

**PRESERVE MANAGEMENT PLAN
for the
MUROYA PROPERTY
CITY OF CARLSBAD, CALIFORNIA**

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A handwritten signature in black ink, reading "Anita Hayworth", is written over a horizontal line.

Anita M. Hayworth, PhD, Senior Biologist

NOVEMBER 2011

Preserve Management Plan for the Muroya Property

TABLE OF CONTENTS

<u>Section</u>	<u>Page No.</u>
1.0 INTRODUCTION.....	1
2.0 PRESERVE AREA DESCRIPTION	13
3.0 HABITAT AND SPECIES DESCRIPTION	15
4.0 MANAGEMENT AND MONITORING GOALS AND ASMDS	25
5.0 ADAPTIVE MANAGEMENT	33
6.0 ADMINISTRATION AND REPORTING	35
7.0 LITERATURE CITED	37

APPENDICES

- A List of Plant Species Observed on Site
- B Wildlife Species Observed on Site

LIST OF FIGURES

1	Regional Map.....	5
2	Vicinity Map	7
3	HMP Planning Area and Proposed Preserve	9
4	Biological Resources	11
5	Muroya Project Preserve.....	17

LIST OF TABLES

1	Existing Plant Communities/Land Covers on the Muroya Property Preserve.....	15
2	Special Status Plant Species Present within the Muroya Preserve	21
3	Special Status Wildlife Species Present within the Muroya Preserve	23
4	Common Weed and Invasive/Exotic Species to be Controlled within the Project Site.....	30
5	Preserve Management Task Summary.....	31

Preserve Management Plan for the Muroya Property

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Preserve Management Plan for the Muroya Property

1.0 INTRODUCTION

A. Purpose for Inclusion of the Preserve Area in the Habitat Management Plan

The proposed project on the Muroya property is an approximately 11.5-acre residential development within the approximately 20-acre property. The proposed preserve area of the project, a total of 8.50 acres is proposed to provide mitigation for direct impacts to the habitat on site and to be included in the assembly of the Carlsbad Habitat Management Plan (HMP; City of Carlsbad 1999, finalized 2004) preserve. This Preserve Management Plan (PMP) has been prepared for the preserved open space areas (preserve) within the Muroya project site (Figures 1 and 2). The Muroya project was approved and mitigation identified in the Mitigated Negative Declaration (State Clearinghouse 2010021061; City of Carlsbad, CA 2009). The project is identified under the following application numbers: GPA 06-09/AC 06-08/LCPA 06-09/SP 203D/CT 06-27.

The City of Carlsbad is a member of the North County Multiple Habitat Conservation Plan (MHCP; San Diego Association of Governments 2001) and has adopted an HMP (Habitat Management Plan) which is a subarea plan under the MHCP. The MHCP is a comprehensive, multiple jurisdictional planning tool designed to create, manage, and monitor an ecosystem preserve in northwestern San Diego County. The HMP is a citywide program with the purpose of preserving the diversity of species and habitats as well as sensitive biological resources while allowing for development that is consistent with City plans. The objectives of the HMP are to develop a plan that conserves the full range of vegetation types with the focus on rare species and habitat; conserves areas capable of supporting covered species in perpetuity; and maintains functional wildlife corridors and habitat linkages. Under the HMP, a portion of the project area, as well as surrounding lands, are within a Focused Planning Area (FPA) of the City. FPA boundaries were created based on the existing distribution of vegetation communities and sensitive species. The FPAs were further broken down into HMP cores, linkages and Special Resource Areas.

The Muroya property is located within the Local Facilities Management Zone 20 and is designated as a Standards Area in the HMP. It is located approximately in the central portion of Linkage Area F which is part of a stepping stone linkage connecting Core Areas 4, 6 and 8 and contains significant amounts of coastal sage scrub acting as a corridor for movement for the gnatcatcher and other avian species. The property is somewhat isolated from other patches of native habitat except for the southern boundary. However, Aviara Parkway lies adjacent to those habitats and fragments any potential corridors resulting in a stepping stone linkage.

Figure 3 provides an overview of surrounding development, adjacent preserve areas and the proposed standards areas within the HMP. As a standards area, the Muroya property goals and standards for preservation have been identified according to the Local Facilities Management Plan. These standards, as applicable to this specific property, include avoiding impacts to

Preserve Management Plan for the Muroya Property

southern maritime chaparral and narrow endemic plant species, minimizing impacts to coastal sage scrub, providing continuous habitat connectivity within the zone, but allowing reasonable development with a focus on the lower habitat quality areas.

The Citywide standard for the narrow endemic species is to conserve 100% within preserve areas and conserve at least 80% outside preserve areas. Within the Muroya project, there are no narrow endemic species so this requirement is not applicable. Section 7-14 of the HMP states that Assessor Parcel 215-040-03 (Muroya property) proposes to cluster development within existing disturbed areas to the maximum extent feasible and that a maximum of 10% impact may occur to coastal sage scrub and southern maritime chaparral. The project proposes to impact 5.6% of these habitats and thus is in compliance. The HMP also identifies the need for buffers and fuel modification zones to be provided between preserve areas and proposed development within the study area. The HMP identifies that a 20-foot buffer is required between development and native vegetation. The proposed development of the Muroya Property conforms to all of the identified goals and standards outlined in the HMP.

The development of the site is consistent with the HMP with respect to the covered species of the HMP (Figure 4). Currently three HMP-covered plant species (Nuttall's scrub oak) and one HMP-covered wildlife species (California gnatcatcher) are found to be present on site. Two plant species that are covered contingent on other subarea plans are also found on site, including wart-stemmed ceanothus and Englemann oak. One special status non-covered plant species is present on site, California adolphia. The HMP management and conservation goals for these species are discussed below.

B. Preserve Area History

The proposed 8.50-acre Muroya Property preserve has been within the ownership of the overall approximately 20-acre Muroya Property. An additional 1.3 acres of preserve area is located within the SDG&E easement north of the project preserve. The SDG&E preserve area is not part of this PMP. There has been no specific management of the proposed preserve area prior to the current plan.

C. Purpose of this Management Plan

1. The plan guides management of habitats, species, and programs described herein to achieve the City's obligation to protect and enhance wildlife values under the MHCP, HMP, and Implementing Agreement.
2. The Plan serves as a guide for appropriate public uses of the preserve area.
3. The plan serves as a descriptive inventory of native plant and wildlife species and habitats, which occur on or use this preserve area.

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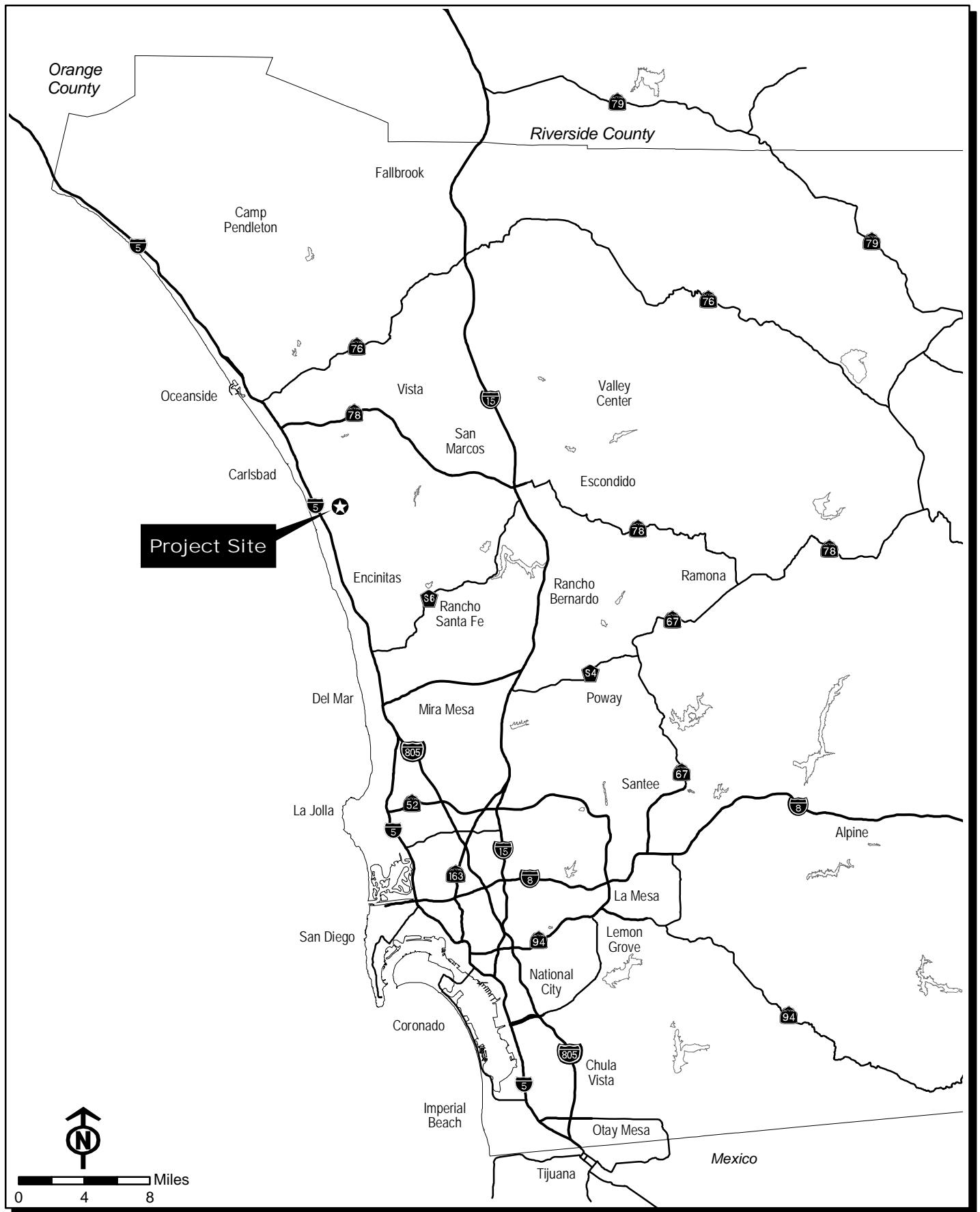
Preserve Manager Contact Information:

