Preserve Management Plan for the Cantarini Ranch Preserve, Carlsbad, California

Prepared for

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1.0 Introduction

This Preserve Management Plan (PMP) provides a framework for the enhancement and management of biological open space known as the "Cantarini Ranch Preserve", which consists of approximately 55.2 acres of preserved land in the city of Carlsbad, San Diego County, California (Figures 1 and 2). The Preserve is mitigation for one of two developments approved at the same time, Cantarini Ranch and Holly Springs. The tentative maps for Cantarini Ranch and the adjacent property to the north, Holly Springs, were evaluated as a single project under the California Environmental Quality Act (CEQA) given the proximity of the properties, timing of development, and the similar nature of environmental impacts. The Cantarini Ranch project includes development of 105 single-family homes, an 80-unit multi-family housing project, and the Cantarini Ranch Preserve within the 156.72-acre Cantarini Ranch property. The Holly Springs project includes 42 single-family homes and a separate open space preserve within the adjacent 119.85-acre Holly Springs property. The final Environmental Impact Report (EIR) for the Cantarini/Holly Springs Developments (EIR 02-02; SCH 2002101081), was approved by the City of Carlsbad (City) on December 7, 2004 (City of Carlsbad 2004a). The applicants for Cantarini Ranch, Holly Springs, and the multi-family housing lot decided to proceed independently, and thus, this plan only addresses management of the Cantarini Ranch Preserve. The habitat on the 0.97-acre Open Space Lot 123 on the north side of the multi-family lot will be included in and maintained as a part of the PMP for the Holly Springs Tentative Map CT 00-21 (S. Kelly & K. Cablay, pers. comm., 9/15/11).

The dedication of the open space and the implementation of the associated PMP fulfill a portion of the mitigation required for impacts to the biological resources associated with development of the Cantarini Ranch property. This plan will become effective upon preservation of the Cantarini Ranch Preserve by way of a restrictive covenant or conservation easement. The Preserve will be managed by a preserve manager (as defined below) with the exception of the areas to be restored. The maintenance and monitoring of the restoration areas, related to the restoration activities only, will be the responsibility of the Property Owner until successful completion and approval by the City and Wildlife Agencies of the five-year maintenance and monitoring activities associated with the approved restoration plan prepared for this project. Upon successful completion, long-term management and monitoring will transfer to the Preserve Manager.

The objectives and guidelines included in this PMP are intended to preserve open space areas in perpetuity and conserve and protect sensitive species and biological resources that occur within the following native vegetation communities found on-site: freshwater marsh, cismontane alkali marsh, southern willow scrub, southern coast live oak riparian forest, mule fat scrub, Diegan coastal sage scrub, southern coast live oak woodland,

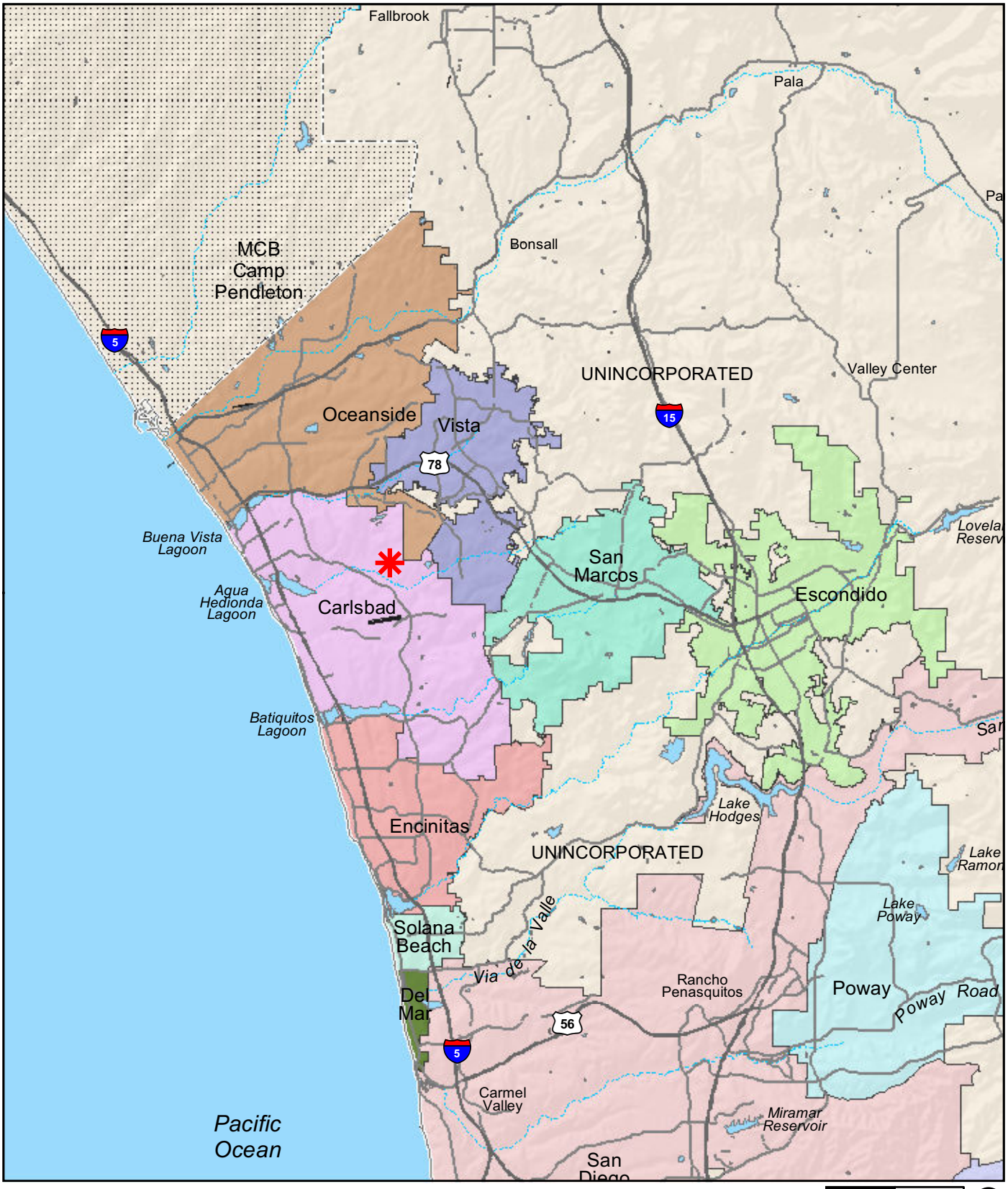

FIGURE 1

Regional Location

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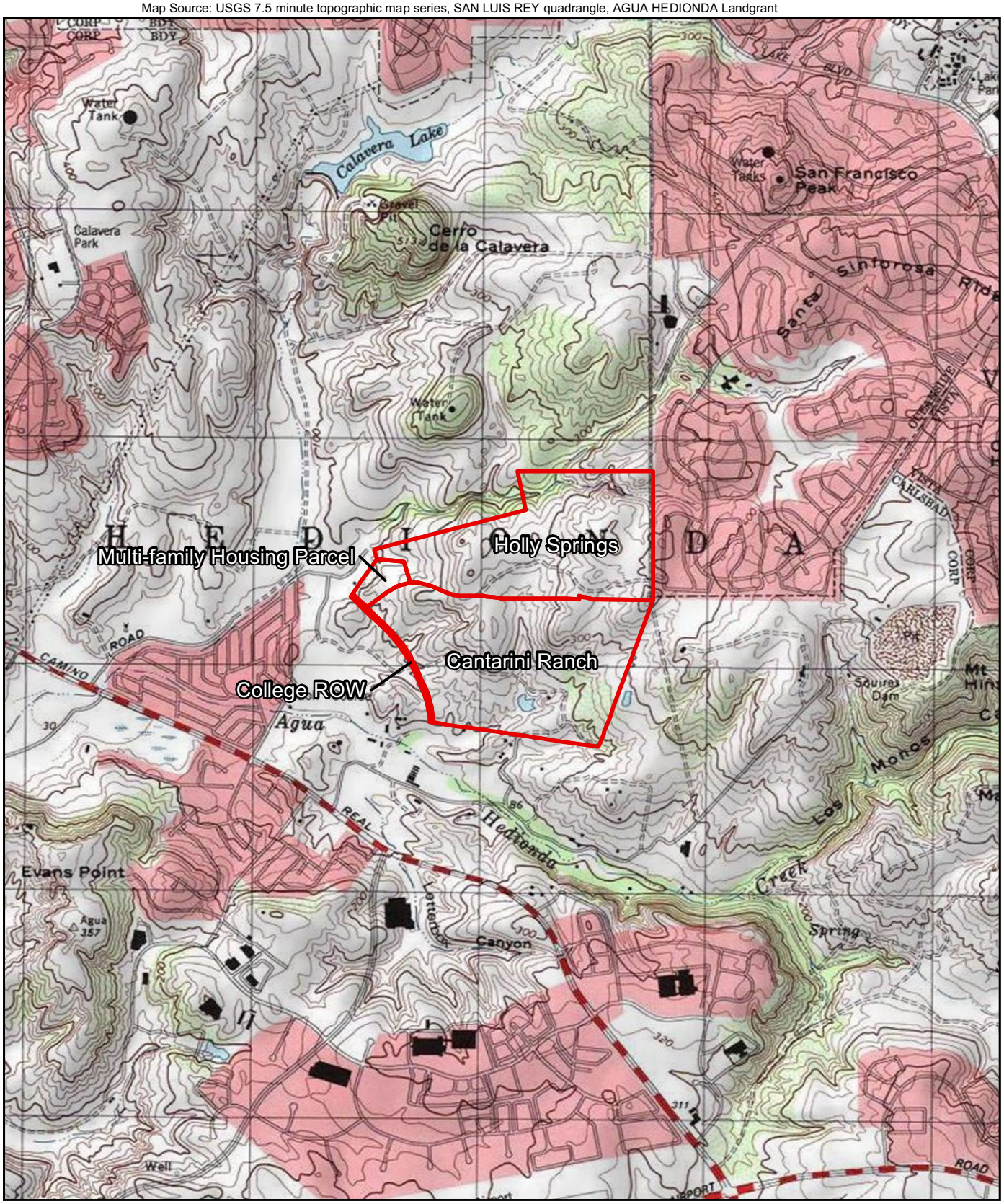
Map Source: USGS 7.5 minute topographic map series, SAN LUIS REY quadrangle, AGUA HEDIONDA Landgrant



Study Area Boundary

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FIGURE 2

Project Location on USGS Map

southern mixed chaparral, and native grassland. Sensitive flora and fauna present on-site include: Nuttall's scrub oak (*Quercus dumosa*), California adolphia (*Adolphia californica*), spiny rush (*Juncus acutus* ssp. *leopoldii*), western dichondra (*Dichondra occidentalis*), coastal California gnatcatcher (*Polioptila californica californica*), California horned lark (*Eremophila alpestris actia*), white-tailed kite (*Elanus leucophylla*), northern harrier (*Circus cyaneus hudsonius*), Cooper's hawk (*Accipiter cooperii*), yellow warbler (*Dendroica petechia*), yellow-breasted chat (*Icteria virens auricollis*), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*). The primary biological goal is to ensure that the integrity of the native vegetation communities remains intact so that the sensitive species present on-site may continue to persist.

Management guidelines and the responsible parties for the Cantarini Ranch Preserve are identified in this document. This plan was written to be in conformance with the Multiple Habitat Conservation Program (MHCP) (San Diego Association of Governments [SANDAG] 2003), the City of Carlsbad's Habitat Management Plan for Natural Communities (HMP) (City of Carlsbad 2004b), Section D of the Open Space Management Plan (City of Carlsbad 2004c), and the Guidelines for Preserve Management (City of Carlsbad 2009).

The open space for the project that make up the Cantarini Ranch Preserve was designated as a proposed hardline preserve boundary, as determined by the applicant, the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Game (CDFG), and the City of Carlsbad as presented in the Habitat Management Plan (City of Carlsbad 2004b) (Figure 3).

