand ID	**Surrounding Vegetation Type:** cactus scrub coastal sage scrub riparian bluff grassland non-native plants trail non-native annual grass (NNAG) Other
Stand Size 1 ft^2 - 10 ft^2 10 ft^2 - 100 ft^2 100 ft^2 -300ft^2 300 ft^2 - 600 ft^2 600 ft^2 - 1000 ft^2 > 1000 ft^2	
No. Individuals 1-10 10-50 50-100 100-200 200-500 500-1000 >1000	**Stand Comments:**
Percent Canopy Cover 1-5% 5-10% 10-25% 25-50% 50-75% +75%	
Plant Phenology Flowering Non-Flowering Fruiting	
Plant Age Seedling Juvenile Mature Dead	
Treatment Type Hand pull Herbicide Hand-pull/Herbicide Weed-whip Mulch Tree removal Other	**Treatment Comments:**
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 0-25% 25-50% 50-75% 75-100%	
Photo Image Numbers:	**Additional Comments:**

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 - Portugeuese Bend SR - San Ramon
TS - Three Sisters VB - Vicente Bluffs VN - Vista del Norte WP - White Point OR - Other

Rev 3/13

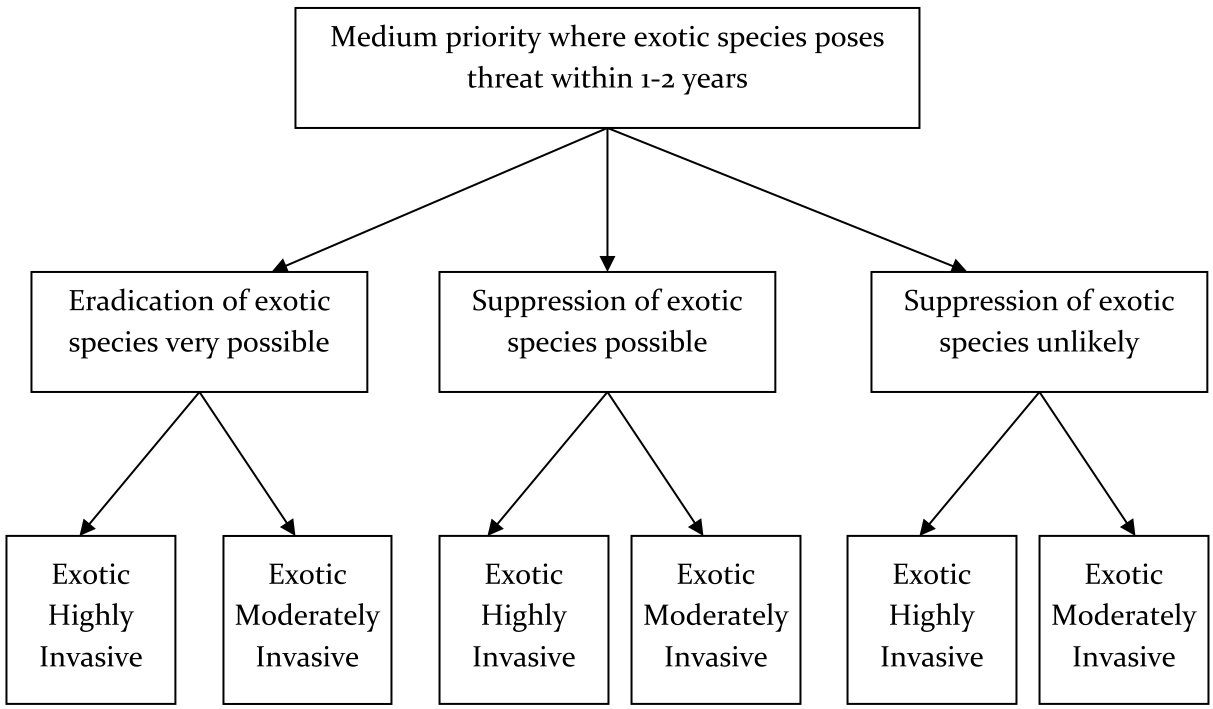
APPENDIX D2: FLOWCHART FOR HIGH PRIORITY THREAT TO NATIVE VEGETATION



Priority Ranking For Control of Exotic Species

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

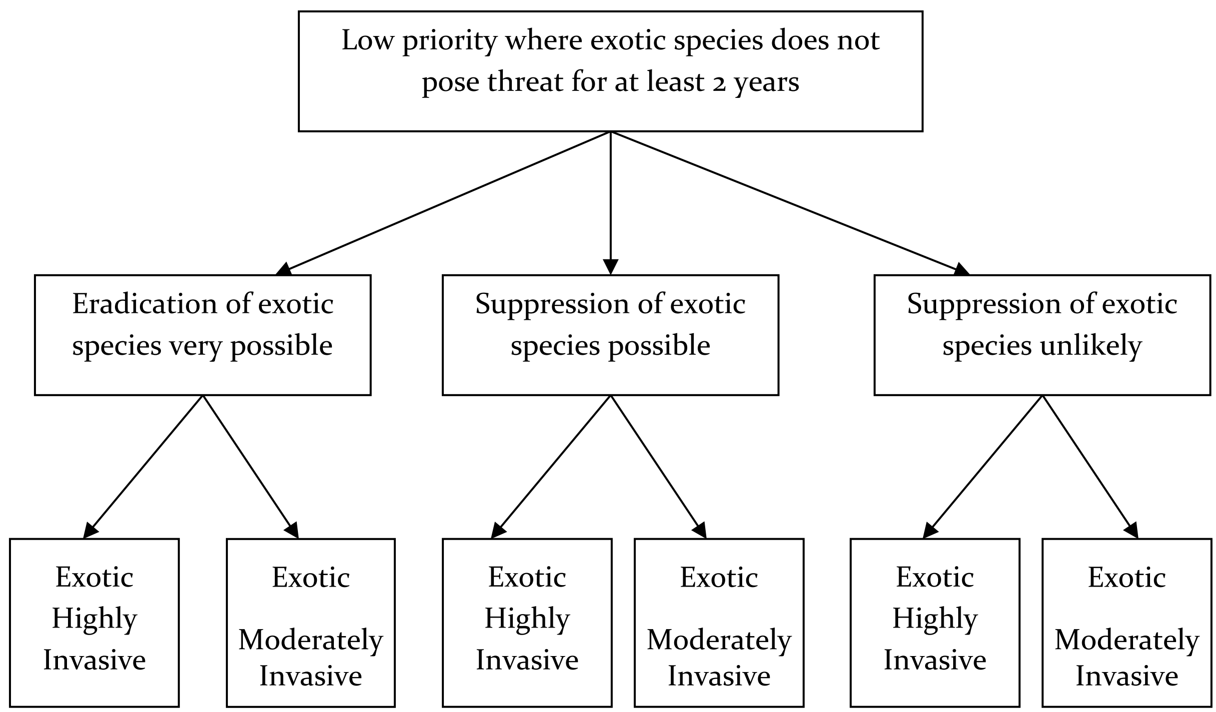
APPENDIX D3: FLOWCHART FOR MEDIUM PRIORITY DEGREE OF THREAT TO NATIVE VEGETATION



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: HIGHLY INVASIVE SPECIES

Genus species	Common name
Aegilops triuncialis	Barbed goatgrass
Alternanthera philoxeroides	Alligatorweed
Ammophila arenaria	European beachgrass
Arundo donax	Giant reed
Brassica tournefortii	Sahara mustard
Bromus madritensis ssp. rubens	Red brome
Bromus tectorum	Cheatgrass
Carpobrotus edulis	Highway iceplant
Carthamus lanatus	Woolly starthistle
Centaurea solstitialis	Yellow starthistle
Centaurea stoebe ssp. micranthos	Spotted knapweed
Cortaderia jubata	Jubatagrass
Cortaderia selloana	Pampasgrass
Cytisus scoparius	Scotch broom
Delairea odorata	Cape-ivy
Egeria densa	Brazilian egeria
Ehrharta calycina	Purple veldtgrass
Eichhornia crassipes	Water hyacinth
Elymus caput-medusae	Medusahead
Euphorbia virgata	Leafy spurge;
Genista monspessulana	French broom

Hedera canariensis	Algerian ivy
Hedera helix	English ivy
Hydrilla verticillata	Hydrilla
Lepidium latifolium	Perennial pepperweed
Limnobium spongia	South American spongeplant
Ludwigia hexapetala	Creeping waterprimrose
Ludwigia peploides	Floating water primrose
Lythrum salicaria	Purple loosestrife
Myriophyllum aquaticum	Parrotfeather
Myriophyllum spicatum	Spike watermilfoil
Onopordum acanthium	Thistle
Rubus armeniacus	Himalayan blackberry
Salvinia molesta	Water fern
Sesbania punicea	Scarlet wisteria
Spartina alterniflora x S. foliosa	Smooth hybrid cordgrass
Spartina densiflora	Dense-flowered cordgrass
Spartium junceum	Spanish broom
Tamarix chinensis	Chinese tamarisk, fivestamen tamarisk
Tamarix gallica	French tamarisk
Tamarix parviflora	Smallflower tamarisk
Tamarix ramosissima	Tamarisk
Ulex europaeus	Common gorse

APPENDIX D6: MODERATELY INVASIVE SPECIES

Genus species	**Common Name**
Acacia dealbata	Silver wattle
Acroptilon repens	Russian knapweed
Ageratina adenophora	Sticky eupatorium
Ailanthus altissima	Tree-of-heaven
Alhagi maurorum	Camelthorn
Arctotheca calendula	Fertile capeweed
Arctotheca prostrata	Capeweed
Asparagus asparagoides	Bridal creeper
Asphodelus fistulosus	Onion weed
Atriplex semibaccata	Australian saltbush
Avena barbata	Slender oat
Avena fatua	Wild oats
Brachypodium distachyon	Annual false-brome
Brachypodium sylvaticum	False-brome
Brassica nigra	Black mustard
Bromus diandrus	Ripgut brome
Carduus nutans	Musk thistle
Carduus pycnocephalus	Italian thistle
Carpobrotus chilensis	Iceplant
Carrichtera annua	Ward's weed
Centaurea calcitrapa	Purple starthistle

Centaurea diffusa	Diffuse knapweed
Centaurea jacea ssp. pratensis	Meadow knapweed
Centaurea melitensis	Tocalote
Centaurea virgata var. squarrosa	Squarrose knapweed
Chondrilla juncea	Skeleton weed
Chrysanthemoides monilifera ssp. monilifera	Boneseed
Cirsium arvense	Canada thistle
Cirsium vulgare	Bull thistle
Clematis vitalba	Old man's beard
Colocasia esculenta	Taro root
Conium maculatum	Poison-hemlock
Cotoneaster franchetii	Orange cotoneaster
Cotoneaster lacteus	Milkflower cotoneaster
Cotoneaster pannosus	Silverleaf cotoneaster
Cynara cardunculus	Artichoke thistle
Cynodon dactylon	Bermuda grass
Cynoglossum officinale	Dog bur
Cynosurus echinatus	Hedgehog dogtail
Cytisus striatus	Portuguese broom
Dipsacus fullonum	Common teasel
Dipsacus sativus	Fullers teasel
Dittrichia graveolens	Stinkwort
Ehrharta erecta	Ehrharta

Elaeagnus angustifolia	Russian olive
Emex spinosa	Devil's thorn
Fallopia japonica	Japanese knotweed; Mexican bamboo
Fallopia sachalinensis	Giant knotweed
Festuca arundinacea	Kentucky fescue
Festuca myuros	Rat-tail fescue
Festuca perennis	Italian ryegrass
Ficus carica	Edible fig
Foeniculum vulgare	Fennel
Gazania linearis	Gazania
Genista monosperma	Bridal veil broom
Glyceria declinata	Mannagrass
Halogeton glomeratus	Halogeton
Hirschfeldia incana	Short-pod mustard
Holcus lanatus	Common velvet grass
Hordeum marinum	Mediterranean barley
Hordeum murinum	Foxtail
Hypericum canariense	Canary Island St. Johnswort
Hypochaeris radicata	Rough cat's-ear
Isatis tinctoria	Dyer's woad
Lepidium chalepense	Whiteweed
Lepidium draba	Heart-podded hoary cress
Leucanthemum vulgare	Ox-eye daisy

Limonium duriusculum	European sea lavendar
Linaria dalmatica ssp. dalmatica	Dalmatian toadflax
Linaria vulgaris	Yellow toadflax
Lythrum hyssopifolium	Hyssop loosestrife
Mentha pulegium	Pennyroyal
Mesembryanthemum crystallinum	Crystalline iceplant
Myoporum laetum	False sandalwood
Nicotiana glauca	Tree tobacco
Oxalis pes-caprae	Bermuda buttercup
Pennisetum setaceum	Purple fountain grass
Phalaris aquatica	Harding grass
Potamogeton crispus	Curly-leaved pondweed
Rumex acetosella	Sheep sorrel
Saccharum ravennae	Ravennagrass
Salsola soda	Glasswort
Schinus terebinthifolius	Brazilian pepper tree
Senecio glomeratus	Australian fireweed
Spartina anglica	English cordgrass
Stipa capensis	Cape ricegrass
Tanacetum vulgare	Common tansy
Torilis arvensis	Hedgeparsley
Triadica sebifera	Chinese tallow tree
Vinca major	Periwinkle

Washingtonia robusta	Mexican fan palm
Zostera japonica	Dwarf eelgrass

APPENDIX D7: WATCH LIST

Scientific Name	Common Name
Acacia baileyana	Cootamundra wattle
Acacia cyclops	Cyclops acacia
Acacia latifolia	Sydney golden wattle
Acacia paradoxa	Kangaroothorn
Acacia pycnantha	Golden wattle
Acacia saligna	Orange wattle
Acaena novae-zelandiae	Biddy-biddy
Aegilops cylindrica	Jointed goatgrass
Alopecurus pratensis	Meadow foxtail
Alyssum corsicum	Yellowtuft
Alyssum murale	Yellowtuft
Ambrosia trifida	Giant ragweed
Araujia sericifera	Bladderflower
Berberis darwinii	Darwin barberry
Berteroa incana	Hoary alyssum
Buddleja davidii	Butterfly bush
Carex pendula	Hanging sedge
Casuarina equisetifolia	Beach sheoak
Catharanthus roseus	Madagascar periwinkle
Cenchrus echinatus	Southern sandbur

Cenchrus longispinus	Mat sandbur
Centaurea diluta	Spotted knapweed
Cestrum parqui	Willow jessamine
Chasmanthe floribunda	African cornflag
Cytisus multiflorus	White Spanish broom
Cytisus proliferus	Tagasaste
Datura inoxia	Pricklyburr
Dipogon lignosus	Okie bean
Dipsacus laciniatus	Cutleaf teasel
Dittrichia viscosa	False yellowhead
Echium plantagineum	Patterson's curse
Eucalyptus cladocalyx	Sugargum
Euphorbia lathyris	Caper spurge
Fallopia bohemica	Bohemian knotweed
Galega officinalis	Professorweed
Genista linifolia	Mediterranean broom
Geranium lucidum	Shining geranium
Grevillea robusta	Silkoak
Gunnera tinctoria	Chilean gunnera
Gypsophila paniculata	Baby's breath
Helianthus tuberosus	Jerusalem artichoke
Heliotropium amplexicaule	Clasping heliotrope
Heracleum mantegazzianum	Giant hogweed

Hyparrhenia hirta	Tambookie grass
Hypericum androsaemum	Sweet-amber
Hypericum grandifolium	Large-leaved hypericum
Ipomoea indica	Blue morningglory
Kniphofia uvaria	Redhot poker
Lantana camara	Lantana
Lathyrus latifolius	Perennial sweet pea
Leptospermum laevigatum	Australian tea tree
Malephora crocea	Coppery mesembryanthemum
Maytenus boaria	Mayten
Myoporum laetum	False sandalwood
Nardus stricta	Matgrass
Nothoscordum gracile	False garlic
Oncosiphon piluliferum	Globe chamomile
Onopordum illyricum	Illyerian thistle
Orobanche aegyptiaca	Egyptian broomrape
Paraserianthes lophantha	Plume acacia
Parthenium hysterophorus	Santa Maria feverfew
Paspalum urvillei	Vasey's grass
Paspalum vaginatum	Seashore paspalum
Passiflora tarminiana	Banana passionfruit
Peganum harmala	African-rue
Pennisetum villosum	Feathertop

Persicaria wallichii	Himalayan knotweed
Pittosporum undulatum	Victorian box
Plecostachys serpyllifolia	Petite-licorice
Polygala myrtifolia	Myrtle-leaf milkwort
Pyrus calleryana	Callery pear
Rhamnus alaternus	Italian buckthorn
Romulea rosea var. australis	Rosy sandcrocus
Rytidosperma caespitosum	Wallabygrass
Salpichroa origanifolia	Lily of the valley vine
Salsola ryanii	Ryan's Russian thistle
Scabiosa atropurpurea	Pincushion flower
Scolymus hispanicus	Goldenthistle
Senecio linearifolius	Fireweed groundsel
Solanum aviculare	New Zealand nightshade
Solanum carolinense	Carolina horsenettle
Sphaerophysa salsula	Alkali swainsonpea
Stipa brachychaeta	Punagrass
Stipa tenuissima	Mexican feathergrass
Thinopyrum junceiforme	Russian wheatgrass
Ventenata dubia	North Africa grass
Verbena bonariensis	Tall vervain
Zygophyllum fabago	Syrian beancaper

2021 TARGETED EXOTIC REMOVAL PROGRAM FOR PLANTS (TERPP) PHOTOS and Maps

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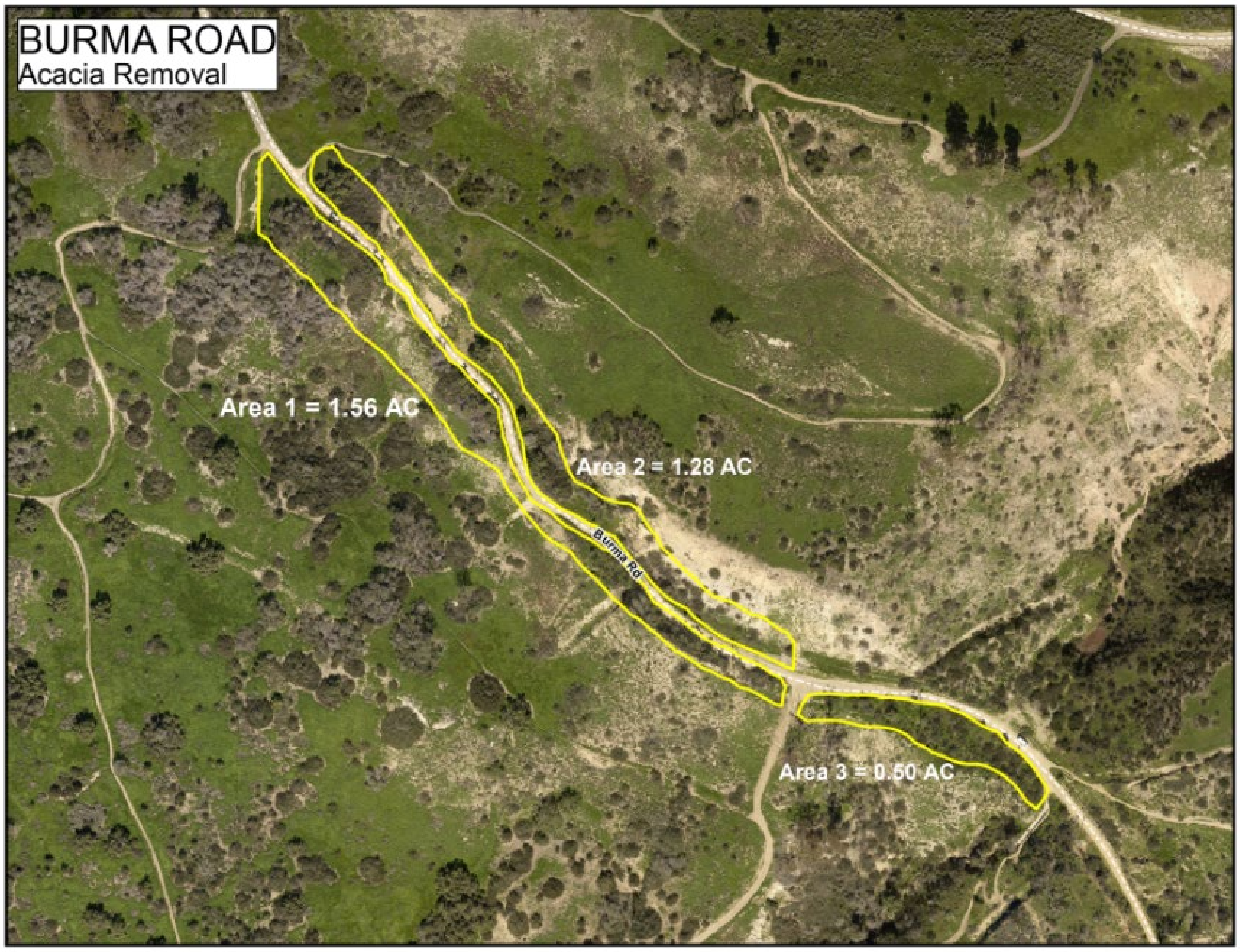

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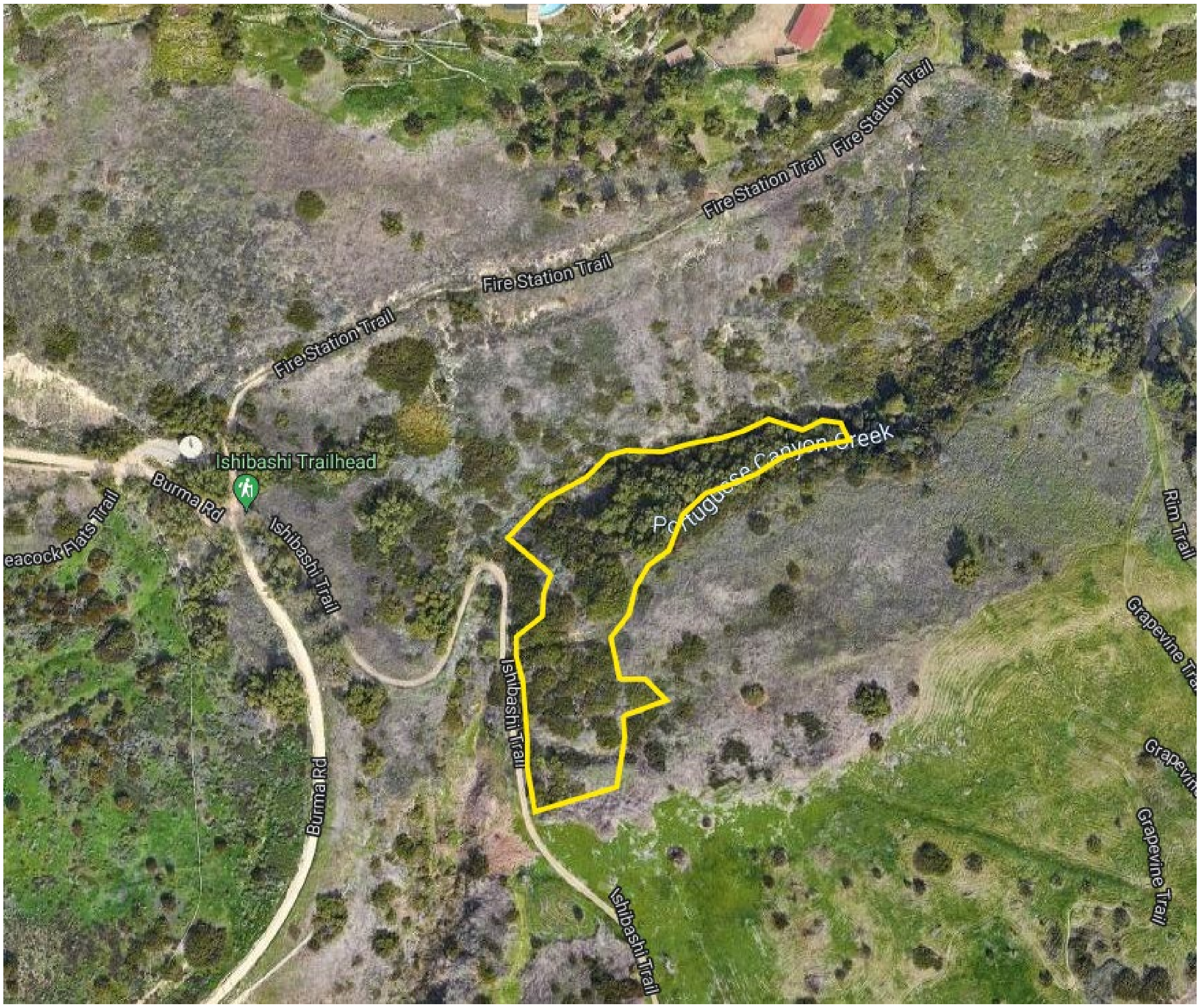
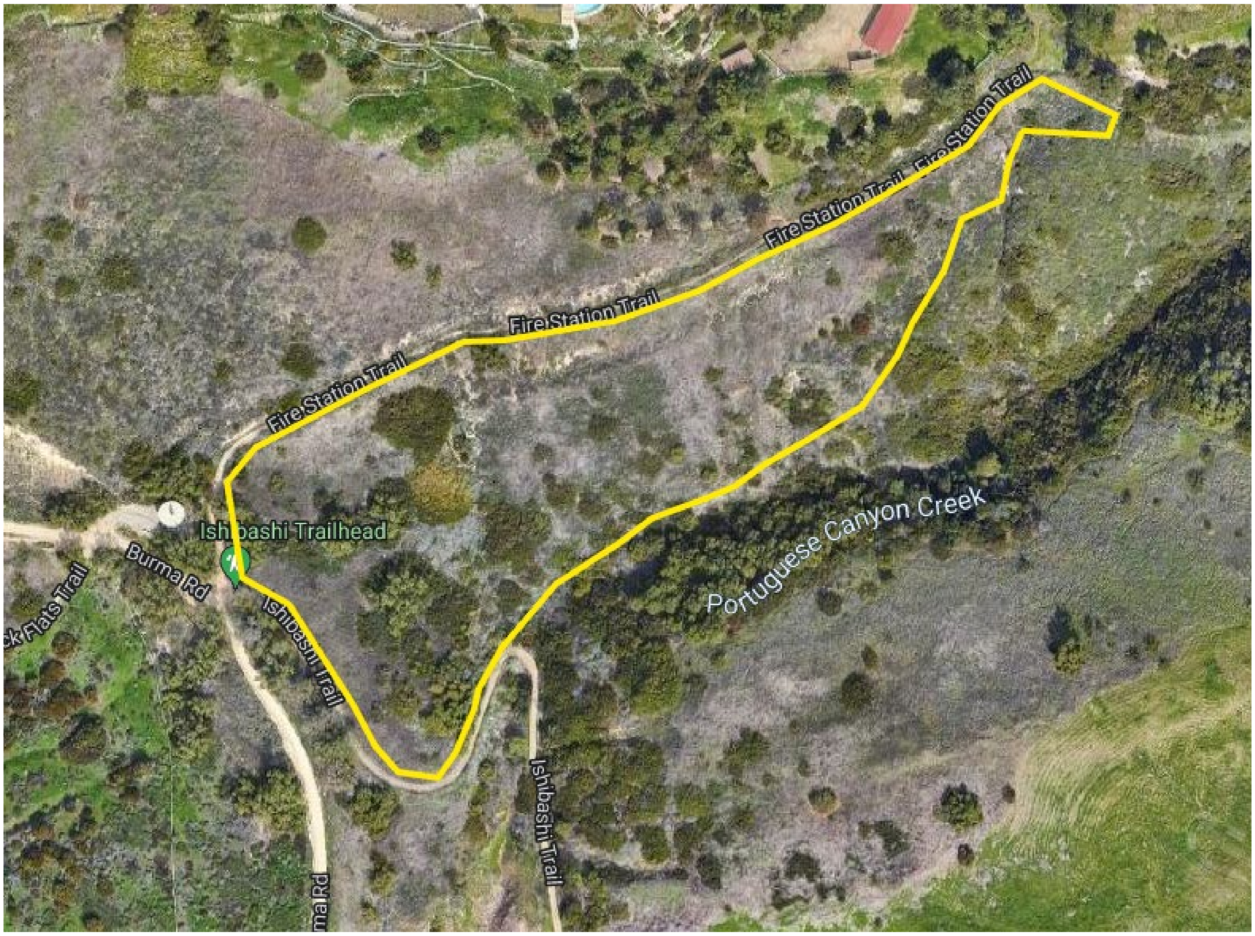
PB_AcCy_21; PB_AcCy_22; PB_AcCy_23; PB_AcCy_24

PB_AcCy_25



Fire Station Trail
Fire Station Trail
Fire Station Trail
Fire Station Trail
Ishibashi Trailhead
Burma Rd
Ishibashi Trail
eacock Flats Trail
Portuguese Canyon Creek
Rim Trail
Grapevine Tra
Ishibashi Trail
Grapevin
Burma Rd
Grapevine Trail
Ishibashi Trail

PB_BrNi_01


Fire Station Trail
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Fire Station Trail
Ishibashi Trailhead
Burma Rd
Portuguese Canyon Creek
Ishibashi Trail
Ishibashi Trail

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 Native Preserve. In 2021, 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 2021 include the Cactus Wren Monitoring Program and the Wildlife Tracking 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. No research was completed by High School students in the PVNP in 2021.