The applicant is proposing that San Diego Habitat Conservancy (SDHC) be the Preserve Manager for the preserve. Jim Rocks, who will be SDHC's manager for this site, meets all of the requirements of a Preserve Manager consistent with CDFG guidelines. The contact information for SDHC is:

San Diego Habitat Conservancy
8130 La Mesa Blvd., #705
La Mesa, California 91941
619-668-7474
www.sdhabitat.org

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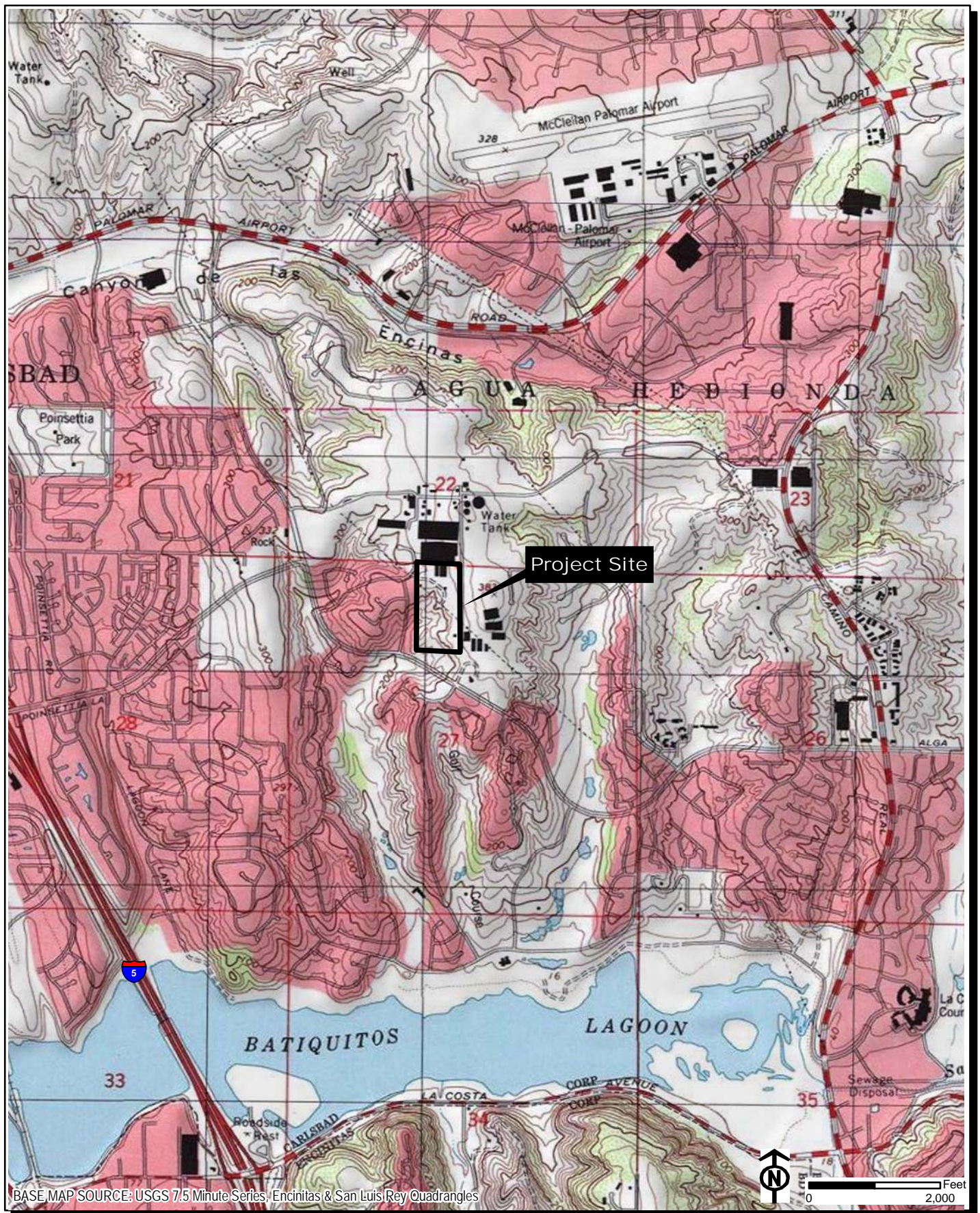


Preserve Management Plan for Muroya Project
Regional Map

FIGURE
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Preserve Management Plan for the Muroya Property

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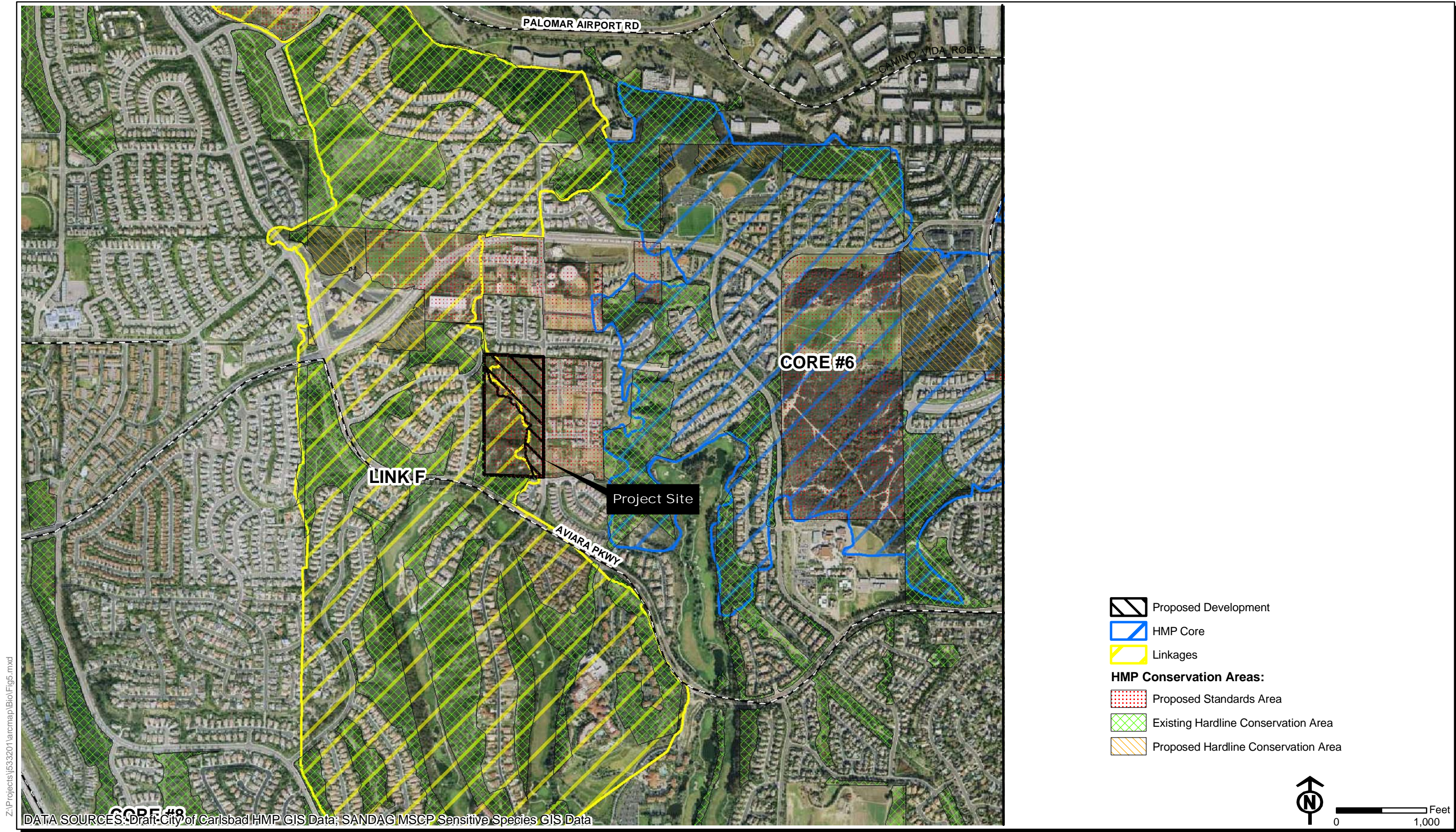


