Chula Vista Central City Preserve Area Specific Management Directives (ASMDs) for Preserve Management Area 3 (PMA 3), City of Chula Vista

Prepared for

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1.0 INTRODUCTION

1.1 Purpose of the Area Specific Management Directive Plan

Using the baseline biological information obtained through the California Natural Community Conservation Plan (NCCP) grant funded special study, this Area-Specific Management Directives (ASMD) plan has been prepared to provide guidelines for the protection, maintenance, and management of preserved natural open space on Preserve Management Area 3 (PMA 3) of the City of Chula Vista's Central City Preserve (Preserve). The Central City Preserve was created in response to the City of Chula Vista Multiple Species Conservation Program (MSCP) Subarea Plan as a means to protect sensitive biological resources within the jurisdiction. The natural open space of PMA 3 supports sensitive and depleted plant communities and species unique to the region. MSCP covered flora and fauna species and sensitive habitats are the primary resources identified for protection in this PMA. The PMA also acts to protect the quality of life for residents of Chula Vista.

1.2 Multiple Species Conservation Program

The MSCP is a comprehensive, long-term habitat conservation plan that addresses the needs of multiple species and the preservation of natural vegetation communities of San Diego County. The City of San Diego along with the County of San Diego and other adjacent jurisdictions developed a subregional plan under the California Natural Community Conservation Planning Act of 1991 that encompasses 582,243 acres across a total of 12 jurisdictions (City of San Diego 1998). The MSCP provides a framework for preserving and protecting natural resources and federal and state endangered, threatened, or sensitive species. It addresses the potential impacts of urban growth, loss of natural habitat and species endangerment, and creates a plan to mitigate for the potential loss of covered species and their habitats due to direct, indirect, and cumulative impacts of future development of both public and private lands within the MSCP area. This MSCP Subregional Plan is implemented through local Subarea Plans prepared by the participating jurisdictions. These Subarea Plans are prepared in coordination with federal and state resource agencies and result in the issuance of permits that allow for a certain level of impact to state and federally listed species.

The City of Chula Vista has prepared and adopted an MSCP Subarea Plan to guide implementation of the MSCP within its corporate boundaries (City of Chula Vista 2003). The MSCP Subarea Plan is a plan and a process for the local issuance of permits under the federal and state Endangered Species Acts for impacts to threatened and endangered species. Also included in the MSCP Subarea Plan are implementation strategies, preserve design, and management guidelines.

The MSCP Subarea Plan designates a natural habitat preserve system and provides a regulatory framework for determining impacts and designating mitigation associated with

proposed projects. The MSCP Subarea Plan identifies a series of focused planning areas within which some lands will be dedicated for preservation of native habitats.

Implementation of this Subarea Plan will ensure conservation and management of approximately 9,243 acres (City of Chula Vista 2003). An estimated 4,993 acres will be located within the Subarea Plan boundary and will result in a Preserve that is managed by the City and/or other designated managing entities (City of Chula Vista 2003). An additional approximately 4,250 acres will be conserved outside of the Subarea as a result of mitigation for development within the City and implementation of this Subarea Plan (City of Chula Vista 2003). Each area of the Chula Vista Preserve is unique in terms of existing conditions, Preserve configuration, ownership of land, the existence and location of sensitive species, and management needs.

Eighty-six sensitive plant and wildlife species are included in the MSCP Subarea Plan as covered species. These species are considered to be adequately protected within the MSCP Subarea Plan Preserve lands.

There are eight plants that are identified in the MSCP Subarea Plan as “narrow endemic species” based on their limited distributions in the region and their potential to occur in Chula Vista. Two species identified as narrow endemic species, Otay tarplant (*Deinandra conjugens*) and snake cholla (*Cylindropuntia californica* var. *californica* [=*Opuntia parryi* var. *serpentina*]), are known to occur within PMA 3. These narrow endemics are sensitive biological resources.

1.3 Goals of the Area Specific Management Directives Plan

The goals of this ASMD plan are to develop measures for managing and maintaining the biological resources within PMA 3, and ensure that the MSCP covered species are adequately protected. As described in the MSCP Subarea Plan (City of Chula Vista 2003), these measures are categorized into two levels of management activities for the Preserve: Priority 1 and Priority 2.

Priority 1 measures include management tasks that are necessary to ensure that the covered species are adequately protected. These management directives will be funded through financing mechanisms created by the City or through project financing pursuant to Section 8.0 of the MSCP Subarea Plan (City of Chula Vista 2003) and carried out by the City or appropriate managing entity.

Priority 2 measures are not required for covered species status; rather, they are recommendations for enhancing the quality and function of the Preserve, including public education and provision of barriers (vegetation, rocks/boulders, and/or fencing) to direct public access. While Priority 2 directives will be incorporated to the extent feasible, it is recognized that many of these directives cannot be implemented immediately, but may occur over time as funding sources become available.