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. 2021 Collegiate research conducted

Student	Project Title	Academic Institution
CSULB Msc GIS Cohort	Object-based vegetation mapping of Abalone Cove using sUAS imagery and ENVI	*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. 2021 Non-student research conducted or facilitated

Researcher	Project Title	Academic Institution
CALeDNA	eDNA surveys in the Palos Verdes Nature Preserve in five separate treatment areas	*CALeDNA with PVPLC volunteers*
Catherine Shannon (PVPLC Intern)	PVB Host plant Phenology long term study	*PVPLC*
Lilly Lopez (PVPLC Intern)	Wildlife camera remote monitoring	*PVPLC*

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 Peninsula and surrounding areas to help out.

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

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 2021 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 2021 Wildlife Tracking Program started in the fall of 2021 and finished in March 2022, this program began with training the volunteers for 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 were 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. An intern Lilly Lopez was recruited to implement and manage these camera traps and organize and analyze the resulting data.

INTRODUCTION

The coastal cactus wren (*Campylorhynchus brunneicapillus*) (CACW) 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 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 CACW 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 CACW behavior relating to dispersal, locating areas of CACW 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 biologist, the numbers of CACW 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 CACW 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 eight 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. The reserves surveyed were those which had been documented to support CACW activity or extensive patches of prickly pear (*Opuntia littoralis* and *O. oricola*) and coastal cholla *(Cylindropuntia prolifer*a) (Cooper Ecological Monitoring 2013).

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

Data Collection:
Volunteers for the Community Science Program met prior to the start of the monitoring season to learn how to identify CACW in their habitat, 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 (April through July). Volunteers walked their predetermined trail route documenting visual or audial observations of CACW. This information was recorded on field data sheets. 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 CACW inhabitance specific to each cactus patches surveyed. These criteria allowed each cactus patch to receive a rating category reflecting the level of CACW inhabitance observed. These ratings assist in the interpretation of survey data and specifically allow for the inference, in general terms, of potential CACW 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 (Appendix A).

Inhabitance Rating Categories

Categories were developed to assist in the interpretation of survey data and to infer in general terms potential CACW behavior, habitat quality, and other factors related to CACW 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:

<u>Inhabitance Descriptors (4):</u>

1) **Observation Rate**
# of visits with a CACW observation / total number of visits

2) **Multiple Month Observation**
Sighting of a CACW in more than one month of the survey period

3) **Multiple CACW Observation**
Sighting of multiple CACWs during a single survey or site visit.

4) **Nest**
Sighting of a nest that appears to have been used by CACW within the survey period.

<u>Inhabitance Rating Categories (5):</u>

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 CACW 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 CACW nesting, high quality habitat, and a lack of residence-inhibiting factors.

RESULTS

Table 1. Inhabitance criteria and rating of cactus patches where CACW were observed in 2021.
Green rows indicate the high likelihood of cactus wren breeding within associated cactus patch.

Reserve	Cactus Patch ID	Total # of Surveys	Surveys w/ CACW Observations	Observation Rate* (%)	Multiple CACW Observation	Multiple Month Observation	CACW Nest	Inhabitance Rating
Abalone Cove	AC1	**4**	**2**	**50**	**x**	**x**		REGULAR
Alta Vicente	AV2	26	21	81	x	x	x	CONSISTENT
Alta Vicente	AV5	26	1	4				RARE
Alta Vicente	AV7	26	4	15	x	x		OCCASIONAL
Alta Vicente	AV9	26	1	4				RARE
Filiorum	Fi1	21	3	14		x		OCCASIONAL
Filiorum	Fi2	21	2	9	x			OCCASIONAL
Filiorum	Fi3	21	1	5				RARE
Filiorum	Fi4	21	14	67	x	x	x	CONSISTENT
Filiorum	Fi5	21	1	5				RARE
Ocean Trails	OT8	18	5	28	x	x	x	PERIODIC
Ocean Trails	OT11	18	5	28	x	x	x	PERIODIC
Ocean Trails	OT12	18	1	5				RARE
Portuguese Bend	PB1	14	2	14				RARE
Portuguese Bend	PB5	14	1	7	x			OCCASIONAL
Three Sisters	TS7	16	4	25		x	x	PERIODIC
Three Sisters	TS8	16	2	12		x		OCCASIONAL
Three Sisters	TS9	16	1	6			x	OCCASIONAL

DISCUSSION

Over the last decade the cactus wren population of the Palos Verdes Nature Preserve have been experiencing a decline in observed territorial breeding behavior with similar declines being expected in their actual population size.

The 2021 breeding season for cactus wren was monitored the Community Science Cactus Wren Monitoring Program coordinated by the Palos Verdes Peninsula Land Conservancy. The cactus wren were found in fewer reserves and in lower abundance within each reserve since monitoring began in 2006. In recent years the volunteer program also noted a reduced number of cactus wren breeding territories as well as overall observations of the species. In 2021 the "core" areas of Alta Vicente, Three Sisters/Filiorum, and Ocean Trails were occupied by CACW but Abalone Cove also saw a Regular rated territory for the first time in years. However, in conjunction with the Triennial Surveys also done in 2021, we determined that it was a sole male that did not attract a mate.

The cactus wren was exclusively found in reserves providing the highest quality habitat with large expanses of cactus (*Opuntia littoralis*, *O. oricola*, and *Cylindropuntoa 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 general, species retractions back to core habitat often signals a population under stress. The observed cactus wren absence of previously occupied marginal habitat areas, such as Forrestal, and San Ramon reserves, and exclusive use of core habitat areas may signal the presence of highly stressful conditions under which persistence and successful breeding is difficult.

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.
Although 2020 and 2021 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 CACW in the Palos Verdes Peninsula. Since 2019 the 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 PV cactus wren population.
Recommended activities include:

- Continued removal of invasive non-native plants from cactus rich areas
- Continued installation of new cactus plantings
- Continued creation of foraging habitat (bare ground) surrounding cactus patches
- Possible implementation of nesting boxes
- Transplanting adult CACW individuals and swapping eggs from nearby CACW populations for genetic longevity purposes

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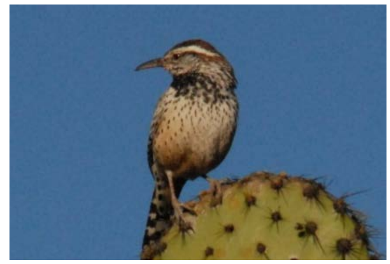
APPENDIX A

Mapped results of cactus inhabitance per catus patch surveyed.

Coastal Cactus Wren
(*Campylorhynchus brunneicapillus*)
Community Science Monitoring
2021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Report by: Austin Parker.

PVPLC Community Science Volunteers:

INTRODUCTION

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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 CACW 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.

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Study Area:

The study area was within eight 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. The reserves surveyed were those which had been documented to support CACW activity or extensive patches of prickly pear (*Opuntia littoralis* and *O. oricola*) and coastal cholla *(Cylindropuntia prolifer*a) (Cooper Ecological Monitoring 2013).

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

Data Collection:
Volunteers for the Community Science Program met prior to the start of the monitoring season to learn how to identify CACW in their habitat, 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.

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Data Analysis:
Collected data were analyzed on the basis of four criteria that describe the level of CACW inhabitance specific to each cactus patches surveyed. These criteria allowed each cactus patch to receive a rating category reflecting the level of CACW inhabitance observed. These ratings assist in the interpretation of survey data and specifically allow for the inference, in general terms, of potential CACW behavior,

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Inhabitance Rating Categories

Categories were developed to assist in the interpretation of survey data and to infer in general terms potential CACW behavior, habitat quality, and other factors related to CACW 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:

<u>Inhabitance Descriptors (4):</u>

1) **Observation Rate**
# of visits with a CACW observation / total number of visits

2) **Multiple Month Observation**
Sighting of a CACW in more than one month of the survey period

3) **Multiple CACW Observation**
Sighting of multiple CACWs during a single survey or site visit.

4) **Nest**
Sighting of a nest that appears to have been used by CACW within the survey period.

<u>Inhabitance Rating Categories (5):</u>

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).

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RESULTS

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Alta Vicente	AV5	26	1	4				RARE
Alta Vicente	AV7	26	4	15	x	x		OCCASIONAL
Alta Vicente	AV9	26	1	4				RARE
Filiorum	Fi1	21	3	14		x		OCCASIONAL
Filiorum	Fi2	21	2	9	x			OCCASIONAL
Filiorum	Fi3	21	1	5				RARE
Filiorum	Fi4	21	14	67	x	x	x	CONSISTENT
Filiorum	Fi5	21	1	5				RARE
Ocean Trails	OT8	18	5	28	x	x	x	PERIODIC
Ocean Trails	OT11	18	5	28	x	x	x	PERIODIC
Ocean Trails	OT12	18	1	5				RARE
Portuguese Bend	PB1	14	2	14				RARE
Portuguese Bend	PB5	14	1	7	x			OCCASIONAL
Three Sisters	TS7	16	4	25		x	x	PERIODIC
Three Sisters	TS8	16	2	12		x		OCCASIONAL
Three Sisters	TS9	16	1	6			x	OCCASIONAL

DISCUSSION

Over the last decade the cactus wren population of the Palos Verdes Nature Preserve have been experiencing a decline in observed territorial breeding behavior with similar declines being expected in their actual population size.

The 2021 breeding season for cactus wren was monitored the Community Science Cactus Wren Monitoring Program coordinated by the Palos Verdes Peninsula Land Conservancy. The cactus wren were found in fewer reserves and in lower abundance within each reserve since monitoring began in 2006. In recent years the volunteer program also noted a reduced number of cactus wren breeding territories as well as overall observations of the species. In 2021 the “core” areas of Alta Vicente, Three Sisters/Filiorum, and Ocean Trails were occupied by CACW but Abalone Cove also saw a Regular rated territory for the first time in years. However, in conjunction with the Triennial Surveys also done in 2021, we determined that it was a sole male that did not attract a mate.

The cactus wren was exclusively found in reserves providing the highest quality habitat with large expanses of cactus (*Opuntia littoralis*, *O. oricola*, and *Cylindropuntoa 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 general, species retractions back to core habitat often signals a population under stress. The observed cactus wren absence of previously occupied marginal habitat areas, such as Forrestal, and San Ramon reserves, and exclusive use of core habitat areas may signal the presence of highly stressful conditions under which persistence and successful breeding is difficult.

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.
Although 2020 and 2021 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 CACW in the Palos Verdes Peninsula. Since 2019 the 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 PV cactus wren population.
Recommended activities include:

- Continued removal of invasive non-native plants from cactus rich areas
- Continued installation of new cactus plantings
- Continued creation of foraging habitat (bare ground) surrounding cactus patches
- Possible implementation of nesting boxes
- Transplanting adult CACW individuals and swapping eggs from nearby CACW populations for genetic longevity purposes

LITERATURE CITED

Atwood, J.L. 1998. "Studies of California gnatcatchers and cactus wrens in southern California." Monument Center for Conservation Sciences and the University of California Irvine.

Cooper Ecological Monitoring, Inc. ("CEM") 2013. Palos Verdes Nature Preserve survey for the California gnatcatcher and the cactus wren (2012), Palos Verdes Peninsula Land Conservancy, Los Angeles County. Final report to the PVPLC. January 3, 2013.

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.laalmanac.com/weather/we10a.php

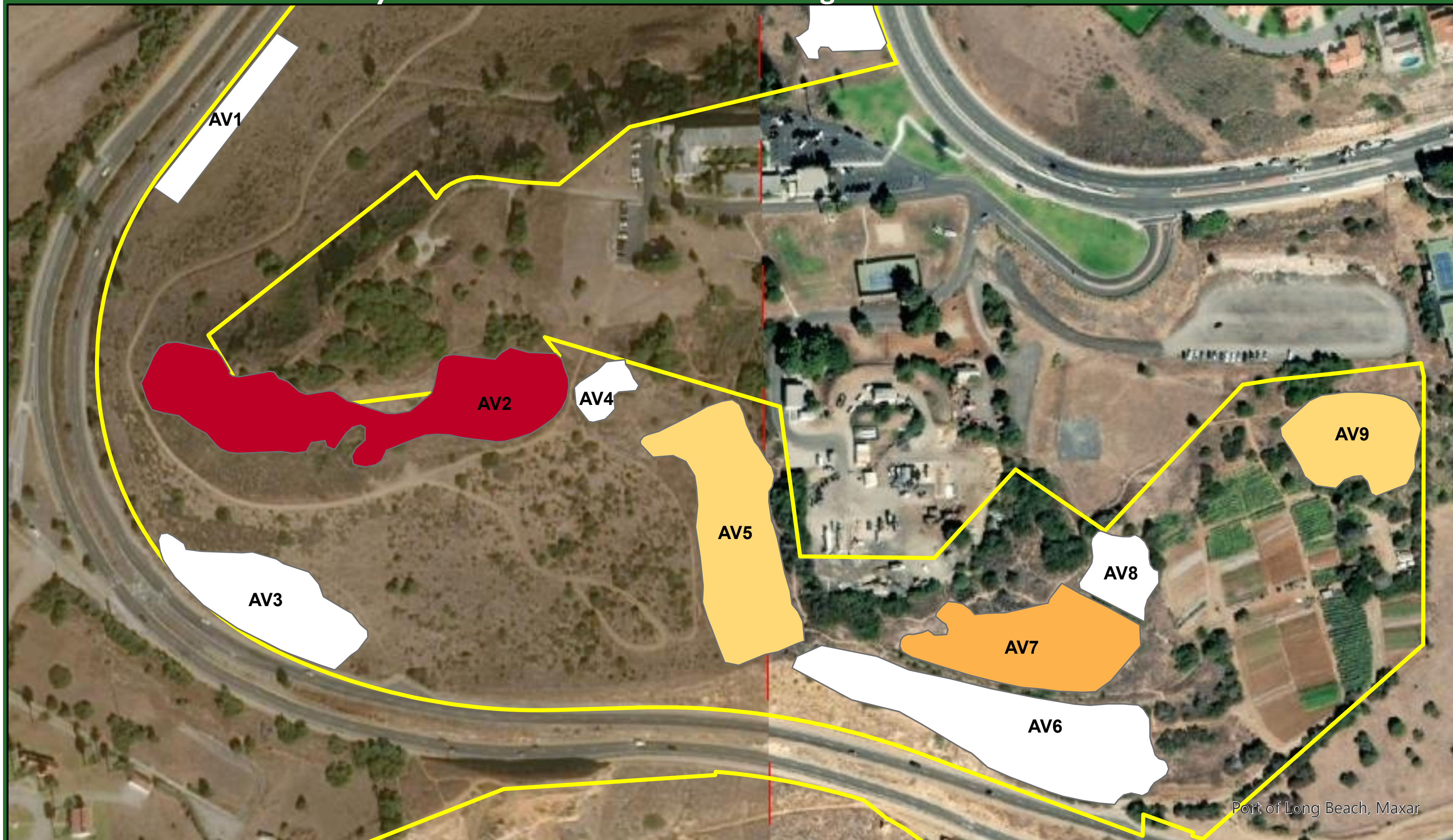
Rea, A. M. and K. Weaver. 1990. "The taxonomy, distribution, and status of coastal California Cactus Wrens." Western Birds 21: 81-126.

APPENDIX A

Mapped results of cactus inhabitance per catus patch surveyed.


Community Science Cactus Wren Monitoring - Abalone Cove Nature Reserve
AC1
AC2
AC3
AC4
AC5
AC6
Port of Long Beach, Maxar
Palos Verdes Peninsula Land Conservancy
2021 Cactus Patch Ranking
Occupancy Score
None
Rare
Occasional
Periodic
Regular
Consistent
Preserve Boundary
N

Community Science Cactus Wren Monitoring - Alta Vicente Nature Reserve



Palos Verdes Peninsula Land Conservancy

2021 Cactus Patch Ranking Occupancy Score

- None
- Rare
- Occasional
- Periodic
- Regular
- Consistent
- Preserve Boundary

N

Community Science Cactus Wren Monitoring - Ocean Trails Nature Reserve

Palos Verdes Peninsula Land Conservancy

2021 Cactus Patch Ranking Occupancy Score

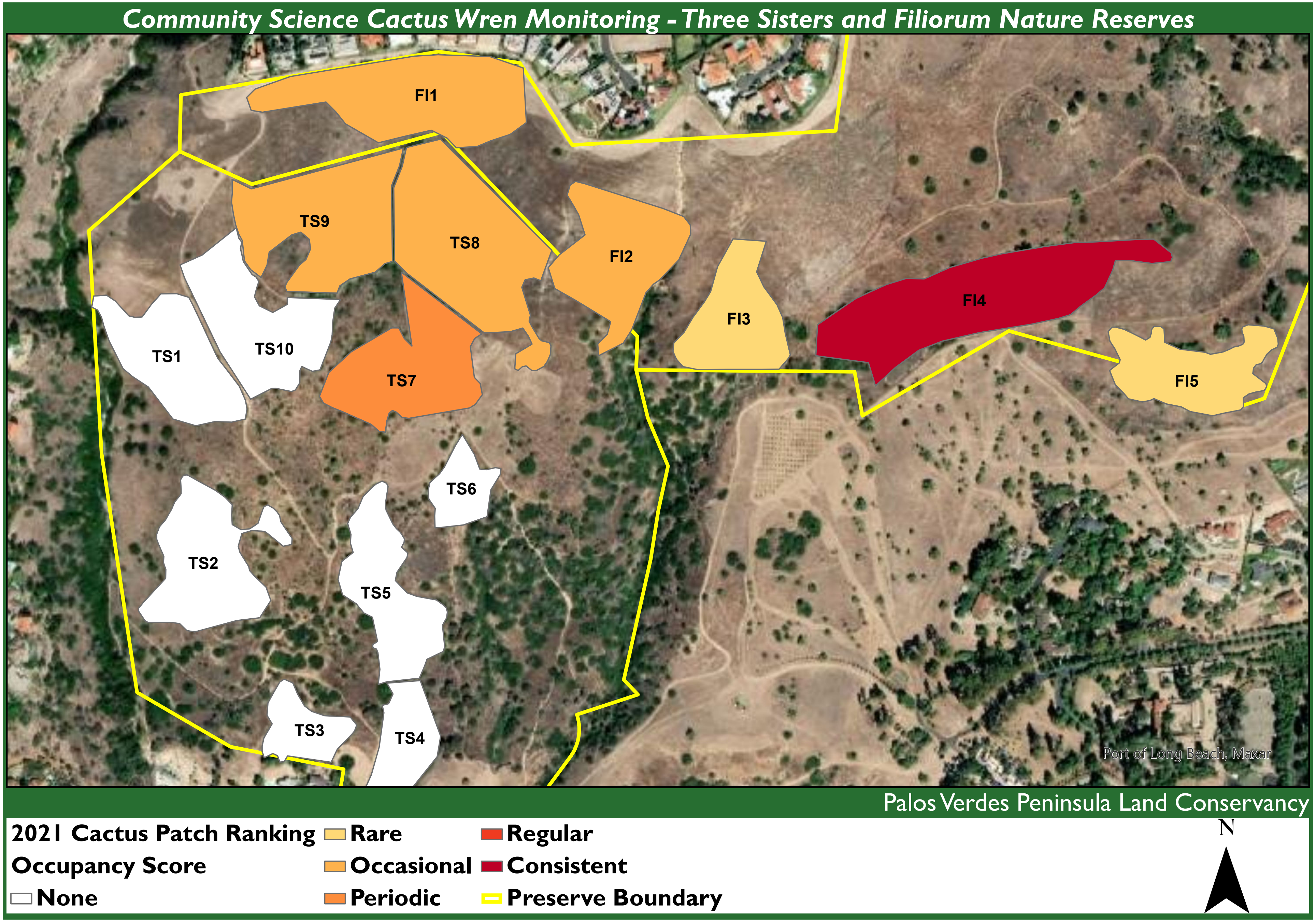
- **None**
- **Rare**
- **Occasional**
- **Periodic**
- **Regular**
- **Consistent**
- **Preserve Boundary**

N

Community Science Cactus Wren Monitoring - Portuguese Bend Nature Reserve

Palos Verdes Peninsula Land Conservancy

2021 Cactus Patch Ranking	Rare	Regular
Occupancy Score	Occasional	Consistent
None	Periodic	Preserve Boundary


Community Science Cactus Wren Monitoring - Three Sisters and Filiorum Nature Reserves
FI1
TS9
TS8
FI2
FI3
FI4
FI5
TS1
TS10
TS7
TS6
TS2
TS5
TS3
TS4
Port of Long Beach, Maxar
Palos Verdes Peninsula Land Conservancy
2021 Cactus Patch Ranking
Occupancy Score
None
Rare
Occasional
Periodic
Regular
Consistent
Preserve Boundary
N

Community Science Cactus Wren Monitoring - Palos Verdes Nature Preserve

Palos Verdes Peninsula Land Conservancy

2021 Cactus Patch Ranking Occupancy Score

- **None**
- **Rare**
- **Occasional**
- **Periodic**
- **Regular**
- **Consistent**
- **Preserve Boundary**