The City's purpose in having a PMP prepared for dedicated open space areas is defined in the Guidelines for Preserve Management (City of Carlsbad 2009):

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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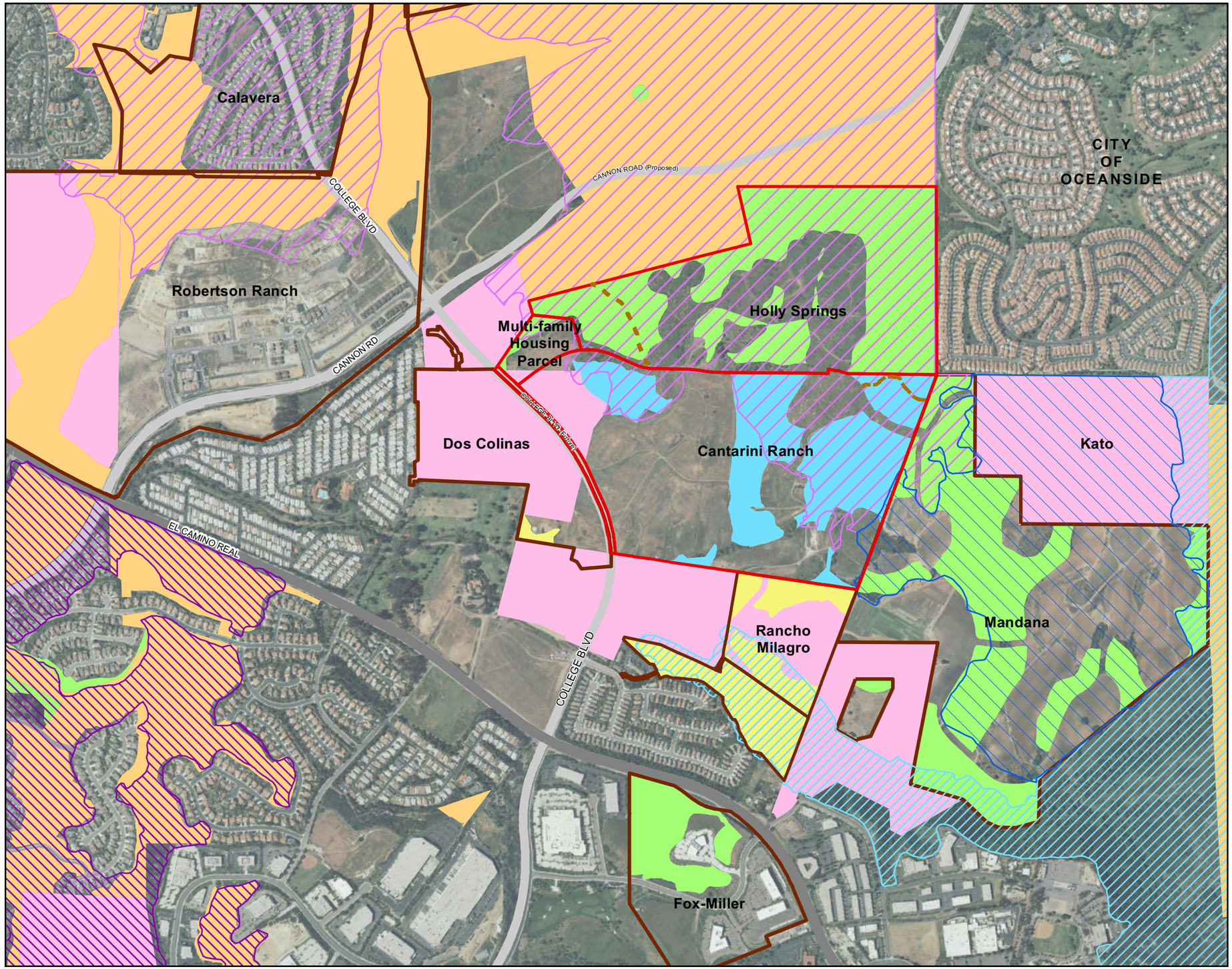

- Study Area Boundary
- Other Property Boundaries
- Existing trails

HMP Open Space Designations

- Hardline Preserve
- Proposed Hardline Preserve
- Standards Area
- Proposed Hardline Preserve-Cantarini Ranch
- Proposed Future Hardline Preserve

Carlsbad HMP Focused Planning Areas

- Core Area #3
- Core Area #4
- Core Area #5
- Linkage Area C

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FIGURE 3
Cantarini Ranch Preserve
within the HMP Context

2.0 Preserve Area Description

2.1 Geographic Setting

The Cantarini Ranch Preserve (Preserve) is located in the northeast portion of the city of Carlsbad, California (see Figure 1), north of El Camino Real near the intersection of College Boulevard and El Camino Real (see Figure 2).

2.2 Physical Setting

Elevation of the site ranges from approximately 80 to 420 feet above mean sea level (U.S. Geological Survey 1968). Several unnamed drainages flow south and southwest into Agua Hedionda Creek, which is located south of the property. Several rock outcrops are present on the hill slopes, primarily in the northeastern corner of Cantarini Ranch.

Twelve soil types are present on-site: Huerhuero loam, 9-15 percent; Huerhuero loam, 15-30 percent, eroded; Cieneba-Fallbrook rocky sandy loam; Cieneba coarse sandy loam; Olivenhain cobbly loam; Salinas clay loam; Salinas clay; Riverwash; Visalia sandy loam; Tujunga sand; Bonsall sandy loam; and Altamont clay (U.S. Department of Agriculture 1973).

2.3 Preserve Area Boundaries and Historic/ Adjacent Land Use

The Preserve was designated as a hardline preserve in the HMP (City of Carlsbad 2004b) (see Figure 3). A portion of the Core Area 3 and Linkage Area C focused planning areas overlay the Preserve boundaries. Figure 3 illustrates the location of the Cantarini Ranch Preserve in context with the HMP open space areas and adjacent ownerships.

The HMP identifies focused planning areas based on existing distribution of vegetation communities and sensitive species in the City, which are then further broken down into HMP cores, linkages, and special resource areas (SRAs). HMP cores are large blocks of habitat capable of sustaining threatened, listed, or sensitive species over time. Linkages are wildlife movement corridors that ensure connectivity to HMP cores within the City of Carlsbad and to natural communities in adjoining jurisdictions and the region, while also preserving additional habitat. SRAs are areas outside of the HMP core and linkage areas that are defined as vernal pools, significant populations of listed plant species, and movement corridors for large mammals. These areas serve as a basis for biological planning for the preserve system (City of Carlsbad 2004b).

The Cantarini Ranch Preserve contains the southern extent of Core Area 3. Core Area 3 is approximately 1,164 acres and is located along the northeastern border of the City of Carlsbad. The HMP identifies this area as supporting "critical populations of California gnatcatcher and thread-leaved brodiaea. Major stands of chaparral and grassland are also present…Oak woodland, riparian forest, and riparian scrub occur in the southern section of this Core" (City of Carlsbad 2004b).

A small portion of Linkage Area C is located along the eastern edge of the Cantarini Ranch Preserve. This linkage serves to connect Core Area 3 with Core Area 5 to the south and southeast and comprises a stepping-stone mosaic of native coastal sage scrub fragments intermixed with agricultural fields. The combination of the natural vegetation with the cultivated fields provides a larger, open area that facilitates wildlife movement between the Core Areas 3 and 5.

The large natural habitat patches and agricultural fields within the Cantarini Ranch Preserve connect with the coastal sage scrub and agricultural fields on adjacent properties (i.e., Holly Springs and Mandana), which helps to maintain a functional wildlife movement corridor for gnatcatchers and other wildlife species within the region.

Cantarini Ranch was a family-owned ranch that was consistently farmed. The property to the north (Holly Springs) was approved for development at the same time as Cantarini Ranch. Most of that site is covered with native vegetation and will provide its own Property Management Plan that will also include the open space set aside as part of the Multi-family Housing Lot. The property to the west of Cantarini Ranch has a pending senior project, Dos Colinas. Almost the entire Dos Colinas site will be developed since there is relatively little native vegetation on the property. A tentative map (CT 06-04 Rancho Milagro) is in process for a portion of the property directly to the south of Cantarini Ranch. This site supports several open space lots, one of which is contiguous with the southeastern open space area on Cantarini Ranch. The property to the east, Mandana, is undeveloped at this time and does not have any pending applications, although the property does support a proposed hardline preserve that was delineated during the HMP process. The exact locations and acreage of habitat preserves within the Mandana property will be finalized as a part of the review of discretionary applications for that site. As currently proposed, the habitat preserves created as a part of the approval process for the Rancho Milagro and Mandana developments will link with the habitat preserve on Cantarini Ranch.

The developer of Cantarini Ranch will work with the adjacent property owners to look for opportunities for coordinated management of the habitat preserve wherever possible. The Preserve Manager (PM, as described below) will coordinate with the other adjacent habitat preserve managers, as they are designated and to the extent possible, to coordinate biological data collection. This will allow for more efficient and seamless management of the resources over the larger regional preserve and prevent duplicate data being collected when resources span across the property boundaries.

2.4 Ownership and Legal Description

Currently, the Assessor Parcel Numbers for the two parcels that support the open space of the Cantarini Ranch Preserve are 20907013 and 16805058. The current landowner is Bent-West, LLC, c/o Dennis O'Brien and John Rimbach ("Property Owner").

The entities that will be involved in the implementation of this plan include a PM, the Property Owner, the Homeowner Association(s) (HOA[s]), the City and it's designated Preserve Steward, and state and federal wildlife agencies (Wildlife Agencies). Their interactions are discussed briefly below.

2.4.1 Regulatory Agencies

The City and the City's Preserve Steward will provide advisory input and review to this document and may provide expertise and guidance to the PM on implementation and adaptive management tasks. The City and Preserve Steward will also provide general oversight as to the adequacy and competency of the PM in implementing the PMP.

The USFWS and CDFG, collectively referred to in this document as the Wildlife Agencies, will also provide advisory input, review this document, and will be consulted by the City and Preserve Steward as needed.

2.4.2 Property Owner/Homeowner Association

The Property Owner is responsible for the creation of a non-wasting endowment to provide funding for implementation of this PMP. The Property Owner is also responsible for the initial installation of preserve fencing and for revegetation and restoration of a portion of Preserve lands, including the initial five-year maintenance and monitoring program.

Dedication of the Cantarini Ranch Preserve shall be by way of a restrictive covenant or conservation easement over the Preserve to ensure it remains protected open space in perpetuity. The Property Owner will continue to hold fee title to the underlying property, and will transfer ownership to the HOA(s) or other appropriate entity formed as part of the Cantarini project development. The Property Owner and/or HOA(s) responsibilities related to the Cantarini Ranch Preserve shall be limited to the initial restoration of a portion of the preserve habitat, maintenance of preserve fencing, maintenance of the recreational trail that crosses the Cantarini Ranch Preserve, initial endowment funding and compliance with the terms and conditions of the Restrictive Covenant or Conservation Easement for the Preserve. The Property Owner and/or HOA(s) shall also provide and maintain suitable access to the Preserve. The Property Owner and/or HOA(s) shall not be responsible for overseeing the PM or for any further funding of Preserve management costs.

2.4.3 Preserve Manager

Once a PM is under contract, they will implement this PMP and take responsibility for the Cantarini Ranch Preserve after its dedication. An exception to this will be the active restoration area, which is subject to a five-year restoration maintenance and monitoring period (RECON 2011), which will be the responsibility of the Property Owner. Once the revegetation has been successfully completed and approved by the City and the Wildlife Agencies, the responsibility for the restored areas will transfer to the PM. The initial PM will be contracted by the Property Owner, subject to approval of the City. The following standards must be met for a PM to be accepted. The PM must be an organization that meets the current standards regulating land management entities to the satisfaction of the City and Wildlife Agencies, e.g. a non-profit land management entity. The PM will designate a qualified project manager. The PM, and the designated project manager, will be responsible for the day-to-day implementation of this PMP and will carry out the PMP's requirements and objectives.

If at any point the designated PM is no longer able to fulfill the required duties, an alternative PM shall be hired by the Property Owner or HOA(s) to continue the implementation of the PMP, based on the standards listed above.

The City and Wildlife Agencies shall have the primary responsibility for the approval of the conditions covered under this PMP. This responsibility includes the approval of the PM and review and approval of yearly work programs, budgets, and annual reports prepared by the PM. The PM shall report directly to the City and Preserve Steward on all issues, concerns, and questions regarding work schedules and overall management. Other agencies will be consulted as needed and as directed by the City and Preserve Steward.

The PM must provide a qualified individual(s) as a project manager who is acceptable to the City, the Preserve Steward, Wildlife Agencies, and the Property Owner. This person(s) must meet the following criteria:

- B.S. or B.A. degree in wildlife management, ecology, zoology, botany, biology, or related field.
- At least two years of experience in field biology in southern California, preferably San Diego County.
- At least two years of experience in bird and general wildlife species surveys with a current USFWS recovery permit for the federally listed endangered coastal California gnatcatcher.
- At least two years of experience conducting rare plant surveys.

- Experience dealing with community groups.
- Demonstrated experience with similar projects or with projects including similar skills.

The PM shall manage the Cantarini Ranch Preserve and will:

- Be an advocate of the open space by maintaining and protecting its integrity and managing project activities in the best interest of the restoration goals set forth in the restoration maintenance and monitoring period (RECON 2011).
- Be familiar with the provisions of this PMP, its attachments, and all documentation supporting the PMP.
- Manage the open space in accordance with local regulations.
- Keep and maintain all documents provided by the owner.
- Educate the surrounding community about the presence and purpose of the open space.
- Document all field visits and notify the City and Preserve Steward in writing of any issues, problems, and proposed solutions in a timely manner.
- Coordinate with the PMs of adjacent or nearby properties on management practices and tasks related to preservation and maintenance of the subregional open space system.
- Prepare and submit an annual report to the City and Preserve Steward by November 1 of each year (see the Reporting/Status Reviews section for requirements).

2.5 Conservation Easement or Restrictive Covenant Compliance

The Conservation Easement (CE) or Restrictive Covenant (RC) shall provide a list of compatible and prohibited uses of the Preserve. The PM must monitor the Preserve to ensure that the HOA(s) and community landowners are not violating the conditions of the CE/RC. Permitted and prohibited uses and compliance monitoring and reporting are discussed in detail in Sections 4.0, 5.0, and 6.0 below.

3.0 Existing Conditions

3.1 Vegetation Communities

The Cantarini Ranch Preserve is approximately 55.2 acres. A portion of the site is subject to restoration activities as mitigation for impacts to native plant communities and jurisdictional wetland and water resources. Figure 4 illustrates where restoration is to occur, and Table 1 summarizes the restoration components and associated mitigation credits for these activities. Table 2 provides a summary of the success criteria as outlined in the *Conceptual Mitigation and Monitoring Plan for the Development on Cantarini Ranch, Carlsbad, California* (RECON 2011). In addition, functions and values goals for the wetland communities were identified in the *Mitigation and Wetland Functional Analysis for Jurisdictional Impacts on the Cantarini Ranch and Holly Springs Properties, Carlsbad, California* (RECON 2005). These are provided in Attachment 1.

Once the success criteria have been met and the regulatory agencies have approved the final restoration implementation, the restoration lands will be turned over to the PM for management. A vegetation map detailing the final configuration of the restored vegetation communities will be prepared and provided to the PM for inclusion in the PMP and use in subsequent management. While it is not expected that the final vegetation map will deviate significantly from that presented in this plan, there is a potential that site, field, and environmental conditions may necessitate some plan revisions. This would only be done in consultation with the Property Owner and regulatory agencies and in compliance with all applicable permits.