Preserve Management Plan for Muroya Project
Vicinity Map

FIGURE
 2

Preserve Management Plan for the Muroya Property

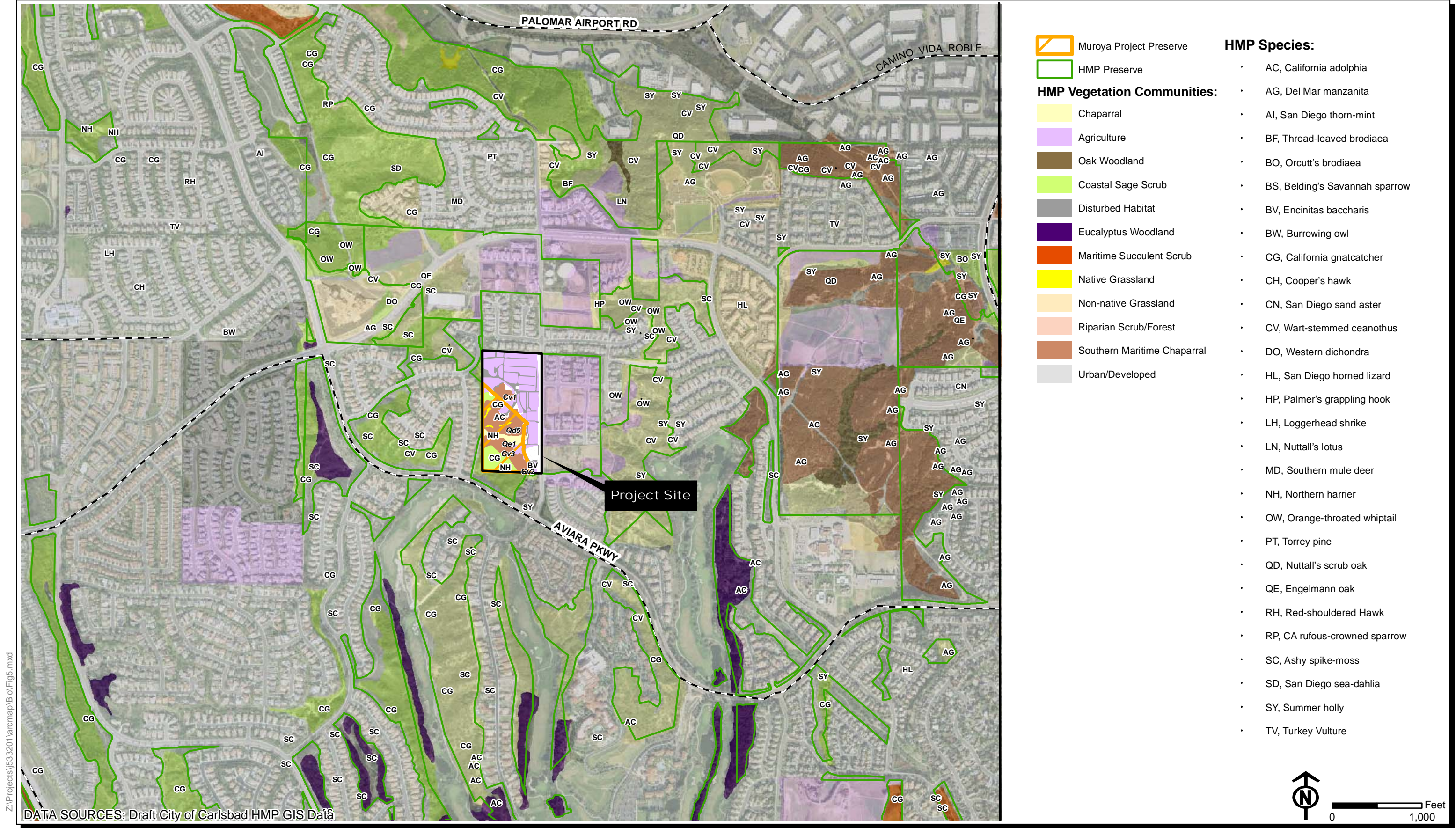
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Preserve Management Plan for Muroya Project
HMP Planning Area and Proposed Preserve

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Preserve Management Plan for Muroya Project

Biological Resources

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Preserve Management Plan for the Muroya Property

2.0 PRESERVE AREA DESCRIPTION

A. Geographical Setting

The approximately 20-acre Muroya property is located within the City of Carlsbad, San Diego County, California. The study area is physically located along the west side of Black Rail Road, a secondary street off Aviara Parkway (Figure 1). The property is situated centrally within the U.S. Geological Survey (USGS) 7.5-minute Encinitas quadrangle, T12S, R4W; Section 28 (Figure 2).

B. Geology, Soils, Climate and Hydrology

The topography on site consists of a flat bench where the nursery and single family home are located. From the bench the topography slopes quickly down into a network of incised ravines that are oriented from east to west/southwest. Elevations range from approximately 50 to 180 feet above mean sea level. The climate of the region is Mediterranean with mild summers and winters and rainfall occurring predominantly during the winter.

The soil types on site, according to the San Diego County Soil Survey (Bowman 1973), include Chesterton fine sandy loam (CfC), 5% to 9% slopes; Chesterton fine sandy loam (CfD2), 9% to 15% slopes; and rough broken lands (RuG). Chesterton fine sandy loams occur on coastal ridges and are moderately well drained with a sandy clay subsoil. The soils were formed in material weathered in place from soft ferruginous sandstone. Rough broken land is made up of well drained to excessively drained, steep and very steep land dissected by many narrow v-shaped valleys and divides. Areas of exposed soil, is common within rough broken land making runoff very rapid and creating a high potential for erosion.

C. Preserve Area Boundaries and Historic/Adjacent Land Use

Approximately 8 acres of the property is currently being used as a palm tree nursery. This includes shade houses, outbuildings, and associated access roads. A single-family residence is located in the southeastern portion of the property. The remaining area is undeveloped and dominated by native vegetation. Surrounding land use is currently developed as single-family residential homes. The preserve is a stepping stone corridor within Linkage F for the movement and dispersal of the California gnatcatcher. This linkage contains fragmented patches of coastal sage scrub and chaparral.

D. Ownership and Legal Description

The owner/developer is Taylor Morrison of California, LLC. The Assessor Parcel Number is 215-040-03. The preserve manager is proposed to be San Diego Habitat Conservancy. The qualifications of the Preserve Manager are consistent with CDFG guidelines.

Preserve Management Plan for the Muroya Property

E. Conservation Easement Compliance

The Conservation Easement (CE), anticipated to be approved in August 2011, provides a list of permitted and prohibited uses of the land. These include the following permitted uses:

- Reasonable access through the preserve to perform obligations permitted by the CE;
- Access to safety organizations for a public health or safety matter;
- Habitat enhancement activities;
- Debris and exotic species removal;
- Installation of signs;
- Fire protection.

The following are prohibited uses:

- Supplemental watering;
- Use of pesticides or fertilizers
- Incompatible fire protection activities
- Use of off-road vehicles unless necessary for restoration;
- Livestock grazing or other agriculture;
- Recreations activities except as allowed in the PMP;
- Residential, commercial, retail, institutional, or industrial uses;
- Construction or placement of buildings or other improvements
- Dumping of soil, trash, refuse, etc.;
- Planting or introducing non-native plants or animals;
- Filling, dumping, excavating, etc.;
- Altering the topography;
- Removing, destroying or cutting trees, shrubs, or other vegetation;
- Manipulating, impounding or altering natural watercourses;
- Fuel modification zones.

Conservation Easement compliance monitoring will be conducted on an annual basis to document that the requirements and stipulations of the CE are being followed. The compliance monitoring visit is conducted in conjunction with other regularly scheduled visits and includes filling a form to document that the Preserve is in compliance with the CE and taking photographs at the specified photo monitoring points as described below.

Preserve Management Plan for the Muroya Property

3.0 HABITAT AND SPECIES DESCRIPTION

Biological surveys of the property, including vegetation mapping, a wetland delineation and wildlife and plant surveys were conducted by Dudek biologists Scott M. Boczkiewicz, Clint J. Emerson, Anita M. Hayworth, PhD, Paul M. Lemons, and Michelle L. Balk. Surveys were conducted by foot and the entire property was surveyed and inventoried for biotic components. A focused survey for the coastal California gnatcatcher (*Poliophtila californica californica*) was conducted by Mr. Lemons and Dr. Hayworth. A spring survey for special-status plant species was conducted in April 2007; the fall survey was conducted in October 2006. An update and confirmation of existing biological resources conditions was conducted in July 2009 by Tricia L. Wotipka. Detailed information on the biological resources of the site is provided in the Biological Technical Report (Dudek 2010).