N

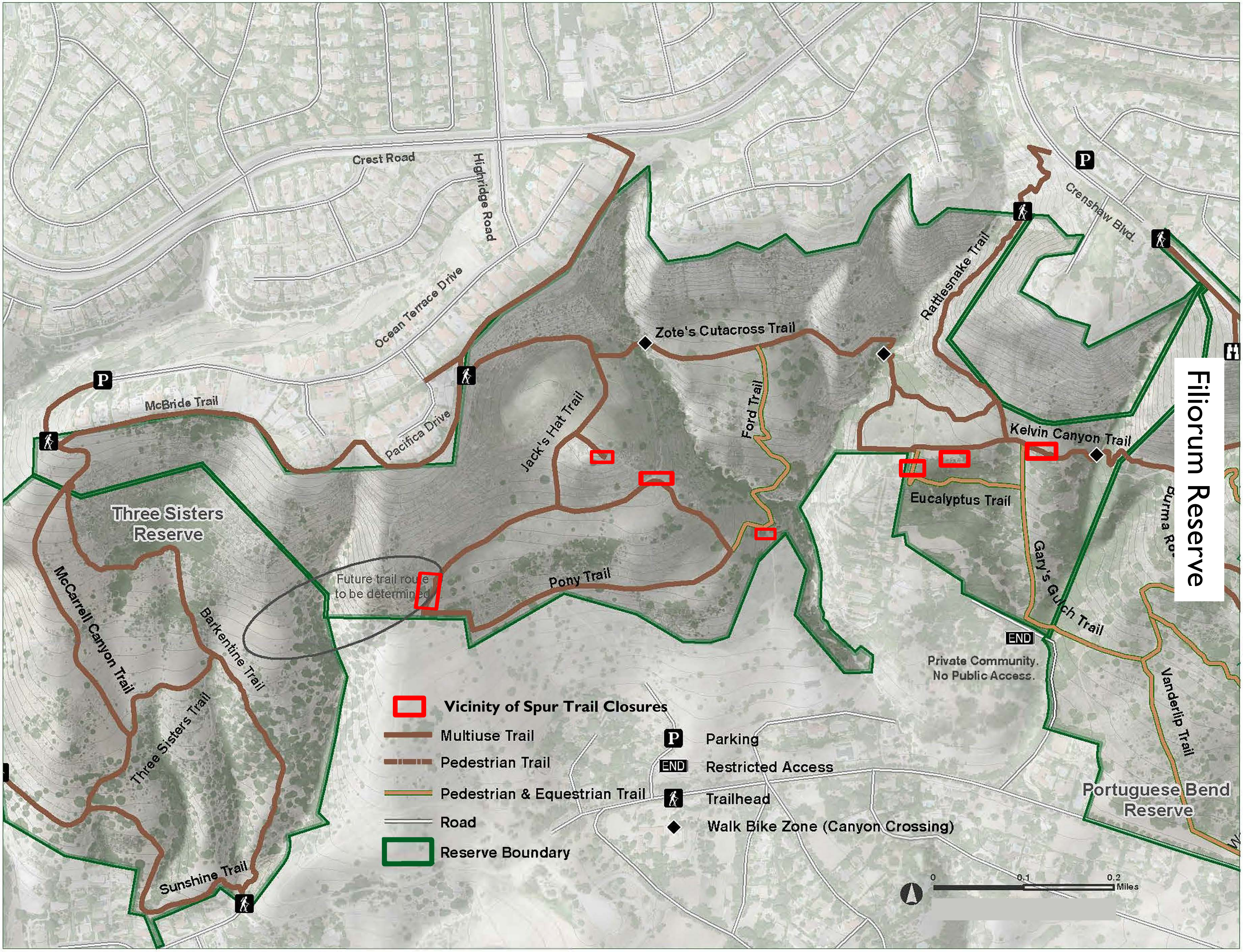
APPENDIX F

TRAIL MANAGEMENT AND SIGNAGE ACTIVITIES

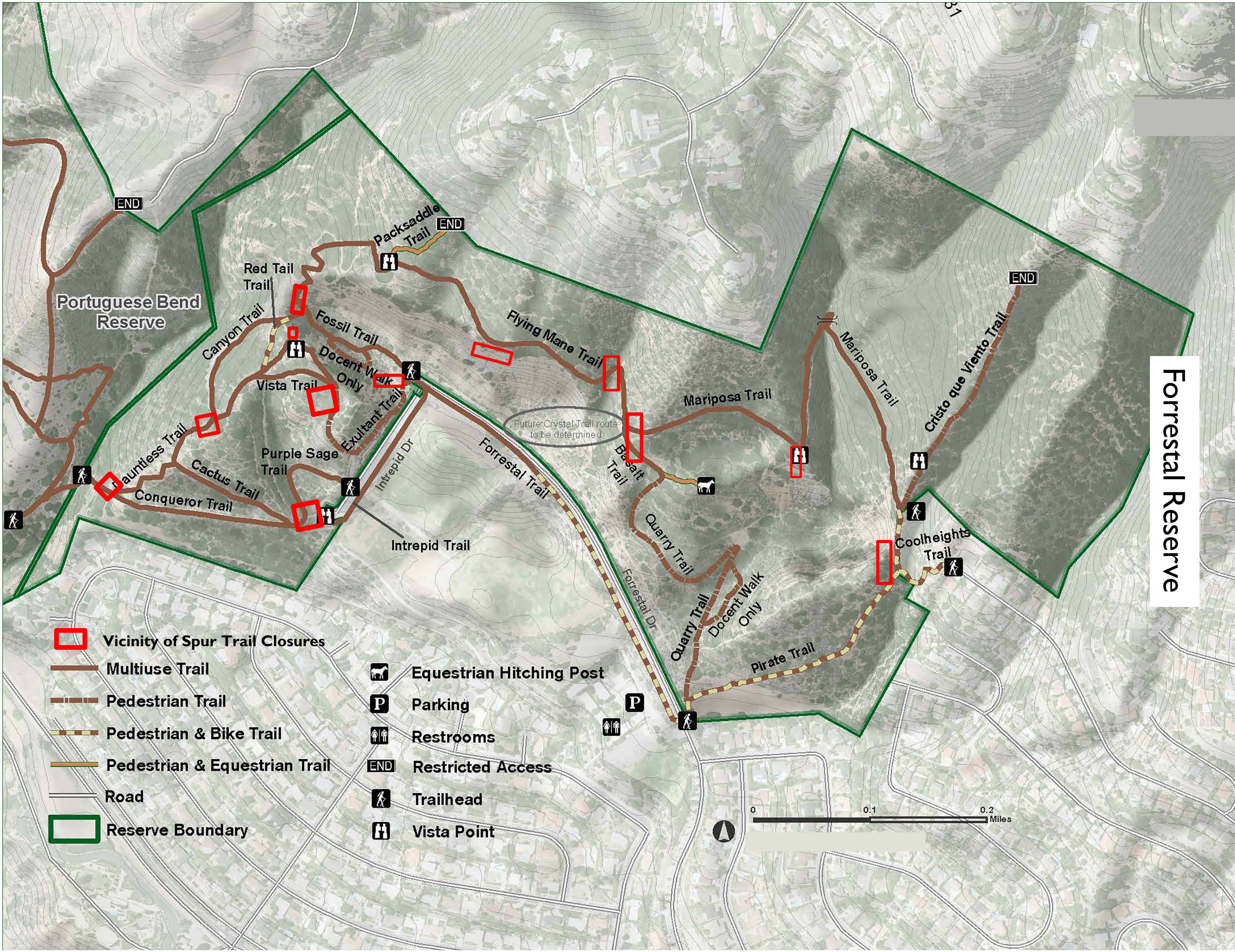
2021 UNAUTHORIZED TRAIL CLOSURES

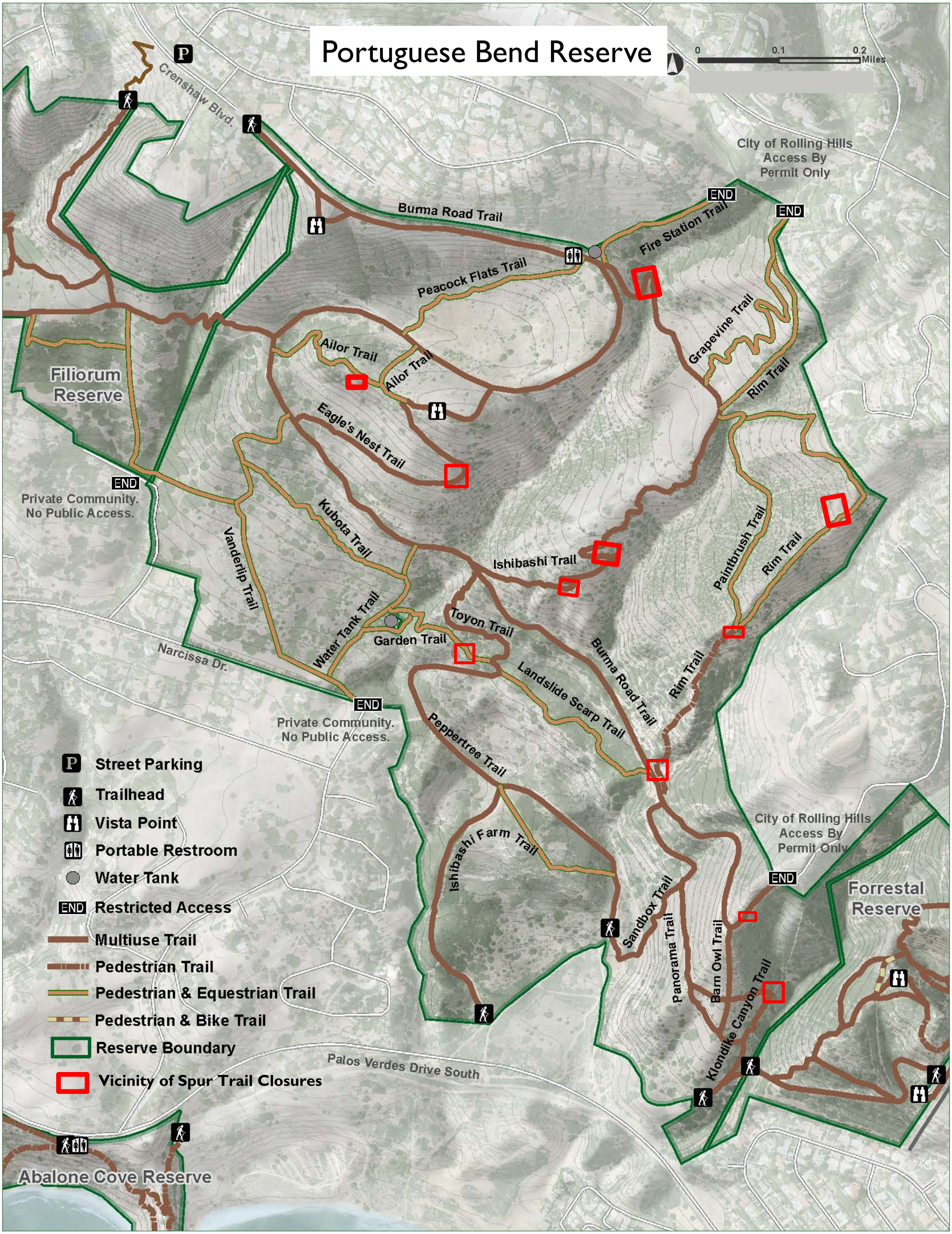

Abalone Cove Reserve
Vicinity of Spur Trail Closures
Reserve Boundary
Parking Lot
Restrooms
Trailhead
Vista Point
Multiuse Trail
Pedestrian Trail
Pedestrian & Bike Trail
0
0.1
0.2
Miles
Sea Cove Dr.
Palos Verdes Drive South
Narcissa Dr.
Peppertree Dr.
Via de Campo Trail
Abalone Cove Trail
Chapel View Trail
Beach School Trail
Sea Dahlia Trail
Olmsted Trail
Smuggler's Trail
Sacred Cove View Trail
Portuguese Point Loop Trail
Cave Trail
Cliffside Trail
Inspiration Point Trail
P

Alta Vicente Reserve

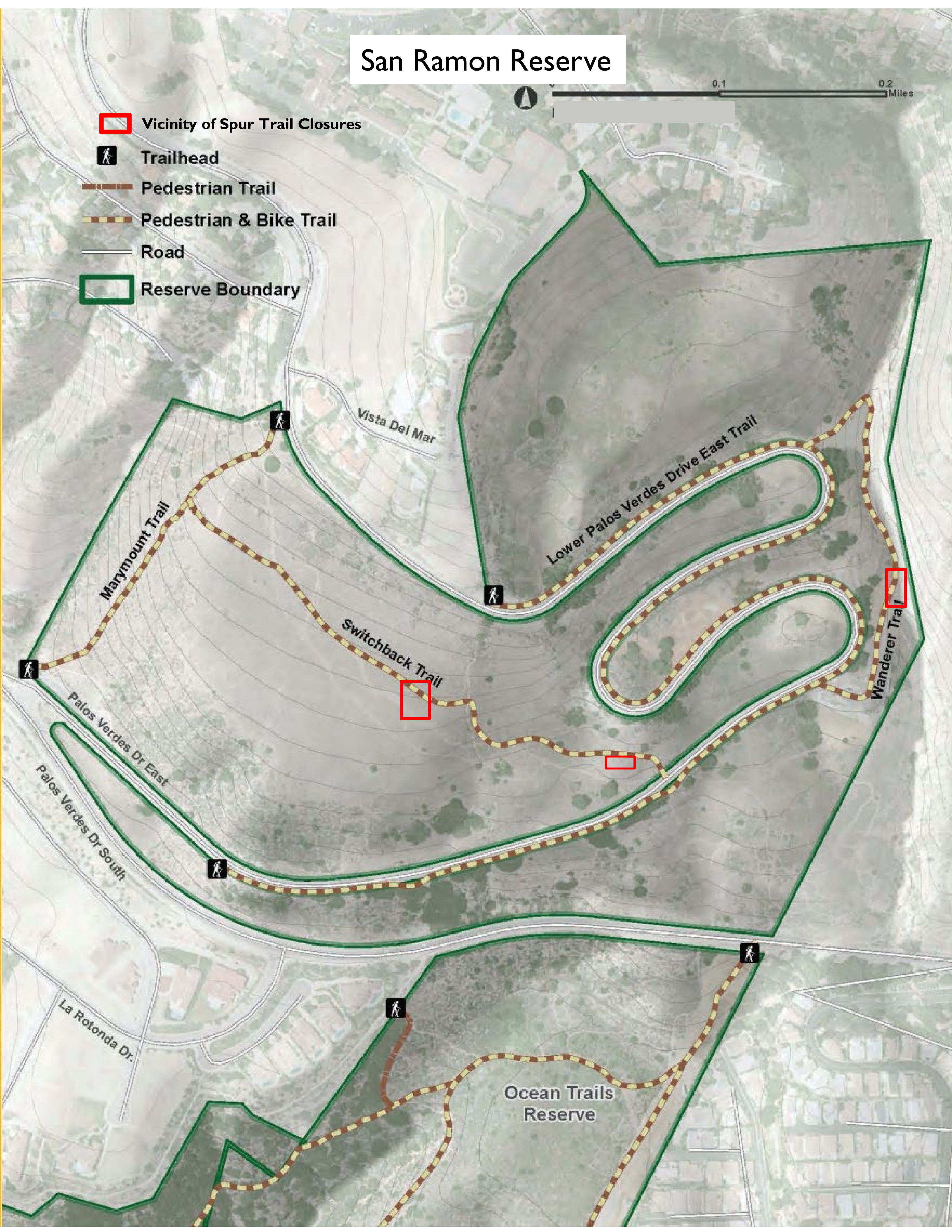


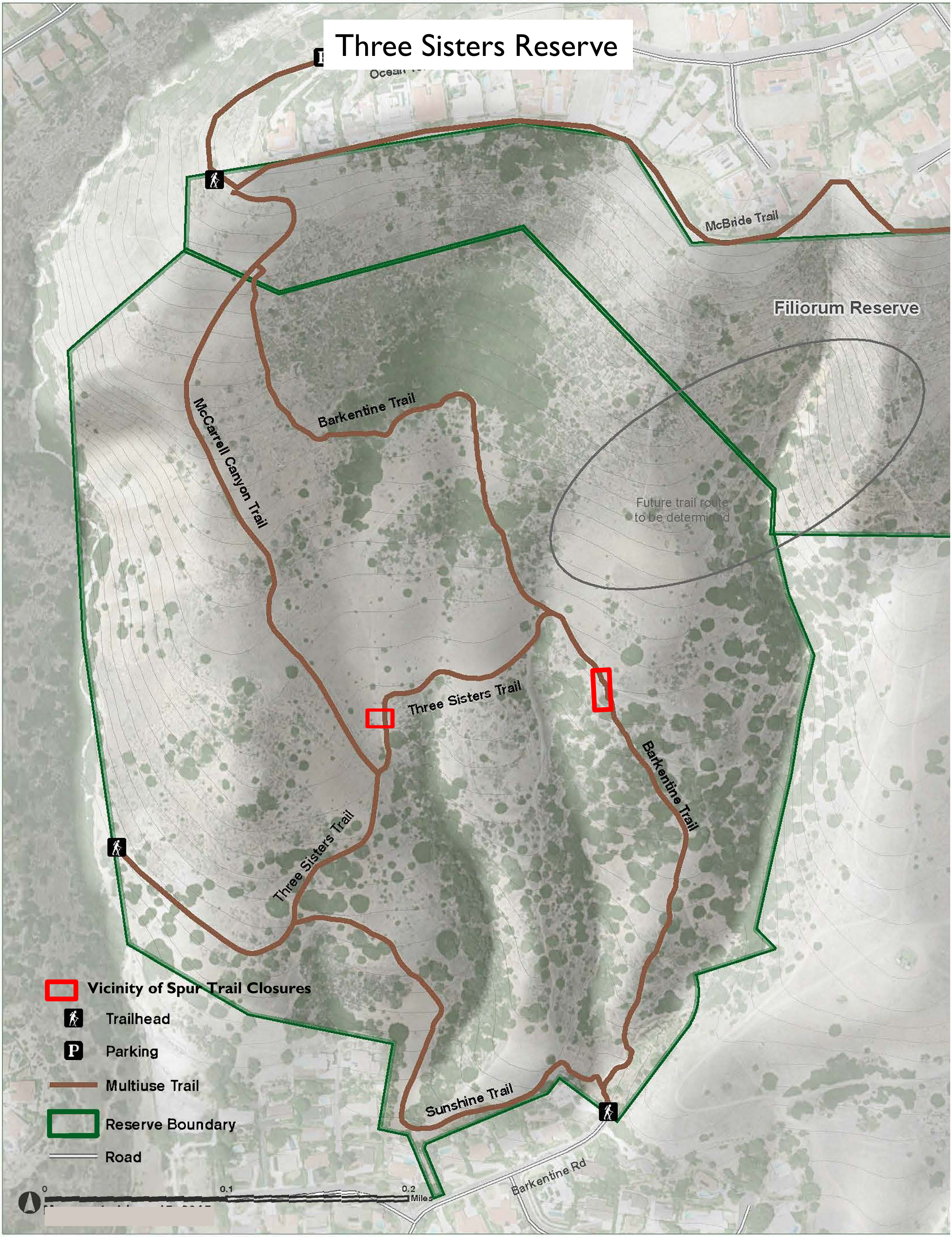
Crest Road
Highridge Road
Ocean Terrace Drive
Pacifica Drive
McBride Trail
Crenshaw Blvd.
Rattlesnake Trail
Zote's Cutacross Trail
Jack's Hat Trail
Ford Trail
Kelvin Canyon Trail
Eucalyptus Trail
Gary's Gulch Trail
Vanderlip Trail
Pony Trail
Future trail route to be determined
Three Sisters Reserve
McCarrell Canyon Trail
Barkentine Trail
Three Sisters Trail
Sunshine Trail
Filiorum Reserve
Portuguese Bend Reserve
Private Community. No Public Access.
END
Vicinity of Spur Trail Closures
Multiuse Trail
Pedestrian Trail
Pedestrian & Equestrian Trail
Road
Reserve Boundary
Parking
Restricted Access
Trailhead
Walk Bike Zone (Canyon Crossing)
0
0.1
0.2
Miles


Forrestal Reserve
Portuguese Bend Reserve
END
Packsaddle Trail
Red Tail Trail
Canyon Trail
Fossil Trail
Docent Walk Only
Vista Trail
Flying Mane Trail
Exultant Trail
Mariposa Trail
Cristo que Viento Trail
Future Crystal Trail route to be determined
Dauntless Trail
Purple Sage Trail
Cactus Trail
Conqueror Trail
Intrepid Dr
Intrepid Trail
Forrestal Trail
Basalt Trail
Quarry Trail
Forrestal Dr
Coolheights Trail
Docent Walk Only
Pirate Trail
Vicinity of Spur Trail Closures
Multiuse Trail
Pedestrian Trail
Pedestrian & Bike Trail
Pedestrian & Equestrian Trail
Road
Reserve Boundary
Equestrian Hitching Post
Parking
Restrooms
Restricted Access
Trailhead
Vista Point
0
0.1
0.2
Miles



Portuguese Bend Reserve
0
0.1
0.2
Miles
Crenshaw Blvd.
City of Rolling Hills
Access By
Permit Only
Burma Road Trail
Fire Station Trail
Peacock Flats Trail
Grapevine Trail
Ailor Trail
Ailor Trail
Filiorum
Reserve
Rim Trail
Eagle's Nest Trail
Private Community.
No Public Access.
Kubota Trail
Vanderlip Trail
Ishibashi Trail
Paintbrush Trail
Rim Trail
Water Tank Trail
Toyon Trail
Garden Trail
Narcissa Dr.
Landslide Scarp Trail
Burma Road Trail
Rim Trail
Private Community.
No Public Access.
Peppertree Trail
City of Rolling Hills
Access By
Permit Only
Ishibashi Farm Trail
Forrestal
Reserve
Sandbox Trail
Panorama Trail
Barn Owl Trail
Klondike Canyon Trail
END
Street Parking
Trailhead
Vista Point
Portable Restroom
Water Tank
Restricted Access
Multiuse Trail
Pedestrian Trail
Pedestrian & Equestrian Trail
Pedestrian & Bike Trail
Reserve Boundary
Vicinity of Spur Trail Closures
Palos Verdes Drive South
Abalone Cove Reserve


San Ramon Reserve
0
0.1
0.2
Miles
Vicinity of Spur Trail Closures
Trailhead
Pedestrian Trail
Pedestrian & Bike Trail
Road
Reserve Boundary
Vista Del Mar
Marymount Trail
Lower Palos Verdes Drive East Trail
Switchback Trail
Wanderer Trail
Palos Verdes Dr East
Palos Verdes Dr South
La Rotonda Dr.
Ocean Trails
Reserve


Three Sisters Reserve
Ocean
McBride Trail
Filiorum Reserve
Barkentine Trail
McCarrell Canyon Trail
Future trail route
to be determined
Three Sisters Trail
Barkentine Trail
Three Sisters Trail
Sunshine Trail
Barkentine Rd
Vicinity of Spur Trail Closures
Trailhead
Parking
Multiuse Trail
Reserve Boundary
Road
0
0.1
0.2
Miles

ONGOING/FUTURE TRAIL PROJECTS LIST

2022 Trail Projects List

The following is a list of trail projects planned for the year based on priority 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. 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

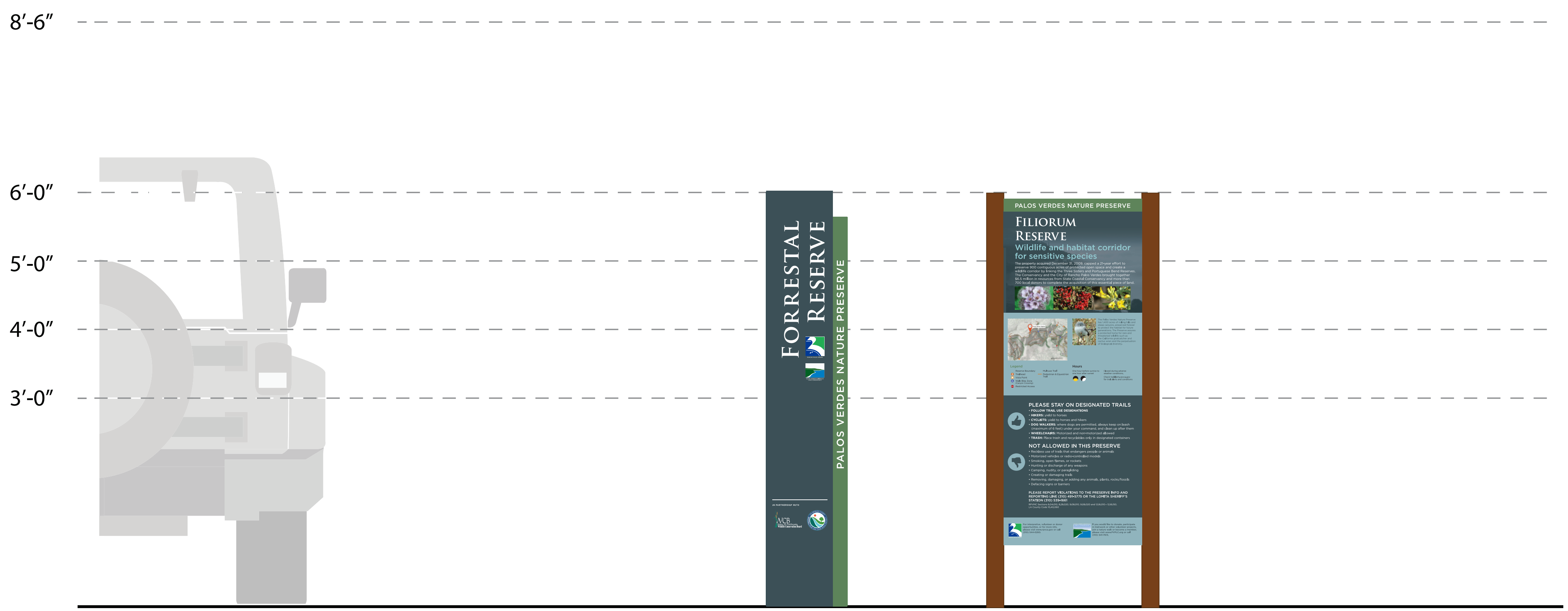
Reserve/Trail Name	Issues	Priority
Abalone Cove Reserve		
Cave Trail	Trail erosion. Temporarily closed.	High
Portuguese Bend Loop Trail	Spur leading to Olmstead	Medium
Sacred Cove (west to beach)	Trail erosion. Temporarily closed.	High
Sea Dahlia Trail	Erosion at upper stair area. Temporarily closed.	High
Smugglers Trail	Spur trail closures	High
Agua Amarga Reserve		
Lunada Canyon Trail	General trail maintenance as needed	Low – ongoing
Alta Vicente Reserve		
Alta Vicente Trail	Continue to maintain spur trail closures	High
Prickly Pear Trail	Continue to maintain spur trail closures	High
Filiorum Reserve		
Eucalyptus Trail	Spur trail closures	Low
Eucalyptus Trail	Remove fallen tree. Trail temporarily closed.	High
Ford Trail	Spur trail closures	High
Jack's Hat Connector between Filiroum and Three Sisters Reserves	Build new trail.	High
Rattlesnake Trail	Close spurs from Rattlesnake to drainage infrastructure.	
Forrestal Reserve		
Conqueror Trail	Spur trail closure	Low - ongoing
Conqueror Trail	Resolve erosion at gabion.	Medium
Cool Overlook Trail	Assess and maintain spur trail closures	Low - ongoing

[Type here]