Table 3 provides a breakdown of the vegetation communities that will be present within the Cantarini Ranch Preserve once restoration, creation, and enhancement activities have been completed. The acreages are broken down by vegetation community and by the type of activity proposed (creation, restoration/enhancement, and preserved). Once restoration is completed and approved, this open space will include the following sensitive vegetation communities (Figure 5): southern coast live oak riparian forest, southern willow scrub, freshwater marsh, mule fat scrub, cismontane alkali marsh, native grassland, Diegan coastal sage scrub, southern mixed chaparral, and non-native grassland. These communities are considered sensitive by the City and Agencies and they are home to a variety of sensitive plants and animals. In addition, the open space on Cantarini Ranch Preserve will also include a small remnant of agricultural lands, disturbed lands, and developed lands. The developed areas consist of drainage outfalls and culverted undercrossing infrastructure affiliated with the public circulation streets that will be maintained by the City. Acreages are approximate with the final quantity and configuration dependent upon final implementation and approval of restoration.

TABLE 1
HABITAT CREATION, RESTORATION, AND ENHANCEMENT FOR DEVELOPMENT OF CANTARINI RANCH WITH CIRCULATION LOOP ROAD (acres)

Vegetation Type	Mitigation Credit Required (minimum creation req.)	Habitat Creation (=1:1 credit)	Habitat Restoration (=1:1 credit)	Habitat Enhancement[1] (=0.5:1 credit)	Total On-site Credits
Freshwater marsh	**1.38** (0.46)	0.46	–	3.19	**2.05**
Southern willow scrub	**1.62** (0.54)	0.54	–	2.47	**1.77**
Southern coast live oak riparian forest	**1.35** (0.45)	0.48	–	1.74	**1.35**
Mule fat scrub	**0.03** (0.01)	0.03	–	–	**0.03**
Cismontane alkali marsh	**–**	–	–	2.83	**1.42**
USACE Non-wetland waters and CDFG Streambed[2]	**1.05**	0.02-drainage 1.37-mule fat scrub	–	–	**1.39**
Subtotal USACE and CDFG Jurisdictions	**5.43**	**2.90**	**–**	**10.23**	**8.01**
Diegan coastal sage scrub	**5.97**	–	5.97	–	**5.97**
Native grassland	**4.64**	–	4.64	–	**4.64**
Subtotal Upland Restoration	**10.61**	**–**	**10.61**	**–**	**10.61**

[1] Enhancement of existing habitat will be completed at a 0.5:1 ratio and will include revegetation of the former pond following dam removal using a freshwater marsh plant palette, and removal of exotic species in existing on-site wetlands and uplands.

[2] Mitigation for impacts will be mitigated by the creation of 1.37 acres of mule fat scrub not required to meet USACE definition of wetlands and 0.02-acre of USACE Non-wetland waters and CDFG Streambed.

TABLE 2
PERFORMANCE STANDARDS FOR MITIGATION ON THE CANTARINI RANCH PRESERVE

Performance Standard Upland Mitigation Areas	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
1) Transplant/Container Plant Survival:	80%	100%	100%	100%	100%
2) Total native plant cover, as measured relative to an appropriate reference plant community	n/a	50%	60%	75%	80%
3) Diversity, as measured relative to an appropriate reference plant community. If a suitable reference site is not found, then the total number of species included in the seed and planting palettes will be used as the baseline for target vegetation diversity.	n/a	50%	60%	70%	70%
4) Density	n/a	50%	60%	70%	70%

Performance Standard Wetland Mitigation Areas	**Year 1**	**Year 3**	**Year 5**
1) Continual inundation of the FWM mitigation sites will not exceed one month except in the lowest parts of the excavated area.	Required	Required	Required
2) The majority of the FWM mitigation sites will be saturated for at least three months (assuming normal rainfall conditions)	Required	Required	Required
3) Five or more of the 10 most prevalent plant species found in each mitigation area will be target native species currently found in the reference sites or are appropriate for that area	Required	Required	Required
4) In the FWM mitigation areas, at least five native seasonal wetland plant species will achieve:	>5% cover, each	>8% cover, each	>10% cover, each
5) Survival of container plantings:	>80%	>90%	>90%
6) Native vegetation cover in the FWM:	n/a	50% absolute cover, average	75% absolute cover, average

TABLE 2
PERFORMANCE STANDARDS FOR MITIGATION ON THE CANTARINI RANCH PRESERVE
(Continued)

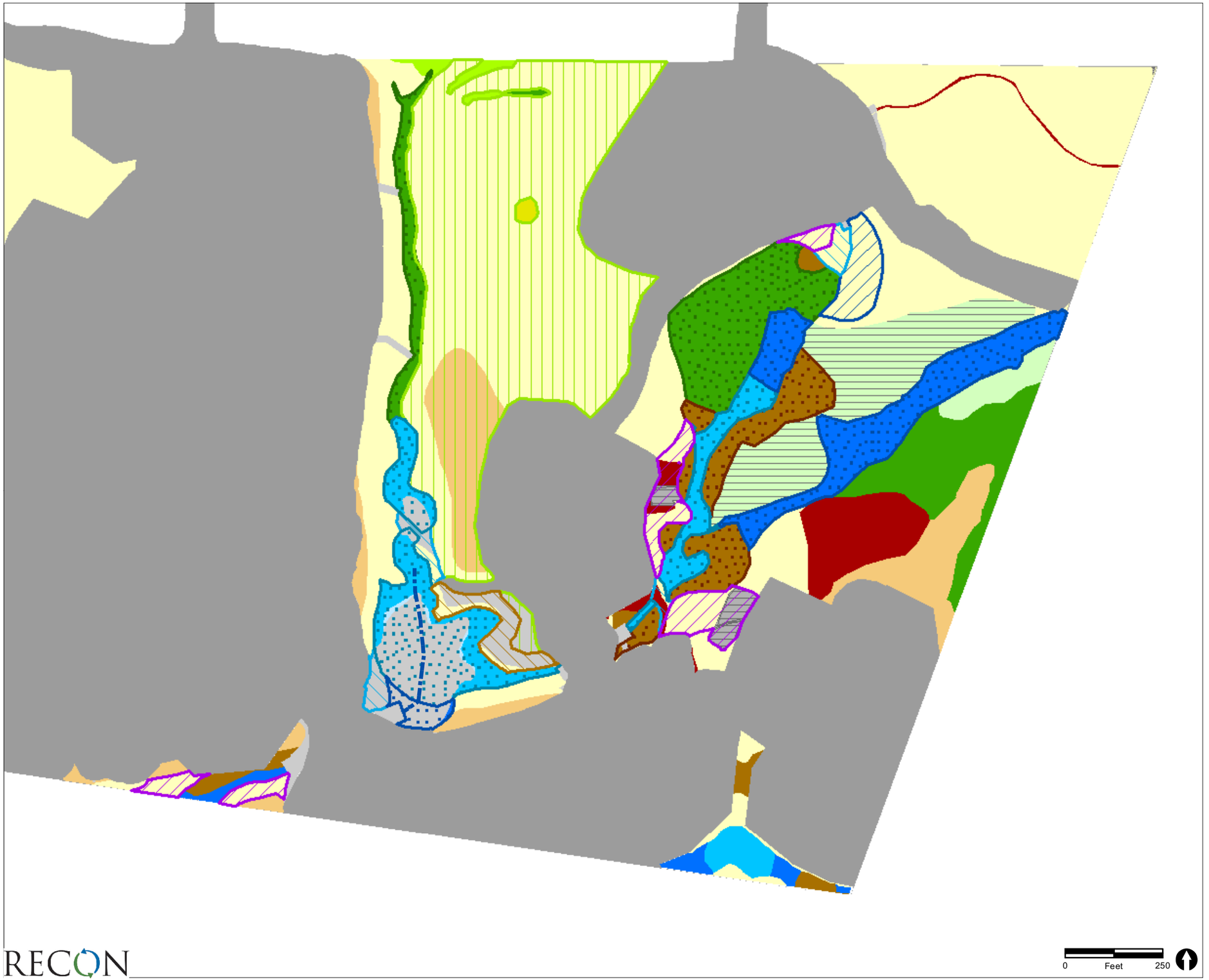
Performance Standard Wetland Mitigation Areas	**Year 1**	**Year 3**	**Year 5**
7) Native vegetation cover in all other wetland mitigation areas (SWS, MFS, CLORF), when compared to the reference area native cover data:	n/a	50% relative cover, average	80% relative cover, average
8a) Invasive species cover (e.g., fennel, pampas grass, perennial pepperweed):	≤5% cover (by Year 2)		
8b) Invasive species cover (e.g., those identified by the Cal-IPC with the exception of brome grasses):		≤5% cover	≤5% cover

FWM = Freshwater marsh, SWS = Southern willow scrub, MFS = Mule fat scrub,
CLORF = Southern coastal live oak riparian forest, Cal-IPC = California Invasive Plant Council

TABLE 3
CANTARINI RANCH PRESERVE VEGETATION COMMUNITIES FOLLOWING COMPLETION OF RESTORATION, CREATION, AND ENHANCEMENT ACTIVITIES

Habitat	Cantarini Ranch (acres)
Southern coast live oak riparian forest	2.7
Southern willow scrub	3.4
Freshwater marsh	4.1
Mule fat scrub	1.5
Cismontane alkali marsh	4.8
Native grassland	0.1
Diegan coastal sage scrub	4.9
Coastal sage scrub/native grassland[1]	12.0
Southern mixed chaparral	0.2
Non-native grasslands	16.8
Agriculture	2.8
Disturbed	1.4
Developed	0.5
TOTAL ACREAGE	55.2
Wetland Communities (Jurisdictional and non-jurisdictional)	
Preserved	3.2
Created	3.0
Enhanced	10.2
Upland Communities	
Preserved	26.8
Restored	12.0
TOTAL ACREAGE	55.2

[1] These two vegetation communities will be restored in an integrative manner consistent with the intermixed native sage scrub and grasslands on the adjacent properties. Specific configuration and location of the Diegan coastal sage scrub and native grassland restoration will be decided in the field by the restoration specialist.



Project Impacts
Hardline Impacts

Habitat Creation
Coast live oak riparian forest
Freshwater marsh
Mule fat scrub
Southern willow scrub

Habitat Enhancement
Cismontane alkali marsh (enhancement)
Coast live oak riparian forest (enhancement)
Freshwater marsh (enhancement)
Southern willow scrub (enhancement)

Habitat Restoration
Coastal sage scrub/native grassland

Hardline Preserve Vegetation Communities and Land Cover Types
Diegan coastal sage scrub
Disturbed Diegan coastal sage scrub
Southern mixed chaparral
Native grassland
Non-native grassland
Coast live oak riparian forest
Southern willow scrub
Cismontane alkali marsh
Freshwater marsh
Pond
Agriculture
Disturbed
Developed
Non-wetland Water/Streambed Creation

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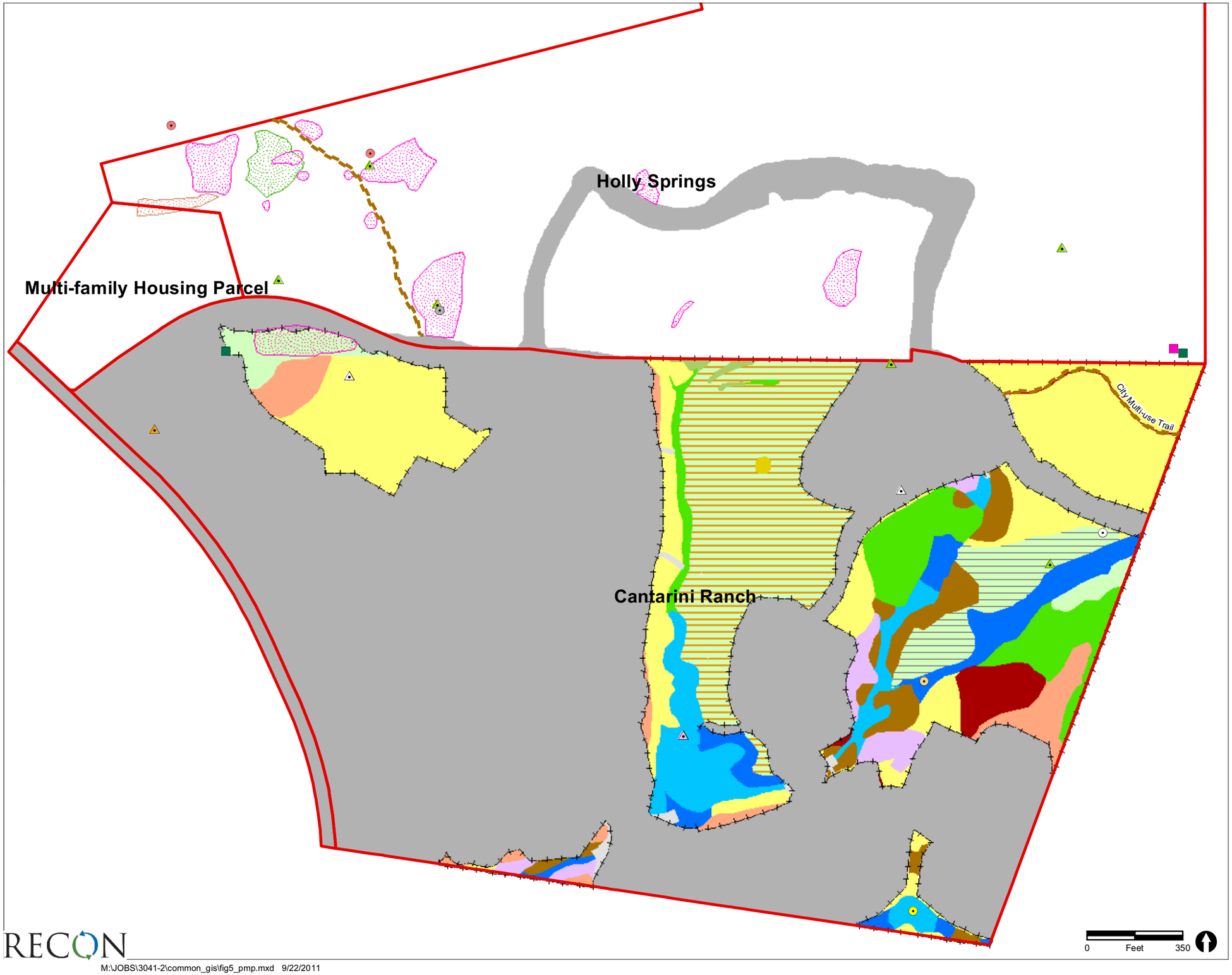
FIGURE 4

Proposed Mitigation Areas: Habitat Creation, Restoration, and Enhancement Areas



Study Area Boundary
Project Impacts
Existing trails
Hardline Preserve Boundary - Permanent Fencing Plan

Hardline Preserve Vegetation Communities and Land Cover Types - Post-restoration

Diegan coastal sage scrub
Disturbed Diegan coastal sage scrub
Coastal sage scrub/native grassland
Southern mixed chaparral
Native grassland
Non-native grassland
Mule fat scrub
Coast live oak riparian forest
Southern willow scrub
Cismontane alkali marsh
Freshwater marsh
Agriculture
Disturbed
Developed

Sensitive Flora

Nuttall's scrub oak
California adolphia
Western dichondra

Sensitive Fauna

American kestrel nest
California horned lark
Coastal California gnatcatcher
Least Bell's vireo
Northern harrier
Rufous-crowned sparrow
San Diego black-tailed jackrabbit
White-tailed kite
Yellow warbler
Yellow-breasted chat

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FIGURE 5

Post-restoration Vegetation Communities within the Hardline Preserve, Observed Sensitive Species, and Permanent Fencing Plan

3.2 General Plants and Wildlife

Attachments 2 and 3 provide the plant and wildlife inventories that were collected during biological surveys conducted on the entire project site prior to approval for development. Thus the list is not specific to only the Cantarini Ranch Preserve lands and will need to be updated through the monitoring activities as described in Section 4.0 below.