A. Vegetation Communities

Based on species composition and general physiognomy, nine plant communities/land cover types were identified within the study area: southern maritime chaparral, coastal sage scrub, southern mixed chaparral, developed land, native grassland, ornamental plantings, disturbed land, and agricultural lands. The plant communities/land covers are shown in Figure 5 and tabulated in Table 1.

Table 1
Existing Plant Communities/Land Covers on the Muroya Property Preserve

Plant Community/Land Cover	Acreage
<i>Group B (Rare Uplands)</i>	
Native Grassland	0.19
Southern Maritime Chaparral	4.64
Waters of the U.S.	0.02 (602 linear feet)
<i>Group C (Gnatcatcher Occupied Coastal Sage Scrub)</i>	
Coastal Sage Scrub	2.03
<i>Group D (Chaparral other than Southern Maritime Chaparral)</i>	
Southern Mixed Chaparral	0.72
<i>Group F (Disturbed Lands)</i>	
Disturbed Land	0.06
Agriculture	0.71
<i>Other Lands (Developed Lands)</i>	
Developed	0
Ornamental Plantings	0.16
Total	8.50

Preserve Management Plan for the Muroya Property

Agriculture

This land cover refers to the part of the study area in which palm trees are actively being grown for retail sale. The area consists of rows of potted palm trees that are anywhere from seedlings to large mature trees and occur under shade houses and in the open. Agricultural lands account for the largest amount of land within the study area covering 0.71 acres.

Coastal Sage Scrub

Coastal sage scrub is a native plant community composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species such as California sagebrush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.); with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and toyon (*Heteromeles arbutifolia*). It typically develops on south-facing slopes and other xeric situations.

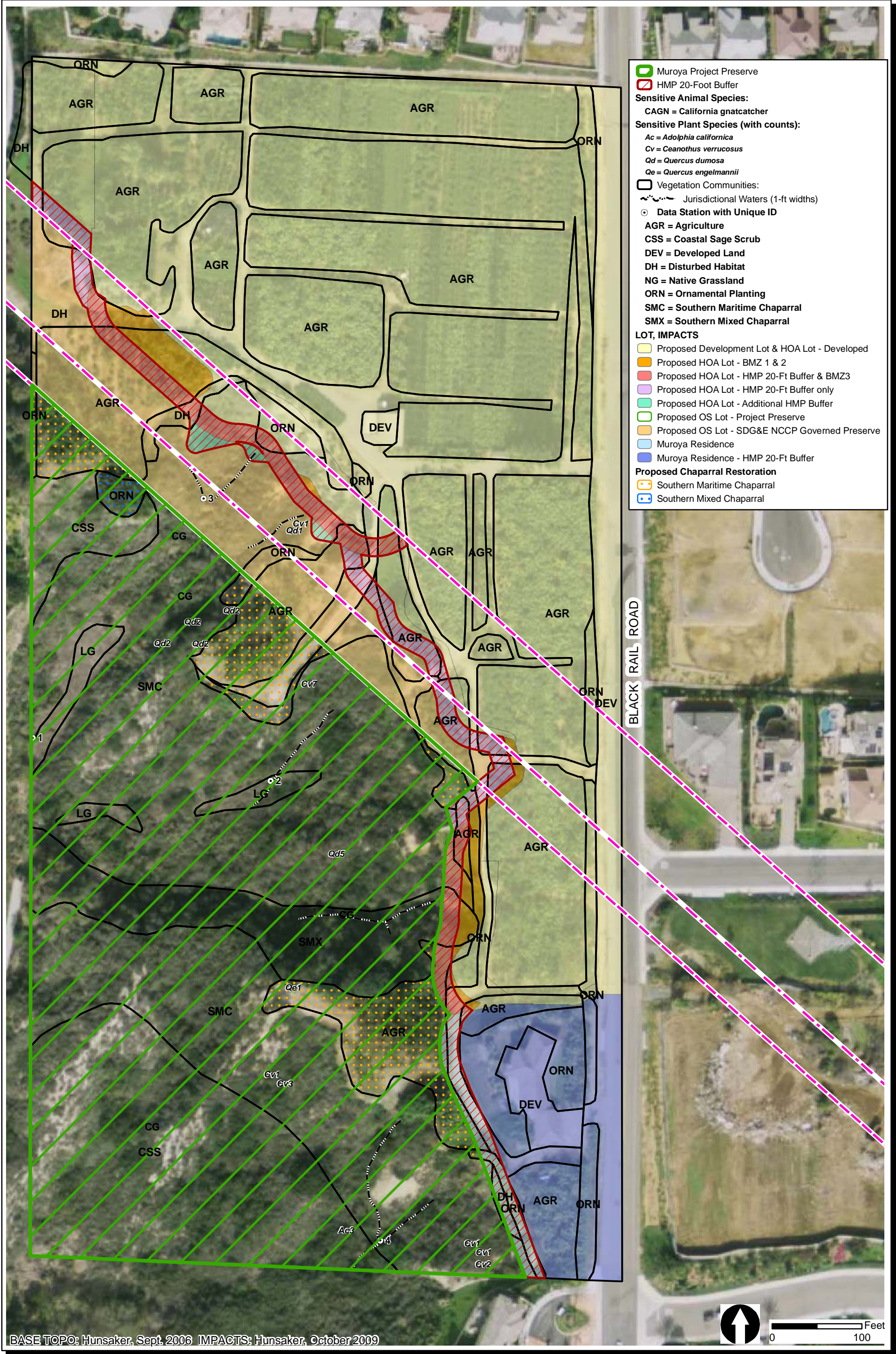
Two areas of coastal sage scrub were found within the study area. One large area in the southwestern portion of the project is characterized by narrow ridges dissecting incised gullies with exposed barren soils. The second small polygon is along the western portion of the property and occurs on a short steep slope that quickly intergrades into southern maritime chaparral. A total of 2.01 acres of coastal sage scrub were mapped within the study area.

Within the southern portion of the site, there is a small patch of coastal sage scrub dominated by coyote brush (*Baccharis pilularis*). *Baccharis*-dominated coastal sage scrub typically develops in drainage bottoms or mesic floodplains following disturbance to the native plant community. This community is dominated by coyote brush, with a few successional elements of the former native community, including California sagebrush, flat-top buckwheat, coast goldenbush (*Isocoma menziesii*), or other disturbance-tolerant native plants. The understory usually includes a variety of non-native herbs and grasses. The polygon continues to the south off the property. Within the study area there was 0.02 acre of *Baccharis*-dominated coastal sage scrub mapped.

Disturbed Land

Disturbed land refers to areas where vegetation growth is limited as the result of mechanical perturbation causing bare dirt to exist in perpetuity. Disturbed land on site includes all dirt roads that dissect the nursery facility allowing access to transport palm trees. A total of 0.06 acres of disturbed land was mapped within the study area.

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Preserve Management Plan for the Muroya Property

Native Grassland

This vegetation community type occurs in flat basin areas at the termination of narrow channels where giant wild rye (*Leymus condensatus*) has formed dense thickets and is the only species occurring in the area. The areas appear to be potential wetland sites but soils are not hydric and hydrology indicators are absent. A total of 0.19 acre of native grassland was mapped within the study area.

Ornamental Plantings

Ornamental plantings within the study area are mostly dominated by iceplant *Mesembryanthemum crystallinum*) and hottentot-fig (*Carpobrotus edulis*). It is likely that these areas were not planted with these species but have probably spread and encroached from the original areas where they were planted. There were 0.16 acres of ornamental plantings mapped within the study area.

Southern Maritime Chaparral

Southern maritime chaparral is similar to southern mixed chaparral but is restricted to coastal localities within the fog belt and typically develops on sandstone soils. This community is characterized by several shrubs of limited distribution, including Del Mar manzanita (*Arctostaphylos glandulosa* var. *crassifolia*), wart-stemmed ceanothus (*Ceanothus verrucosus*), coast spicebush (*Cneoridium dumosum*), and Nuttall's scrub oak (*Quercus dumosa*). Other shrubs encountered frequently in this community are chamise (*Adenostoma fasciculatum*), lemonadeberry, laurel sumac, toyon, and summer-holly (*Comarostaphylis diversifolia*).

Within the study area, southern maritime chaparral consists primarily of Nuttall's scrub oak, wart-stemmed ceanothus, chamise, and mission manzanita (*Xylococcus bicolor*). Understory species include monkey-flower (*Mimulus aurantiacus*) and black sage (*Salvia mellifera*). Southern maritime chaparral is well distributed within the undeveloped portion of the property accounting for a majority of the area. There were 4.64 acres of southern maritime chaparral mapped within the study area.

Southern Mixed Chaparral

Characterized by broad-leaved sclerophyll shrubs generally 1.5–3 meters tall forming dense impenetrable vegetation dominated by a mix of chamise, lemonade berry, toyon (*Arctostaphylos* spp.), and Nuttall's scrub oak. It is usually found on north facing slopes in dry rocky areas and is often adjacent to chamise chaparral, southern maritime chaparral, and coastal sage scrub vegetation associations.