Dauntless Trail	Continue to maintain check dams and grade dips	Medium
Mariposa Trail	Spur trail closure into quarry	Medium
Packsaddle Trail	Temporarily closed.	Medium
Purple Sage Trail	Continue to assess and maintain spur trail closures	High
Quarry Trail	Spur trail closure	Low - ongoing
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	Exposed bedrock spur leading to Klondike Canyon Trail	High
Burma Road	Spur trail running from Burma Road lookout to Kelvin Canyon Trail	High
Burma Road	Continue to address fissures and erosion on trail.	
Fire Station Trail	Continue to repair trail erosion caused by 2021 storms. Maintain closure into private property.	Medium
Ishibashi Trail	Continue to maintain pruning to improve line of sight. Continue to maintain erosion along tread as needed. Continue to delineate as needed	High
Ishibashi Trail	Maintain spur trail closures and remove embankments	Medium – ongoing
Landslide Scarp Trail	Continue to address fissures and erosion on trail.	
Peacock Flats Trail	Remove post and rope in areas that have filled in with native vegetation	Low
Rim Trail	Lower segment of trail temporarily closed due to erosion. Consider reroute.	Low
Sandbox Trail	Continue to maintain check dams as needed	High
Vanderlip Trail	Spur trail that runs redundant to trail through fuel modification zone	High
Vanderlip Trail	Continue to maintain grade dips made by Cal Water	Medium
San Ramon Reserve		
Switchback trail	Delineate single path	High
Wanderer Trail	West of trail. Network of illegal bike trails needs to be closed	Medium
Three Sisters Reserve		
Barkentine Trail	Spur trail closure that leads to Filiorum	High
Barkentine Trail	Continue to maintain drainage and spur trail closures	Medium
Sunshine Trail	Spur trail closure	Low – Ongoing
Vicente Bluffs Reserve		
Seascape Trail	Spur leading to beach	High
Seascape Trail	Spurs along bluff top	
Toveemor Trail	Close spur trail	Low – Ongoing
Vista Del Norte Reserve		
Indian Peak Trail	Close spur trail	Medium
Vista Del Norte Trail	Erosion from fuel mod and spur trail closure	Medium

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

PVNP SIGNAGE DESIGNS



15 - Secondary ID

20 - Orientation Panel

ELEVATION

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

EXPRESS SIGN & NEON COMPANY

1720 W. SLAUSON AVE.
LOS ANGELES, CA 90047

T. 323.291.3333
F. 323.291.3704

STATE LIC. #643841
U.L. LISTED #E 141997

Representative:
Edgar Aceituno

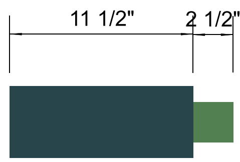
Drawn by:
Simon Jeong

Revisions:

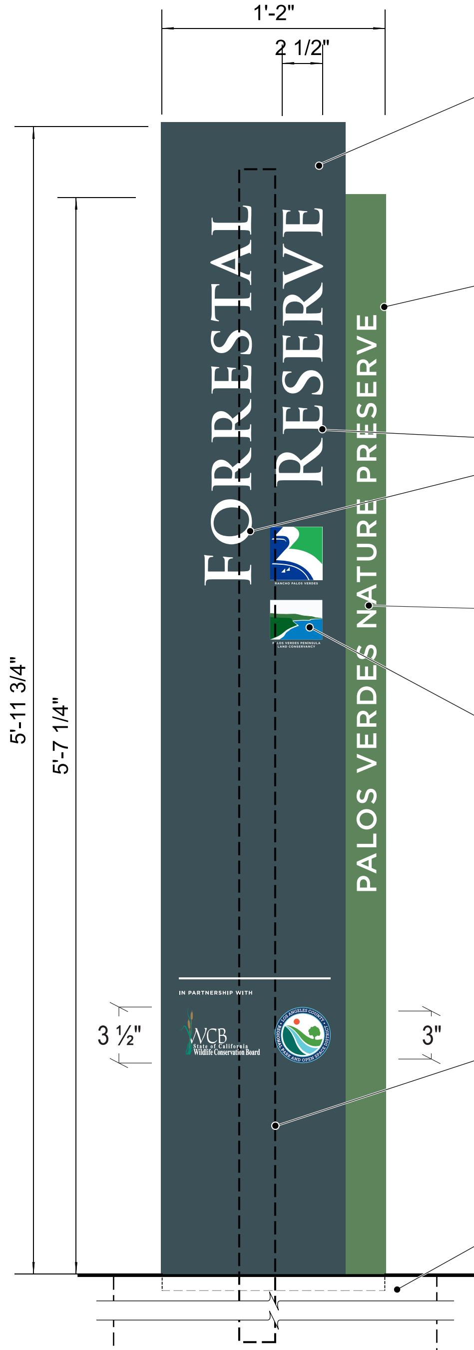
1	Palos Verdes Nature Preserve - PHASE III (02-26 -2019)
2	Palos Verdes Nature Preserve - PHASE III (03-18-2019)
3	-
4	-
5	-

Project : Palos Verdes Nature Preserve
Phase III

SIGN TYPES



3 PLAN VIEW
SCALE: 1" = 1'-0"



FABRICATED 1/8" THICK ALUMINUM "PYLON" WITH INTERNAL STRUCTURAL SUPPORT AND PAINTED SATIN FINISH ON ALL SURFACES; ATTACH TO SUPPORT POST WITH CONCEALED BRACKETS AND FASTENERS

2 1/2" x 2 1/2" x 1/8" THICK SQUARE ALUMINUM TUBE WITH PAINTED SATIN FINISH ON ALL SURFACES; WELD TO "PYLON" WITH TOP TO BE CAPPED, WELDED AND GROUND SMOOTH; EASE ALL EDGES AND CORNERS

1/4" THICK ALUMINUM LETTERS WITH PAINTED SATIN FINISH ON ALL SURFACES; EASE ALL EDGES AND CORNERS; ATTACH TO "PYLON" WITH CONCEALED FASTENERS

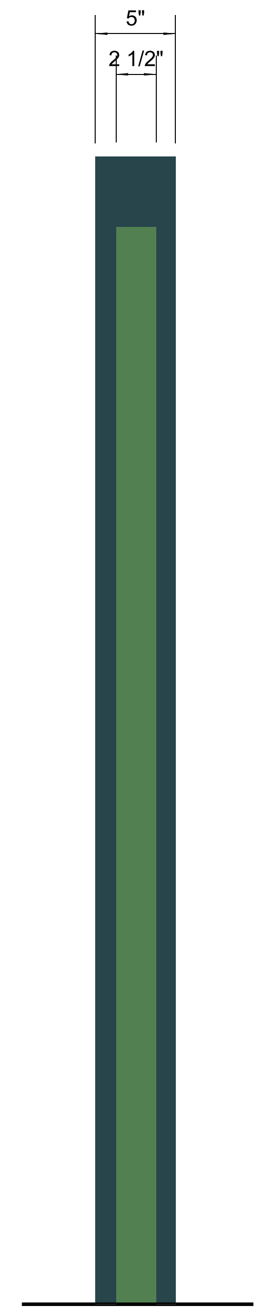
1/16" DEEP ETCHED AND PAINT FILLED LETTERS; APPLY SATIN CLEARCOAT (TWO COATS) FOR DURABILITY

APPLIED COMPUTER CUT OPAQUE WHITE VINYL COPY/GRAPHIC IMAGES; APPLY SATIN CLEARCOAT (TWO COATS) FOR DURABILITY

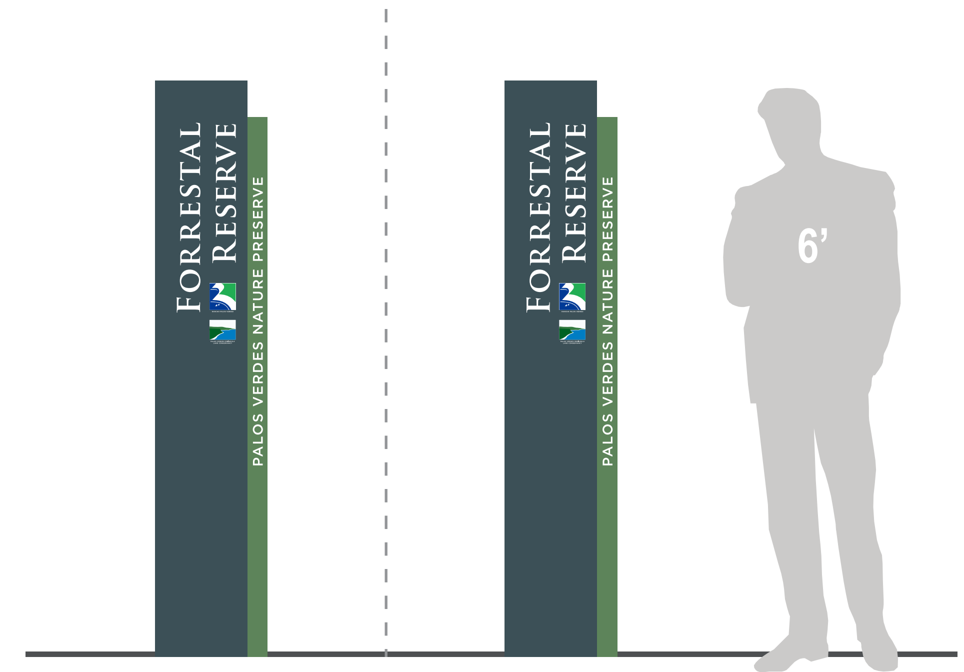
DENOTES STEEL SUPPORT POST; EMBED INTO CONCRETE FOOTING

CONCRETE FOOTING AS PER SIGN CONTRACTOR'S ENGINEERING (WHERE REQUIRED)

1 ELEVATION
SCALE: 1" = 1'-0"



2 SIDE VIEW
SCALE: 1" = 1'-0"



SIGN FRONT

SIGN BACK

4 FRONT & BACK VIEW
SCALE: 1/2" = 1'-0"

GENERAL NOTE:
1) ALL EXPOSED SURFACES TO HAVE FINAL ANTI-GRAFFITI COATING WITH UV INHIBITORS.

2) SIGN CONTRACTOR TO PROVIDE TO CLIENT A RECOMMENDED COMPATIBLE GRAFFITI REMOVER THAT DOES NOT REMOVE PAINT FINISH OR APPLIED GRAPHICS WHEN USED.

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STATE LIC. #643841
U.L. LISTED #E 141997

Representative: Edgar Aceituno
Drawn by: Simon Jeong

Revisions:
1 Palos Verdes Nature Preserve - PHASE III (02-26 -2019)
2 Palos Verdes Nature Preserve - PHASE III (03-18-2019)
3 -
4 -
5 -

Project : Palos Verdes Nature Preserve Phase III

ST 15 - Secondary Identification

QTY=1

QTY=1

1 **FORRESTAL FRONT & BACK**
SCALE: 3/4" = 1'-0"

3 **THREE SISTERS FRONT & BACK**
SCALE: 3/4" = 1'-0"

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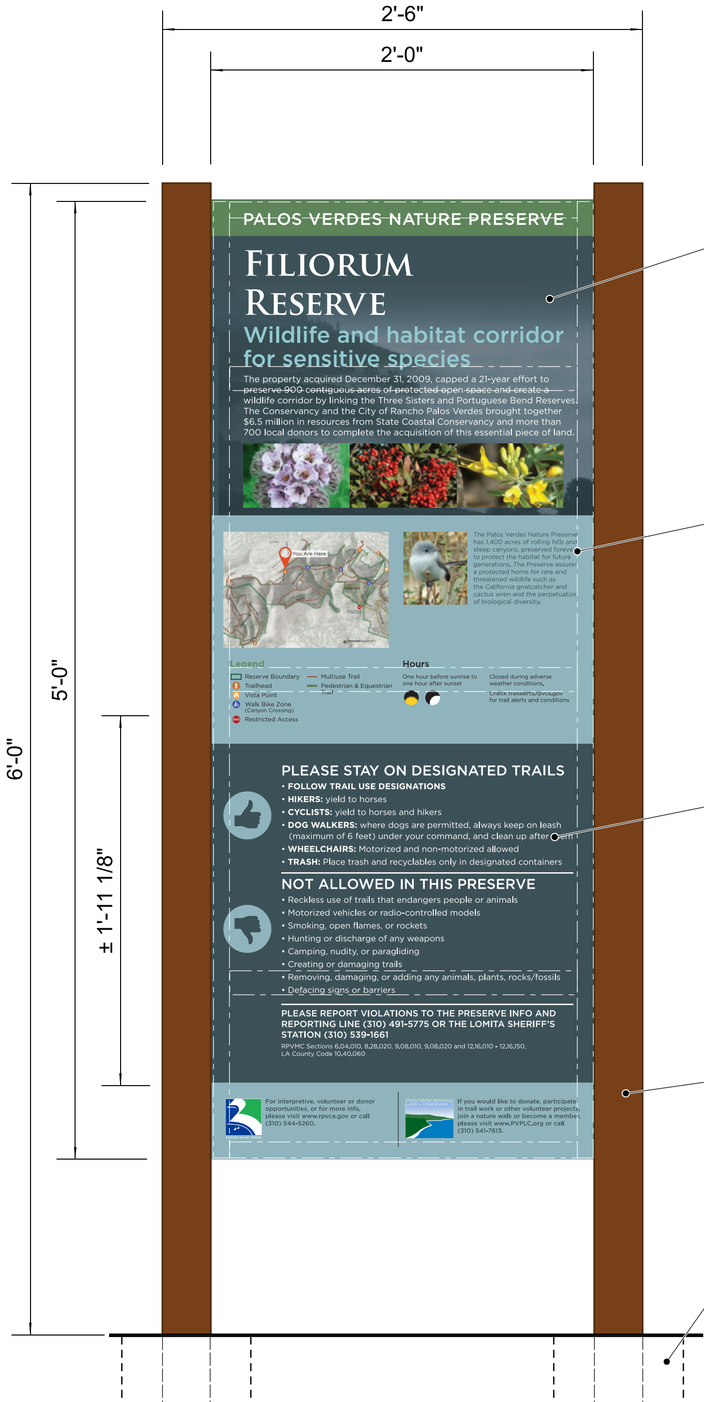
2	Palos Verdes Nature Preserve - PHASE III (03-18-2019)
3	-
4	-
5	-

Project : Palos Verdes Nature Preserve Phase III

ST 15 - Secondary Identification



1/2" THICK PHENOLIC RESIN PANEL WITH EMBEDDED DIGITALLY PRINTED GRAPHICS (EXTERIOR GRADE WITH MATTE FINISH); EASE ALL EDGES AND CORNERS; ATTACH TO "FRAME" STRUCTURE WITH CONCEALED Z-BRACKETS; TYP. ON BOTH SIDES

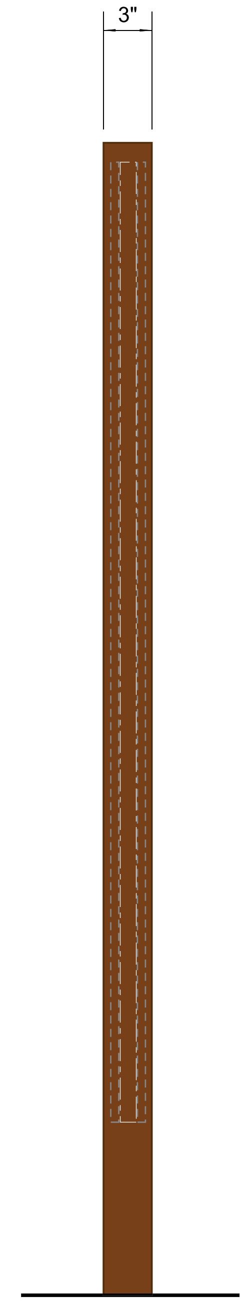
DASHED LINES DENOTES "C" CHANNEL "FRAME" STRUCTURE WITH PAINTED FINISHED ON ALL SIDES; ATTACH "FRAME" TO SUPPORT POSTS WITH CONCEALED MECHANICAL FASTENERS

1/8" THICK ALUMINUM "RULES" PANEL WITH APPLIED 3M REFLECTIVE VINYL OVERLAY GRAPHICS; ATTACH TO 3/8" PVC CORE WITH V.H.B. TAPE AND EPOXY ADHESIVE; TYP. ON BOTH SIDES

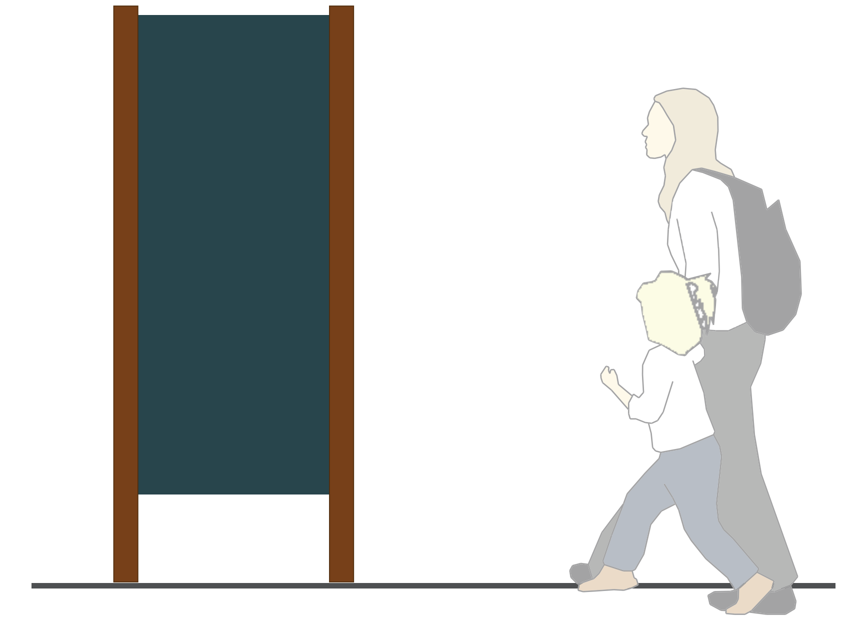
3" SQUARE CORTEN STEEL SUPPORT POSTS

POURED STEEL REINFORCED CONCRETE FOOTING AS PER SIGN CONTRACTOR'S ENGINEERING

1 **ELEVATION**
SCALE: 1" = 1'-0"



2 **SIDE VIEW**
SCALE: 1" = 1'-0"



SINGLE SIDED
SIGN BACK
(BLANK)

4 **SIGN BACK VIEWS**
SCALE: 1/2" = 1'-0"

GENERAL NOTE:
1) ALL EXPOSED SURFACES TO HAVE FINAL ANTI-GRAFFITI COATING WITH UV INHIBITORS.

2) SIGN CONTRACTOR TO PROVIDE TO CLIENT A RECOMMENDED COMPATIBLE GRAFFITI REMOVER THAT DOES NOT REMOVE PAINT FINISH OR APPLIED GRAPHICS WHEN USED.

EXPRESS SIGN & NEON COMPANY

1720 W. SLAUSON AVE.
LOS ANGELES, CA 90047
T. 323.291.3333
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STATE LIC. #643841
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Representative: Edgar Aceituno
Drawn by: Simon Jeong

Revisions:
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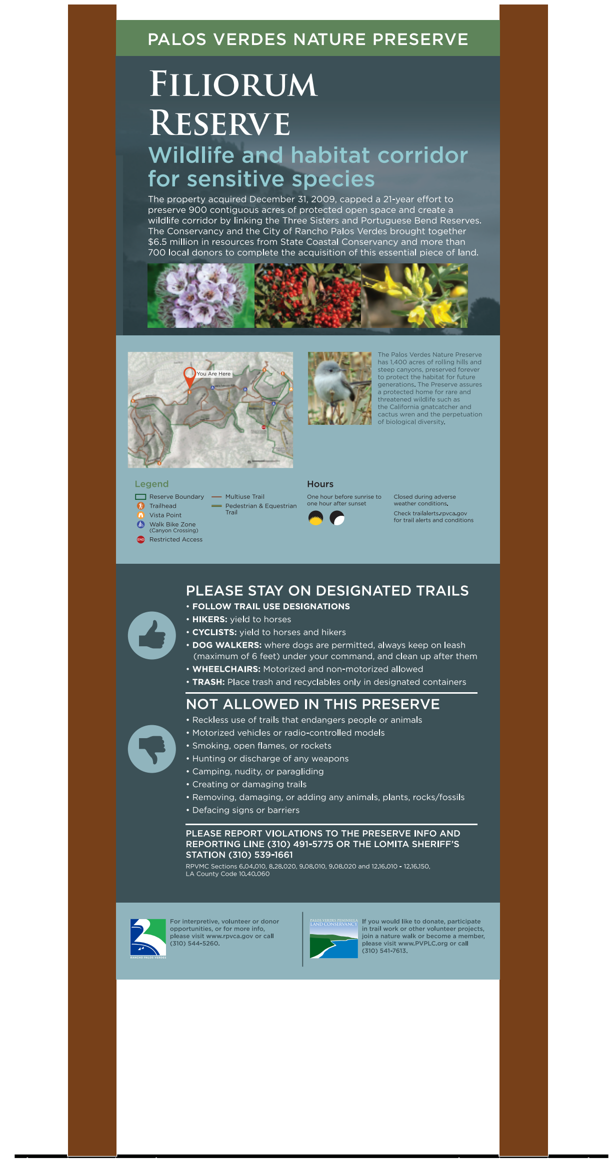
2 Palos Verdes Nature Preserve - PHASE III (03-18-2019)
3 -
4 -
5 -

Project : Palos Verdes Nature Preserve Phase III

ST 20 - Orientation Panel

QTY=3



QTY=4

QTY=3

1 **FORRESTAL**
SCALE: 1" = 1'-0"

2 **FILIORUM**
SCALE: 1" = 1'-0"

3 **THREE SISTERS**
SCALE: 1" = 1'-0"

EXPRESS SIGN & NEON COMPANY

1720 W. SLAUSON AVE.
LOS ANGELES, CA 90047
T. 323.291.3333
F. 323.291.3704

STATE LIC. #643841
U.L. LISTED #E 141997

Representative: Edgar Aceituno
Drawn by: Simon Jeong

Revisions:

1	Palos Verdes Nature Preserve - PHASE III (02-26 -2019)
2	Palos Verdes Nature Preserve - PHASE III (03-18-2019)
3	-
4	-
5	-

Project : Palos Verdes Nature Preserve
Phase III

ST 20 - Orientation Panel

APPENDIX G
Volunteer Program

I. INTRODUCTION AND SUMMARY

1.1 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, 2021 to December 31, 2021.

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:

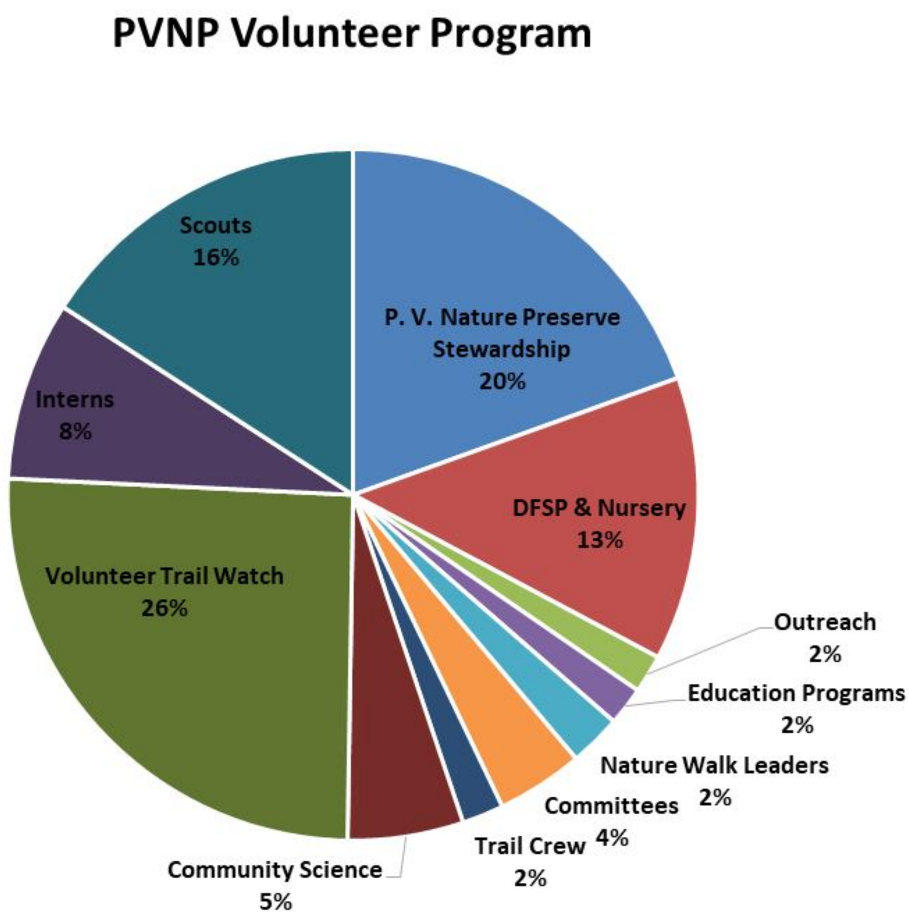
- Committees and Advisory Boards
- Special Events and Office Assistance
- Education Docents and Nature Walk Leaders
- Interns

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

- Volunteer Trail Watch
- Community Science

In 2021, volunteers provided a grand total of **16,080.1** hours of service to support conservation, restoration and management of the Palos Verdes Nature Preserve. According to the Independent Sector, volunteer time in California is valued at $33.61 per hour (based on Dollar Value of a Volunteer Hour, by State: 2021, Independent Sector), thus generating a total of $540,452.16 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. 2021 experienced social distancing rules to limit Covid-19 exposure. These social distancing requirements limited certain volunteer programs and the amount of people that could participate. Despite these challenges, total volunteer hours saw a 29.8% increase from 2020.



2. COMMUNITY INVOLVEMENT

2.1 Committees and Advisory Boards

PVPLC is driven and supported by a thirteen-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 653.75 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
- Special Events Committee(s)

2.2 Special Events and Office Assistance Volunteers

The PVPLC relies on individual volunteers and community groups, such as the National Charity League (NCL) to assist PVPLC staff with all major fundraising and friend-raising events. We have built very strong and fulfilling relationships with these groups and strive to provide an environment that lets volunteers know they are indispensable and an integral part of our organization. Special events were limited this year and we hope to resume greater fundraising initiatives in 2022.