3.3 HMP Covered and Other Sensitive Species

3.3.1 Sensitive Plants

Four sensitive plant species are present on or immediately adjacent to the Cantarini Ranch Preserve: California adolphia, spiny rush, western dichondra, and Nuttall's scrub oak (see Figure 5). Only one of these, Nuttall's scrub oak, is an HMP covered species.

California adolphia (*Adolphia californica*). California adolphia is a California Native Plant Society (CNPS) List 2 species (CNPS 2011). This small shrub in the buckthorn family (Rhamnaceae) flowers from December to April and loses its leaves in late summer and fall, making it difficult to find. Its spiny stems are identifiable at close range year-round, however. This species generally occurs in Diegan coastal sage scrub, near the edge of chaparral, particularly in dry canyons or washes. It is associated with San Miguel and Friant soils (Reiser 2001). Its range is limited to San Diego County and northern Baja California, Mexico at elevations below 1,000 feet. In San Diego County, it is found from the Carlsbad area south into the Proctor Valley and the Otay area (Beauchamp 1986).

California adolphia is present in the coastal sage scrub in the northwestern open space area and was included in the coastal sage scrub planting palette of the restoration of the central open space area of Cantarini Ranch Preserve (RECON 2011).

Southwestern spiny rush (*Juncus acutus* spp. *leopoldii*). Southwestern spiny rush is a CNPS List 4 species (CNPS 2011). This perennial herb in the rush family (Juncaceae) has basal leaves and stout stems that form large tufts up to five feet tall, blooming in May and June (Munz 1974). Spiny rush grows in coastal salt marshes and dunes from San Luis Obispo County south to Baja California, Mexico, and in meadows and alkaline seeps in Imperial County and Arizona (CNPS 2001). It may also grow along riparian drainages, in palm oases, or "[w]herever water can pond along substantial seasonal drainages" (Reiser 2001).

Spiny rush was fairly common in the freshwater marsh and in some of the cismontane alkali marsh areas of Cantarini Ranch Preserve and thus not included on the map;

however, it was included in the wetland planting palette for restoration on Cantarini Ranch Preserve (RECON 2011).

Western dichondra (*Dichondra occidentalis*). Western dichondra is a CNPS (2011) List 4 species. This small perennial herb in the morning-glory family (Convolvulaceae) can form a ground cover and flowers from March to May. It occurs below 1,500 feet in coastal southern California south of Santa Barbara County, in the Channel Islands, and in Baja California, Mexico. Western dichondra is found in chaparral, cismontane woodland, coastal sage scrub, where it often grows hidden beneath shrubs. It also may occur after fire in these habitats, as well as in rocky outcrops in grasslands (CNPS 2011, Reiser 2001).

Western dichondra was found in two isolated spots, one on the northwestern edge of development on Cantarini Ranch and on the southeastern edge of Holly Springs along the boundary with the Cantarini Ranch Preserve. In addition, a large patch was detected in the northwestern portion of Holly Springs. Given the presence of this species in the native habitat north of Cantarini Ranch, this species was included in the coastal sage scrub planting palette of the restoration of the central open space area of the Cantarini Ranch Preserve (RECON 2011).

Nuttall's scrub oak (*Quercus dumosa*). Nuttall's scrub oak is a CNPS List 1B species (CNPS 2011) and is an HMP covered species (City of Carlsbad 2004b). This evergreen shrub in the oak family (Fagaceae) grows less than 10 feet tall and blooms from February to April. This species is found near the coast in Santa Barbara, Orange and San Diego Counties and in Baja California, Mexico at elevations below 1,300 feet. It grows in chaparral, coastal sage scrub, and closed-cone coniferous forest habitats (CNPS 2011), preferring coastal chaparral with a relatively open canopy in flat areas, but growing in dense stands on north-facing slopes (Reiser 2001). In San Diego County, it is known to grow as far inland as Camp Elliott and Otay Mesa (Reiser 2001), being replaced by the similar scrub oak (*Q. berberidifolia*) in higher, drier locations (Hickman 1993).

A few Nuttall's scrub oaks were identified in the southern mixed chaparral habitat in the open space of the Multi-family Housing project. This species is an HMP covered species (City of Carlsbad 2004b); however, since it was not observed in the Cantarini Ranch Preserve and there is limited southern mixed chaparral present, this species is not expected to occur in the Preserve and is not addressed further in this document.

3.3.2 Sensitive Wildlife

The following sensitive species were detected on Cantarini Ranch: coastal California gnatcatcher, California horned lark, white-tailed kite, northern harrier, Cooper's hawk, yellow warbler, yellow-breasted chat, and San Diego black-tailed jackrabbit. All of these

species are shown on Figure 4, with the exception of the Cooper's hawk, which was observed flying overhead.

Coastal California gnatcatcher (*Polioptila californica californica*). The coastal California gnatcatcher is federally listed as threatened (State of California 2011), is a state species of special concern (State of California 2011), and is a covered species by MHCP and HMP (SANDAG 2003 and City of Carlsbad 2004b). This bird species is a resident species restricted to the coastal slopes of southern California, from Ventura County southward through Los Angeles, Orange, Riverside, and San Diego Counties into Baja California, Mexico. The coastal California gnatcatcher typically occurs in coastal sage scrub, although this bird also uses chaparral, grassland, and riparian woodland habitats where they occur adjacent to coastal sage scrub. Populations of this species have declined as a result of suburban and agricultural development (Unitt 2004).

One coastal California gnatcatcher was observed foraging in the grassland habitat on Cantarini Ranch. Once the restoration of Diegan coastal sage scrub is completed within the central open space area of the Cantarini Ranch Preserve, there is a potential for this species to nest on-site.

Cooper's hawk (*Accipiter cooperii*). The Cooper's hawk is a CDFG species of special concern (State of California 2011) and is considered sensitive under the MHCP and HMP (SANDAG 2003 and City of Carlsbad 2004b). The Cooper's hawk is a medium-sized raptor that ranges throughout most of the United States. Its wintering range extends south to Central America, and its breeding range extends north to southern Canada. It is a common breeder in natural and urban areas in San Diego County (Unitt 2004). This hawk mainly breeds in oak and willow riparian woodlands, but will also use eucalyptus trees (Unitt 2004). This hawk forages primarily on songbirds, but is also known to eat small mammals. The decline of this species had been caused by urbanization and loss of habitat. However, during the last 20 years, the Cooper's hawk has apparently acclimated to city living (Unitt 2004).

Cooper's hawk was observed flying over the project site, and thus is not included on Figure 5. This species has potential to nest within the southern willow scrub and coast live oaks on-site.

Northern harrier (*Circus cyaneus hudsonius*). The northern harrier is a CDFG species of special concern (State of California 2011) and is considered sensitive under the MHCP (SANDAG 2003). In addition, their nesting sites are considered sensitive by CDFG (State of California 2011). Northern harriers winter throughout most of North America, from southern Canada to Central America and the Caribbean Islands (MacWhirter and Bildstein 1996). Their breeding range extends from Canada and Alaska to the northwestern United States, with some year-round residents in coastal California and northern Baja California, Mexico. In San Diego County, the northern

harrier is present year round, but is more common as a migrant in the winter than as a summer breeder (Unitt 2004). The northern harrier most commonly nests on the ground at the edge of marshes, but will also nest on grasslands, in fields, or in areas of sparse shrubs (MacWhirter and Bildstein 1996). The northern harrier hovers close to the ground while foraging in grasslands, agricultural fields, and coastal marshes. Their diet consists of small- and medium-sized rodents, birds, reptiles, and frogs. The range of this species has been reduced due to urbanization and agricultural development.

The northern harrier was observed in the grasslands in two different areas of the site. One of these locations is within the project development footprint; however, the Preserve will support large areas of annual grassland and native coastal sage scrub/native grassland mix that should provide suitable nesting habitat for this ground nesting species.

White-tailed kite (*Elanus leucurus*). The white-tailed kite is a California fully protected species (State of California 2011). This raptor occurs in coastal lowland areas from Oregon to northern Baja California, Mexico (National Geographic Society 1983). Nesting sites of white-tailed kites are considered sensitive. This resident bird nests in riparian woodlands, oaks, or sycamore groves that border grasslands (Unitt 2004). The white-tailed kite forages over open areas and grasslands feeding primarily on small rodents and insects (National Geographic Society 1987). This species is known to roost in large communal groups (Unitt 2004). White-tailed kite populations in southern California have declined due to the loss of nesting and foraging habitat.

White-tailed kite was observed in one location along the eastern boundary of the site. However, this species is known to nest on lands adjacent to the Preserve, and there is suitable habitat for this species to nest on-site.

Yellow warbler (*Dendroica petechia*). The yellow warbler is a CDFG species of special concern (State of California 2011). Yellow warblers breed from Alaska south to Peru, including most of the continental United States and Canada, and winter in Central and South America. In California, yellow warblers are an obligate riparian species, nesting and foraging almost exclusively in riparian habitats (Harmsworth Associates 1999). Nesting occurs from late May through early August, and nests are typically three to five feet from the ground (Lowther et al. 1999). Yellow warblers primarily consume insects and other arthropods and occasional wild fruits. This species is declining due to the loss of riparian habitat and as a result of nest parasitism by brown-headed cowbirds (*Molothrus ater*).

This species was observed in the central drainage system of the site.

Yellow-breasted chat (*Icteria virens*). The yellow-breasted chat is a CDFG species of special concern (State of California 2011) and a MHCP and HMP covered species (SANDAG 2003 and City of Carlsbad 2004b). The breeding range of the yellow-

breasted chat extends from southern California south to central Mexico (Eckerle and Thompson 2001). Yellow-breasted chats arrive in California to breed during April or May. Breeding occurs in dense brush or scrub, usually along streams or marshy areas with dense riparian woodlands. Their diet consists mainly of insects and berries (Eckerle and Thompson 2001). Destruction of riparian woodlands by development and other human activities has caused population declines, and it is possible that brown-headed cowbird parasitism may also have contributed to the decline of the species.

This species was observed in the southern tributary to Agua Hedionda Creek, and it is known to nest within the drainage system on adjacent and nearby properties. There is an expectation that this species will persist in the Preserve.

Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*). The southern California rufous-crowned sparrow is a CDFG watch list species (State of California 2011). This subspecies of rufous-crowned sparrow is a resident and ranges throughout southern California from Los Angeles County to Baja California, Mexico (Collins 1999). Southern California rufous-crowned sparrows are found in coastal sage scrub, broken or burned chaparral, and grassland with scattered shrubs (Unitt 2004). The species quickly invades recovering burned chaparral while it is dominated by grasses and herbs, but drops out as the chaparral recovers (Unitt 2004). Breeding occurs from March through June, and pair bonds are formed that may last year-round (Collins 1999). Their diet consists primarily of seeds, stems, and shoots, and extends to insects during spring and summer months (Wolf 1977). Urbanization, range restrictions, and the loss of habitat have decreased the amount of suitable habitat for southern California rufous-crowned sparrows.

Southern California rufous-crowned sparrow was identified in the coastal sage scrub of Holly Springs. Once the restoration of Diegan coastal sage scrub is completed within the central open space area of the Cantarini Ranch Preserve, there is a potential for this species to occur.

California horned lark (*Eremophila alpestris actia*). The California horned lark is a CDFG watch list species (State of California 2011). Its range is limited to the coastal slopes of California from Sonoma County to San Diego County and includes most of the San Joaquin Valley. In San Diego County, the California horned lark typically inhabits areas with sparse vegetation, including sandy shores, grasslands, mesas, and agricultural lands. Breeding occurs during the months of March through July, with peak activity occurring in May. California horned larks forage by walking and running on the ground, and consume a diet of spiders, insects, and insect larvae, snails, buds, berries, waste grains, and seeds from grasses, weeds, and forbs (Green 1990). Horned larks usually forage in flocks except during nesting. Decline of this species is generally attributed to loss of habitat, urbanization, and human disturbance.

The California horned lark was observed in an area that is part of the residential development footprint; however, the open space within the Cantarini Ranch Preserve is expected to provide suitable habitat for this species to continue using the site.