Within the study area southern mixed chaparral occurs as a large polygon on a steep rocky north facing slope in the southern portion of the site. Dominant species include toyon and lemonade berry. There was 0.72 acre mapped as southern mixed chaparral within the study area.

Preserve Management Plan for the Muroya Property

B. Jurisdictional Resources

There were seven separate drainages found within the study area where highly incised channels drain water seasonally during high rainfall events. These ephemeral waters, although they do not appear to drain into any wetlands or navigable waters of the U.S., were considered to be jurisdictional during a visit to the site in October 2011 by the ACOE. Therefore these drainage are considered jurisdictional wetlands by the ACOE, CDFG, or Regional Water Control Board (RWQCB). Ephemeral waters are waters that are not inundated or saturated for extended periods and generally have surface water only for a very short time (24 hours or less) following a significant rain event. In contrast, intermittent waters have a surface flow that, although not perennial, may be present for relatively long periods (greater than 24 hours) following rainfall events. Intermittent streams may support some vegetation characteristic of wetlands, whereas ephemeral streams typically do not. Hydrology is indicated in these stream channels by the presence of an ordinary high water mark. Mapped waters of the U.S. account for a total of 0.02 acre of the study area and are mapped as linear features in Figure 5, but are not included in the total for the plant communities because they are located within upland plant communities.

C. Plant Species

All plant species encountered during the field surveys were identified and recorded. Latin and common names of plants follow the Jepson Manual (Hickman 1993). Where not listed in Hickman (1993), common names are taken from Beauchamp (1986). A list of plant species observed on the property during the surveys is presented in Appendix A. A total of 59 plant species were recorded for the site within the preserve area. Of this species inventory, 17 species (29%) are non-native and 42 species (71%) are native. The dominant plant species within each vegetation community are provided above under the descriptions of the vegetation communities.

D. Wildlife species

A total of 25 bird species were recorded during the general field survey of the site. Additional species commonly observed on site included western scrub-jay (*Aphelocoma californica*), Anna's hummingbird (*Calypte anna*), California towhee (*Pipilo crissalis*), song sparrow (*Melospiza melodia*), and northern mockingbird (*Mimus polyglottos*). A complete list of bird species observed during the field surveys are listed in Appendix B.

No amphibian species were observed on site. One reptile species, western fence lizard (*Sceloporus occidentalis*), was observed on site.

Five mammal species were observed or detected (by scat and other sign) during the mammal surveys, including California ground squirrel (*Spermophilus beecheyi*), coyote (*Canis latrans*), brush rabbit (*Sylvilagus bachmani*), woodrat (*Neotoma* sp.), and mouse (*Peromyscus* sp.).

Preserve Management Plan for the Muroya Property

E. Species Covered by the HMP and Other Sensitive species

No plant species listed as rare, threatened, or endangered by USFWS or the California CDFG were detected in the project area. Four species designated as sensitive by the California Native Plant Society (CNPS) were detected in the project area: California Adolphia (*Adolphia californica*), a CNPS List 2.1 species; Nuttall's scrub oak (*Quercus dumosa*), a CNPS List 1B.1 species; wart-stemmed ceanothus (*Ceanothus verrucosus*), a CNPS List 2.2 species; and Engelmann's oak (*Quercus engelmannii*), a CNPS List 4.2 species. These species are discussed in more detail below and are provided in Table 2. All of these species will be monitored periodically to document their numbers and distribution. The monitoring will be summarized in Section 4A.

Table 2
Special Status Plant Species Present within the Muroya Preserve

Species Common/Scientific Name	Status Federal/State/ Other	California Native Plant Society (CNPS) List ²	Habitat/ Location	Status on Site
California Adolphia <i>Adolphia californica</i>	None/None	2.1	Chaparral, coastal scrub, valley and foothill grassland; clay/ shrub/ blooms December–May	A total of three individuals were observed on site within the southern portion of the property.
Wart-stemmed ceanothus ¹ <i>Ceanothus verrucosus</i>	None/None	2.2	Sandstone and metavolcanic soils in mixed chaparral and chamise chaparral; elevation 1–380 meters. Shrub (evergreen), blooms December–April.	14 individuals found within southern maritime chaparral in the study area in fall 2006.
Nuttall's scrub oak ¹ <i>Quercus dumosa</i>	None/None	1B.1	Closed-cone coniferous forest, chaparral, coastal scrub/ sandy, clay loam soils; elevation 15–400 meters. Shrub (evergreen), blooms February–April.	Approximately 16 individuals scattered throughout southern maritime chaparral within the study area.
Engelmann oak ¹ <i>Quercus engelmannii</i>	None/None	4.2	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland; elevation 120–1,300 meters. Tree (deciduous), blooms March–May.	One individual tree located on the edge of the palm tree nursery and a polygon of southern mixed chaparral.

¹ Carlsbad HMP Species of Concern

² CNPS Designations:

- List 1A Presumed Extinct in California
- List 1B Rare or Endangered in California and Elsewhere
- List 2 Rare or Endangered in California, More Common Elsewhere
- List 3 Need More Information
- List 4 Plants of Limited Distribution
 - .1 Seriously endangered in California
 - .2 Fairly endangered in California
 - .3 Not very endangered in California

Preserve Management Plan for the Muroya Property

California adolphia was found in a small clump of three individuals within the southern portion of the site within the coastal sage scrub (Figure 5). This species tends to occur on clay soils within shrub, scrub and grassland communities. As a shrub, threats to the species are limited and predominantly due to development. This species is considered somewhat endangered in California but is common and stable outside of the state.

Nuttall's scrub oak was found growing in southern maritime chaparral and is a key species indicating that vegetation association. Approximately 16 Nuttall's scrub oaks were found scattered throughout the study area (Figure 5). This species occurs in shrub and scrub vegetation communities on sandy and clay loam soils. Nuttall's scrub oak is known only from southern California and northern Baja California and is very rare and threatened by development.

Wart-stemmed ceanothus is also a species indicator of southern maritime chaparral and was found scattered throughout the vegetation association within the study area. Approximately 14 individual shrubs were found scattered throughout the study area. This species occurs on sandstone and metavolcanic soils in mixed chaparral and chamise chaparral vegetation communities. As a shrub, threats to the species are limited and predominantly due to development. Wart-stemmed ceanothus is rare and somewhat endangered in California but is common and stable outside of the state.

One old and large Engelmann oak tree was found on the property. The tree is located on the edge of a bench that slopes quickly down into a ravine in a transition area between agricultural and southern mixed chaparral. This species occurs in chaparral, cismontane woodland, riparian woodland and valley and foothill grasslands. Engelmann oak is a watch list species because it has a limited distribution but is fairly common within the area where it occurs.

Special status wildlife species included the California gnatcatcher (*Polioptila californica*), a federally listed threatened species (Table 3). Two pairs of California gnatcatcher were observed within coastal sage scrub on the project site. One pair was observed in the northernmost portion of the preserve adjacent to the agriculture area. The other pair was observed in the southern area adjacent to the off site undeveloped land. This species occurs predominantly in coastal sage scrub but also in coastal sage scrub-chaparral and coastal sage scrub-grassland ecotones. The California gnatcatcher is threatened by development and edge effects including urban mesopredators such as dogs and cats.

Preserve Management Plan for the Muroya Property

Table 3
Special Status Wildlife Species Present within the Muroya Preserve

Species Common/Scientific Name	Regulatory Status Federal/State	Habitat/Location	Status on Site
Coastal California Gnatcatcher ¹ <i>Poliophtila californica californica</i>	FT/CSC	Coastal sage scrub, coastal sage scrub- chaparral mix, coastal sage scrub- grassland ecotone, riparian in late summer	Two pair observed on site during focused surveys.

¹ Carlsbad HMP Species of Concern

Federal Designations:

FT = Federally listed Threatened

State Designations:

CSC = California Department of Fish and Game Species of Concern

F. Fire history

No fire history is available other than from the current owner. There have been no fires recorded for the site under the current owner.

G. Threats

Threats to the native species and habitats are minimal. There is currently very little human intrusion into the preserve area because it has been under gated control. Threats are predominantly due to weed invasion from the previous agriculture use of the property.

Preserve Management Plan for the Muroya Property

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4.0 MANAGEMENT AND MONITORING GOALS AND ASMDS

The monitoring and management of the Muroya preserve follows the guidelines developed by the MHCP and provided in the MHCP Monitoring and Management Plan (SANDAG 2003).

Initial tasks that will be conducted within the preserve include weed removal and restoration of the agriculture, disturbed habitat, and ornamental areas to southern maritime chaparral. The initial weed control is discussed below and is the responsibility of Taylor Morrison of California, LLC. The restoration also is the responsibility of Taylor Morrison of California, LLC. The restoration areas will not be included within the preserve until the restoration has met success criteria. A total of eight fixed photo point locations will be established during the initial tasks within the first year of the management of the preserve. These points will be established according to the Preserve Manager in order to obtain the best view but generally will be located at the north and south perimeters, facing into the preserve, and at two locations along the east and west perimeters. Two additional points will be located along the central ridge within the preserve and will face towards the opposite direction from their corresponding location.