2.3 Nature Walks

Nature Walk Leaders donated a total of 392.5 hours in 2021. PVPLC Board of Directors member Allen Franz and volunteer, Cindy Akiyama co-coordinate 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 2021, 32 interns dedicated a total of 1349.6 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 2021:

- 16,506.85 hours of volunteer time, an increase from 12,391, hours from 2020.
- Scouts donated (through plants, materials) $13,183.24 this year which is over double our last record in 2018 of $6,429.49
- The Volunteer Program was able to adapt to this ever changing Covid-19 climate. Many programs were able to start outdoors once again with special safety measures.
- After opening the Nature Walk program to the public in July, the program hosted 358 participants this year. Setting a record number of participants for the last 3 years.
- Volunteers planted over 1,200 plants to assist with critical habitat restoration projects such as installing PVBB host plants and removing 5,600 invasive species.
- Hosted 4 organizations, Image Solutions, Congregation Ner Tamid, Morgan Stanley, and Rivian, at a corporate volunteer day to support the conservancy's work restoring lands and maintaining public nature preserves with Covid-19 safety protocols in place.
- Trained 13 new VTW members and 14 new Trail Crew members

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. A total of 49 Rapid Response Volunteer Days (16 in 2020) were held in 2021. All public events implemented safety protocols to protect all participants from Covid-19. These protocols include: masks required for the duration of the event, hand sanitizer and extra masks provided, social distancing of a minimum of 6 feet, and group sizes limited to 10 people. Refer to Appendix F for maps of spur trail closures.

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 2135.75 volunteer hours were contributed to nursery efforts in 2021.

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

The goal of the PVPLC is to hold two Team Leader workshops each year and train a minimum of six new Team Leaders at each one. We were able to host one training on September 4, 2021 and had 9 new team leaders in attendance.

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 2021, 13 scout projects were completed totaling 2548 hours, including native plant nursery infrastructure improvements, habitat restoration, and trail projects.

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 2021, the volunteer Trail Crew contributed a total of 313.5 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 course. The 50-hour 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.

Table 1. Trail Crew training classes

Date	# Volunteer Hours	Location	Project/Skill Learned
February 13	10	Portuguese Bend	Grade dips and bench cut on Panorama
March 13	30	Abalone Cove	Rock stairs and tread repair on Cliffside
April 10	22	Portuguese Bend	Rock retaining wall and tread repair on Peppertree
May 8	28	Forrestal & San Ramon	Grade dips, spur closure, and bench cut on Pirate Trail
June 12	20	Portuguese Bend	Outsloping, grade dips, and tread repair on Vanderlip
June 26	20	Portuguese Bend	Reset grade dips along Vanderlip Drive.
July 10	20	San Ramon	Removing jumps and tread repair on Marymount and Switchback
August 14	43.5	Ladera Linda Community Center	Trail Crew Introductory Class
September 11	26	Portuguese Bend/Filiorum	Check Dam and tread repair in Kelvin Canyon
October 9	23	Portuguese Bend/Filiorum	Grade dips and tread repair in Gary's Gulch
November 13	39	Portuguese Bend	Tread repair and check dam work on Sandbox
December 11	26	Forrestal	Check dam, grade dips, and outsloping on Quarry and Basalt

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 2021, volunteers dedicated 4100.8 hours to the program through training and field implementation activities, and reporting observations through the web portal for record keeping. A large portion of this year's hours was contributed by the Volunteer Trail Watch co-coordinators, who dedicated much of their time to training and coordinating the program's volunteers in addition to their time as VTW volunteers on the trails.

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 871.1 hours to documenting the behavior of cactus wrens and the evidence of mammalian populations like coyotes and foxes through tracking efforts.

4. GRANTS SUPPORTING VOLUNTEER ENGAGEMENT

In 2021, a grant from Tyler Foundation supported skill building internships to collect seed, sanitize soil, and propagate plants. In 2021, a $55,000 grant supported volunteer restoration work at Abalone Cove Reserve.

APPENDIX H

QUARTERLY ENFORCEMENT REPORTS

MEMORANDUM

Date:

To: Katie Lozano, City of Rancho Palos Verdes

From: Ranger Saldaña

SUBJECT: 1st Quarter Rancho Palos Verdes Ranger Enforcement Report

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PRESERVE VISITOR CONTACTS SUMMARY

- January 1 – March 31, 2021
- 4 Rangers and 1 Parking Ambassador patrolled the Preserve during this period

This reporting period continued to be atypical as operations continued to be influenced by the Covid-19 Pandemic and public health mandates from the State and LA County. Park Rangers continue to monitor County Health mandates and to educate visitors on face coverings, social distancing, and group size. Park Rangers also continue to post signage at trailheads displaying County Health orders related to trail and open space use. Trail Counter data and ranger observations show a continued increase in public use of open spaces. This is likely due to the limitations in recreational and entertainment options during the Pandemic.

Operations under COVID-19 LA County Health Department Regulations

On Monday January 25, The Los Angeles County Department of Public Health lifted its *Targeted Temporary Safer at Home Order*. Public parks and outdoor spaces are ideal places to gather with your household and participate in recreation activities, as they can help reduce the spread of the virus from one person to another. When participating in a gathering or other activity, all park rules must be followed.

In accordance with the L.A. County Health Officer Order, private outdoor gatherings outdoors of up to 3 households and a total of 15 people are permitted. All attendees must wear a face covering and maintain physical distancing from those not in their household. In order to lower the risk of exposure to COVID-19, remember to keep gatherings short (no more than two hours), practice good hand hygiene, use single-serve disposable containers and refrain from activities that may increase the risk of COVID-19 transmissions, such as singing, chanting, shouting, or physical exertion.

Welcome Park Ranger Gonzalez!

Ranger Gonzalez joined the Open Space Management (OSM) team in December 2020, as a part-time Park Ranger, and was promoted to full-time Park Ranger in March 2021. Ranger Gonzalez will patrol the 1,400 acres of the Preserve, educating patrons about park rules and regulations, and enforcing violations. Ranger Gonzalez has previous experience in law enforcement and public safety with the City of Los Angeles.

Welcome Park Ranger Sanchez!

Ranger Moris Sanchez has joined the Open Space Management Team as a Parking Ambassador. He will educate patrons about parking issues related to the implementation of the new ParkMobile parking system on Crenshaw Boulevard and Park Place. He will be available to assist patrons and will enforce violations. Ranger Sanchez has previous experience in education and public safety, having worked with the United States Forest Service.

Trainings and Coordination:

Trail Work (January 9th): OSM staff participated in a trail work and maintenance training day to learn more about tool safety, slope, and trail grading for water erosion control.

Marine Protected Areas (MPA) Trainings & Meetings (January 14th, March 5th, March 18th): Staff attended three virtual webinars and meetings relating to the protection of MPAs and metadata collection.

ROHVA Training (February 4th and March 11th) : Open Space Management participated in Recreation Off-Highway Vehicle Association (ROHVA) training to learn how to safely and responsibly operate the OSM Division’s two Polaris vehicles. The vehicles have been used for patrols in the Nature Preserve, as well as in coordinating emergency rescues in areas where full-size vehicles are not able to traverse.

Water Rescue and Cave Training (March 24th): OSM staff participated in a multiagency training to learn more about water rescues and water safety at Abalone Cove Beach. Staff was able to swim into the Inspiration Point cave with Los Angeles County Fire Department Lifeguards and learned how to communicate with swimmers from dry land to hoist them up to safety, if possible. This particular location has been popularized by social media for cliff diving, and becomes hazardous during particular tidal and weather conditions. It has been the location of serious injuries and deaths in recent years.

Project Coordination & Emergency Work:

Due to significant rain, the Palos Verdes Nature Preserve closed twice, during this reporting period (January 23rd and 29th). Public notices were posted on trailheads, listserv messages were distributed, Google maps and the City's Trail Alerts and Conditions webpage were updated, and Reporting Hotline outgoing message was updated to reflect the Preserve closure. The Palos Verdes Nature Preserve may be subject to closure during significant periods of rain, including more than 0.25 inches of rain within 24 hours and will remain closed for up 72 hours following the last period of rain for public safety and to prevent trail erosion and habitat damage.

OSM staff help to coordinate multiple projects within the Preserve to ensure Natural Communities Conservation Plan / Habitat Conservation Plan (NCCP / HCP) compliance with PVPLC, to implement trail closures and public safety measures, and to provide public notification. Below are a list of projects OSM staff helped coordinate with PVPLC, the Public Works Department, and public utilities in the first quarter:

- Public Works Dept. Coastal Blufftop Fence Replacement Project

(August – January at Vicente Bluffs Reserve)

- California Water Company Gary's Gulch Emergency Maintenance (January at Filiorum Reserve)
- Public Works Dept. Burma Road Grade Dip Project (January at Portuguese Bend Reserve)
- Public Works Dept. Vanderlip Trail Emergency Maintenance (January 21st at Portuguese Bend Reserve)
- Public Works Dept. Sea Dahlia Trail Project (January at Abalone Cove Reserve)
- Southern California Edison Ishibashi Farm Infrastructure Maintenance (February at Portuguese Bend Reserve)
- PVPLC Acacia Removal Project (February at Portuguese Bend Reserve)
- Public Works Dept. Sea Dahlia Trail Water Pipe damage (February at Abalone Cove Reserve)
- Cox Communications infrastructure maintenance on Burma Road (February at Portuguese Bend Reserve)
- Cox Communications infrastructure maintenance on Landslide Scarp Trail (February at Portuguese Bend)
- Public Works Dept. Altamira Canyon Drainage / Erosion Control Project (March at Portuguese Bend Reserve and Abalone Cove Reserve)

OVERALL VISITOR CONTACTS:

Total Contacts: 8,387

Hikers: 7,238
Dog Walkers: 731
Cyclists: 396
Equestrians: 22
Warnings: 271

Calls for Assistance: 10

Heat exhaustion & heat stress: 4
Dog exhaustion & heat stress: 0
Basic First Aid Care (Minor cuts and rashes): 2
Other (i.e. underlying condition, sprained ankle): 4

Preserve Information and Reporting Hotline Calls: 43 calls

**No. of violations higher than the number of calls. Some calls reported multiple violations observed at once.*

Trail Status and General Information: 10
Use of Spur Trail / Closed Areas: 8

Dog on the beach or dog off leash: 6
Parking Issues: 3
Vandalism: 2
Paragliding: 2
Lost and Found: 2
Fishing / Poaching: 2
Drone: 2
COVID-19 related (including masks, social distancing violations): 1
Maintenance: 1
Removal of flora/fauna: 1
Smoking: 1
Lost Hiker: 1
Motorized Bike: 1
Medical Assistance / First Aid: 1

ENFORCEMENT SUMMARY:

Notice of Parking Citations Issued: Total 802

By Violation:
Passenger Loading Zone - 461
Park by Permit – 189
Parking Lot / Preserve / Park Hours- 81
Posted Temporary No Parking / Fire Lane – 54
Handicap Zone – 11
Other- 6

By Location:
Crenshaw Boulevard (Portuguese Bend / Filiorum adjacent) – 534
Del Cerro Park – 178
Abalone Cove Reserve – 66
City of RPV Parks – 14
Vicente Bluffs Reserve – 10
Forrestal Reserve - 1

Notice to Appear Citations Issued: Total 41
Number of violations is greater than the number of citations issued

By Violation:
Closed Area – 25
Dogs off Leash – 12
Smoking – 2
Motorized Vehicle - 2
Destruction of Flora or Fauna -1
Animals on the Beach – 1
Paragliding (Misdemeanor) – 1

By Location:
Abalone Cove Reserve – 14
Vicente Bluffs Reserve – 9
Forrestal Reserve – 6
Portuguese Bend Reserve – 5
Ocean Trails Reserve – 3
City of RPV Parks - 2
Alta Vicente Reserve -1
Filiorum Reserve –1

ACTIVITY REPORT BY RESERVE:

The next section provides further information on projects, reports, and observations received by Rangers from the public, organized per Reserve. Numbers do not reflect actual number of individuals in the Reserve, rather those spoken to while on foot and/or vehicle patrols. Information does also not include routine maintenance.

Abalone Cove Reserve:

	Public Contact	Education	Warning	Enforcement
Hikers	1,471	295	74	78
Dogs	109	38	33	3
Biker	8	3	0	0
Equestrian	0	0	0	0

A group of six individuals were seen by staff on the eastern edge of the parking lot playing loud music, while drinking and smoking. Rangers notified Sheriff Deputies for assistance.

A contract vehicle with authorized access drove into Chapel View Trail, having mistaken it for Beach School Trail. As a result of recent rains, trails were slick and muddy, resulting in poor traction. The vehicle lost control and got stuck. The Los Angeles County Fire Department assisted the driver and vehicle out of the Reserve safely. No habitat was damaged, the trail sustained minor damage and ruts from the vehicle tracks.

Rangers were notified of after-hours activity taking place at the beach at Sacred Cove over the course of several nights with bonfires and group gatherings. In this reporting period, Rangers confirmed evidence of five bonfires, dismantled all evidence of bonfires, and made contact with individuals, as able. OSM monitors open flame violations, including smoking and bonfires, or other sources of ignition within park and preserve properties. Fires are not permitted per the City's Municipal Code (12.16.070 RPMVC), and is considered a misdemeanor. The City of Rancho Palos Verdes is designated as a very high fire hazard severity zone per the California Department of Forestry and Fire Protection and the County of Los Angeles Fire Department. Staff continues to educate patrons about fire safety, enforce the municipal code, and inspect areas to ensure all fires are put out safely to reduce the risk of fire.

Rangers were notified of a panga boat on the beach at Sacred Cove. Rangers assisted in securing the scene while multiple agencies responded to help with the investigation and removal of the panga, including California Department of Fish and Wildlife, U.S. Coast Guard, Los Angeles County Sheriff Department, California Border Patrol, U.S. Department of Homeland Security, and Los Angeles County Fire Department.

The City's "Area Closed" sign located on Gorge 1 to educate visitors of hazardous conditions and falling rocks was washed out twice due to a series of strong, gale winds and high tide events. The culmination resulted in weakening of the base. The sign was re-installed and reinforced with the assistance of the Public Works Dept. to withstand these conditions.

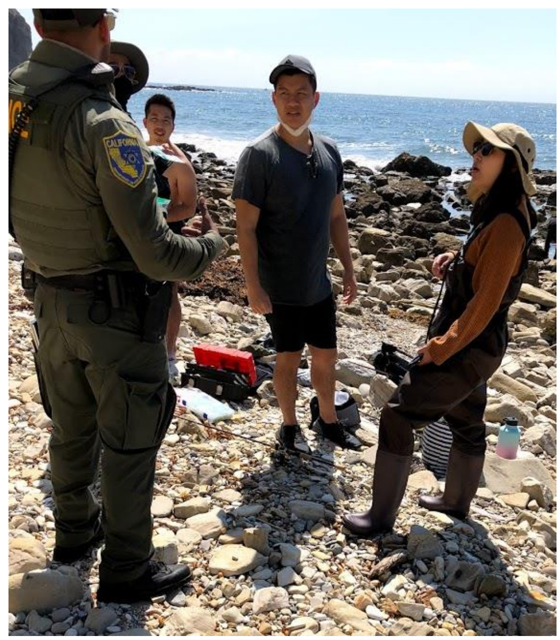
While on patrol, staff observed downed fencing and vehicle debris on Chapel View Trail. The night prior, at 7:23 p.m., a vehicle went over the curb from Palos Verdes Drive South, and onto the trail. Staff coordinated with PVPLC, and determined no habitat was damaged. Fencing was repaired.

A concerned patron reported a Siberian husky dog that was left inside of a vehicle at the Abalone Cove parking lot to staff. Windows had been rolled down half an inch and had been unattended for several hours. Patron returned before further action could be taken and educated on dog safety.

Staff received multiple reports of dead or injured animals, including a baby seal, and a pelican. Staff confirmed location, and condition, and coordinated with the appropriate agencies to ensure safety or removal of the animals.

Rangers spoke with two hikers carrying small shovels while hiking in the Reserve. No evidence of trail damage or shovel use was seen. Patrons were educated and warned on no-take of flora and fauna, as well as on staying on trail and habitat damage.

On weekends, holidays, and during low-tide events, staff continued to observe high traffic in the City's two State Marine Conservation Areas, primarily, at Abalone Cove SMCA. Staff continued to educate patrons about Marine Protected Areas (MPA), and shared proper tide pool etiquette for safely viewing but not disturbing marine organisms. During this reporting period, a total of 32 violations were observed, and 62 individuals were contacted and educated by staff, resulting in the return of 114 marine organisms, and an additional 20 violations prevented by providing information and alternative locations where individuals can legally take outside of the MPA zone with a fishing license.



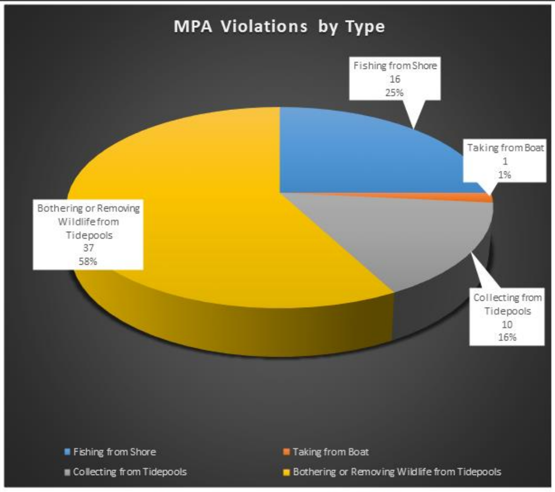
Additionally, staff continued to collaborate, and communicate with local agencies, including California Department of Fish and Wildlife, Los Angeles Waterkeeper, and Los Angeles Marine Protected Areas Collaborative Team.

Poaching activity dropped significantly within our MPAs, especially when compared to the activity seen during the previous reporting period. However, as the weather has warmed up, there has been a visible increase with more people visiting to coastal areas. Overall, despite record high levels of activity within our MPAs, instances of violations are still low, and those that are observed are mostly non-consumptive. For the future, OSM will continue to patrol MPAs within the City jurisdiction (Abalone Cove State Marine Conservation Area and Point Vicente State Marine Conservation Area) and install signage to educate patrons and combat poaching activity. Compliance rates among groups contacted by staff remains at 100%.

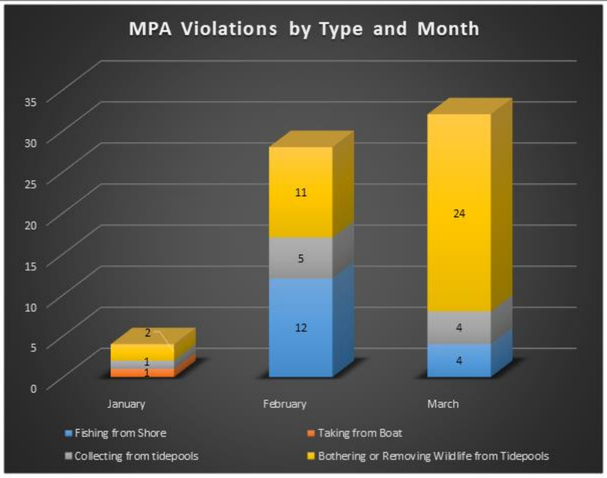
Data Overview

Type of MPA Violation by Individual				
	Fishing from Shore	Taking from Boat	Collecting from Tidepools	Bothering or Removing Wildlife from Tidepools
January	0	1	1	2
February	12	0	5	11
March	4	0	4	24
Total	**16**	**1**	**10**	**37**

Other Statistics				
	Total Violations	Violators Spoken to	Wildlife Returned	Violations Prevented
January	3	4	8	2
February	16	26	68	9
March	13	32	38	9
Total	**32**	**62**	**114**	**20**



*Data comes from individual adult violators, either observed, reported, or spoken to.



*Data comes from individual adult violators, either observed, reported, or spoken to.

Agua Amarga Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	13	5	0	0
Dog	7	2	0	0
Biker	1	0	0	0
Equestrian	0	0	0	0

Rangers found a string of solar powered lights secured onto a boulder within the Reserve. No other items were found in the vicinity, but were located off-trail.

Rangers received a report of unsafe biking conditions along Lunada Canyon Trail as well as an increase of dogs off leash. Reporting individual stated an individual broke their arm during an interaction in an attempt to yield.

Alta Vicente Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	111	18	0	0
Dog	33	6	7	2
Biker	5	0	0	0
Equestrian	0	0	0	0

Park Rangers received several reports of encampments within the Reserve and a transient individual in the habitat. No encampments or property was found.

Park Rangers received a report about a Coast Guard bunker that had been potentially used as a homeless shelter. The area near the Reserve including the bunker and surrounding land is property of the United States Coast Guard. OSM increased patrols to keep patrons out and contacted Coast Guard personnel to secure the unmanned facility.

OSM staff has observed increased use at Alta Vicente Reserve and an increase in violations, including dogs off leash and people off trail, encroaching into native habitat. Staff and PVPLC continued to monitor activity and educate patrons about authorized trail use, and ensuring all patrons comply with the Preserve rules.

Filiorum Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	295	35	20	0
Dog	20	2	0	0
Biker	9	2	2	0
Equestrian	2	0	2	0

The trail counter located within the Reserve was found vandalized, resulting in loss of data for several days during this reporting period until repairs were made. Staff repaired the counter and ensured it was able to provide accurate count of trail users to capture trail use data.

Rangers observed an unauthorized vehicle on McBride Trail. It was confirmed the individual was a tree trimmer who was conducting work on an adjacent residential property and had accessed the trails for better access. The contractor was contacted and asked to leave the area. Pictures of damage to trails were taken and reported. Coordination with the Department of Public Works, Code Enforcement, and PVPLC took place to assess habitat damage, vandalism and repairs of City barriers, and in contacting responsible parties for damages and repairs.

Los Angeles County Fire Department responded to a call regarding an injured hiker at an unknown location within Filiorum Reserve. Rangers assisted first responders in patrolling trails to locate the injured party. Rangers were able to escort an ambulance down Burma Road to make contact with the injured party.

While on patrol, Rangers were flagged down by patrons regarding a series of vehicle break-ins along Crenshaw Boulevard. The exact time of the break-ins was unknown, Rangers were notified around noon. Rangers remained on scene and assisted patrons in contacting the Sheriff Department to file a police report. At least three vehicles had damage.



Forrestal Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	552	80	26	4
Dog	108	19	4	4
Biker	37	4	0	0
Equestrian	0	0	0	0

Rangers contacted a female transient who had set a tent on Forrestal Drive near the communication enclosure. She had been seen as early as 6 a.m. The female was informed that camping is not allowed and asked to leave the area. The female was noncompliant, and Rangers notified LASD Deputies who were able to identify the woman. Two additional reports were made regarding encampments on Ladera Linda fields. Rangers patrolled area and took action, as appropriate.

Rangers were notified of a dog fight involving three dogs, and two owners at Ladera Linda Park adjacent to Forrestal Reserve. Rangers assisted in exchange of contact information. Neither party wanted to press charges.

Rangers received multiple reports of individuals with dogs off leash, in park and Reserve property. In most instances, the dogs were aggressive, or in narrow sections of the trail. One individual indicated she fell as a result of dogs being off leash in a narrow section of the trail where they were unable to safely pass through. The individual suffered no injuries, and Rangers were unable to locate the individual.

Malaga Canyon Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	0	0	0	0
Dog	0	0	0	0
Biker	0	0	0	0
Equestrian	0	0	0	0

Rangers received several calls of unauthorized trail building. Rangers patrolled the Reserve and confirmed three separate areas had evidence of unauthorized trail building, including cut lemonade berry, spur trail built, and tools found and retrieved. No individuals were found. Unauthorized trail building results in unsafe conditions, loose and exposed soil and damage to the surrounding habitat and native vegetation. Rangers continue to patrol and monitor the Reserve.



Rangers received a report from residents regarding a shelter erected along the wash within the Reserve. Rangers confirmed the location and found several items, including a sofa, tire, a seat cushion, and several food waste containers. OSM conducted a thorough inspection and removed all items from the area.


Ocean Trails Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	976	106	14	2
Dog	122	39	34	1
Biker	7	0	0	0
Equestrian	0	0	0	0

Rangers continued to receive reports of increased dog use at Rancho Palos Verdes Beach. Animals are not allowed on any beach in the City of Rancho Palos Verdes. Dogs are allowed on the trails, if they are on a leash no longer than 6 feet in length. The City is working with Trump National Staff to enforce the Municipal Code.

On January 7th, a group of peaceful protestors were gathering at Trump National Golf Course, outside of Ocean Trails Reserve. Los Angeles County Sheriff Deputies were notifed. No further action was taken.

While on patrol, OSM identified a deceased Barn Owl. The cause of death was unknown. Staff reported to location for retrieval by Animal Control.

Staff made contact with an individual who was seen collecting rocks along the beach and placing them into a bag. Staff educated the man on Preserve rules and regulations, including no take of any item from the Preserve or City beaches.

The Recreation and Parks Department is coordinating with the Public Works Department to identify and address trash issues at RPV Beach. The City will be coordinating with their contractor to increase service in an effort to address increased use of RPV beach. Currently, the City has three trash cans on the beach. Two are located at the bottom of Sunset Trail, and one is located at the bottom of Sunrise Trail. Additional trash cans are located on the bluff top trail at Catalina Trail.

OSM staff continued to monitor and address illegal paragliding activity. Launching from or landing on City property is a misdemanor, and in this particular instance has permanently denuded sensitive habitat, including the mariposa lily. Associated violations include vandalism, unauthorized access, trampling of native vegetation, and intentional removal / take of habitat. Staff will continue to reinforce closures with natural barriers, and ensure signage is in place to educate patrons. All authorized trails are marked on Reserve maps, which are available on the City's website under Nature Preserve Information and Trail Maps as well as on major trailheads.

Portuguese Bend Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	3,396	327	16	536
Dog	286	13	8	1
Biker	293	22	7	2
Equestrian	20	0	0	0

In January, trail closures were lifted following completion of trail work and repairs on Vanderlip Trail, Kubota Trail, and Gary's Gulch Trail. On January 7th, Gary's Gulch Trail access was closed for several days as a result of a broken pipe. Cal Water was notified of the incident as well as Public Works.

The Acacia Removal Project continued during this period with Phase 2, resulting on the completion of Eagle's Nest Trail and Ailor Trail. Intermittent closures were needed as crews work on Burma Road Trail. Consequently, to allow connectivity among Portuguese Bend Reserve, both one-way trails were removed, including Ishibashi Trail and Peacock Flats Trail, to allow two-way traffic through and around work areas. Patrons are required to wear face coverings / masks when 6 foot distance among other hikers is not possible, and to plan accordingly to avoid crowds.