San Diego black-tailed jackrabbit (*Lepus californicus bennettii*). The San Diego black-tailed jackrabbit is a CDFG species of special concern (State of California 2011). It ranges from near Mount Pinos (at the Kern-Ventura county line) southward and west of the Peninsular Range into Baja California (Hall 1981). This species can be found throughout southern California, with the exception of the high-altitude mountains. It occupies open or semi-open habitats, such as coastal sage scrub and open chaparral areas. Forested and thick chaparral regions are not suitable (Bond 1977). The San Diego black-tailed jackrabbit breeds throughout the year, with the greatest number of births occurring from April through May. The black-tailed jackrabbit is strictly herbivorous, preferring habitat with ample forage such as grasses and forbs. Declines in San Diego black-tailed jackrabbit populations are due to a decline in suitable habitat as a result of urban development.

Additional raptors. Both the federal and state governments protect active raptor nests, including those with no sensitivity status. A pair of American kestrels nested in 1998 in a tall palm tree adjacent to the pond on Cantarini Ranch. The pond and palm tree will be removed as part of the project development; however, other suitable nesting habitat remains in the open space on-site. A red-tailed hawk was also observed flying over Cantarini Ranch.

3.4 Threats

The primary threat to the Cantarini Ranch Preserve is loss of the functions and values of the wetlands and riparian habitat on-site due to invasive species. In particular, the easternmost drainage currently supports a large population of pampas grass (*Cortaderia* spp.) which out-competes native riparian and wetland species. This is an aggressive non-native plant, and the proposed restoration includes the eradication of this species from the drainage; however, this species is present in drainages within the vicinity, and ongoing monitoring and maintenance will be required as this species can recolonize in the years following the completion of the restoration efforts.

A City Multi-use Trail crosses the northeastern preserve area which could lead to increased trespass into the Preserve by equestrian, mountain bike, and off-road vehicle users. All three activities will be posted as unauthorized within the Preserve. Equestrian and off-road motorized vehicle use will be prohibited within the portion of the City trail that crosses the Cantarini Ranch Preserve. The closure of the trail to these activities will be signed where the trail meets with the development area and property boundary. Signs of trespass will be evaluated on a regular basis, and all signs detected reported

by the PM to the HOA(s), the City, and the City's Preserve Steward and appropriate measures will be implemented. Minor incursions, such as a small fence repair or removal of additional trash or horse droppings, may be done by the PM in accordance with this plan. Repeated or major illegal trespass will need to be addressed by the HOA(s) and City law enforcement to develop approaches to eliminate and/or prosecute offenders.

The open space areas of the adjacent properties in the vicinity have often been used by immigrant workers for shelter. Any encampments detected during the general site visits conducted by the PM will be reported to the HOA(s), the City, and the City's Preserve Steward to ensure that all illegal trespass and lodging is safely removed by City law enforcement. Minor trash removal related to encampments can be accomplished by the PM during the regular trash removal; however, repeated or major trespass concerns may need to be addressed by the HOA(s) and City law enforcement to develop approaches to eliminate and/or prosecute offenders.

4.0 Preserve Management and Monitoring

The focus of this PMP is to preserve and maintain the open space habitat on the Cantarini Ranch Preserve. This habitat will be set aside to protect the coastal California gnatcatcher and all other sensitive plant and animal species present. Given the relatively small amount of open space, the primary biological goal is to ensure that the integrity of the native vegetation communities remain intact so that the sensitive species present on-site may continue to persist. The maintenance and monitoring programs described below will serve as the Area Specific Management Directives (ASMDs) for the open space as a whole and for individual target species. The Cantarini Ranch Preserve will be managed and protected in perpetuity.

Adaptive management is discussed in each individual section below. Table 4 provides a summary of monitoring and reporting tasks required to manage the Cantarini Ranch Preserve.

TABLE 4
SUMMARY OF MONITORING AND REPORTING REQUIREMENTS FOR THE CANTARINI RANCH PRESERVE

Task	Frequency
General Open Space Monitoring: (This will comprise the following tasks at their reported frequency)	Quarterly
Trash Assessment and Removal	Quarterly monitoring and removal
Trespass/access Control	Quarterly monitoring and remeditation
Exotic Species Monitoring	Quarterly
Exotic Species Mapping	Annually
Vegetation Mapping/Assessment	Every five years
Vegetation Condition Assessment	Quarterly
Sensitive Wildlife Monitoring	Annually
Sensitive Plant Monitoring	Annually
Sensitive Plant Population Survey	Every five years
Coastal California gnatcatcher survey	Every three years
Exotic Species Removal	Annually
Public Awareness	Annual newsletter (or other form of communication)
Reporting	Quarterly logs; Annual reports
PMP Update	Every five years

4.1 Guidelines for Long-Term Management

The Cantarini Ranch Preserve will be conserved in perpetuity, and therefore, the monitoring needs of this open space may change over time, given a variety of conditions that may occur (climate, fire, surrounding development). An adaptive management approach will allow for the goals of the PMP to be achieved with changing circumstances.

Since long-term habitat management practices may be changed over time to fit the needs of the resource being protected, several key points should be considered when adapting management protocols. These factors include:

- **Compatibility**. Regional habitat planning requires a regional and subregional approach. Future modifications to this PMP should incorporate relevant information from regional planning efforts to the maximum extent possible to achieve compatibility.

- **Flexibility**. All plans should be specific enough to afford adequate protection for their respective habitats. However, the plans must also be flexible enough to allow for any potential future changes in habitat management efforts and activities.

- **Cooperation**. All plans should require habitat management to be executed in cooperation with other plans' efforts in the region.

- **Communication**. As recommended in the City's Open Space Management Plan (City of Carlsbad 2004c), all active PMs in the region should meet at regular intervals to discuss common problems and solutions. Such activity will facilitate the sharing of biological information, habitat management successes and failures, and coordination with the sheriff and fire departments.

4.2 Prohibited and Compatible Uses within the Open Space

The prohibited and compatible uses within the open space on the Cantarini Ranch Preserve shall be identified in the Conservation Easement or Restrictive Covenant and are summarized below. The PM shall refer to the Conservation Easement or Restrictive Covenant for a full listing of all prohibited and compatible uses.

4.2.1 Prohibited Uses

Within the Cantarini Ranch Preserve, the following shall be prohibited:

- Grading or excavation;
- Placement of soil, sand, rock, gravel, or any other material;
- Clearing of vegetation, unless it is related to habitat management activities identified in this plan;
- Construction, erection, or placement of any building or structure;
- Vehicular activities, except on the existing paved road;
- Trash or hazardous waste dumping;
- Use for any purpose other than open space; and
- Unauthorized hiking, equestrian activities, mountain biking, and off-road vehicular use.

4.2.2 Compatible Uses

To limit impacts to the Cantarini Ranch Preserve, activities will be authorized by the PM and restricted to:

- Habitat management activities identified in this plan;

- Wildlife monitoring surveys conducted as part of the annual status reviews;
- Recreational use of the public multi-use trail in accordance with the trails criteria identified in Section 4.6.3 below; and
- Emergency response by the PM, City and City's Preserve Steward, and the appropriate authorities in case of fires, floods, earthquakes, or other natural or manmade disasters.

All activities within the Cantarini Ranch Preserve will be conducted in accordance with the applicable impact avoidance and reduction measures identified herein:

- All activities authorized by the PM must be conducted to avoid take of listed species or must be covered by their own permits.
- All activities authorized by the PM must be consistent with the goals and objectives of this PMP and the City's HMP.

4.3 General Vegetation Communities and Open Space Management and Monitoring

Management of the Cantarini Ranch Preserve will include ensuring that the native vegetation communities remain in a high-quality native state and that any non-native grasslands are maintained in such a way as to minimize encroachment into the native communities. General habitat conditions will be noted during each monitoring visit by the PM. A general vegetation conditions assessment, including identifying the percent cover of dominant native species cover, shall be done every one to five years to assess the change of the landscape over time. Disturbed areas might require more frequent, annual surveys, while stable shrub communities would require less frequent intervals. This frequency will be determined by the PM. Exotic species assessments will be qualitatively made by a qualified biologist on a quarterly basis. This is discussed in more detail below.

A formal vegetation mapping effort will be performed every five years to assess open space conditions. Mapping will be digitized and entered into a Geographic Information System (GIS) database to analyze trends and changes in community shape, size, or composition over time. All data will be presented to the City and Preserve Steward and remedial actions, if necessary, developed.

Existing exotic-dominated areas and future disturbances may warrant restoration or revegetation, as determined by the PM and the City and Preserve Steward, as determined through adaptive management strategies. Any restoration activities will be limited to only those strategies that can be funded through the adaptive management contingency funds established in the endowment budget. Should future revegetation be

warranted, these activities would be proposed by the PM in the annual report, for approval by the City and Preserve Steward. Revegetation may consist of weed control, seeding, and planting. The PM should collect seed or cuttings from native plant species occurring in the open in the general vicinity of the Preserve for plant propagation or seed stock for any needed revegetation in the open space of the Cantarini Ranch Preserve or purchase locally collected materials from a reputable distributer.

Monitoring for general open space will occur on the following schedule:

- A baseline mapping effort will be conducted within the first year to delineate the vegetation communities within the Cantarini Ranch Preserve. This will be done in digital format (GIS) and documented in an acreage table.

- Quarterly inspections and assessments will be made to ensure that all fences and signs are intact and the general site condition is favorable and to record the status and condition of the native and non-native resources on-site. Any necessary remedial actions required to maintain the Cantarini Ranch Preserve will be made at this time.

- An aerial photograph will be purchased annually to aid in the ongoing patrolling and monitoring efforts and for the purposes of documenting changes or problem areas.

- Vegetation will be mapped every five years to evaluate and assess any trends in growth or disturbance to the native vegetation communities within the Cantarini Ranch Preserve.

4.4 Sensitive Species Management and Monitoring

Five of the nine sensitive wildlife species observed on Cantarini Ranch are specifically identified in the MHCP (Volume III, Appendix A.3), which provides specific monitoring requirements. In addition, one additional species, the southern California rufous-crowned sparrow, is known from the adjacent property to the north and is also discussed in the MHCP. Only one of these, the coastal California gnatcatcher, is an HMP-covered, Priority (A1) Species with site-specific permit conditions (e.g., direct monitoring of on-site species' populations). The others are identified as A2 Species with habitat-based permit conditions (e.g., monitoring of species can be conducted indirectly through habitat monitoring). These are discussed in more detail below.

4.4.1 Sensitive Wildlife-Priority (A1) Species

The coastal California gnatcatcher is an HMP Priority (A1) Species and has specific monitoring requirements (City of Carlsbad 2009 and SANDAG 2003) as detailed below.

Pre-restoration, Cantarini Ranch supports little habitat suitable for nesting. Both known on-site observations of this species comprised a single individual foraging within the northeastern portion of the site. The first observation in 2003 was within the non-native grassland that is within the development footprint, and the second observation in 2006 was within the disturbed coastal sage scrub in the northeastern part of the Preserve. Both were observed to have flown from the high-quality habitat on the adjacent Holly Spring property. Post-restoration, the Cantarini Ranch Preserve is expected to increase the amount of high quality coastal sage scrub habitat on-site, with a goal to support nesting by this species. Monitoring will be used to determine whether this species colonizes the Preserve following the completion of the restoration.

Coastal California Gnatcatcher

Given the presence of foraging coastal California gnatcatchers on Cantarini Ranch, the Cantarini Ranch Preserve will be maintained in such a way as to maximize the potential for the continued and increased use by this sensitive bird species. Coastal California gnatcatchers will be monitored (i.e., map general distribution, measure abundance/number of pairs, and/or assess condition and degree of disturbance to habitat) annually to be consistent with Appendix A.3 of MHCP Volume III (SANDAG 2003) and the Guidelines for Preserve Management (City of Carlsbad 2009), with an exception made to survey frequency as detailed below.

- The Cantarini Ranch Preserve includes preserved and created/restored of Diegan coastal sage scrub consisting of a composition that provides habitat suitable for the coastal California gnatcatcher, as identified in the PMP. Preserve management for this species will include annual inspection of the Diegan coastal sage scrub area to ensure the vegetation community continues to provide high-quality habitat for this species to be conducted as part of the general site assessment visits or in conjunction with the annual surveys for the species.

- Surveys for this species will be conducted during the first year and every three years thereafter to determine whether the species establishes as a resident on the site. The survey frequency proposed follows the accepted survey schedule currently accepted by the City and Wildlife Agencies.

- Surveys will be conducted in accordance with the protocols detailed in Section 3 of the Final MHCP, Volume III (SANDAG 2003), which states:

> For gnatcatcher surveys, surveyors will establish systematic survey routes through patches of suitable habitat, such that the suitable habitat is completely covered. Survey routes should be varied relative to time of day between visits. The surveyors will visit these patches three times during January through mid-March each year, with at least a seven-day interval between site visits. Taped vocalizations will

be used, as needed. The number of gnatcatcher pairs will be recorded, and notes will be taken on the condition of the habitat (e.g., level of vehicular disturbance, trampling of habitat, relative abundance of exotic species, trash, erosion, drainage conditions, etc.). See an example field data form in Appendix C.2 of the MHCP. Management actions to control or reduce habitat disturbance will be monitored for effectiveness. The observer should be skilled in identification, including knowledge of the songs and calls of birds. Surveys should begin within 1 hour after sunrise and end by noon. Surveys should not be conducted under extreme conditions, i.e., during heavy rains or when the temperature is greater than 95 degrees Fahrenheit (^{o}F) or less than 40^{o}F or with winds greater than 10 miles per hour (mph).

A post-survey report will be submitted to the City and Preserve Steward and USFWS as required by the surveyor's permit. This information will also be included in the Preserve specific annual report.

- If this species successfully colonizes the Preserve and then subsequently is not detected during the monitoring activities, the PM, in consultation with the City and Preserve Steward, shall evaluate potential adaptive management strategies that might result in the restoration of these species to the site. Implementation of these strategies will be limited to those that can be funded through the adaptive management contingency funds.

4.4.2 Sensitive Wildlife-Priority A2 Species

The Guidelines for Preserve Management (City of Carlsbad 2009) has provided some direction for monitoring A2 Species, which states monitoring will be conducted pursuant to preserve-specific management plans while monitoring requirements for these species are under review by the City.

Yellow-breasted Chat

- Census the number of breeding pairs and map any nest sites detected (GIS) once every five years.