In general, the open space area is composed of native vegetation communities, however two conditions were noted that need to be addressed prior to the conveyance of the open space lot. There appear to be some deposits of landscape clippings and roadside debris; however, large trash items such as refrigerators and abandoned vehicles do not appear to be a problem. Weeds are also a minor problem and should be controlled prior to conveyance. Three non-native invasive weed species were noted to be of noticeable coverage within the open space; however, other weeds also are present. The main non-native invasive species that need to be controlled include hottentot-fig (*Carpobrotus edulis*), pampas grass (*Cortaderia* sp.), and black mustard (*Brassica nigra*).

The project proposes to conduct on-site restoration of suitable disturbed, agriculture or other non-functional habitat within the coastal zone for all of the impacts. The mitigation for the southern maritime chaparral and southern mixed chaparral will be accomplished through the on-site restoration of non-native habitat. These areas currently do not function as native habitat and have no native plant species present. A total of 0.87 acre of southern maritime chaparral and 0.05 acre of southern mixed chaparral will be restored within the areas currently mapped as agriculture, disturbed land, and ornamental as described above. This acreage suitable for restoration totals 0.93 acre. The bulk of the potential restoration areas are in the southern portion of the site currently mapped as agriculture. If needed the northern portion of agriculture land will also be restored. If the restoration biologist feels it is more appropriate to restore all of the required mitigation area to southern maritime chaparral, this will satisfy the requirement for the southern mixed chaparral mitigation. Prior to implementing the restoration activities, conceptual mitigation plans will be prepared and approved by the City and resource agencies. These plans will identify the location of the on-site restoration, the plant palette to be used and the goals and

Preserve Management Plan for the Muroya Property

success criteria of the mitigation. The restoration activities are not the responsibility of the Preserve Manager and upon completion of the restoration, the areas mapped as agriculture, disturbed land, and ornamental will be southern maritime and/or southern mixed chaparral. Once the success criteria have been met, the restoration site will become part of the preserve and will be managed according to this PMP.

A. Biological Monitoring and Management

The biological goals for the PMP include the maintenance of the existing condition of the preserve. Restoration of the agriculture, ornamental, and disturbed habitat has been planned and is part of the development proposal. The restoration will be conducted by the project applicant. There will be a number of documents and tasks required for the restoration activities including: conceptual mitigation plan, plans and specifications, installation, 5-year monitoring and management of the restoration area. The monitoring of the restoration area will also be the responsibility of the applicant until it is considered successful and has been signed off, approximately 5 years from installation. Upon successful completion of the restoration, the restored area, which will be restored to native southern maritime chaparral, will be included in the overall preserve management and monitoring.

Monitoring tasks include vegetation community monitoring, plant species monitoring and wildlife monitoring. Quarterly monitoring visits will be conducted and may focus on wildlife or botany and for general purposes to view the site conditions and detect trash and invasive plant populations that need control. Annually, photos will be taken from the eight fixed points within the preserve; locations are described in general terms above and will be established during the first year of the management of the preserve. These photos will provide documentation of the quality of the habitat and in conjunction with the quarterly visits, will determine if other actions are required in order to maintain the habitat. The photos from the eight fixed photo point locations will be included in the appendix of the annual monitoring report.

According to the MHCP Monitoring and Management Plan (SANDAG 2003), vegetation community mapping is required initially, and then every five years to update the information. All habitats within the open space preserve will be mapped on aerials of the site at a scale of one inch equals 100 feet. This work shall include accessing and obtaining available updated aerial photographs of the site every five years.

Four plant species and one wildlife species considered sensitive were identified on site, including Nuttall's scrub oak, wart-stemmed ceanothus, California adolphia, Engelmann oak and coastal California gnatcatcher. The California adolphia, wart-stemmed ceanothus, Nuttall's scrub oak and coastal California gnatcatcher are HMP-covered species. Details about conservation goals, impact avoidance/minimization measures and management recommendations can be found in the

Preserve Management Plan for the Muroya Property

HMP. In accordance with the MHCP Monitoring and Management Plan (SANDAG 2003), plant and wildlife presence/absence surveys are required for the four HMP-covered species that occur on site to document the sensitive species occurrences within the open space areas.

For special status plant species it is assumed that managing the habitat will be sufficient to maintain the species. The objective for monitoring these species is to track its presence in the open space preserve using a systematic survey (SANDAG 2003). A presence/absence survey will be conducted, wherein the general condition of the habitat and the degree of disturbance, if any, will be observed and recorded. For the plant survey, the timing of the survey is not critical because the species are perennial species that are observable year-round. Monitoring focused on determining the number and location of each of these species will be conducted every 5 years.

For coastal California gnatcatcher, focused surveys will be conducted every three years. The focused surveys will be conducted by a biologist holding a valid 10(a) permit. Focused surveys will consist of three site visits during the breeding season, with surveys conducted during February through August as deemed most appropriate by the biologist, with at least a seven-day interval between site visits, in accordance with USFWS survey requirements (USFWS 1997) and the requirements of the MHCP Monitoring and Management Plan (Section 3.1.3, SANDAG 2003). A report detailing the results of the focused survey will be prepared and submitted to the appropriate agencies. This will be in addition to the overall general report for the open space preserve.

Constraints

Due to the presence of the federally listed threatened California gnatcatcher, constraints to activities within the preserve may be due to the need to avoid activities during the breeding season. Weed removal may need to be conducted by hand if done within the areas occupied by the gnatcatcher.

Potential Impacts

Potential impacts from the monitoring and management may occur if weed removal is conducted during the breeding season of the gnatcatcher. To avoid impacts, weed removal, if required to be done within areas actively used by the gnatcatcher, will be conducted by hand or outside of the breeding season. No other impacts from the monitoring and management activities are anticipated.

Area Specific Management Directives

Individual project or tasks that implement a particular goal are considered Area Specific Management Directives (ASMDs). These tasks are described below in greater detail.

Preserve Management Plan for the Muroya Property

Erosion Control

Any significant unnatural erosion occurring within the open space preserve shall be repaired promptly after it is detected, to minimize additional soil loss. For the purposes of this document, unnatural erosion is considered to be erosion that may occur as a direct or indirect result of human activity. Erosion control measures shall be implemented, as necessary, to prevent recurring erosion problems. Erosion control measures can include, but are not limited to, installing water bars, silt fencing, straw wattles, filter fabric, or other appropriate material, and seeding with natives, to minimize or prevent erosion.

Erosion control measures are anticipated to be minimal for the open space preserve because it is mostly covered by established vegetation. However, there are jurisdictional ephemeral drainages and erosional features that occur naturally within the open space preserve, and some small areas that currently do not support vegetation that may require some erosion control measures in the future. Minor erosion control problems such as rill erosion repair, minor sediment deposition, or erosion repairs may need to be addressed.

Landscaping Restrictions

Active landscaping should be absent within the open space area. However, if problems are detected at the interface between nearby development slopes and the open space area, then intervention shall be initiated to correct these problems. Potential problems could include the introduction of and/or expansion of nonnative invasive plant species into the open space, irrigation runoff, excess nitrogen runoff, or pesticide overspray into the open space area.

Fencing, Gates, Signs

Upon completion of grading and construction for the proposed development area, the temporary construction/silt fencing will be removed and a permanent fence will be placed at the edge of the residential backyards to prevent access to the open space. Although the fencing will not be placed along the edge of the preserve, by fencing the backyards, no additional fencing is required. The responsibility for installation of the fencing, walls and gates will be borne by the owner. The responsibility for maintenance and replacement of the fencing, walls and gates will reside with the HOA or individual homeowners. No fencing is required along the western boundary due to the existing fencing that is already in place. No fencing is required along the southern portion because the preserve is contiguous with other preserve lands. Hence no fencing maintenance or installation is required of the Preserve Manager.

Signs will be installed for access control and public education around the perimeter of the open space preserve. These signs will inform the HOA of the location of the preserve boundary and preclude brush management activities from extending into the preserve. Eight to fifteen small (14

Preserve Management Plan for the Muroya Property

inches by 20 inches) aluminum signs displaying pertinent restrictive information, such as “Habitat Conservation Area”, and “No Trespassing” and “No brush management activities beyond this sign” will be installed on posts at potential public access points. Initial installation of signs will be provided by Taylor Morrison of California, LLC and replacement will be the responsibility of the Preserve Manager.

Exotic Species Control

Exotic/invasive (non-native) plant species control will be an ongoing process in perpetuity. Exotic/invasive plant species control will be conducted twice per year to keep weeds at manageable levels. A general guide for which invasive exotic plants should be controlled if they occur in the open space area is included in Table 2 of this PMP. The Preserve Manager will need to determine which areas are in need of exotic/invasive plant species control. Therefore, this PMP assumes that a habitat restoration specialist will survey the site twice per year for the presence of exotic/invasive plant species. A combination of mechanical and chemical control methods will be used to control exotic/invasive plants on site.