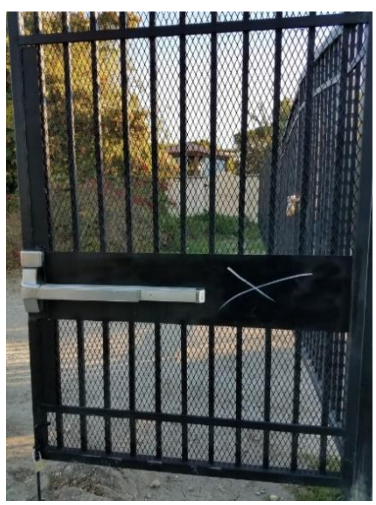
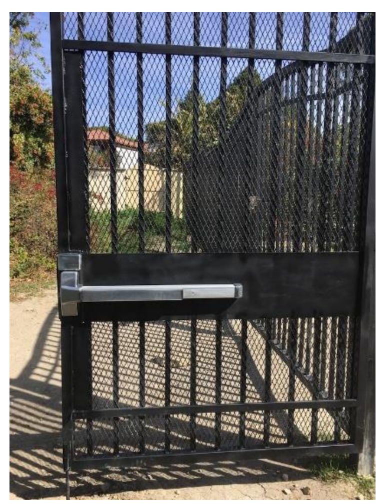
Erosion control improvement work on Burma Road took place in January. Repairs included the addition of a drainage swale on the side of a segment of the trail, and drainage dips at numerous locations. All work was coordinated with the PVPLC to minimize impacts to native habitat, and City staff expects that this work will greatly reduce the impacts of erosion on that regularly occurs after heavy rains.

Rangers were notified of a broken pipe resulting in water leak. Staff coordinated with Public Works Dept to identify repairs and assess damage on adjacent trails. No confirmed cause.

An unidentified vehicle driving on Palos Verdes Drive South in late hours, swerved onto the adjacent vegetation at lower Portuguese Bend Reserve, resulting in the damage and removal of a wooden post that secured a vehicle access point into the Reserve. The vehicle did not drive into the Reserve, and repairs were made by Public Works to reinstall and secure this access point. Excessive speed may have been a cause in this incident.

At the request from the City of Rolling Hills, two existing “Trail Ends” signs located at the end of Fire Station Trail were moved to a location for better visibility and to mark the jurisdictional boundary among the two cities.

Burma Pedestrian Gate was vandalized twice during this reporting period. OSM staff removed both instances of graffiti.

After a series of instances of vandalism on the three "Residential Quiet Zone" signs located at the start of Burma Road trail, OSM staff, with assistance from Public Works Staff, strengthened existing signs to deter individual(s) from bending, the sign. The sign continued to be vandalized with graffiti at least eight different instances during this reporting period. All instances were removed by staff.

Staff observed a female patron walking in the vehicle lane at Palos Verdes Drive South on the bottom portion of Portuguese Bend Reserve. Rangers were unable to make contact with the individual, but followed behind her to ensure she was not hit by oncoming traffic and notified LASD Deputies to assist. Deputies arrived and were able to talk with her safely on the curb and provided transport.

An increased use of unauthorized dirt bikes has been observed in the Portuguese Bend Reserve. Rangers made contact with three individuals, each with a bike and informed them on no motorized vehicles. These dirt bikes have a motor, throttle, max speeds of 31 mph, and stationary pedals.

San Ramon Reserve

	Public Contacts	Education	Warning	Enforcement
Hikers	1	0	1	0
Dog	0	0	0	0
Biker	2	0	0	0
Equestrian	0	0	0	0

Rangers received a call regarding individuals throwing rocks from Palos Verdes Drive East Road into the Reserve. The group was warned and educated on trails below and safety concerns.

Los Angeles County Sheriff Department notified Rangers of a report regarding dirt bike on trails. Rangers responded but were unable to locate a dirt bike or evidence of use on San Ramon trails.

OSM staff continues to monitor any evidence of an unauthorized shelter built along the wash. An unknown individual or group of individuals continue to secure materials on site.

Staff observed multiple counts of graffiti on guard rails, trashcans, signs, and on the pavement along the switchbacks in Palos Verdes Drive East. The graffiti was removed.

Three Sisters Reserve

	Public Contacts	Education	Warning	Enforcement
Hikers	54	17	0	0
Dog	4	2	0	0
Biker	4	0	0	0
Equestrian	0	0	0	0

Three signs were vandalized including the Filiorum Monument Sign, Preserve Rules sign, and Three Sisters monument sign. All counts of graffiti were removed.

Staff were notified of numerous visitors parking illegally on Barkentine Road to access Three Sisters Reserve on weekends. Specifically, the area is restricted to park by permit only. Park Rangers will continue to monitor the area and work with LASD Deputies to monitor and enforce parking violations.

Vicente Bluffs Reserve

	Public Contacts	Education	Warning	Enforcement
Hikers	369	79	22	19
Dog	42	3	1	0
Biker	1	0	0	0
Equestrian	0	0	0	0

OSM installed a new MPA sign (generously provided by the Los Angeles MPA Collaborative) to educate visitors on the no fishing or collecting regulations at Pelican Cove area in Vicente Bluffs Reserve.

Rangers received an inquiry regarding use of metal detector. The individual had been previously advised that it is not permitted in the Nature Preserve given use of additional tools, such as a shovel or pick to dig up or move dirt to expose potential findings.

Rangers found a “Rattlesnake” City sign damaged. There were obvious signs of vandalism in an attempt to remove the sign from its current location, along the Western section of the Reserve.

City Parks

Rangers educated patrons in City Parks regarding the City’s Municipal Code, including use of drones, dogs off-leash, motorized bicycles, large group gatherings, unauthorized special events, and park hours.

MEMORANDUM

Date: July 21, 2021

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

Norma Saldaña, Recreation Supervisor, City of Rancho Palos Verdes

From: Senior Park Ranger Fox

SUBJECT: 2nd Quarter Rancho Palos Verdes Ranger Enforcement Report

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PRESERVE VISITOR CONTACTS SUMMARY

- April 1 – June 31, 2021
- 4 Rangers patrolled the Preserve during this period

This reporting period continued to be atypical as operations continued to be influenced by the COVID-19 Pandemic and public health mandates from the State and LA County. Park Rangers continue to monitor County Health mandates and to educate visitors on face coverings, social distancing, and group size. Park Rangers also monitored signage at trailheads displaying County Health orders related to trail and open space use. Trail Counter data and ranger observations show a continued increase in public use of open spaces. This is likely due to the limitations in recreational and entertainment options during the Pandemic.

Operations under COVID-19 LA County Health Department Regulations

In accordance with the L.A. County Health Officer Order, group restrictions were no longer in place for outdoor areas. The group size capped at 20, per existing City regulations, for groups within the Palos Verdes Nature Preserve, and varied by park. Individuals were still required to wear masks indoors, regardless of vaccination status. Masks were no longer required in outdoor spaces for vaccinated individuals as of June 17th. COVID-19 signage relating to this were removed throughout the Preserve.

Trainings and Coordination:

Los Angeles County Fire Department Brush Fire Training (May 25-28):

The drill simulated a real-time brushfire in the Preserve. Several engines were on scene and worked together to initiate an incident command post, check communication equipment and support resources (such as helicopter units), identity access points, and simulate coordination with the City for traffic control. The drill allowed personnel to assess site topography and site-specific hazards.

Customer Service and De-escalation Training (June 2):

The online training provided tips to communicate effectively with members of the public, as well as learning when and how to de-escalate situations for officer and public safety.

Marine Protected Areas: Title 10 Training (June 4):

Park Rangers met with and participated in a training led by the California Department of Fish and Wildlife Game Wardens and the Los Angeles Marine Protected Area Collaborative Network Members to learn about the City's two MPAs, coordinate response in the field, and provide a platform to ask questions and share resources across agencies to protect the Abalone Cove SMCA and Point Vicente SMCA.

Leave No Trace Training (June 29):

Park Rangers participated in an online training to learn about the 7 Leave No Trace Principles, to be able to ask questions to an expert panel, and share resources with patrons visiting the Palos Verdes Nature Preserve.

<u>OVERALL VISITOR CONTACTS:</u>

Total Contacts: 11,524
- Hikers: 9,787
- Dog Walkers: 860
- Cyclists: 580
- Equestrians: 14
- Warnings: 283

Calls for Assistance: 11
- Heat exhaustion & heat stress: 5
- Dog exhaustion & heat stress: 2
- Basic First Aid Care (Minor cuts and rashes): 2
- Other (i.e. underlying condition, sprained ankle): 2

Preserve Information and Reporting Hotline Calls: 39 calls
**No. of violations higher than the number of calls. Some calls reported multiple violations observed at once.*

Trail Status and General Information: 11
Camping: 2
Use of Spur Trail / Closed Areas: 2
Dog on the beach or dog off leash: 4
Parking Issues: 2
Lost and Found: 1
Fishing / Poaching: 4
COVID-19 related (including masks, social distancing violations): 0
Maintenance: 9
E- Bike: 2
Medical Assistance / First Aid: 2

ENFORCEMENT SUMMARY:

Notice of Parking Citations Issued: Total 562

By Violation:
Passenger Loading Zone - 283
Park by Permit – 160
Parking Lot / Preserve / Park Hours- 66
Posted Temporary No Parking / Fire Lane – 25
Handicap Zone – 9
Other- 19

By Location:
Crenshaw Boulevard (Portuguese Bend / Filiorum adjacent) – 383
Del Cerro Park – 145
Abalone Cove Reserve – 32
Other – 1
Forrestal Reserve - 1

Notice to Appear Citations Issued: Total 25
Number of violations is greater than the number of citations issued

By Violation:
Closed Area – 13
Dogs off Leash – 3
Alcohol on Beach - 2
Smoking – 1
Motorized Vehicle - 1
Animals on the Beach – 3
Paragliding (Misdemeanor) – 1
Littering – 1

By Location:
Abalone Cove Reserve – 16

Vicente Bluffs Reserve – 2
Forrestal Reserve – 1
Portuguese Bend Reserve – 1
Ocean Trails Reserve – 3
City of RPV Parks - 2

ACTIVITY REPORT BY RESERVE:

The next section provides further information on projects, reports, and observations received by Rangers from the public, organized per Reserve. Numbers do not reflect actual number of individuals in the Reserve, rather those spoken to while on foot and/or vehicle patrols. Information does also not include routine maintenance.

Abalone Cove Reserve:

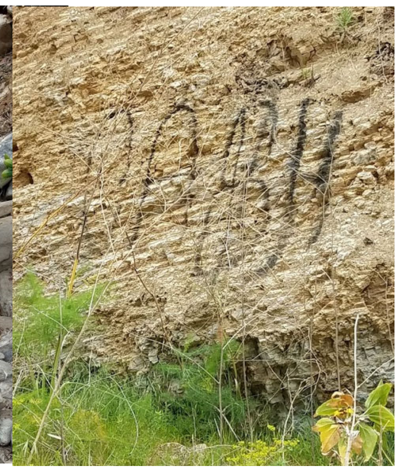
	Public Contact	Education	Warning	Enforcement
Hikers	1,768	386	113	44
Dogs	88	53	28	3
Biker	8	0	2	0
Equestrian	0	0	0	0

A group of four individuals were seen by staff at Sacred Cove Beach with a table, and 18 cans of alcohol and a Hennessy bottle drinking. Staff informed them of no alcohol on City beaches or Preserve. The individuals complied and all beverages already opened were confiscated and disposed of.

On April 11, a deceased seal had washed ashore and was located by staff. The seal had several days of decomposition. Staff notified several agencies for retrieval.

On April 13, staff found an encampment along Altamira Canyon. No individuals were located near the premises, a notice was placed on site to inform the individuals regarding no camping permitted.

On Saturday, April 24, staff reported several instances of graffiti on the rock walls of Altamira Canyon as well as two “Hardcore Mtn” spray paint cans. Staff covered up and removed graffiti while minimizing damage to the natural habitat.



On Saturday, April 24, staff identified a secondary encampment off trail near Beach School Trail. The area had been cleared of debris and had several miscellaneous items. No individuals were located near the premises, a notice was placed on site to inform the individuals regarding no camping permitted.

On Saturday, May 1st, staff found over 6 instances of graffiti on the tower ruins at the bottom of Olmstead Trail.

On Wednesday, May 5th, and Monday, June 14th, staff located evidence of an illegal campfire along the beach in Sacred Cove. Rangers ensured all embers were fully extinguished, removed the ignition source, and disbanded the ring. Smoking, campfires, and other sources of flame are not permitted within the Palos Verdes Nature Preserve, or in coastal areas.

Staff installed and replaced faded “Warning!” Signs from NOAA located within Sacred Cove to remind park patrons to maintain a safe distance when around seals and sea lions.

On May 18, two small landslides occurred at Sacred Cove Beach. No individuals were injured. The resulting debris buried 2 existing city signs posted for “Caution / Falling Rocks on Beach.” Staff will restore the signs.

On May 19, an unauthorized motorcycle accessed the beach below the Archery Range by traversing over the rocks adjacent to the gate. Rangers were able to make contact with the individuals, educated, and issued a citation for unauthorized use.

On June 2, 2 “No Animals On the Beach” signs were installed at Sacred Cove Trail as a result of increased sightings of dogs on the beach. Staff continue to monitor activity and enforce regulations.

On Wednesday, June 16, Rangers observed a tent hidden behind the ruins at the bottom of Olmstead Trail and covered by a few cut sections of mustard stalks. Rangers were able to make contact with the individuals and informed them of the no camping rules.

On weekends, holidays, and during low-tide events, staff continued to observe high traffic in the City's two State Marine Conservation Areas, primarily, at Abalone Cove SMCA. Staff continued to educate patrons about Marine Protected Areas (MPAs), and shared proper tide pool etiquette for safely viewing but not disturbing marine organisms. During this reporting period, a total of 88 violations were observed, and 177 individuals were contacted and educated by staff, resulting in the return of 667 marine organisms, and an additional 52 violations prevented by providing information and alternative locations where individuals can legally take outside of the MPA zone with a fishing license.

Additionally, staff continued to collaborate, and communicate with local agencies, including California Department of Fish and Wildlife, Los Angeles Waterkeeper, and Los Angeles Marine Protected Areas Collaborative Team. Through this partnership, additional signs were approved and provided to the City, specific to Abalone Cove SMCA (left). The sign includes language on "No hook and line from shore" as some take is permitted, including spearfishing and take of squid with handheld nets. In comparison, the Point Vicente SMCA does not permit any take and has "No fishing or Collecting" language (right).

Poaching activity dropped significantly within our MPAs, especially when compared to the activity seen during the last year. Overall, despite record high levels of activity within our MPAs, instances of violations are still low, and those that are observed are mostly non-consumptive. For the future, OSM will continue to patrol MPAs within the City jurisdiction (Abalone Cove State Marine Conservation Area and Point Vicente State Marine Conservation Area) and install signage to educate patrons and combat poaching activity. Compliance rates among groups contacted by staff remains at 100%.

Agua Amarga Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	16	3	0	0
Dog	2	0	0	0
Biker	3	0	0	0
Equestrian	0	0	0	0

Alta Vicente Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	63	8	1	0
Dog	18	6	1	0
Biker	0	0	0	0
Equestrian	0	0	0	0

Park Rangers coordinated with Coast Guard personnel to ensure the bunker in the adjacent area was secured. The lock had been vandalized once during this reporting period.

OSM staff has observed increased use at Alta Vicente Reserve and an increase in violations, including dogs off leash and people off trail, encroaching into native habitat. Staff and PVPLC continued to monitor activity and educate patrons about authorized trail use, and ensuring all patrons comply with the Preserve rules. Additional signs were installed at Alta Vicente Trail and North Spur Trail to remind visitors of the rules.

On April 8, signage was installed along the Civic Center area and Point Vicente Park in an effort to direct Preserve Shuttle patrons. Several “Preserve” and “Shuttle” signs were installed as well as 3 trash cans, 1 bench, and 2 informational kiosks with maps of the adjacent reserve: Alta Vicente.

Filiorum Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	85	7	0	0
Dog	4	0	0	0
Biker	8	2	0	0
Equestrian	0	0	0	0

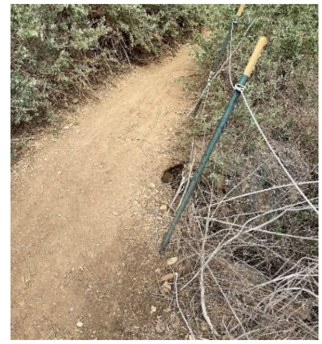
A “Quiet Zone” sign had been vandalized on Crenshaw Boulevard, adjacent to Filiorum Trails. Rangers removed the graffiti and continued to monitor the area for any instances of vandalism. Staff cemented a “Residential Quiet Zone” sign installed near the lower section of Gary’s Gulch Trail after it had been removed from the ground.

Forrestal Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	743	121	19	34
Dog	114	25	10	1
Biker	66	12	3	0
Equestrian	0	0	0	0

Rangers received reports of unauthorized use at Ladera Linda upper fields, property of Palos Verdes Unified School District. City staff continued to coordinate efforts to deter unauthorized activity, including use of spur trails leading up to the fields from the upper parking lot. The City of Rancho Palos Verdes installed temporary barriers, including “Area Closed” signage, orange fencing, and increased patrols to educate park patrons.

Palos Verdes Unified School District installed signage to inform visitors of Permit Only field use.



On May 13, Rangers were notified of 2 widening holes at the ocean side of Conquerer Trail as a result of water erosion. This area is of concern as the trail narrows. Staff continued to monitor this area and is working with the Public Works Department on the issue.

Throughout this reporting period, Rangers received several reports of dogs off leash and dog feces on trails. Rangers focused patrols to educate patrons and enforce where appropriate.

Ocean Trails Reserve

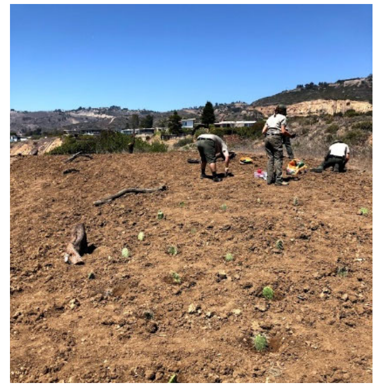
	Public Contact	Education	Warning	Enforcement
Hikers	670	96	28	2
Dog	52	8	5	0
Biker	5	2	2	0
Equestrian	0	0	0	0

On April 1st, Rangers met with Palos Verdes Peninsula Land Conservancy Staff to learn about sustainable harvesting of a coastal variety of prickly pear cacti for restoration areas. Among other topics discussed, the Conservancy discussed the importance of the cacti as suitable habitat for endangered species, such as the California gnatcatcher.

On April 13, staff installed “Tidepool Collecting” signs, provided by the Los Angeles Marine Protected Area Collaborative Team for use outside of MPAs. The signs were mounted on 3 existing wooden boards along East Boundary and Sagebrush Walk Trail.

On April 19, and 22, staff replanted 150 prickly pear cacti and cholla plants in a denuded habitat area, measuring .10 acres in size, caused by illegal activity in a closed area. Staff installed additional "Area Closed" signs and added barriers to deter unauthorized use while allowing the area to naturally grow. This particular area is habitat suitable for bright green dudleya.

On May 11, staff was notified of vandalism that occurred on the restoration area, with the removal of 140 plants, and 4 stumps that had been cemented in place were removed and 3 others that had been wired into the ground



were also removed and thrown down the cliffside. The City continues to monitor this area and any trespassing.

On May 14, the City closed the easternmost bridge on Catalina Trail near Lakeview Trail as a a safety concern. The western end of the bridge had evidence of cracking. Staff coordinated with Trump National Golf to set up appropriate closure signage and educate patrons on safety concerns. Despite signage, staff continued to observe individuals crossing barriers, and creating spur trails in an effort to avoid the bridge.



The Recreation and Parks Department is coordinating with the Public Works Department to identify and address trash issues at RPV Beach. The City will be coordinating with their contractor to increase service in an effort to address increased use of RPV beach. One Volunteer Beach Clean Up event was scheduled on June 19th during this reporting period by the Recreation & Parks Department, adhering to COVID-19 restrictions. Rangers assisted in retrieval of 2 lobster traps and trash bags collected during the event. Additional trash cans were requested by Trump National Golf to secure litter and deter wildlife from accessing trash.

OSM staff continued to monitor and address illegal paragliding activity. Launching from or landing on City property is a misdemanor, and in this particular instance has permanently denuded sensitive habitat, including the mariposa lily. Associated violations include vandalism, unauthorized access, trampling of native vegetation, and intentional removal / take of habitat. Staff will continue to reinforce closures with natural barriers, and ensure signage is in place to educate patrons. All authorized trails are marked on Reserve maps, which are available on the City's website under Nature Preserve Information and Trail Maps as well as on major trailheads.

Portuguese Bend Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	5,924	244	29	365
Dog	533	40	20	0
Biker	483	33	14	0
Equestrian	14	2	0	0

On April 6, signage was installed along the lower section of Portuguese Bend Reserve in an effort to direct Preserve Shuttle patrons. Several "Preserve" and "Shuttle" signs were installed as well as a portable restroom, 1 trash can, and an informational kiosk with maps of the adjacent reserves: Portuguese Bend Reserve and Forrestal Reserve.

New hours of operation signs were installed for Burma Road gate, one of the main access points into Portuguese Bend Reserve. The gate opens manually at 7:00am daily, and closing time varies based on the sunset times.

San Ramon Reserve

	Public Contacts	Education	Warning	Enforcement
Hikers	0	0	0	0
Dog	0	0	0	0
Biker	3	0	0	0
Equestrian	0	0	0	0

No activity reported during this period.

Three Sisters Reserve

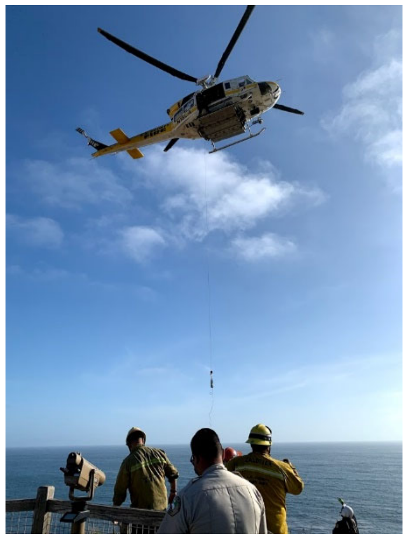
	Public Contacts	Education	Warning	Enforcement
Hikers	60	16	0	0
Dog	8	0	0	0
Biker	0	0	0	0
Equestrian	0	0	0	0

Vicente Bluffs Reserve

	Public Contacts	Education	Warning	Enforcement
Hikers	439	63	7	3
Dog	41	4	1	0

Biker	4	0	0	0
Equestrian	0	0	0	0

On Friday, April 9, a rescue took place on Terranea Trail as Los Angeles County Fire Department personnel attempted to locate and safely hoist an individual who had climbed over the fence in order to have a closer view of the ocean. Conditions were unsafe for personnel, a helicopter was called in to assist. No individuals were injured.



“See Something, Say Something” Signs were mounted along various coastline trails to encourage the public to report suspicious activity related to smuggling or panga boats.

On April 12, a panga boat landed at unknown hours. No individuals were seen. Several life jackets and other items had been discarded along adjcaent beach and along Tovemore Trail.

On May 13, Rangers patrolled the beach below Vicente Bluffs and counted at least 12 instances of graffiti on medium sized rocks located on the beach. Clean up was coordinated.

On June 1st, a panga boat was sighted at the along the cove in Pelican Cove. A member of the public had called in the docked panga boat around 0800 hours.

Vista del Norte Reserve

	Public Contacts	Education	Warning	Enforcement
Hikers	1	0	0	0
Dog	0	0	0	0
Biker	0	0	0	0
Equestrian	0	0	0	0

No activity reported during this period.

City Parks

Rangers educated patrons in City Parks regarding the City's Municipal Code, including use of drones, dogs off-leash, motorized bicycles, large group gatherings, unauthorized special events, and park hours.

MEMORANDUM

Date: October 13, 2021

To: Katie Lozano, Senior Analyst, Recreation and Parks Department

Norma Saldaña, Recreation Supervisor, Recreation and Parks Department

From: Senior Park Ranger Fox

SUBJECT: 3rd Quarter Rancho Palos Verdes Ranger Enforcement Report

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PRESERVE VISITOR CONTACTS SUMMARY

- July 1 – September 30, 2021
- 4 Full Time Park Rangers patrolled the Preserve during this period
- 3 Part Time Parking Enforcement Rangers patrolled access points, educated patrons, and enforced Park Mobile Implementation on Crenshaw Boulevard, effective (August 2, 2021)

This reporting period continued to be atypical as operations continued to be influenced by the Covid-19 Pandemic and public health mandates from the State and LA County. Masks were still required for indoor activities, and where social distancing cannot be observed, regardless of vaccination status. Trail Counter data and ranger observations show an increase in public use of open spaces compared to the previous quarter, and from the previous year with the highest activity recorded in the month of September.

Park Rangers also assisted the public in the implementation of the ParkMobile Parking Reservation System on Crenshaw Boulevard and Park Place. The program began on July 6, 2021, with a one-month free reservation period to educate the public on the new parking reservation system. As of August 2, the parking reservation system included the installation of sensors on the ground, and 3 new Parking Enforcement Park Rangers who served as Ambassadors.

Operations under COVID-19 LA County Health Department Regulations

In accordance with the L.A. County Health Officer Order, group restrictions were no longer in place for outdoor areas. The group size capped at 20, for groups within the Palos Verdes Nature Preserve, and varied by park. Individuals were still required to wear masks indoors, regardless of vaccination status. Masks were no longer required in outdoor spaces for vaccinated individuals at the end of Quarter 2, with no changes in this quarter.

Trainings and Coordination:

Coastal Issues: Smuggling and Poaching in RPV's Coast (August 17 and 19):

Recreation Supervisor Saldaña and Recreation Specialist Sichan hosted an internal training for all Open Space Management staff to discuss how to identify common issues while patrolling RPV's coast, which agencies to coordinate with, and how to report the issues accordingly.

Recreating Safely During Fire Season (August 25):

Hosted by Community Nature Connection and Southern California Leave No Trace Advocate Michael Garcia, this online training provided a plan on how to prepare, mitigate risk and safely enjoy the outdoors during fire season.