- Map using GIS all incidental observations made while conducting other management and monitoring activities.

- Assess the condition and degree of disturbance to the habitat annually as part of the general site assessment visits.

- If this species is not detected at any point within the monitoring surveys, the PM, in consultation with the City and Preserve Steward, shall evaluate potential adaptive management strategies that might result in the restoration of these species to the site. Implementation of these strategies will be limited to those that can be funded through the adaptive management contingency funds.

Cooper's Hawk

- Census the number of breeding pairs annually and map, using GIS, any nest sites detected every five years.

- Map using GIS all incidental observations made while conducting other management and monitoring activities.

- Assess the condition and degree of disturbance to the habitat annually as part of the general site assessment visits.

- If this species is not detected at any point within the monitoring activities, the PM, in consultation with the City and Preserve Steward, shall evaluate potential adaptive management strategies that might result in the restoration of these species to the site. Implementation of these strategies will be limited to those that can be funded through the adaptive management contingency funds.

Southern California Rufous-crowned Sparrow

- Pre-restoration, Cantarini Ranch supports little habitat suitable to support this species, and it was only observed on an adjacent property. Post-restoration, the Cantarini Ranch Preserve is expected to provide enough habitat suitable to support nesting by this species, and monitoring will be used to determine whether this species colonizes the Preserve following the completion of the restoration.

- Map, using GIS, all incidental observations made while conducting other management and monitoring activities.

- Assess the condition and degree of disturbance to the habitat annually.

- If this species successfully colonizes the Preserve and then subsequently is not detected at any point during the monitoring activities, the PM, in consultation with the City and Preserve Steward, shall evaluate potential adaptive management strategies that might result in the restoration of these species to the site. Implementation of these strategies will be limited to those that can be funded through the adaptive management contingency funds.

San Diego Black-tailed Jackrabbit

- Map, using GIS, all incidental observations made while conducting other management and monitoring activities.

4.4.3 Other Sensitive Wildlife

The other sensitive wildlife species identified on-site—California horned lark, white-tailed kite, yellow warbler, and northern harrier—will be monitored as part of both the general open space habitat management activities and as incidental to the specific surveys identified above.

- A formal vegetation mapping effort will be performed every five years to assess open space conditions.

- An assessment of the presence and persistence of any sensitive wildlife species observed on-site will be made, including the other sensitive wildlife species listed above.

- Any incidental sightings of these species made during the annual surveys conducted for the sensitive wildlife listed above will be recorded.

- If these species are not detected at any point within the monitoring activities, the PM, in consultation with the City and Preserve Steward, shall evaluate potential adaptive management strategies that might result in the restoration or enhancement of habitat suitable for these species. Implementation of these strategies will be limited to those that can be funded through the adaptive management contingency funds.

4.4.4 Other Sensitive Plants

Of the four sensitive plant species observed on or near Cantarini Ranch, California adolphia, spiny rush, Nuttall's scrub oak, and western dichondra, only one species, the Nuttall's scrub oak, is a covered species in the HMP and specifically identified in the MHCP (Volume III, Appendix A.3) for implementation of specific monitoring activities. However, as described above, this species is only found in the open space related to the Multi-family housing and not expected to occur in the Cantarini Ranch Preserve as defined in this document. The other three species will be maintained and managed as part of the ongoing general habitat management activities and are discussed in more detail below.

- A formal vegetation mapping effort will be performed every five years to assess open space conditions.

- An assessment of the presence and persistence of the other three sensitive plants observed on-site will be made as part of the annual vegetation conditions assessment: California adolphia, spiny rush, and western dichondra.

- If these species are not detected at any point within the monitoring activities and inspections, the PM, in consultation with the City and Preserve Steward, shall evaluate potential adaptive management strategies that might result in the restoration or enhancement of habitat suitable to support these species. Implementation of these strategies will be limited to those that can be funded through the adaptive management contingency funds.

4.5 Exotic Invasive Plant Species Management and Monitoring

A weeding program will be implemented and will follow the guidelines described below. The PM will be responsible for the entire Cantarini Ranch Preserve upon its dedication, with the exception of the active restoration area, which is subject to a five-year restoration maintenance and monitoring period (RECON 2011). This area will be the responsibility of the restoration contractor until the revegetation has been completed and approved by the City and the Wildlife Agencies, at which point the responsibility for these areas will revert to the PM. A diligent weeding program is a necessary component for the long-term management goals described in this plan. Adaptive management strategies must quickly address control of newly dominant non-native species. Frequent site visits are necessary throughout the year to assess the extent of non-native plants present and to determine whether changes are needed in the strategy being used, or the intensity of non-native plant removal efforts. To be most effective, non-native plant removal requires control of weeds prior to flowering and seed development. Removal of non-native plants by hand may be required around sensitive species and small populations of herbaceous natives. Herbaceous annuals, which may be locally rare because of non-native plant competition, may need population augmentation and careful hand removal of non-natives to ensure expansion of native plant species. Control of exotic plant species will include:

- The target for management of the native vegetation communities (i.e. coastal sage scrub, native grassland, oak woodlands, and riparian habitats) within the Cantarini Ranch Preserve is to maintain less than or equal to 5 percent of cover of non-native annual grasses and herbs (such as brome grass or filaree) and 0 percent cover of invasive species identified by the California Invasive Plant Council (Cal-IPC) to be high risk (Cal-IPC 2006, 2007). Table 5 provides the current list of Cal-IPC high-risk species observed on-site to date. The PM shall add plants to this list of exotics if it can be shown the species is having a negative impact on the open space.

TABLE 5
CAL-IPC HIGH RISK INVASIVE PLANS KNOWN TO OCCUR ON CANTARINI RANCH

Common Name	Scientific Name
Giant reed	*Arundo donax*
Red brome	*Bromus madritensis* ssp. *rubens*
Purple pampas grass	*Cortaderia jubata*
Pampas grass	*Cortaderia selloana*
Fennel	*Foeniculum vulgare*
Tamarisk	*Tamarix ramosissima*

- The target for management of the non-native annual grasslands within the Cantarini Ranch Preserve is to maintain 0 percent cover of invasive species identified as high risk by Cal-IPC (Cal-IPC 2006, 2007).

- The initial baseline vegetation mapping of the Cantarini Ranch Preserve to be conducted within the first year will identify areas where exotics removal should be focused. The majority of exotic species will be removed by hand or mechanical weed cutters or with low-persistence herbicides (e.g., glyphosate) by maintenance workers familiar with and trained to distinguish weeds from native species. Weeds will be killed or removed before seed sets. Herbicide application will only be done in consultation with the City and Preserve Steward prior to initiating this approach. Appropriate weed control measures will be implemented under the direction of the PM to ensure that this task is implemented correctly. Herbicide application will only be applied by a certified applicator.

- The PM will coordinate with the San Diego Management and Monitoring Program to continue adapting and implementing the best management techniques for exotic species plant removal.

- Monitoring for exotic invasive species shall be conducted quarterly each year with weeding to occur once a year to control the target species. The timing of the weeding should occur after the previous year's seeds have germinated but prior to the current year's weed population setting seed.

If herbicides are used on-site, the following guidelines will be followed:

- The herbicides will be limited to widely accepted brands known to be effective for the specific uses (e.g. Round-up, Aquamaster, etc.).

- The herbicides should be biodegradable.

- The minimum amount required to be effective will be used.

- Applications need to be done at the appropriate time of year to maximize efficiency, as described by the manufacturer.
- Applications must be focused on the target species, avoiding impacts to native vegetation.
- Any areas treated shall be posted with signs warning of the presence of herbicides.
- Herbicide application may only be conducted by licensed personnel.

All applications must avoid impacts to sensitive species. The PM is responsible for all the necessary permitting required for exotic plant species removal.

4.6 Other General Management Issues

4.6.1 Public Awareness

The long-term success of the Cantarini Ranch Preserve and the concept of habitat protection are partially dependent on the acceptance by local Cantarini Ranch community residents of the open space as a valuable amenity and resource. A sense of propriety in natural open space by the local community causes residents to become interested and protective of the resource. Consequently, residents will not only refrain from disturbing the resource but also inform others of its importance. This will limit vandalism and unauthorized activities from occurring within the open space. By becoming stewards of the open space areas, community members provide a valuable service to the PM, as their vigilance affords protection to the area when the PM is not present.

It is the PM's responsibility to work with the community as appropriate and take steps to maintain a positive working relationship between the community and the habitat management program. The following steps should be taken to facilitate both public awareness of the Cantarini Ranch Preserve and coordination between the PMs of other properties.

- The PM shall design and install signage where appropriate. The signage should indicate that the open space is an ecological area for sensitive resources, trespassing is not allowed, and provide the PM contact information.
- The PM shall, when working on-site, answer questions and explain the open space to local residents initiating inquiries.

- The PM shall include in the above methods, as he or she sees most appropriate, education on the sensitive species in the open space and shall emphasize the importance of conserving native habitats and species.

- An annual newsletter will be produced that describes the sensitive resources, the need for the community to preserve the resources, and to explain how to avoid indirect impacts to the resources from exotic plant and pest species associated with adjacent landscaped areas. The newsletter will be provided annually to the residents in the immediate vicinity of the Cantarini Ranch Preserve.

- The PM will report persistent and chronic problems related to human or exotic species encroachment to the City of Carlsbad.

- The PM will conduct an annual meeting with the HOA(s) to provide a status update and to educate the homeowners as to the purpose of the Preserve and ways to ensure continues protection of the resources.

- The PM will prepare other educational materials and/or distribute materials provided by the City.

4.6.2 Trash

The PM shall be responsible for the general cleanliness of the Cantarini Ranch Preserve and should monitored the site regularly for any illegal dumping of trash or increase in general litter from the adjacent development. Quarterly visits to the site will identify any areas of concern. Trash removal will occur quarterly.

4.6.3 Recreational Use, City Trails, and Trespassing

Recreational use is prevalent throughout the undeveloped open space areas of the city of Carlsbad, including pedestrian, bicycle, and motorized vehicles. The PM shall regularly survey for and report any unauthorized trespassing on the Cantarini Ranch Preserve to the City of Carlsbad Police Department. ‘No Trespassing’ signs will be placed at appropriate intervals along the interface between the development and the Cantarini Ranch Preserve. These will be inspected during the quarterly visits and replaced as necessary.

There is only one pre-existing City multi-use trail on Cantarini Ranch that will remain in use within the northeastern open space area as a multi-use trail (see Figure 5). The PM will inspect the condition of this trail during the quarterly visits and inform the responsible entity (e.g., Property Owner, HOA[s], or City) of any trail maintenance needs.

In accordance with the approved EIR for the Cantarini Ranch/Holly Springs Developments (City of Carlsbad 2004a), the following trails criteria/measures will be implemented:

- The Property Owner will close and restore all current existing dirt trails, with the exception of the City multi-use trail. The PM will inspect the open space to identify any illegal use of the restored trails or the creation of new trails during the quarterly general open space visits. Restoration of illegal trails will occur on an annual basis, as needed, as described above.

- The PM will post a closure on the City multi-use trail during the breeding season of the coastal California gnatcatcher (February through August) in the vicinity of any known nests to avoid harassment and nest abandonment. Closure of the trails will be the responsibility of the conservation or open space management entity. Seasonal surveys will be completed to determine presence/absence of nests in the vicinity of trails. If occupied nests are encountered, signage or other appropriate measures will be used to indicate closure of the trails.

- The City multi-use trail will be well demarcated with clearly marked access areas, including trailhead markers wherever a trail connects to a sidewalk, and have signs discouraging off trail access and use. The PM will inspect and replace these signs as needed.

- Horses will not be allowed on the City multi-use trail and the trail will be clearly signed for regarding that prohibited use. The Property Owner will install a fence gate designed to allow pedestrians but discourage horse use at each end of the trail within the Cantarini Ranch Preserve.

- Monitoring will be initiated for cowbirds with trapping if they are found within the Cantarini Ranch Preserve The level of trapping effort will be coordinated with the City and Preserve Steward, and implementation will be limited to that which can be funded through the adaptive management contingency funds.

4.6.4 Feral Cats and Dogs

Residential development could result in a direct increase in domesticated pets resulting in the potential for uncontrolled and feral dogs and cats to be present within the Cantarini Ranch Preserve, which can prey upon native wildlife species. The following additional steps shall be taken to prevent the predation of native species by dogs and cats.

- By posting the appropriate signage, the PM shall educate the local residents of the potential impacts by uncontrolled pets on native habitats.

- The PM will distribute City-prepared educational materials to local residents through the HOA(s).

- The annual newsletter will describe the potential impacts of domesticated and feral pets on the native sensitive resources. This description should also discourage the residents from creating feeding stations around the development or in or adjacent to the Cantarini Ranch Preserve for the purposes of feeding feral dogs or cats that might be present. This will encourage the persistence of these animals and would serve to attract others to the site.

- The PM shall report to the City and Preserve Steward and the HOA(s) if persistent and chronic problems in the open space from particular uncontrolled pets occur. Any remedial activities will be limited to those strategies that can be funded through the adaptive management contingency funds established.

4.6.5 Lighting

In accordance with the requirements of Mitigation Measure BIO-C/HS-1.4.e, artificial night lighting associated with streets and homes will be shielded and directed away from the open space. Future residents will be provided with information regarding the potential negative effects of indirect lighting on wildlife within the preserved open space by the PM as part of the public awareness activities.

4.6.6 Fencing/Barriers

As part of the implementation of the PMP, the Property Owner will install a permanent fence along the interface of the Cantarini Ranch Preserve and development to protect revegetation work and the open space from vandalism, as approved by the City and Preserve Steward and Wildlife Agencies (see Figure 5). This will include access gates for the purpose of maintenance and monitoring of the open space, to be installed as necessary. All gates will remain locked, except while construction or maintenance personnel are on-site. Project signs will be placed by the PM on the fence at locations where unauthorized entry is most likely. Along public rights-of-way, signage shall occur no less than every 1,000 feet. Signs bolted to the fence will provide notice that the area is an ecological open space, that trespassing is prohibited, and identify a contact for additional information.