There are several non-native plant species that are present or have the potential to be present on site. Target non-native species selected for control in this PMP include those non-native plant species that are potentially invasive, and/or pose a threat to the establishment, development or persistence of native habitat or wildlife. The primary target species shall be those species identified and listed by The California Invasive Plant Council (Cal-IPC, formerly the California Exotic Pest Plant Council, Cal EPPC) in the publication: “*California Invasive Plant Inventory*” (Cal-IPC, 2007). Target species of that publication are classified by Cal-IPC into list categories. List categories established by Cal-IPC are based on aggressiveness of invaders, geographical distribution throughout California and potential to spread explosively (Cal EPPC, 1999). The Cal-IPC invasive plant categories include, High, severe ecological impacts on physical processes, plant and animal communities, vegetation structure, and widely distributed ecologically; Moderate, substantial and apparent, but generally not severe, ecological impacts on physical process, plant and animal communities, vegetation structure, ecological amplitude and distribution may range from limited to widespread; Limited, invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score, ecological amplitude and distribution are generally limited but these species may be locally persistent and problematic. Additional weed species may be added to this list if they appear to pose a risk, or a potential risk, to the persistence of the native habitat and wildlife on site.

For the purposes of open space preserve management and maintenance measures, exotic weed species requiring control are divided into two groups; Low Tolerance Species (Group 1) and No Tolerance Species (Group 2, Table 4). In general, Low Tolerance Species are those that could potentially pose a threat to the persistence of native habitats, but are usually not strong invaders. Most of the species in Group 1 are annuals. Species in Group 2 are considered strong invaders and have the potential to displace native habitat. Species in Group 2 are perennials.

Preserve Management Plan for the Muroya Property

Table 4
Common Weed and Invasive/Exotic Species to be Controlled within the Project Site

Group 1 Non-Native Weeds to be Controlled by Hand Removal or Mechanical Removal if They Exceed 10% Over Baseline		Group 2 Invasive Exotics to be Controlled by Hand Removal or Herbicide Application if Detected	
Common Name	Scientific Name	Common Name	Scientific Name
Sweet alyssum	<i>Lobularia maritima</i>	tree tobacco	<i>Nicotiana glauca</i>
mustard	<i>Brassica</i> spp.; <i>Hirschfeldia incana</i>	Radish	<i>Raphanus sativus</i>
Russian thistle	<i>Salsola tragus</i>	Myoporum	<i>Myoporum laetum</i>
non-native annual grasses	<i>Bromus</i> spp., <i>Polypogon monspeliensis</i> , <i>Avena</i> spp., <i>Vulpia myuros</i> , <i>Schismus barbatus</i>	Pampas grass	<i>Cortaderia selloana</i>
—	—	ice plant	<i>Carpobrotus</i> spp.; <i>Mesembryanthemum</i> spp.
—	—	English ivy	<i>Hedera helix</i>
—	—	Sweet fennel	<i>Foeniculum vulgare</i>

Exotic invasive plant species control measures will consist of the complete removal of selected non-native vegetation (i.e., seed heads, stems, roots), and all debris and slash generated from the weed removal activities will be disposed of off site in a legally acceptable manner. Weed removal will be conducted twice annually.

Weed control measures will include the following: (1) hand removal, (2) mechanical removal (e.g., cutting with weed whip machines, hoeing) and (3) herbicide application. The method of weed control shall be based on the most effective method for the species and stage of plant development. In general, hand removal of weeds is the preferred method of control, with other methods implemented, as necessary. If possible, depending on the project schedule, weeds shall be controlled when plants are young (i.e., 6–10 inches tall) and prior to the formation of seed heads. If large areas require hand weeding (e.g., areas over 0.25 acre) seeding the area with a native seed mix appropriate to this site, and locally collected, should be considered to inhibit re-colonization of the area by non-native plant species.

In general, weed species listed in Group 1 should be removed manually (hand removal or mechanical removal). Group 2 species include those that will likely require chemical control. Herbicide applications will either be foliar applications of the entire plant, or cutting the plant and painting the severed stem or trunk with a systemic herbicide. Cutting and painting the severed stems, as opposed to foliar applications, will likely be the preferred method of chemical control because it reduces the chance of inadvertent overspray and consequent non-target plant damage. The maintenance contractor should coordinate with the project biologist to identify specific locations within the site where chemical herbicide treatments would be acceptable.

Preserve Management Plan for the Muroya Property

All herbicide treatments must be supervised by a licensed pest control advisor and applied under the direction of a licensed pest control applicator.

The following Table 5 provides the itemized preserve management and monitoring tasks based on the descriptions of the tasks above.

Table 5
Preserve Management Task Summary

Task	Timing	Staff Type
Baseline Inventory Mapping and Update	Once at beginning on management during initiation of PMP	Preserve Manager or qualified staff
Site Monitoring	Quarterly	Preserve Manager or qualified staff
Habitat Monitoring/fixed photos point	Annually	Preserve Manager or qualified staff
Sensitive Plant Species Monitoring	Every 5 years during a quarterly monitoring visit	Preserve Manager or qualified staff
Vegetation Mapping/revisions	Every 5 years during a quarterly monitoring visit	Preserve Manager or qualified staff
California Gnatcatcher Protocol Survey	Every 3 years	Qualified Biologist with 10(a) permit
Exotic Weed control	Twice annually during quarterly monitoring visit	Preserve Manager or qualified staff
Trash removal	As needed during quarterly visits	Preserve Manager or qualified staff
Public awareness and outreach	Once annually based on communication with HOA	Preserve Manager or qualified staff
Annual Report	Once annually	Preserve Manager or qualified staff

B. Public Use

There is no anticipated public use of the Muroya open space. No trails or other recreational uses are planned.

C. Fire Management

Although it is not anticipated that a catastrophic fire may occur due to the location within an urbanized setting, if a fire occurs within the open space preserve, either burning all or a portion of the site, the vegetation will be allowed to naturally regenerate. No fire management is anticipated for the preserve. Fire is a naturally occurring event that produces healthy vegetation. The proposed Muroya development project has the required fuel management zones that are all contained within the management of the HOA. The open space preserve does not include any areas slated for brush control or fire/fuel management. Fire management, if it becomes necessary, is assumed to be the ongoing responsibility of the property owner. Therefore, fire management between the open space preserve and the development edge is not a requirement of this Property Management Plan.

Preserve Management Plan for the Muroya Property

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5.0 ADAPTIVE MANAGEMENT

Adaptive management is defined as a flexible, iterative approach to the long-term management of biological resources that is guided over time by direct observation of the results of ongoing management activities. Preserve areas are subject to a variety of changing conditions including changes in biology such as normal population changes, legal such as new listings or de-listings of resident species, and social such as pressures from recreational use. Adaptive management will include the utilization of annual qualitative assessments and data gathered in the field to assess the health and vigor of habitat within the preserve area. California gnatcatcher and special status plant species monitoring shall be conducted consistent with the Carlsbad HMP. Results of species monitoring shall be factored into adaptive management decision making and actions in consultation with the Preserve Manager. Adaptive management actions will be implemented on an as-needed basis to address perceived deficiencies. As such, adaptive management for the Muroya preserve will include:

- Analysis and interpretation of the information gathered from the site will be viewed in context with results from other preserve areas as appropriate.
- The management plan will be updated every five years in order to incorporate information from the monitoring. This provides an opportunity to review the relevant information from the site as well as other preserve areas.
- The Preserve Manager will have a strong background in biological sciences and familiarity with the management techniques in similar preserves.
- Sound recording keeping will provide the support for any changes that occur and will document when conditions continue to be stable.

This PMP provides the biological monitoring methods and schedule that provides input into the adaptive management approach.

Fire is a natural occurrence in the San Diego County back country. Many upland, as well as native wetland, species are adapted to survive and recover following a fire event. Should fire damage reduce the native cover and/or cause other damage to the site, an assessment will be made to determine the level of damage and an appropriate course of action as demonstrated in this PMP. Fire response may range from letting the site recover on its own with weed control, removing burned snags to reduce organic build up/future fuel loads, and/or replanting portions of the site.

Preserve Management Plan for the Muroya Property

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6.0 ADMINISTRATION AND REPORTING

A. Annual Reports, Work Plans, and PMP

Annual reports detailing all management activities and an annual financial summary are required under the MHCP program. Additionally, the annual reports will include the results of plant and wildlife surveys that were conducted that year. The separate gnatcatcher survey report will be included in the appendix of the report as an attachment for the year that it was conducted. Annual reports will be submitted to the appropriate organizations. The annual report will include information on the extent and condition of the habitats, changes to the condition of the habitat or species, summary of management issues/tasks, and recommendation for tasks for the upcoming year. The annual report also will include the photographs of the site from fixed photo points, a summary of the endowment, the funds generated and expenses incurred as well as maps that show species locations and the vegetation communities.