Rattlesnake Safety and Handling Workshop (September 1):

Open Space Management and the Palos Verdes Peninsula Land Conservancy (PVPLC) Stewardship Team attended a training hosted by Dr. Emily Taylor to learn about snake identification, rattlesnake behavior, safety, and handling.

Marine Protected Areas: Waterkeeper Ride-Along (September 29 and 30):

Open Space Management Staff participated in a boat ride-along on September 29 and 30 with Los Angeles Waterkeeper, to identify MPA violations and observations along the RPV coast by boat! All boat participants are trained to complete surveys, and record data to assist agencies in monitoring the safety and welfare of MPAs.

Project Coordination & Emergency Work:

OSM staff help to coordinate multiple projects within the Preserve to ensure Natural Communities Conservation Plan / Habitat Conservation Plan (NCCP / HCP) compliance with PVPLC, to implement trail closures and public safety measures, and to provide public notification. Below are a list of projects OSM staff helped coordinate with PVPLC, the Public Works Department, and public utilities in the third quarter:

- California Water Company at Lower Rim Trail: Routine Maintenance (August 2021 at Portuguese Bend Reserve)
- California Water Company at Burma Road Trail: Emergency Maintenance Fire Hydrant Damaged due to Vehicle Collision (August 2021 at Portuguese Bend Reserve)
- Crown Castle at Wanderer Trail: Downed Power Lines (August 2021 at San Ramon Reserve)
- Crown Castle at Klondike Canyon (Site Visit: September 2021, work TBD)
- Southern California Edison at Barkentine Trail: Routine Maintenance (Coordination in September, completed in October 2021 at Three Sisters Reserve)
- Southern California Edison at Coast Guard Property: Routine Maintenance (Fall 2021 at Alta Vicente Reserve)
- Land Movement, and other Hazards: Emergency Maintenance (Continuous at Ocean Trails, Portuguese Bend, and Abalone Cove Reserves)
- Trump National Staff at Southshore Coastal Trail: Maintenance (Fall 2021 at Ocean Trails Reserve)
- Trump National Staff at Purple Sage Trail: Maintenance (Fall 2021 at Ocean Trails Reserve)

OVERALL VISITOR CONTACTS:

Total Contacts: 8,203
Hikers: 6,920
Dog Walkers: 617
Cyclists: 642
Equestrians: 24
Warnings: 164

Calls for Assistance: 17 transports
Heat exhaustion & heat stress: 11
Dog exhaustion & heat stress: 5
Basic First Aid Care (Minor cuts and rashes): 0
Other (i.e. underlying condition, sprained ankle): 1

Preserve Information and Reporting Hotline Calls: 34 calls
**No. of violations higher than the number of calls. Some calls reported multiple violations observed at once.*
***Interrupted Service for a 2-week period at the end of August. Some calls may not have been transmitted to all reporting parties.*

Trail Status and General Information: 7
Camping: 3
Use of Spur Trail / Closed Areas: 1
Parking Issues: 7
Vandalism: 6
Fishing / Poaching: 1
Drone: 1
Maintenance: 2
Removal of flora/fauna: 4
Smoking: 1
Medical Assistance / First Aid: 1

ENFORCEMENT SUMMARY:

Notice of Parking Citations Issued: 464 Total

By Violation:
Passenger Loading Zone - 1
Park by Permit – 380
Parking Lot / Preserve / Park Hours- 24
Posted Temporary No Parking / Fire Lane – 40
Handicap Zone – 19
Other- 41

By Location:
Crenshaw Boulevard (Portuguese Bend / Filiorum adjacent) – 323
Del Cerro Park – 115
Abalone Cove Reserve – 51
Other – 5
Forrestal Reserve – 5
Vicente Bluffs Reserve - 5

Notice to Appear Citations Issued: 12 Total
Number of violations is greater than the number of citations issued

By Violation:
Closed Area – 8
Dogs off Leash – 4

By Location:
Abalone Cove Reserve – 5
Alta Vicente Reserve - 1
Vicente Bluffs Reserve – 3
Forrestal Reserve – 1
Portuguese Bend Reserve – 1
Ocean Trails Reserve – 1

ACTIVITY REPORT BY RESERVE:

The next section provides further information on projects, reports, and observations received by Rangers from the public, organized per Reserve. Numbers do not reflect actual number of individuals in the Reserve, rather those spoken to while on foot and/or vehicle patrols. Information does also not include routine maintenance.

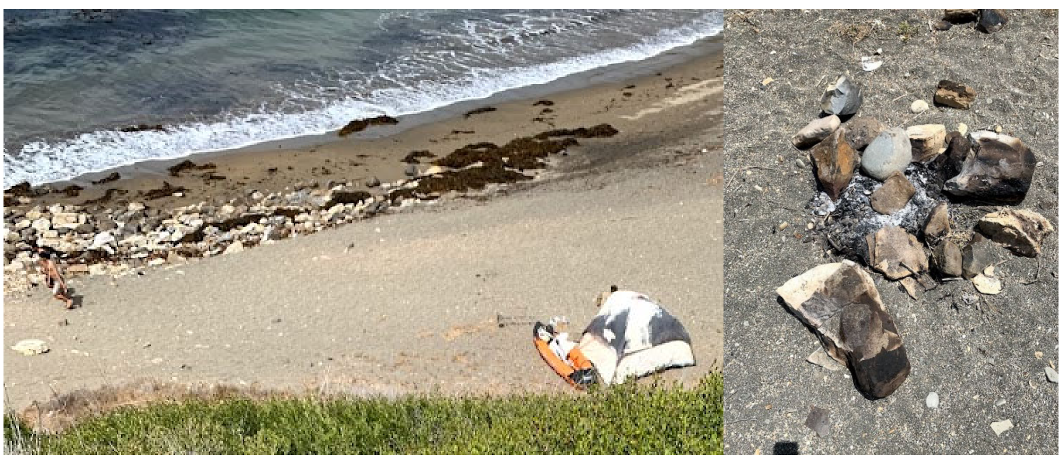
Abalone Cove Reserve:

	Public Contact	Education	Warning	Enforcement
Hikers	1,315	220	71	4
Dogs	37	7	8	0
Biker	27	2	2	0
Equestrian	2	2	2	0

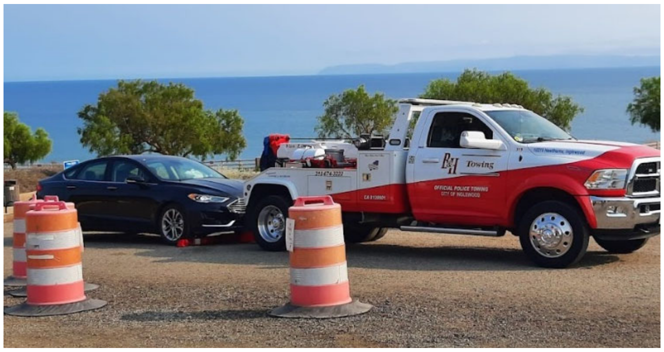
On July 15, Park Rangers were notified of a panga boat landing at Sacred Cove. Park Rangers assisted Los Angeles County Sheriff Departments, Coast Guard, and Border Patrol in locating all individuals, resulting in 14 detained.

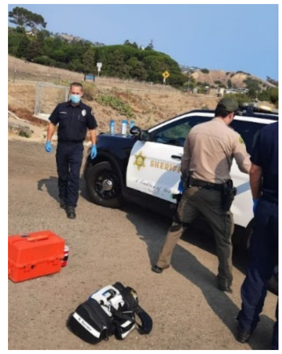
On July 23, Park Rangers made contact with a male who had set up a tent within the beach at Sacred Cove. It is unknown whether the individual had camped overnight. A bonfire had also been removed by Rangers.

On July 27, Rangers observed and removed an uninhabited tent on Sacred Cove Beach. The tent had been reported days prior, and not been claimed. No identifiable information was found, and the tent was discarded.



On August 19, OSM staff observed an individual who had been honking his car horn repeatedly while parked in the Abalone Cove parking lot. The individual had been drifting in and out of consciousness after inhaling several canisters of compressed air. Los Angeles County Sheriff Department arrived to assist. Initially, the individual attempted to flee, but was restrained by Deputies. The vehicle was towed out of the parking lot and the individual was taken to a hospital for medical assessment.





Throughout this reporting period, several patrons reported vehicle break-ins at Abalone Cove Parking Lot. OSM staff worked with Los Angeles County Sheriff Department to report such incidents. By September 14, Los Angeles County Sheriff Department confirmed the individual had been caught. Staff continue to remain vigilant and report any and all suspicious activity to Los Angeles County Sheriff Department.

On weekends, holidays, and during low-tide events, staff continued to patrol in the City's two State Marine Conservation Areas, primarily, at Abalone Cove SMCA. Staff continued to educate patrons about Marine Protected Areas (MPA), and shared proper tide pool etiquette for safely viewing but not disturbing marine organisms. During this reporting period, a total of 40 violations were observed, and 17 individuals were contacted and educated by staff, resulting in the return of 2 marine organisms, and an additional 11 violations prevented by providing information and alternative locations where individuals can legally take outside of the MPA zone with a fishing license.

During this reporting activity, there was a sharp decrease in poaching activity, likely due to a lack of low tides during the daytime. However, violations are occurring despite lower activity because of handing or removing wildlife from the tidepools and with boats fishing or taking from our MPAs. Staff continue to see high compliance rates when contacting those engaged in MPA violations, with most people contacted simply being unaware of the MPAs or the laws surrounding them. For the future, OSM will continue to patrol our MPAs and coordinate with several partners for training and education purposes.

Agua Amarga Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	3	1	0	0
Dog	1	0	0	0
Biker	0	0	0	0
Equestrian	0	0	0	0

Alta Vicente Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	26	2	0	0
Dog	7	0	0	1
Biker	0	0	0	0
Equestrian	0	0	0	0

On September 7, Rangers received a report of a woman who has repeatedly had her dog off leash. The woman was verbally aggressive towards other hikers when asked to leash her dog and has spat at the same group during a later encounter. The incident was reported to City Council and the Sheriff Department. Rangers increased patrols in this area to make contact with the individual, however, the woman has not been sighted.

Filiorum Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	100	7	0	0
Dog	7	0	0	0
Biker	5	0	3	0
Equestrian	0	0	0	0

On August 6, Rangers observed a large group gathering, setting up tables, and distributing food adjacent to an access point to Filiorum Reserve. In compliance with the City's Municipal Code, no special events are permitted, which includes setting up of tables. The individuals were part of a church group of approximately 80 individuals. The group was also in violation of group size, at 20 individuals. The group complied and picked up all belongings.

Forrestal Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	404	50	5	0
Dog	71	15	4	1
Biker	50	4	2	0
Equestrian	0	0	0	0

Rangers received reports of unauthorized use at Ladera Linda upper fields, property of Palos Verdes Peninsula Unified School District. City staff continued to coordinate efforts to deter unauthorized activity, including use of spur trails leading up to the fields from the upper parking lot. Park Rangers educated patrons in violation of posted rules and regulations, including dogs off leash, and unauthorized use at the Ladera Linda upper fields. Rangers also assisted and coordinated with Recreation and Parks staff to secure the Forrestal Drive gate to ensure access is limited to authorized vehicles.

Throughout the month of September, the City has received increased reports of violations including dogs off leash, failure to pick up dog feces, and bicyclists on non-bike trails within the Forrestal Reserve and adjacent area. Rangers have increased patrols to address these violations, educate the public, and enforce as necessary. During these patrols, Rangers observed little to no violations inside the Reserve, and have received compliments from patrons for their increased presence.

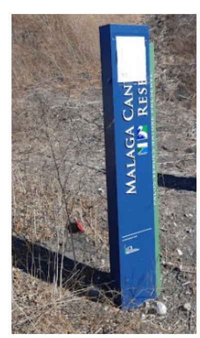
During the month of August, several signs were installed to educate patrons regarding the City's Municipal Code to prohibit e-bikes on Preserve Trails. The signs had been previously installed in May 2021, but several had been vandalized and removed from their original location.

On August 30, Rangers received multiple reports of 2 Portable Restrooms tipped over. The 2 Portable Restrooms are located at the end of of Main Sail Drive, adjacent to the Upper Ladera Linda Field. Rangers confirmed no individuals were inside, removed graffiti, and conducted litter abatement. The rightful owner, the Palos Verdes Unified School District was notified of the report.

On September 28, Ladera Linda staff received a report of 2 individuals riding dirt bikes in the Preserve. The individuals were seen accessing Purple Sage and driving around Burma Road / Ishibashi Trail, “tearing up the trails” and driving around fast. Rangers set up patrols to make contact with the individuals, but have not received additional reports since then.

<u>Malaga Reserve</u>

	Public Contact	Education	Warning	Enforcement
Hikers	0	0	0	0
Dog	0	0	0	0
Biker	0	0	0	0
Equestrian	0	0	0	0



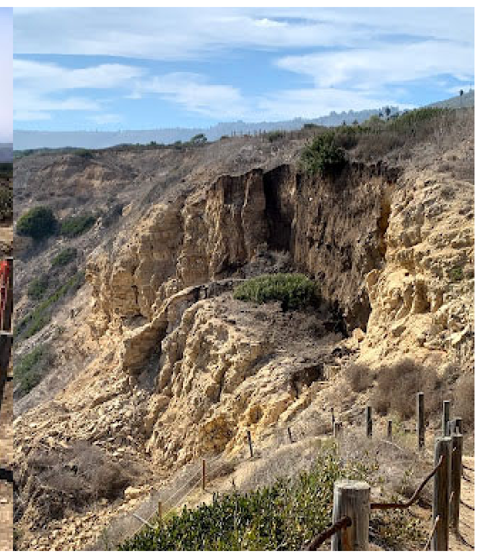
On July 28, OSM received reports of trash and an encampment along the canyon. OSM staff hiked the area, conducted liter abatement, removed one unauthorized sign on the Monument and confirmed no encampments in the area.

OSM received 2 additional reports during this period of individuals observing a homeless individual with shopping cart entering the trails with concerns of encampment. Rangers patrolled the area but did not observe any encampments or individuals in the area.

Ocean Trails Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	697	113	10	0
Dog	80	3	11	2
Biker	11	0	0	0
Equestrian	0	0	0	0

On July 2, Rangers received a report from Recreation and Parks Staff of an active landslide taking place near Coastal Switchback Trail. The landslide resulted in falling rock onto the trail, and dislodged several wooden posts that ran parallel to the trail. The City Geologist was notified, and Park Rangers notified Trump National Staff for closures. To date, the trail remains closed, and the City Geologist continues to monitor the area for any movement. Closure signage has been installed, and Open Space Management staff frequently monitor barriers, educate patrons, and enforce violations.



On July 30, a hotline call reported trash bins vandalized and found over the hillside at the picnic area near Sagebrush Walk Trail and Southshore Coastal Trail. Trump National Golf Staff was notified and asked to retrieve the trash bins.

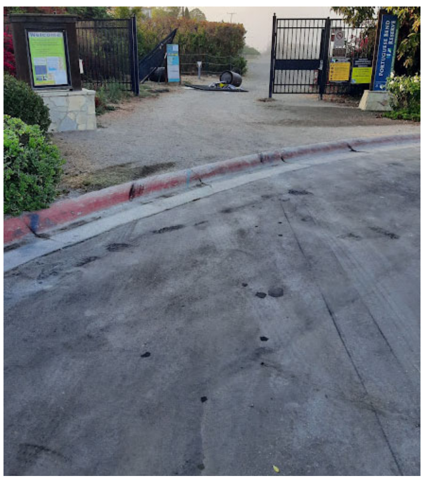

On July 31, Rangers received a report from Trump National Golf Staff and contacted a group of approx 20 individuals along Founder's Park facing the beach in Ocean Trails. The group had "Trump 2020" and "Faith Over Fear" flags. Group was already in process of wrapping up event, and left shortly after Rangers arrived.

On August 23, Rangers reported "No Animals on the Beach" signs missing and/or vandalized to Trump National Golf Staff. Trump National Golf Staff indicated they would install a new signage. Rangers continued to educate patrons regarding no dogs on the beach, and enforce as needed.


<u>Portuguese Bend Reserve</u>

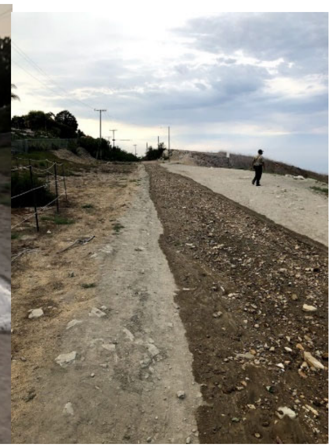
	Public Contact	Education	Warning	Enforcement
Hikers	4,004	453	19	0
Dog	376	47	13	1
Biker	537	43	14	0
Equestrian	24	2	0	0

On July 3, Rangers received a call from Los Angeles County Sheriff's Department regarding a vehicle driving in Burma Road. Rangers were not able to locate the vehicle. Burma Road Gate had been vandalized, resulting in both vehicle panels in need of repairs. Witnesses provided statements, to Los Angeles County Sheriff's Department.



Public Works assisted in the removal of the vehicle panels, and temporary placement of water buffalos to deter unauthorized access into the Reserve.

On July 17, an unknown vehicle struck the fire hydrant located at Burma Road and Burell Lane. Los Angeles County Fire Department were called to turn off the water. Park Rangers closed down the access point and guided patrons to alternative access points for public safety. The water flowed down Burma Road Trail, onto Kelvin Canyon Trail, and Gary's Gulch Trail. The City notified Cal Water for repairs and coordinated with CDFW and PVPLC for habitat mitgation, repairs, and blue line stream assessment.

Several trail closures and warning signage were erected to advise the public to use caution related to land movement, and trail erosion along or adjacent to trails. Park Rangers patrolled the area on a weekly basis and reported to Public Works and the City Geologist.

On August 6, Rangers observed damage to several wooden posts, traffic signage, and vehicle debris to the Lower Portuguese Bend area. The access points into the Reserve remained secured. Rangers set up temporary orange cones to deter unauthorized parking. "No Stopping Anytime" signage remained intact.

On September 9, 2021, a vehicle crashed into the remaining section of the Burma Road pedestrian gate. Los Angeles County Sheriff Department and Los Angeles County Fire Department responded and provided medical care and transport to the hospital. OSM responded and coordinated with Public Works for removal of remaining section of the gate panel for safety concerns.

San Ramon Reserve

	Public Contacts	Education	Warning	Enforcement
Hikers	0	0	0	0
Dog	0	0	0	0
Biker	2	2	0	0
Equestrian	0	0	0	0

Rangers patrolled San Ramon several instances during this reporting period as a result of ongoing graffiti, and vandalism of City property, including tampering with City locks to access restricted vehicle access areas.

Three Sisters Reserve

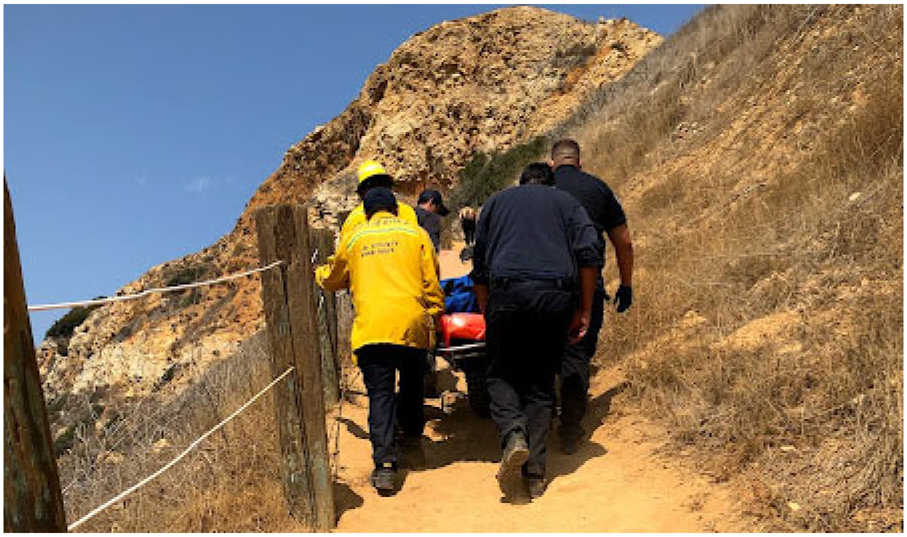
	Public Contacts	Education	Warning	Enforcement
Hikers	26	3	0	0
Dog	4	0	0	0
Biker	1	0	0	0
Equestrian	0	0	0	0

Vicente Bluffs Reserve

	Public Contacts	Education	Warning	Enforcement
Hikers	345	19	0	4
Dog	34	7	0	0
Biker	9	0	0	0
Equestrian	0	0	0	0

On July 25, Park Rangers reported vandalism to the restrooms at Pelican Cove parking lot to Terranea Staff. The restroom facility had been tagged, as did the adjacent retaining wall on Tovemore Traill, and several signs damaged. Terranea staff was also notified of the incident. A report was submitted to GPC for proper removal.


On August 15, Rangers assisted with an emergency of a possible franctured ankle on the westside of the cove near Tovemore Trail. Los Angeles County Fire Department were on scene and transported the patient.



On September 6, Park Rangers reported vandalism to the restrooms at Pelican Cove parking lot to Terranea Staff. The restroom facility had been tagged, as were several signs. A report was submitted to GPC for proper removal.

Starting on September 24, Terranea Resort Staff closed the Pelican Cove parking lot after hours (one hour after sunset to one hour before sunrise) to deter vandalism, and unauthorized access to adjacent trails. OSM staff installed several posts, cables, and Rangers assisted in enforcing after hours use.

On September 29, Rangers received reports of graffiti on several large rocks along Terranea Way Trail. OSM reported the graffiti to GPC.

Vista del Norte Reserve

	Public Contacts	Education	Warning	Enforcement
Hikers	0	0	0	0
Dog	0	0	0	0
Biker	0	0	0	0
Equestrian	0	0	0	0

During this reporting period, several “Public Trail” signs were reported, and replaced, as needed by the Sol y Mar HOA, who manages the public trails adjacent to the Vista del Norte Reserve. The City and PVPLC also coordinated with the identification of a spur trail. The HOA closed the spur trail. It is unknown who(m) created the spur trail.

City Parks

Rangers educated patrons in City Parks regarding the City’s Municipal Code, including homeless individuals and encampments, use of drones, dogs off-leash, and dog park issues related to the maintenance of Eastview’s dog park, motorized bicycles, large group gatherings, unauthorized special events, and park hours.

MEMORANDUM

Date: 2/9/2022

To: Katie Lozano, City of Rancho Palos Verdes

Norma Saldaña, City of Rancho Palos Verdes

From: Senior Park Ranger Fox

SUBJECT: 4th Quarter Rancho Palos Verdes Ranger Enforcement Report

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PRESERVE VISITOR CONTACTS SUMMARY

- October 1 – December 31, 2021
- 3 Full Time Park Rangers patrolled the Preserve during this period
- 3 Part Time Parking Enforcement Rangers patrolled access points, educated patrons, and enforced ParkMobile Implementation on Crenshaw Boulevard

This reporting period continued to be atypical as operations continued to be influenced by the COVID-19 Pandemic and public health mandates from the State and LA County. Masks were still required for indoor activities, and where social distancing cannot be observed, regardless of vaccination status. Trail Counter data and ranger observations show an increase in public use of open spaces compared to pre-pandemic, however, use declined from the previous quarter.

Park Rangers continued to assist the public with the implementation of the ParkMobile Parking Reservation System on Crenshaw Boulevard and Park Place. Following the City's Council direction on October 5, the following modifications were implemented: a) allow same-day reservations with a cut-off one hour prior to the reservation, b) create simplified access to the ParkMobile reservation link, c) improve instructional signs, d) discontinue requiring reservations for Recreational Residential Parking Permit holders, and e) change the QR code to go specifically to the ParkMobile webpage and to work with ParkMobile to be more user friendly.

Over this reporting period, warning signage was created and installed at key trailheads to warn the public of some of the natural hazards present in open space areas. These signs will continue to be installed as needed at locations throughout the Preserve.

During the fourth quarter the City had a significant rain event that resulted in Preserve closures December 14 – 15, December 17-18, and December 23 – January 2). The Preserve also sustained significant trail damage and erosion from the rains, and trail repairs are ongoing.

Operations under COVID-19 LA County Health Department Regulations

In accordance with the L.A. County Health Officer Order, group restrictions were no longer in place for outdoor areas. However, the City does have a requirement that groups in the Preserve are no larger than 20. Individuals were still required to wear masks indoors, regardless of vaccination status. Masks are strongly recommended at crowded outdoor events, and in outdoor spaces where they gather if distancing is not possible or practical.

Trainings and Coordination:

Driver Safety (November 9):

All staff received information and training related to driver safety and awareness. This online course was provided by the California Joint Powers Insurance Authority to all City employees to improve driver habits, attention, attitude, and judgement, and discuss impacts both on and off the job.

Investigating Claims & Preserving Evidence (November 17):

All staff received information and training related to investigations of accidents and incidents that take place in the workplace. This online course was provided by the California Joint Powers Insurance Authority to all City employees to give an overview of typical claims and types of incidents requiring an agency investigation along with tools to improve report writing skills.

Marine Protected Area (MPA) Training for Officers and Enforcement Partners of Los Angeles County (November 17)

Park Rangers attended this half-day training to learn more about the science of managing MPA's human use data, collections, observations, and the codes and regulations related to activity within, near, or adjacent MPA's.

Marine Animal Rescue (November 18):

OSM Staff hosted and received information from Marine Animal Rescue Specialists, Inc. and Marine Mammal Care to provide staff information on what they do, and how to report or address instances when marine animals are in distress.

Traffic Control & Flagging (December 22):

All staff received information and training related to recognition of traffic hazards. This online course was provided by the California Joint Powers Insurance Authority to all City employees which reviewed the recognition of traffic hazards, specific code requirements for traffic control equipment, set up and removal of traffic cones, and use of the W.A.T.C.H. Manual to properly control traffic.