The following will be implemented to prevent the degradation of the habitat in the open space and adjacent to the open space:

- The PM will monitor the fencing and barriers for breaches or need for additional fencing during the quarterly visits to the Cantarini Ranch Preserve. Any additional fencing needs or repairs will be discussed with the City and Preserve Steward and

the HOA(s) for installation, as needed. The HOA(s) will be responsible for completing the repairs, as necessary.

- The PM will identify if there are breaches or repairs needed at the boundary with adjacent properties or projects, and inform the HOA to facilitate coordination with the owners of adjacent projects.

- If an area has chronic fence vandalism issues, the PM will consult with the Preserve Steward and the HOA(s) to determine if other appropriate measures are needed.

4.6.7 Poaching/Collecting

Removal of any natural or cultural resource from the Cantarini Ranch Preserve—e.g., plants, animals, rocks, artifacts, fossils, minerals—is prohibited.

Anyone attempting to take such things shall be informed of the policy by the PM in a non-confrontational manner. The annual newsletter will also address this issue. Signage will include the enforceable City codes related to the legal consequences of removing any natural resources. The PM shall report any confrontational situations and any chronic offenders to the City police.

The PM, at his or her discretion, may allow cuttings only for revegetation of areas within the Cantarini Ranch Preserve that are disturbed by vandalism, erosion, or fire. Any such cuttings shall be taken only by the PM, under his or her supervision, or under a written agreement specifying amounts and localities of collectible materials. These cuttings will be limited to what is necessary to the habitat management effort and will not seriously deplete the existing vegetation.

4.6.8 Invasive Ants

All landscaping adjacent to the Cantarini Ranch Preserve as well as any restoration activities should be conducted in such a way as to control the introduction and spread of exotic ant pests (i.e., Argentine ant and red fire ant) into the open space areas. This is in accordance with Mitigation Measure BIO-C/HS-1.4.c and will be included in the Covenants, Conditions, and Restrictions (CC&Rs) provided to each future homeowner. The PM shall report to the HOA(s), City, and Preserve Steward if significant infestations are identified within the open space and provide recommendations for actions to control the spread of these species. Infestations traced to a homeowner's activity will be addressed with the HOA(s). Any pest control activities determined to be the responsibility of the PM will be limited to those strategies that can be funded through the adaptive management contingency funds established.

4.6.9 Fire Response

A site-specific fire management plan will be prepared to ensure that impacts to sensitive biological resources from fire response activities are minimized to the extent possible. This plan should include locations for staging firefighter equipment; preferred access routes to the Cantarini Ranch Preserve that will minimize disturbance to the resources; discussion of any safety hazards for firefighter personnel; fire prevention methods; and post-fire activities, such as restoration. All proposed fuel modification for the adjacent residential development will occur outside of the open space boundary; thus no vegetation clearing for fuel management purposes is proposed for this open space area. The PM will need to ensure that the plan has been implemented during and after a burn to ensure that sensitive resources have been protected.

The PM will also coordinate with the HOA(s) to ensure that fuel modification zones are maintained in such a way as to avoid any subsequent erosion, sedimentation, encouragement of invasive species, or overwatering that could detrimentally affect the Preserve through loss or degradation of adjacent vegetation, habitat type conversion, or increase in invasive species, such as Argentine ants.

5.0 Reporting/Status Reviews

5.1 Documentation

5.1.1 Annual Reports and Work Plans

Quarterly visits will be documented by keeping a monitoring log of site conditions.

The PM will prepare an annual report and annual work plan describing the habitat conditions and species' occurrence in the Cantarini Ranch Preserve and the proposed activities for the upcoming fiscal year (i.e. annual work plan). These documents will include the following:

- An aerial photograph of the Cantarini Ranch Preserve will be purchased/obtained every year and included in the report.
- A description of surveys for all sensitive species surveys conducted by the PM.
- A map showing the locations of MHCP/HMP-covered species and other sensitive species observed in surveys.
- A description of how each observed MHCP/HMP-covered species and other observed sensitive species was using the habitat.

- Any comments by the PM regarding the notable absence or presence of coastal California gnatcatchers.
- A list of all plant and wildlife species found within the Cantarini Ranch Preserve and the general abundance of each species.
- A summary report of enhancement activities (if any). All site-visit logs and data collected during the updated baseline surveys will be included as an appendix.
- A summary of all relevant management actions taken throughout the year, including but not limited to:
    - A report on implementation and evaluation of the effectiveness of the exotic species eradication program, including:
        - A graphic representation of locations and extent of exotic species locations (with the exception of non-native grasses or forbs);
        - A discussion of all on-site measures undertaken to remove exotic species during the year, a comparison of those efforts to actions undertaken in previous years, and identification of measures to be performed in the following year.
        - Before and after exotic control implementation photographs.
    - A report on implementation and evaluation of the effectiveness of the access/fencing control measures.
    - A report on seed collection and areas requiring revegetation.
    - A description of the habitat conditions observed in the Cantarini Ranch Preserve, including a discussion of any signs of habitat degradation or notable presence or absence of MHCP/HMP covered species or any other sensitive species.
    - A discussion of potential reasons for any signs of habitat degradation or notable absence of covered species in the Cantarini Ranch Preserve
    - A discussion of any management problems encountered within the report period, including maps indicating cumulative areas of disturbance, trespass, dumping, fire, and other such activities.
    - A description of the existing conditions of the open space for that year, including vegetation sampling results, wildlife use, and a summary of sensitive species observations with documentation and maps of sensitive species locations.

- Photographs illustrating Cantarini Ranch Preserve conditions and any other issues relative to funding for open space management.
- A list of names, titles, and companies of all persons who prepared the content of the annual report and participated in monitoring activities.
- An accounting of the funds expended in the previous year and status of the remaining funds in the endowment.

All annual reports and work plans will be submitted to the City, Preserve Steward, owner, and Wildlife Agencies by November 1 of each year. Copies of these documents shall be maintained in the PM's file.

5.1.2 Preserve Management Plan

This PMP is intended to be a living document and shall be updated every five years to reflect any change in site conditions, management approach, or regulatory direction. The PM will submit this to the City and Preserve Steward for review and approval.

5.2 Data Management

All spatial data shall be maintained by the PM using accepted GIS software, e.g., ArcGIS. Spatial data will be recorded using a Global Positioning System (GPS) unit or mapped onto aerial imagery and digitized into GIS. These include all data regarding vegetation mapping, species surveys, study sites, restoration sites, trails, and fences and gate locations. Digital versions of all other data prepared for the project, including, but not limited to, copies of reports, monitoring logs, site survey forms, and photodocumentation data will also be maintained digitally by the PM. Hardcopies of all reports, or other suitable file backups, shall also be maintained in the PM's project files. GIS shapefiles will be submitted to the City annually.

5.3 Communication and Coordination

The PM will meet with the City, Preserve Steward, and Agencies on at least an annual basis to discuss the status of the open space. This may coincide with the Annual Public Meeting or one of the quarterly Preserve Manager meetings scheduled by the City and Preserve Steward.

As described above, the PM will implement a public awareness program that includes annual meetings with the HOA and local residents, to ensure that the public is apprised of the current status of the Preserve.

5.4 Budget and Endowment Management

Bent-West, LLC will meet the funding requirements set forth herein to implement this plan. The funding will be divided into two components: (1) initial site maintenance and monitoring for five years of the restoration areas only, and (2) long-term maintenance and management funding. A long-term funding program will be a non-wasting endowment, where an initial amount will be deposited in a trust or bond and the interest generated from the principal will be drawn to cover the cost of maintenance and management activities, pursuant to the Conservation Easement or Restrictive Covenant.

Preserve maintenance and management costs require an endowment amount as identified in the Property Analysis Record (PAR), which assumes a 4.5 percent capitalization rate (San Diego Habitat Conservancy 2011).

6.0 Adaptive Management

This plan assumes that adaptive management decisions will need to be made and that remedial/contingency actions may be required. Qualifying measures must be approved by the PM and Preserve Steward and are subject to fund availability. These include, but are not limited to:

- Addition of materials to open space to attract covered species and provide additional types of sheltering habitat.
- Restoration of areas to increase the amount of vegetation communities suitable to attract or maintain certain wildlife or plant populations.
- Surveys in open space for species that become listed but are not covered species.
- Other remedial and adaptive management measures based on status review reporting.

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ATTACHMENTS

ATTACHMENT 1

ATTACHMENT 1
FUNCTIONAL ANALYSIS RATINGS FOR CREATED AND ENHANCED MITIGATION AREAS:
NON-WETLAND JURISDICTIONAL WATERS

Function Evaluation Criteria	Rating	Quality of Function or Value
Structural diversity	High	Planting palette will include the use of native wetland herbs, shrubs, and trees with several overlapping canopies. Created and enhanced habitat will have much higher structural diversity over what currently exists.
Spatial diversity	High	Planting palette will include the use of native wetland herbs, shrubs, and trees. Each mitigation area will be dominated by a minimum of four wetland plant species. Created and enhanced habitat will have much higher spatial diversity over what currently exists.
Habitat contiguity	Medium	Mitigation sites will be located in areas contiguous with existing preserved wetland habitats to create one large refuge area. By consolidating wetland habitat into one area a higher habitat value can be achieved. The wetland mitigation areas will also be bound by preserved upland habitats.
Invasive vegetation	High	Following implementation of mitigation measures, the areas will undergo a five-year maintenance period that will control invasive exotic species. By the end of this maintenance period the non-native weed seed bank should be depleted and the areas will be dominated by wetland vegetation. The invasive vegetation populations will be much lower than what currently exists.
Biological Habitat Value	High	The mitigation areas and surrounding upland preserved areas will provide a wide variety of habitats including cismontane alkali marsh, freshwater marsh, southern willow scrub, mule fat, and associated riparian and upland habitats. The diversity and abundance of contiguous native habitat is a higher biological value than what currently exists.
Hydrologic regime	Medium	The mitigation creation areas will be designed to integrate into existing wetland habitats using natural gradients and curves to simulate natural conditions. The wetland mitigation areas will be fed by direct precipitation and runoff from surrounding slopes and will not rely on artificial irrigation to sustain itself following the initial implementation period.
Flood-prone area	Medium	Mitigation will include the creation of flood prone areas by grading terraces above the low flow channels to create freshwater marsh, mule fat scrub, and southern willow scrub habitats.
Topographic complexity	High	Grading of the mitigation areas will include a microtopographic relief of small hummocks and depressions that will create slightly different hydrologic regimes within each habitat type. Boulders that are discovered while grading will also be used in mitigation areas to increase topographic complexity.
Biogeochemical processes	Medium	The creation of vegetative cover and accumulation of organic matter will not be created immediately. However, over a short period of time, as plants become established and mature, this value will increase and exceed a value far greater than what currently exists.

ATTACHMENT 2

ATTACHMENT 2
PLANT SPECIES OBSERVED ON THE CANTARINI RANCH STUDY AREA

Scientific Name	Common Name	Habitat	Origin	Status
Sensitive Species				
Adolphia californica Wats.	California adolphia, spineshrub	CSS,NNG	N	CNPS List 2
Dichondra occidentalis House	Western dichondra	NG, CSS	N	CNPS List 4
Juncus acutus L. ssp. *leopoldii* (Parl.) Snog.	Spiny rush	RW,FWM, CAM	N	CNPS List 4
Quercus dumosa Nutt.	Nuttall's scrub oak	MC	N	CNPS List 1B
Common Species				
Acmispon glaber (Vogel) Brouillet var. *glaber [=Lotus scoparius* var. *scoparius]*	Coastal deerweed	NNG,CSS	N	
Ambrosia psilostachya DC.	Western ragweed	NNG,DIS,CAM, RW	N	
Ammania coccinea Ruttb.	Valley red-stem	FWM	N	
Amsinckia eastwoodiae J.F. Macbr.	Fiddleneck	CSS	N	
Anagallis arvensis L.	Scarlet pimpernel, poor-man's weatherglass	NNG	I	
Anemopsis californica (Nutt.) Hook. & Arn.	Yerba mansa	CAM,FWM,RW	N	
Anthemis cotula L.	Mayweed, stinkweed, dog-fennel	NNG	I	
Antirrhinum nuttallianum Benth. in DC.	Snapdragon	NNG	N	
Artemisia californica Less.	California sagebrush	CSS,NNG,MC	N	
Artemisia douglasiana	Mugwort	RW,FWM,MF	N	
Arundo donax L.	Giant reed	FWM	I	
Avena sp.	Wild oats	NNG,NG,CSS	I	
Avena barbata Link	Slender wild oat	DIS	I	
Baccharis pilularis DC.	Coyote bush	MC,CSS,MF,RW	N	
Baccharis salicifolia (Ruiz Lopez & Pavón) Pers.	Mule fat, seep-willow	MF, DIS, RW	N	
Bothriochloa barbinodis (Lag.) Herter	Cane bluestem	NNG	N	
Brassica nigra	Black mustard	NNG,CSS,DIS	I	
Bromus diandrus Roth	Ripgut grass	DIS	I	
Bromus hordeaceus L.	Soft chess	DIS	I	
Bromus madritensis ssp. *rubens* (L.) Husnot	Red brome	CAM, DIS	I	
Calochortus splendens Benth.	Lilac mariposa	NNG	N	
Calystegia macrostegia ssp. *arida* (E. Greene) Brum.	Finger-leaf morning-glory	NNG	N	
Camissonia sp.	Sun cup	CAM	N	
Carex spissa L.H. Bailey	San Diego sedge	RW, CAM	N	
Centaurea melitensis L.	Tocolote, star-thistle	NNG,CSS,MF	I	
Chlorogalum parviflorum Wats.	Amole, soap plant	CSS,NNG	N	
Conium maculatum L.	Poison hemlock	CSS	I	

ATTACHMENT 2
PLANT SPECIES OBSERVED ON THE CANTARINI RANCH STUDY AREA
(continued)