The Property Analysis Record (PAR) provides the estimated cost for the implementation of this PMP and will be prepared by the Preserve Manager.

Data Management:

As needed for documenting changes to the preserve, GPS data will be recorded. A GIS coverage will be created.

Communication and Coordination:

The Preserve Manager will be responsible for communicating with the City HMP Administrator. Annual reports will be provided to the City.

Budget and Endowment Management:

Taylor Morrison of California, LLC will be responsible for all funding requirements for this PMP. This would include establishing a non-wasting endowment to fund the PMP. Long-term management tasks involve activities associated with the management and maintenance of the preserve in perpetuity as funding permits and include habitat monitoring/mapping, exotic species control, species surveys, general management, and public outreach. The PAR includes contingency funds to address unforeseen events. The endowment amount is required to meet the estimated costs identified in the PAR.

Preserve Management Plan for the Muroya Property

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Preserve Management Plan for the Muroya Property

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Preserve Management Plan for the Muroya Property

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APPENDIX A

List of Plant Species Observed on Site

APPENDIX A

List of Plant Species Observed on Site

ANGIOSPERMAE (DICOTYLEDONES)

ANGIOSPERMS (DICOTS)

AIZOACEAE – FIG-MARIGOLD FAMILY

- * *Carpobrotus edulis* – hottentot-fig
- * *Mesembryanthemum crystallinum* – crystalline iceplant

ANACARDIACEAE – SUMAC FAMILY

- Malosma laurina* – laurel sumac
- Rhus integrifolia* – lemonadeberry

APIACEAE – CARROT FAMILY

- * *Foeniculum vulgare* – fennel

ARALIACEAE – GINSENG FAMILY

- * *Hedera helix* – English ivy

ASTERACEAE – SUNFLOWER FAMILY

- Ambrosia psilostachya* – western ragweed
- Artemisia californica* – California sagebrush
- Baccharis pilularis* – chaparral broom, coyote brush
- Baccharis salicifolia* – mulefat, seep-willow, water-wally
- Carduus pycnocephalus* – Italian thistle
- Conyza canadensis* – horseweed
- Heterotheca grandiflora* – telegraph weed
- Deinandra [=Hemizonia] fasciculata* – fascicled tarweed
- Encelia californica* – California encelia
- Gnaphalium californicum* – California everlasting
- Isocoma menziesii* ssp. *menziesii* – spreading goldenbush
- Pluchea odorata* – salt marsh fleabane
- Stephanomeria virgata* ssp. *virgata* – virgate wreath-plant

BRASSICACEAE – MUSTARD FAMILY

- * *Brassica nigra* – black mustard
- * *Lobularia maritima* – sweet alyssum
- * *Raphanus sativus* – radish

APPENDIX A (Continued)

CACTACEAE – CACTUS FAMILY

Opuntia littoralis – coastal prickly-pear

Opuntia prolifera – coast cholla

CAPRIFOLIACEAE – HONEYSUCKLE FAMILY

Sambucus mexicana – Mexican elderberry

CARYOPHYLLACEAE – PINK FAMILY

Loeflingia squarrosa var. *squarrosa* – California loeflingia

CHENOPODIACEAE – GOOSEFOOT FAMILY

* *Atriplex semibaccata* – Australian saltbush

* *Chenopodium album* – pigweed, lamb's quarters

* *Salsola tragus* – Russian thistle, tumbleweed

CRASSULACEAE – STONECROP FAMILY

Dudleya edulis – ladies' fingers

Dudleya pulverulenta – chalky live-forever

ERICACEAE – HEATH FAMILY

Xylococcus bicolor – mission manzanita

EUPHORBIACEAE – SPURGE FAMILY

Chamaesyce albomarginata – rattlesnake weed

Eremocarpus setigerus – doveweed

Ricinus communis – castor bean

FABACEAE – PEA FAMILY

Lotus scoparius var. *scoparius* – deerweed

FAGACEAE – OAK FAMILY

Quercus agrifolia var. *agrifolia* – coast live oak

Quercus dumosa – Nuttall's scrub oak

Quercus engelmannii – Engelmann oak or mesa oak

HYDROPHYLLACEAE – WATERLEAF FAMILY

Eriodictyon crassifolium var. *crassifolium* – thickleaf yerba santa

LAMIACEAE – MINT FAMILY

Salvia mellifera – black sage

APPENDIX A (Continued)

POLYGONACEAE – BUCKWHEAT FAMILY

Eriogonum fasciculatum var. *foliolosum* – California buckwheat

* *Rumex crispus* – curly dock

RHAMNACEAE – BUCKTHORN FAMILY

Ceanothus verrucosus – wart-stemmed ceanothus

ROSACEAE – ROSE FAMILY

Adenostoma fasciculatum – chamise

Heteromeles arbutifolia – toyon, Christmas berry

SALICACEAE – WILLOW FAMILY

Salix lasiolepis – arroyo willow

SCROPHULARIACEAE – FIGWORT FAMILY

Mimulus aurantiacus – coast monkey flower, bush monkey flower

Scrophularia californica var. *floribunda* – California figwort

SOLANACEAE – NIGHTSHADE FAMILY

* *Nicotiana glauca* – tree tobacco

Solanum xanti – chaparral nightshade

ANGIOSPERMS (MONOCOTS)

LILIACEAE – LILY FAMILY

Yucca schidigera – Mohave yucca

POACEAE – GRASS FAMILY

* *Avena barbata* – slender wild oat

* *Bromus diandrus* – ripgut grass

* *Cortaderia selloana* – pampas grass

Leymus condensatus – giant wild rye

Melica imperfecta – coast range melic

* *Schismus barbatus* – Mediterranean schismus

* *Vulpia myuros* var. *myuros* – rattail fescue

* signifies introduced (non-native) species

APPENDIX A (Continued)

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APPENDIX B

Wildlife Species Observed on Site

APPENDIX B

Wildlife Species Observed on Site

VERTEBRATES

REPTILES

***AEGITHALIDAE* – BUSHTITS**

Psaltiriparus minimus – bushtit

***COLUMBIDAE* – PIGEONS AND DOVES**

* *Columba livia* – rock dove

***CORVIDAE* – JAYS AND CROWS**

Apelocoma californica – western scrub-jay

Corvus brachyrhynchos – American crow

Corvus corax – common raven

***IGUANIDAE* – IGUANID LIZARDS**

Sceloporus occidentalis – western fence lizard

BIRDS

***EMBERIZIDAE* – BUNTINGS AND SPARROWS**

Chondestes grammacus – lark sparrow

Melospiza melodia – song sparrow

Pipilo crissalis – California towhee

Pipilo maculatus – spotted towhee

Zonotrichia leucophrys – white-crowned sparrow

***FRINGILLIDAE* – FINCHES**

Carpodacus mexicanus – house finch

Carduelis psaltria – lesser goldfinch

***MIMIDAE* – THRASHERS**

Mimus polyglottos – northern mockingbird

***PARULIDAE* – WOOD WARBLERS**

Dendroica coronata – yellow-rumped warbler

***PHASIANIDAE* – PHEASANTS AND QUAILS**

Callipepla californica – California quail

APPENDIX B (Continued)

PICIDAE – WOODPECKERS

Colaptes auratus – northern flicker

REGULIDAE – KINGLETS

Regulus calendula – ruby-crowned kinglet

STURNIDAE – STARLINGS

* *Sturnus vulgaris* – European starling

SYLVIIDAE – GNATCATCHERS

Polioptila californica – California gnatcatcher

TIMALIIDAE – LAUGHINGTHRUSH AND WRENTIT

Chamaea fasciata – wrentit

TROCHILIDAE – HUMMINGBIRDS

Calypte anna – Anna’s hummingbird

TROGLODYTIDAE – WRENS

Thryomanes bewickii – Bewick’s wren

Troglodytes aedon – house wren

TYRANNIDAE – TYRANT FLYCATCHERS

Sayornis nigricans – black phoebe

Tyrannus vociferans – Cassin’s kingbird

MAMMALS

CANIDAE – WOLVES AND FOXES

Canis latrans – coyote

LEPORIDAE – HARES AND RABBITS

Sylvilagus bachmani – brush rabbit

MURIDAE – RATS AND MICE

Neotoma sp. – woodrat (midden)

Peromyscus sp. – mouse (sign)

SCIURIDAE – SQUIRRELS

Spermophilus beecheyi – California ground squirrel

APPENDIX B (Continued)

WILDLIFE SPECIES – INVERTEBRATES

BUTTERFLIES AND MOTHS

***LYCAENIDAE* – BLUES, HAIRSTREAKS, AND COPPERS**

Glaucopsyche lygdamus – southern blue

***NYMPHALIDAE* – BRUSH-FOOTED BUTTERFLIES**

Junonia coenia – buckeye

Vanessa cardui – painted lady

***PIERIDAE* – WHITES AND SULFURS**

Pieris rapae rapae – cabbage butterfly

Pontia sisymbrii – California white

* signifies introduced (non-native) species

APPENDIX B (Continued)

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