Project Coordination & Emergency Work:

OSM staff help to coordinate multiple projects within the Preserve to ensure Natural Communities Conservation Plan / Habitat Conservation Plan (NCCP / HCP) compliance with PVPLC, to implement trail closures and public safety measures, and to provide public notification. Below are a list of projects OSM staff helped coordinate with PVPLC, the Public Works Department, and public utilities in the fourth quarter:

- Land Movement, and other Hazards: Maintenance
  (Continuous at Ocean Trails, Portuguese Bend, and Abalone Cove Reserves)
- Los Angeles County Fire Department: Trainings
  (Various Dates at Del Cerro Park, Ladera Linda Park, and Portuguese Bend Reserve)
- Southern California Edison at Barkentine Trail: Routine Maintenance
  (Coordination in September, completed October 7 at Three Sisters Reserve)
- California Water Company at Lower Rim Trail: Emergency Repairs
  (Completed October 8 at Portuguese Bend Reserve)
- Trump National Golf Club at Southshore Coastal Trail: Maintenance
  (Completed October 28 at Ocean Trails Reserve)
- Trump National Golf Club at Sagebrush Walk/Catalina Trail: Maintenance
  (Completed October 28 at Ocean Trails Reserve)
- California Water Company at Vanderlip Trail: Emergency Maintenance
  Water Leak due to Land Movement (November 2021 at Portuguese Bend Reserve)
- Southern California Edison at Burma Road Trail: Routine Maintenance
  (Completed December 10 at Portuguese Bend Reserve)
- Southern California Edison at Coast Guard Property: Routine Maintenance
  (Coordination in Fall 2021, expected completion by March 2022 at Alta Vicente Reserve)

OVERALL VISITOR CONTACTS:

Total Contacts: 6,637

Hikers: 5,328
Dog Walkers: 591
Cyclists: 669
Equestrians: 49
Warnings: 187

Calls for Assistance: 7 transports

Heat exhaustion & heat stress: 3
Dog exhaustion & heat stress: 2
Other (i.e. underlying condition, sprained ankle): 2

Preserve Information and Reporting Hotline Calls: 27 calls

**No. of violations higher than the number of calls. Some calls reported multiple violations observed at once.*

Trail Status and General Information: 9
Parking Issues: 5
Dogs Off Leash / Aggressive Dogs: 4
Maintenance: 3
Camping: 1
Use of Spur Trail / Closed Areas: 1
Fishing / Poaching: 1
Unsafe Bicycle Riding: 1
Removal of flora/fauna: 1
Lost: 1

ENFORCEMENT SUMMARY:

Parking Citations Issued:565 Total

By Violation:
Park by Permit – 513
Parking Lot / Preserve / Park Hours- 12
Posted Temporary No Parking / Fire Lane – 32
Handicap Zone – 8
Other- 43

By Location:
Crenshaw Boulevard (Portuguese Bend / Filiorum adjacent) – 399
Del Cerro Park – 125
Abalone Cove Reserve – 28
Other – 7
Forrestal Reserve – 5
Vicente Bluffs Reserve – 1

Notice to Appear Citations Issued: 26 Total
Number of violations is greater than the number of citations issued

By Violation:
Closed Area – 23
Dogs off Leash – 3

By Location:
Abalone Cove Reserve – 7
Alta Vicente Reserve – 2
Vicente Bluffs Reserve – 0
Forrestal Reserve – 2
Filiorum Reserve – 2
Portuguese Bend Reserve – 12
Ocean Trails Reserve – 1

ACTIVITY REPORT BY RESERVE:

The next section provides further information on projects, reports, and observations received by Rangers from the public, organized per Reserve. Numbers 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	480	99	37	8
Dogs	21	7	9	0
Biker	7	2	7	0
Equestrian	0	0	0	0

On October 10, Abalone Cove received a report of a missing hiker, reported by family members at approximately 11:30 a.m. The Los Angeles County Sheriff's Department was notified and Open Space Management (OSM) staff assisted in the search of the individual. At 3:30 p.m., the individual was located, reuinted with family members, and the call was cleared. No medical assistance was needed.

On November 2, Rangers observed a Los Angeles County Sheriff helicopter landing near Inspiration Point Trail in Sacred Cove. A panga boat was found in the Cove. Los Angeles County Sheriff's Department, United States Coast Guard, Los Angeles County Fire Department, Lifeguards, and Department of Homeland Security were on scene. Rangers watch for suspicious activity and coordinate with the appropriate agencies, and provide assistance when requested.

On November 30, the large Area Closed Beyond this Sign was repaired near Gorge 1. The base of the sign had been moved by a combination of strong winds and high tides. Below are before and after pictures of the sign.

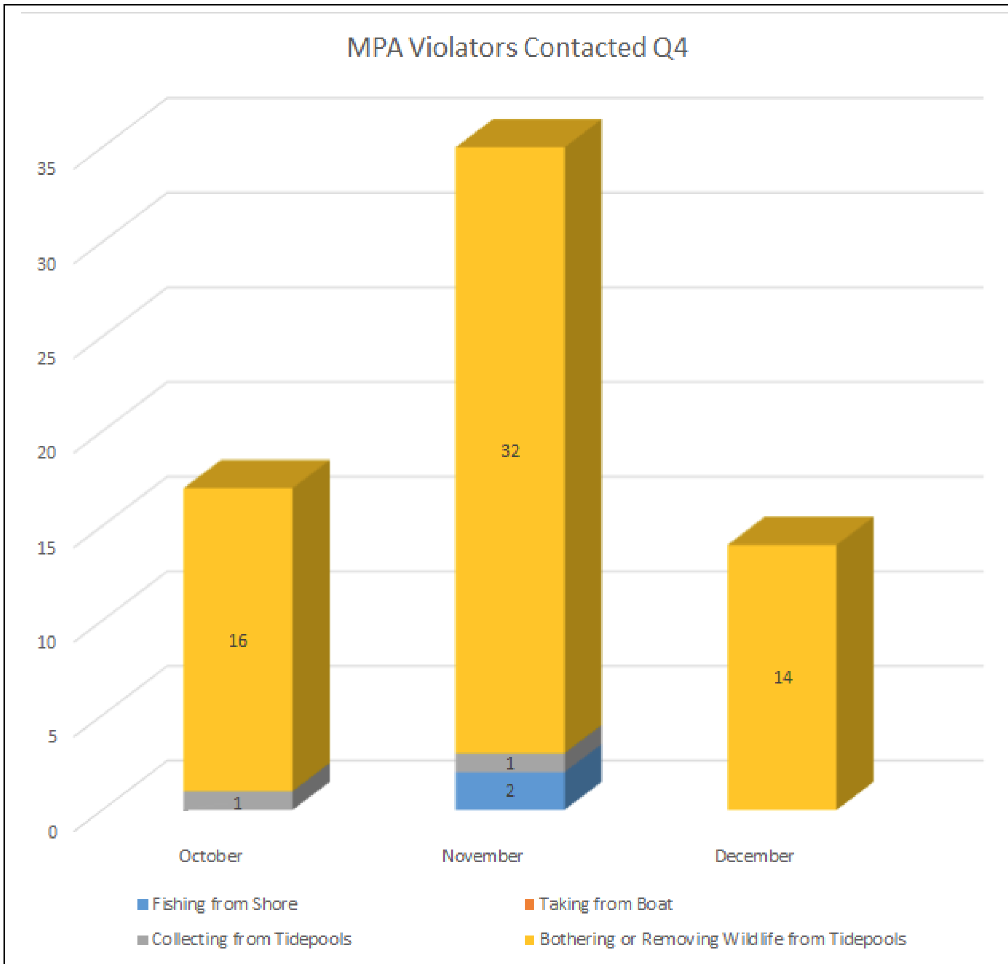
<u>Marine Protected Area (MPA) Report</u>

In response to an increase of poaching within the City, the OSM initiated Tide Pool Patrols to patrol the City's two MPAs, the Abalone Cove limited take SMCA and the Point Vicente no-take SMCA. June 27, 2020, was the first date of these new patrols. This report captures the data collected from October 2021 – December 2021, which is shown below.

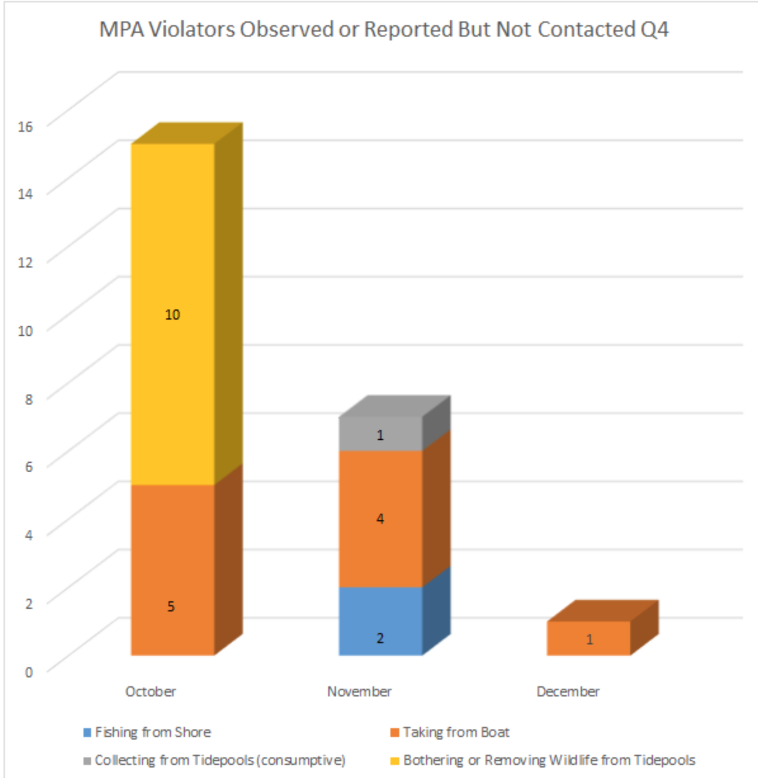
Coordination with Outside Agencies: During this time, OSM continued to coordinate with outside agencies in activities and improvements relating to our MPAs. These agencies include, but are not limited to, the MPA Collaborative, USC Sea Grant, CDFW, the LA Waterkeeper, Heal the Bay, and Terranea Resort. We will continue to work with these agencies in receiving resources, coordinating trainings, installing signage, and protecting the City's MPAs.

Signage Installation: During the quarter, staff completed installation of regulatory signage at all access points in Abalone Cove. In addition to this, old and outdated signage that was previously standing has been removed and replaced with signage depicting the most current codes. Examples of signage are shown below.

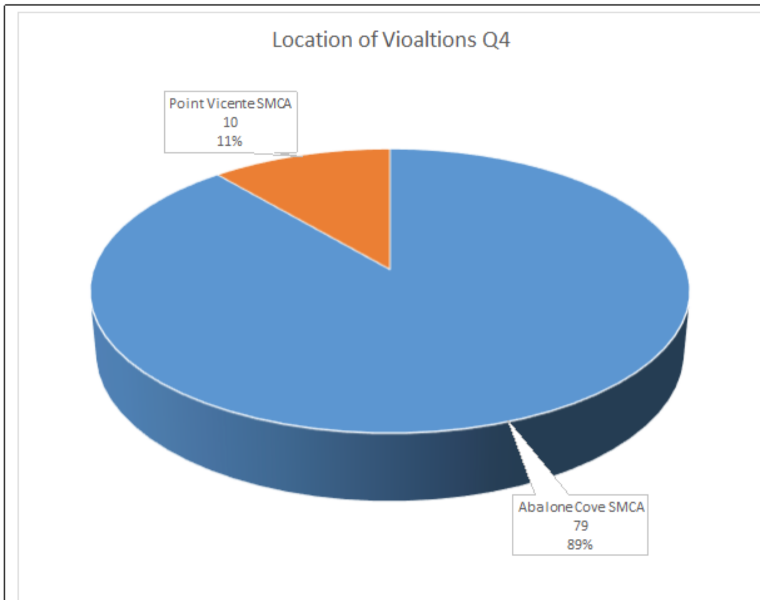
Results and Future Direction: During this reporting activity, there was a 223% increase in poaching activity when compared to the last quarter; however, when compared to the same period last year, poaching activity is down 24%. Currently, most violations that occur are people handling wildlife or removing wildlife from the tide pools for observation. Consumptive forms of take, such as rod and reel fishing and harvesting animals to be consumed, are generally uncommon. Additionally, most violations occur within the popular eastern portion of Abalone Cove, likely due to ease of access and popularity. Violations within less accessible portions of Abalone Cove and within Point Vicente SMCA are uncommon and are usually associated with boats and other watercraft. Overall, staff continue to see high compliance rates when contacting those engaged in MPA violations, with most people contacted simply being unaware of the MPAs or the laws surrounding them. For the future, OSM will continue to patrol our MPAs, with a focus during low tide events and in problem areas.



*Data comes from individual adult violators actually contacted by staff.



*Data comes from individual adult violators, observed or reported, but not contacted.



* One MPA violation is counted for each individual, either observed or reported, committing any offense within an MPA.

Agua Amarga Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	2	0	0	0
Dog	0	0	0	0
Biker	0	0	0	0
Equestrian	0	0	0	0

On October 14, a Trail Ends sign was installed to inform patrons of the end of Lunada Canyon Trail in Rancho Palos Verdes. The sign was installed in response to a report of reckless bicycle users on the trail within Palos Verdes Estates. The City informed Palos Verdes Estates of the issue and installed the sign on the City's side of the trail.

Alta Vicente Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	18	2	2	0
Dog	6	0	3	2
Biker	0	0	0	0
Equestrian	0	0	0	0

No activity reported during this period.

Filiorum Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	33	2	1	1
Dog	4	0	0	1
Biker	5	1	0	0

Equestrian	0	0	0	0

Throughout the month, Rangers received reports of a dirt biker entering the Reserve via Forrestal Drive and accessing trails in the Filiorum Reserve and Portuguese Bend Reserve. Rangers were unable to locate the rider(s). However, patrols were set up at their known entry points and times, to deter their presence.

On December 8, Rangers received a call from the Los Angeles County Sheriff's Department at 6:35 p.m. from two hikers who were lost. Rangers were able to respond and were able to locate the hikers in the Filiorum Reserve. They were escorted back up via Rattlesnake Trail. Neither needed medical assistance, and they denied an ambulance. The Los Angeles County Sheriff's Department was informed, and the call was cleared by 7:25 p.m.

On December 25, a patron reported a racoon that appeared ill. Rangers were able to locate the animal and call Los Angeles County Animal Control to provide a medical assessment.

Forrestal Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	227	31	12	2
Dog	56	0	5	0
Biker	31	3	6	0
Equestrian	1	1	0	0

E-bike riders reported in Forrestal Reserve and Portuguese Bend Reserve. The individual had been contacted by VTW several times informing them of no e-bikes permitted. Rangers have not been able to contact this individual, however, patrols focused on known times of entry.

Additionally, dirt bike riders were reported entering the trail system via Purple Sage Trail in the first half of this reporting period. Rangers posted at known times of entry and did not observe any activity. No dirt bike riders were seen in the later half of the reporting period.

On October 12, VTW found and located a "No E-bike" sign along the concrete drainage channel near Quarry Trail Reserve. The e-bike sign had since been replaced at its respective trailhead to educate the public.

Ocean Trails Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	230	34	7	1
Dog	27	14	3	0
Biker	3	0	0	0

Equestrian	0	0	0	0

The City continued to coordinate with Trump National Golf Club to manage and maintain the closures at Coastal Switchback Trail and on the Bridge near Lakeview and Catalina Trails.

On October 30, a call was made by the public to the Los Angeles County Fire Department to conduct a cliff rescue near the eastern boundary of the Reserve. Air, land, and water units assisted in this call. Rangers assisted in escorting fire personnel on trails and and clearing trails to allow for personnel to safely transport the individual for medical care.



On October 28, Bellfree Contractors completed trail improvements on Southshore Coastal Trail and Sagebrush Walk Trail, and these trails were reopened to the public. Trail improvements included removing and repairing wooden steps along the trail, creating grade dips and berms to divert the water off trail to minimize erosion, and replacing wooden posts and cable.


On November 3, a trail camera was installed to monitor activity, including entering closed areas, and removal / damage to habitat along the western section of Ocean Trails Reserve.

Portuguese Bend Reserve

	Public Contact	Education	Warning	Enforcement
Hikers	4,131	338	52	12
Dog	456	54	25	1
Biker	616	30	25	0
Equestrian	48	0	0	0

On September 20, Garden Trail was closed due to an emergence of erosion on the trail bed. Staff continued to monitor changes and is working with the City Geologist.

On October 2, staff received a report of water leaking from the Cal Water pipe on Burma Road Trail near Rim Trail. Cal Water was called to conduct repairs. The trail was temporarily closed until repairs were complete.

On November 1, a female transient was seen walking on Palos Verdes Drive South and later sleeping on a trailer. Rangers made contact and offered water. She refused assistance.

On November 2, Rangers contacted an individual who was marking Burma Road Trail with “RUN.” The individual stated they were marking the trail for a group no more than 20. The individual was advised not to mark trails, as it is considered damaging to facilities, and to contact the City in the future.

On November 24, a water main line broke in the evening resulting in damage to Vanderlip Trail. CalWater was notified and conducted inspections and repairs to their infrastructure. The Palos Verdes Peninsula Land Conservancy's (PVPLC) Volunteer Trail Crew conducted trail work and made repairs, and the trail was reopened November 28.

On December 23, Staff received a report from a member of the public of a racoon displaying unusual behavior. Staff located it and confirmed the racoon had symptoms consistent with distemper, including excessive mucus, eyes crusted shut, and disorientation. Los Angeles County Animal Control was called and able to locate the racoon.

On December 27, staff found a deceased peregrine falcon. Reported to the California Department of Public Health's California West Nile Virus Reporting Division.

San Ramon Reserve

	Public Contacts	Education	Warning	Enforcement
Hikers	2	1	0	0
Dog	0	0	0	0
Biker	1	0	0	0
Equestrian	0	0	0	0

On November 23, Rangers reported damage to the rock base of the Reserve monument sign located at Palos Verdes Drive East and Palos Verdes Drive South was damaged. It is suspected this was caused by a vehicle collision as there was vehicle debris and tire tracks on the hillside. The sign has been repaired.

On December 13, Rangers located an illegal bike ramp, berms, and tools used in the creation of trails. This area was in the upper section of San Ramon Reserve, off-trail. Staff proceeded to dismantle any structures and remove all items.

Three Sisters Reserve

	Public Contacts	Education	Warning	Enforcement
Hikers	3	0	0	0
Dog	3	1	0	1
Biker	0	0	0	0
Equestrian	0	0	0	0

No activity reported during this period.

Vicente Bluffs Reserve

	Public Contacts	Education	Warning	Enforcement
Hikers	204	4	2	0
Dog	17	0	0	0
Biker	6	0	0	0
Equestrian	0	0	0	0

In the last reporting period, the Pelican Cove Parking Lot, and facilities were vandalized by graffiti. OSM Staff installed post and cable method and notified Terranea Resort Staff to close off the parking lot after hours.

Throughout this reporting period, Rangers received reports of increased litter on the Pelican Cove Parking Lot. A request was made by Terranea Resort for increased Ranger patrols and coordination to deter litter.

Additionally, Rangers were notified of frequent e-bike riders on white bikes seen at both Point Vicente Interpretive Center and Vicente Bluffs Trails.

On October 18, Rangers observed a racoon walking along the top of the blufftop fence near Calle Entradero Parking Lot. The racoon appeared to have symptoms consistent with distemper, including crusted eyes shut, mucus, and disorientation. Los Angeles County Animal Control was called, however, the racoon could no longer be located as it had crawled into a drainage area.

On December 1, Rangers received a call from the PVPLC regarding possible poaching of at least 10 dudleya within the Reserve. Rangers notified Terranea Resort staff and all OSM Staff to monitor for any additional take within the immediate area, and along the City's coastal zones with known dudleya.

On December 14, Rangers were notified of a panga boat landing at Pelican Cove. The Los Angeles County Sheriff's Department responded to the call at 1:08 a.m., and assisted the Department of Homeland Security and United States Coast Guard.

Vista del Norte Reserve

	Public Contacts	Education	Warning	Enforcement
Hikers	0	0	0	0
Dog	0	0	0	0
Biker	0	0	0	0
Equestrian	0	0	0	0

On November 2020, the Preserve Monument sign at Vista del Norte Trailhead (adjacent to the radio communications towers), was damaged when a vehicle backed into the sign. The City received witness statements and the defendant was found guilty by Los Angeles County Superior Court, and began making payments November 2021. The defendant is to pay the fees associated with replacement of the sign. The City and the PVPLC have coordinated on the design and construction of the sign, anticipated Spring 2022.

City Parks and Beaches

Rangers educated patrons in City Parks and beaches regarding the City's Municipal Code, including homeless individuals and encampments, use of drones, dogs off-leash, dog park issues related to the maintenance of Eastview's dog park, motorized bicycles, large group gatherings, unauthorized special events, and park hours.

APPENDIX I

CITY OF RPV

2021 NIGHT HIKE ACTIVITY

&

TRAIL COUNTER DATA

2021 Night Hike Activity

Palos Verdes Nature Preserve

Sierra Club Night Hikes via City Permit:

November 1, 2021 - Portuguese Bend Reserve/Filiorum Reserve – **28 attendees**

November 8, 2021 - Portuguese Bend Reserve/Filiorum Reserve – **19 attendees**

November 15, 2021 – Portuguese Bend Reserve/Filiorum Reserve – **21 attendees**

November 22, 2021 - Portuguese Bend Reserve/Filiorum Reserve – **24 attendees**

November 29, 2021 - Portuguese Bend Reserve/Filiorum Reserve – **19 attendees**

December 6, 2021 - Portuguese Bend Reserve/Filiorum Reserve – **19 attendees**

December 13, 2021 - Portuguese Bend Reserve/Filiorum Reserve – **16 attendees**

December 20, 2021 - Portuguese Bend Reserve/Filiorum Reserve – **16 attendees**

Total Night Hike Participation: 162 attendees

Trail Counter Data from January 2021 – December 2021

5 Trail Counters Total in the Preserve

Trail Counters are located at Burma Rd. Trail, Rattlesnake Trail, Pirate Trail, Fossil Trail, and Purple Sage Trail

2021

January 2021:	45,499	(Burma Road Trail, Rattlesnake Trail, and Pirate Trail)
February 2021:	46,059	(Burma Road Trail, Rattlesnake Trail, and Pirate Trail)
March 2021:	46,675	(Burma Road Trail, Rattlesnake Trail, and Pirate Trail)
April 2021:	39,511	(Burma Road Trail, Rattlesnake Trail, and Pirate Trail)
May 2021:	26,118	(Burma Road Trail, Rattlesnake Trail, and Pirate Trail)
June 2021:	25,778	(Burma Road Trail, Rattlesnake Trail, Pirate Trail)
July 2021:	31, 824	(All Trail Counters; Purple Sage was installed July 8th; 2 vehicle crashes resulting in limited access during investigation)
August 2021:	30,975	(All Trail Counters)
September 2021:	36,344	(All Trail Counters; 1 vehicle crash resulting in limited access during investigation / repairs)
October 2021:	27,894	(All Trail Counters)
November 2021:	26,693	(All Trail Counters)
December 2021:	14,903	(All Trail Counters; Preserve closed for total of 13 days)

APPENDIX J

FINANCIALS

City of Rancho Palos Verdes Preserve Financials

DESCRIPTION	2016/17 NCCP/HCP	FY 2020/21
COSTS RELATED TO FULFILLING CONSERVATION REQUIREMENTS		
Misc. City Restoration Activities	30,000	81,798
Senior Administrative Analyst (15%)	43,784	21,767
Recreation Specialist - (10%)	21,126	n/a
Non-wasting Endowment paid to PVPLC*	10,000	-
PVPLC Contract	144,300	155,154
SUB-TOTAL COSTS RELATED TO FULFILLING CONSERVATION REQ.	**249,210**	**258,719**
COSTS RELATED TO PUBLIC ACCESS AND LAND OWNERSHIP		
Public Safety (70%)	567,000	177,000
Senior Administrative Analyst (50%)	145,946	72,557
Recreation Supervisor I (Norma Saldana) (70%)	-	54,761
Recreation Specialist (50%)	105,628	-
PT OSM Staff Positions***	113,900	153,267
Reporting Line/Phone Service	2,400	5,636
Regulatory Literature	2,500	1,628
Other - Misc. Supplies	31,000	36,106
Maintenance Superintendent (7%)	16,227	9,984
Maintenance Workers (3) (7%)	20,316	17,075
Vehicles (maintenance and fuel)	2,197	20,009
Brush Management-	108,000	386,388
Bird Surveys	30,000	8,145
Portable Restrooms	15,000	18,618
Landslide Abatement Districts	60,096	124,891
Road Maintenance	25,000	35,300
Trail/Misc. Maintenance	31,000	175,357
Signage	10,000	19,435
SUB-TOTAL COSTS RELATED TO PUBLIC ACCESS & LAND OWNERSHIP	**1,286,210**	**1,316,157**
TOTAL PRESERVE ANNUAL BUDGET	**1,535,420**	**1,574,876**

2021 Preserve Expenditures of the Palos Verdes Peninsula Land Conservancy

Costs related to fulfilling Conservation Requirement		
PVPLC Staff and Consultants (Conservation Easement monitoring, Planning, Biological Surveys/Reporting, Restoration Implementation, Volunteer Management)	$	343,247
Field Supplies and Equipment	$	18,175
Abalone Cove Phase 3 Irrigation and Site Prep (demolition of tennis court)	$	79,595
Vehicle Expenses (including fuel and mileage)	$	15,948
Office Supplies	$	23,402
Overhead (insurance, permits, accounting)	$	36,222
Subtotal Expenses to fulfill Conservation Requirement*	**$**	**516,589**
Costs related to Land Ownership and Public Access		
Fuel Modification (PVPLC-owned Lunada Canyon)	$	9,255
Trail Maintenance Personnel and Supplies (including trail signage)	$	43,534
Subtotal Expenses related to Land Ownership and Public Access**	**$**	**52,789**
TOTAL PRESERVE EXPENSES	**$**	**569,378**

Additional Preserve Projects		
Fuel Load Reduction in Portuguese Bend (funded by Rolling Hills)	$	119,800
TOTAL ADDITONAL PRESERVE PROJECTS	**$**	**119,800**

TOTAL PRESERVE EXPENSES	**$**	**689,178**

*** This subtotal is compared to PVPLC's funding commitments made in the NCCP/HCP for FY 16/17 totalling $230,559**

**** This subtotal is compared to PVPLC's funding commitments made in the NCCP/HCP for FY 16/17 totalling $19,460**