Scientific Name	Common Name	Habitat	Origin	Status
Conyza bonariensis (L.) Cronq.	Flax-leaf fleabane	NNG	I	
Conyza canadensis (L.) Cronq.	Horseweed	NNG	N	
Cortaderia jubata (Lemoine) Stapf	Purple pampas grass	CAM	I	
Cortaderia selloana (Schultes) Asch. & Graebner	Selloa pampas grass	CSS	I	
Croton [=Eremocarpus] setigerus (Hook.) Benth.	Dove weed	NNG	N	
Cynara cardunculus L.	Cardoon	NNG,CSS, DIS	I	
Cynodon dactylon (L.) Pers.	Bermuda grass	NNG,RW	I	
Cyperus sp.	Nutsedge	RW	N	
Datura wrightii Regel	Jimson weed	NNG,CSS	N	
Deinandra [=Hemizonia] fasciculata (DC.) Torrey & A. Gray	Golden tarplant	CSS,NNG, DIS	N	
Distichlis spicata (L.) E. Greene	Saltgrass	CSS,CAM, DIS	N	
Dudleya lanceolata (Nutt.) Britt. & Rose	Live-for-ever	NNG	N	
Eleocharis sp.	Spikerush	CAM	N	
Eleocharis macrostachya Britton	Pale spikerush	FWM,CAM	N	
Encelia californica Nutt.	Common encelia	NNG	N	
Epilobium canum (Greene) P.H. Raven	California fuchsia, zauschneria	FWM, RW	N	
Eriogonum fasciculatum Benth. var. *fasciculatum*	California buckwheat	CSS,NNG	N	
Eriophyllum confertiflorum (DC.) A. Gray var. *confertiflorum*	Golden-yarrow	CSS	N	
Erodium sp.	Filaree, storksbill	NNG,CSS	I	
Eucalyptus spp.	Eucalyptus	MF,RW	I	
Foeniculum vulgare Mill.	Fennel	NNG, DIS	I	
Galium nuttallii A. Gray	San Diego bedstraw	NNG	N	
Gastridium ventricosum (Gouan) Schinz & Thell.	Nit grass	CSS, MFS	I	
Gnaphalium sp.	Cudweed, everlasting	CSS,NNG,DIS	N	
Heliotropium curassavicum L.	Salt heliotrope	CAM,DIS,NNG	N	
Helminthotheca [=*Picris*] *echioides* (L.) Holub	Bristly ox-tongue	DIS, RW	I	
Heteromeles arbutifolia (Lindley) Roemer	Toyon, Christmas berry	MC	N	
Isocoma menziesii (Hook. & Arn.) G. Nesom	Coast goldenbush	NNG	N	
Isomeris arborea Nutt.	Bladderpod	CSS	N	
Juncus sp.	Rush	FWM	N	
Juncus mexicanus Willd. [=*Juncus arcticus* var. *mexicanus*]	Mexican rush	RW	N	
Lonicera subspicata Hook. & Arn. var. *denudata* Rehd.	Wild honeysuckle	MC	N	

ATTACHMENT 2
PLANT SPECIES OBSERVED ON THE CANTARINI RANCH STUDY AREA
(continued)

Scientific Name	Common Name	Habitat	Origin	Status
Lythrum californicum Torrey & A. Gray	California loosestrife	RW,CAM	N	
Lythrum hyssopifolium L.	Grass poly	RW,CAM	N	
Malosma laurina (Nutt.) Abrams	Laurel sumac	CSS,NNG, DIS	N	
Marrubium vulgare L.	Horehound	NNG,DIS	I	
Melilotus sp.	Sweet clover	RW	I	
Mimulus aurantiacus Curtis	Bush monkeyflower	CSS,NNG,MC	N	
Muhlenbergia rigens (Benth.) A. Hitchc.	Deergrass	MF	N	
Nassella pulchra (A. Hitchc.) Barkworth	Purple needlegrass	NG,NNG	N	
Nasturtium officinale [=*Rorippa nasturtium-aquaticum*] R. Br.	Water cress	FWM, RW	I	
Navarretia hamata E. Greene	Hooked navarretia	NNG	N	
Nicotiana glauca Grah.	Tree tobacco	CSS	I	
Opuntia littoralis (Engelm.) Cockerell.	Shore cactus	CSS,NNG	N	
Osmadenia tenella Nutt.	Osmadenia	NNG	N	
Phoradendron sp.	Mistletoe	RW	N	
Platanus racemosa Nutt.	Western sycamore	RW	N	
Pluchea odorata (L.) Cass.	Salt marsh fleabane	CAM	N	
Polypogon monspeliensis (L.) Desf.	Annual beard grass	NNG,FWM,CAM, DIS, MF	I	
Populus fremontii Wats. ssp. *fremontii*	Fremont cottonwood, alamo	RW	N	
Quercus agrifolia Nee	Coast live oak, Encina	CLOW,RW,MC, DIS	N	
Raphanus sativus L.	Radish	NNG	I	
Rhus integrifolia (Nutt.) Brewer & Watson	Lemonadeberry	CSS,MC,MF	N	
Ribes speciosum Pursh.	Fuchsia-flowered gooseberry	RW	N	
Ricinus communis L.	Castor bean	CSS,NNG	I	
Rosa californica C. & S.	California rose	RW, CAM	N	
Rumex crispus L.	Curly dock	NNG,MF	I	
Salix lasiolepis Benth.	Arroyo willow	RW, FWM	N	
Salix laevigata Bebb	Red willow	RW	N	
Salsola tragus L.	Russian thistle, tumbleweed	DIS	I	
Salvia mellifera E. Greene	Black sage	CSS	N	
Sambucus mexicana C. Presl	Blue elderberry	CSS	N	
Schoenoplectus [=Scirpus] sp.	Bulrush	FWM	N	

ATTACHMENT 2
PLANT SPECIES OBSERVED ON THE CANTARINI RANCH STUDY AREA
(continued)

Scientific Name	Common Name	Habitat	Origin	Status
Schoenoplectus [=*Scirpus*] *americanus* (Pers.) Volkart ex Schinz & R. Keller	Three-square	FWM, RW	N	
Selaginella cinerascens Maxon	Ashy spike-moss	NNG	N	
Solanum americanum Miller	Nightshade	NNG	I	
Solanum xanti A. Gray	Purple nightshade	NNG	N	
Stephanomeria virgata (Benth.) ssp. *virgata*	Slender stephanomeria	CSS,NNG	N	
Tamarix sp.	Tamarisk	CSS	I	
Toxicodendron diversilobum (Torrey & A. Gray) E. Greene	Western poison oak	CLOW,RW	N	
Typha sp.	Cattail	FWM,CAM,RW	N	
Typha latifolia L	Broad-leaved cattail	FWM, RW	N	
Verbena lasiostachys Link.	Western vervain	NNG	N	
Vulpia myuros (L.) var. *hirsuta* (Hackel.) Asch. & Graebr.	Rattail fescue	NNG	I	
Washingtonia robusta Wendl.	Washington palm	CLOW,RW	I	
Xanthium strumarium L.	Cocklebur	RW	I	

HABITATS

CAM = Cismontane alkali marsh
CSS = Diegan coastal sage scrub
DIS = Disturbed
FWM = Freshwater marsh
MC = Southern mixed chaparral
MF = Mule fat scrub
NG = Native grasslands
NNG = Non-native grassland
CLOW = Coast live oak woodland
RW = Riparian woodland

ORIGIN

N = Native to locality
I = Introduced species from outside locality

STATUS – California Native Plant Society (CNPS)

CNPS List 1B = Species rare, threatened, or endangered in California and elsewhere. These species are eligible for state listing.
CNPS List 2 = Species rare, threatened, or endangered in California but more common elsewhere. These species are eligible for state listing.
CNPS List 4 = A watch list of species of limited distribution. These species need to be monitored for changes in the status of their populations.

ATTACHMENT 3

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED ON THE CANTARINI RANCH STUDY AREA

Common Name	Scientific Name	Occupied Habitat	Status	Evidence of Occurrence
Butterflies (Nomenclature from Brown, Real, and Faulkner 1992)				
Behr's metalmark	*Apodemia mormo virgulti*	CSS,NNG,NG		O
Cabbage white	*Pieris rapae*	CSS		O
California ringlet	*Coenonympha california california*	CSS		O
Funereal duskywing	*Erynnis funeralis*	CSS,NNG,NG		O
Mourning cloak	*Nymphalis antiopa antiopa*	CSS		O
Pygmy blue	*Brephidium exilis*	CSS		O
Red admiral	*Vanessa atalanta rubria*	NNG		O
Sara orangetip	*Anthocaris cethura*	CSS, NNG		O
Southern blue	*Glaucopsyche lygdamus australis*	CSS		O
West coast lady	*Vanessa annabella*	CSS,NNG		O
Western tiger swallowtail	*Papilio rutulus*	CSS		O
Anise swallowtail	*Papilio zelicaon zelicaon*	CSS		O
Common hairstreak	*Strymon melinus*	CSS		O
Amphibians (Nomenclature from Collins 1997)				
Pacific treefrog	*Hyla regilla*	RW		V
Bullfrog	*Rana catesbeiana*	FWM		V
Reptiles (Nomenclature from Collins 1997)				
Chaparral whipsnake	*Masticophis lateralis lateralis*	CSS,CHAP		O
Western fence lizard	*Sceloporus occidentalis*	CSS,NNG,CHAP		O
Birds (Nomenclature from American Ornithologists' Union)				
Turkey vulture	*Cathartes aura*	F		O
White-tailed kite	*Elanus leucurus*	CLOW,F,RW	CFP, *	O
Northern harrier	*Circus cyaneus hudsonius*	F	CSC,MHCP	O
Cooper's hawk	*Accipiter cooperii*	F	CSC,MHCP, HMP	O
Red-shouldered hawk	*Buteo lineatus elegans*	F		O
Red-tailed hawk	*Buteo jamaicensis*	F,OW,RW		O

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED ON THE CANTARINI RANCH STUDY AREA
(continued)

Common Name	Scientific Name	Occupied Habitat	Status	Evidence of Occurrence
American kestrel	*Falco sparverius*	NNG,CSS,DIST (nesting in palm tree)		O,N
California quail	*Callipepla californica californica*	CSS,NNG		O
Mourning dove	*Zenaida macroura marginella*	NNG,CSS		O
Greater roadrunner	*Geococcyx californianus*	CSS		O
White-throated swift	*Aeronautes saxatalis*	F		O
Anna's hummingbird	*Calypte anna*	CSS,CHAP		O
Northern flicker	*Colaptes auratus*	CSS,NNG,CHAP		O
Black phoebe	*Sayornis nigricans semiatra*	DIST		O
Cassin's kingbird	*Tyrannus vociferans vociferans*	NNG,CSS		O
Western kingbird	*Tyrannus verticalis*	CSS,CHAP,NNG		O
California horned lark	*Eremophila alpestris actia*	AG	WL	O
Northern rough-winged swallow	*Stelgidopteryx serripennis*	F		O
Cliff swallow	*Hirundo pyrrhonota tachina*	F		O
Western scrub-jay	*Aphelocoma californica*	CSS		O
Common raven	*Corvus corax clarionensis*	F		O
Bushtit	*Psaltriparus minimus minimus*	NNG,CSS		O
Bewick's wren	*Thyromanes bewickii*	CSS,CHAP		O
House wren	*Troglodytes aedon parkmanii*	CSS		O,N
Northern mockingbird	*Mimus polyglottos polyglottos*	CSS,NNG		O
California thrasher	*Toxostoma redivivum redivivum*	CSS		O
Wrentit	*Chamaea fasciata henshawi*	CSS		O
Coastal California gnatcatcher	*Polioptila californica californica*	CSS,NNG	FT,CSC,MHCP, HMP	O
Lesser goldfinch	*Carduelis psaltria hesperophilus*	CSS		O
House finch	*Carpodacus mexicanus frontalis*	CSS		O
Common yellowthroat	*Geothlypis trichas*	CAM		O
Spotted towhee	*Pipilo maculatus*	CSS,NNG,NG		O
California towhee	*Pipilo crissalis*	CSS,NNG,NG		O
Southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	CSS	WL, HMP	O
Song sparrow	*Melospiza melodia*	CSS,NNG		O
Western meadowlark	*Sturnella neglecta*	CSS,NNG		O
Red-winged blackbird	*Agelaius phoeniceus*	FWM		O

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED ON THE CANTARINI RANCH STUDY AREA
(continued)

Common Name	Scientific Name	Occupied Habitat	Status	Evidence of Occurrence
Mammals (Nomenclature from Jones et al. 1982)				
California ground squirrel	*Spermophilus beecheyi*	NNG,DIST,CSS		O
Southern pocket gopher	*Thomomys umbrinus (= bottae)*	NNG,CSS,NG		B
Woodrat	*Neotoma* spp.	NNG,CSS		D
San Diego black-tailed jackrabbit	*Lepus californicus bennettii*	CSS,NNG,NG	CSC	O
Cottontail rabbit	*Sylvilagus audubonii*	CSS,NNG,NG		O
Coyote	*Canis latrans*	CSS,NNG,NG		S
Raccoon	*Procyon lotor*	CSS, NNG,CHAP, OW		T
Striped skunk	*Mephitis mephitis*	CSS, NNG, NG, CHAP, OW		Scent

Habitats
CAM = Cismontane alkali marsh
CHAP = Southern mixed chaparral
CSS = Diegan coastal sage scrub
DIST = Disturbed
F = Flying overhead
FWM = Freshwater marsh
NG = Native grassland
NNG = Non-native grassland
OW = Coast live oak woodland
RW = Riparian woodland
SWS = Southern willow scrub

Status
CFP = California fully protected species
CSC = California Department of Fish and Game species of special concern
MHCP = Multiple Habitat Conservation Program
HMP = Habitat Management Plan for Natural Communities in the City of Carlsbad
* = Taxa listed with an asterisk fall into one or more of the following categories:

- Taxa considered endangered or rare under Section 15380(d) of CEQA guidelines
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range
- Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands)

Evidence of Occurrence.
V = Vocalization
O = Observed
S = Scat
T = Tracks
N = Nest