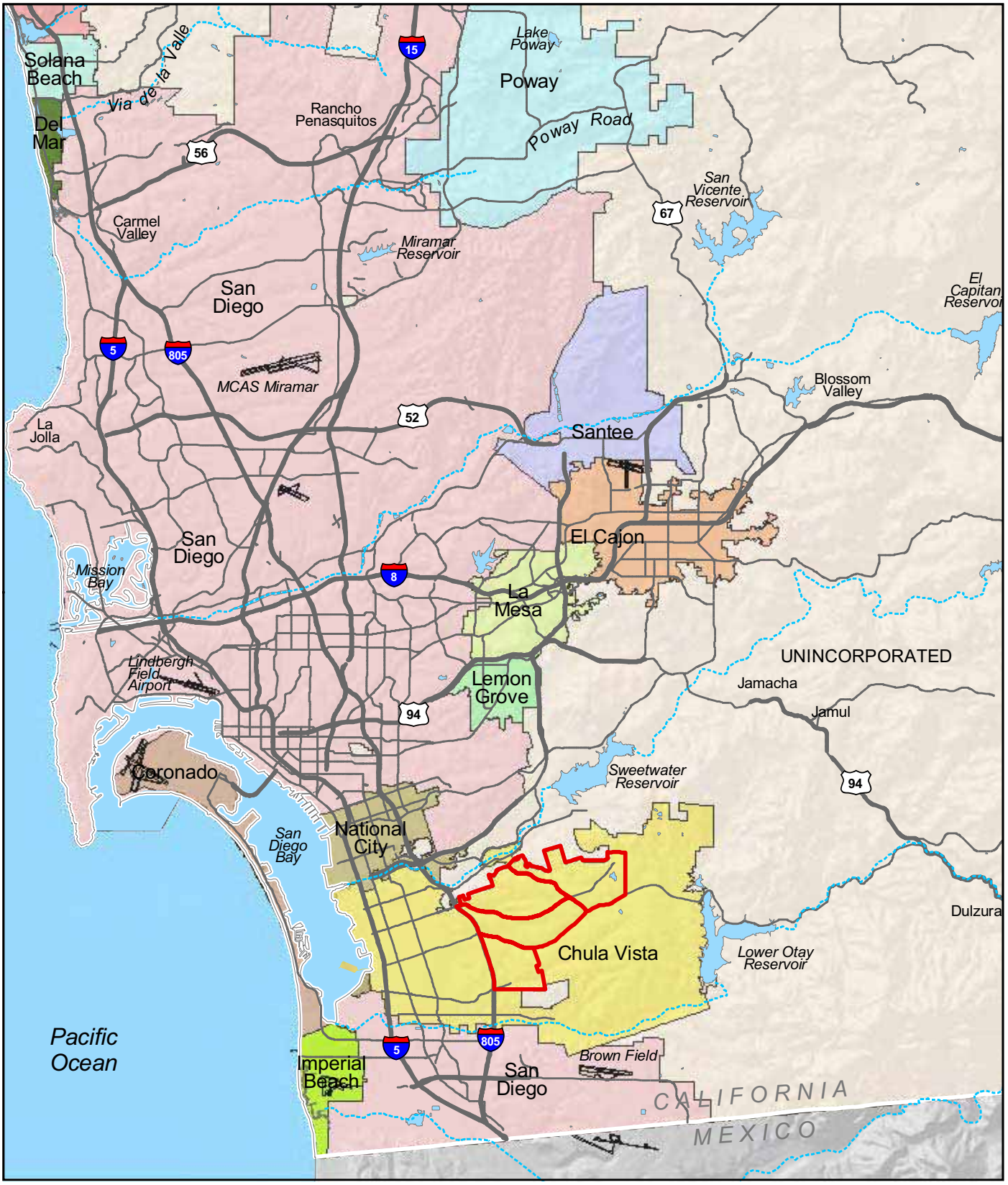
Funding for these management activities is described in Section 11.0.

1.4 Definition of the Central City Preserve Management Area

The City of Chula Vista Preserve is divided into three main Preserve Management Areas: Central City, North City, and Otay Ranch. The Framework Management Plan for the Central City and North City PMAs is the City Planning Component Framework Management Plan. The Preserve in the City Planning Component includes the existing open space encompassed by the communities of Bonita Long Canyon, Rancho del Rey, Terra Nova, Sunbow, and EastLake I, and open space that will be dedicated as development occurs in the future communities of Rolling Hills Ranch and Bella Lago (City of Chula Vista 2003). Lands conserved on the southern parcel of San Miguel Ranch within the City are also included in the Preserve. However, these conservation areas have been dedicated to the U.S. Fish and Wildlife Service (USFWS) San Diego National Wildlife Refuge (SDNWR) and will be maintained and managed by USFWS. The Preserve areas in the City Planning Component consist primarily of coastal sage and maritime succulent scrub and include known populations of narrow endemics including Otay tarplant, San Diego thornmint (*Acanthomintha ilicifolia*), variegated dudleya (*Dudleya variegata*), snake cholla, and other covered species such as San Diego barrel cactus (*Ferocactus viridescens*) and coastal California gnatcatcher (*Polioptila californica californica*), as well as many other sensitive plants and animals.

The Central City PMA is in the central portion of the City of Chula Vista (Figure 1) east of Interstate 805 (I-805), south of State Route 54 (SR-54) and Bonita Road, and north of Otay Lakes Road (Figure 2). The Central City PMA covers approximately 1,350 acres and is subdivided further into four Preserve Management Areas for data management purposes and for the development of the ASMDs. PMA 1, PMA 2, PMA 3, and PMA 4 are shown in Figure 3. Each PMA consists of a number of isolated open space areas, referred to as subunits, surrounded by residential development. Each of these subunits was assigned a number to organize and distinguish each distinct survey area (Figure 4). The City of Chula Vista is responsible for the management of the open space, which is included as preserve land in the MSCP Subarea Plan.

In an effort to compile all available historical data on the flora and fauna in this open space, environmental documents prepared for the construction of residential developments around the canyons within the Preserve area and the Natural Diversity Data Base (NDDB; State of California 2003a) were reviewed. Data from PMA 3 were compiled from various resources, including surveys that were conducted by RECON in 2002 and 2003, baseline biological resources reports, environmental impact reports, and revegetation plans. Literature reviewed for this document is presented in Attachment A.



Preserve Boundary

FIGURE 1
Regional Location of the
Central City Preserve

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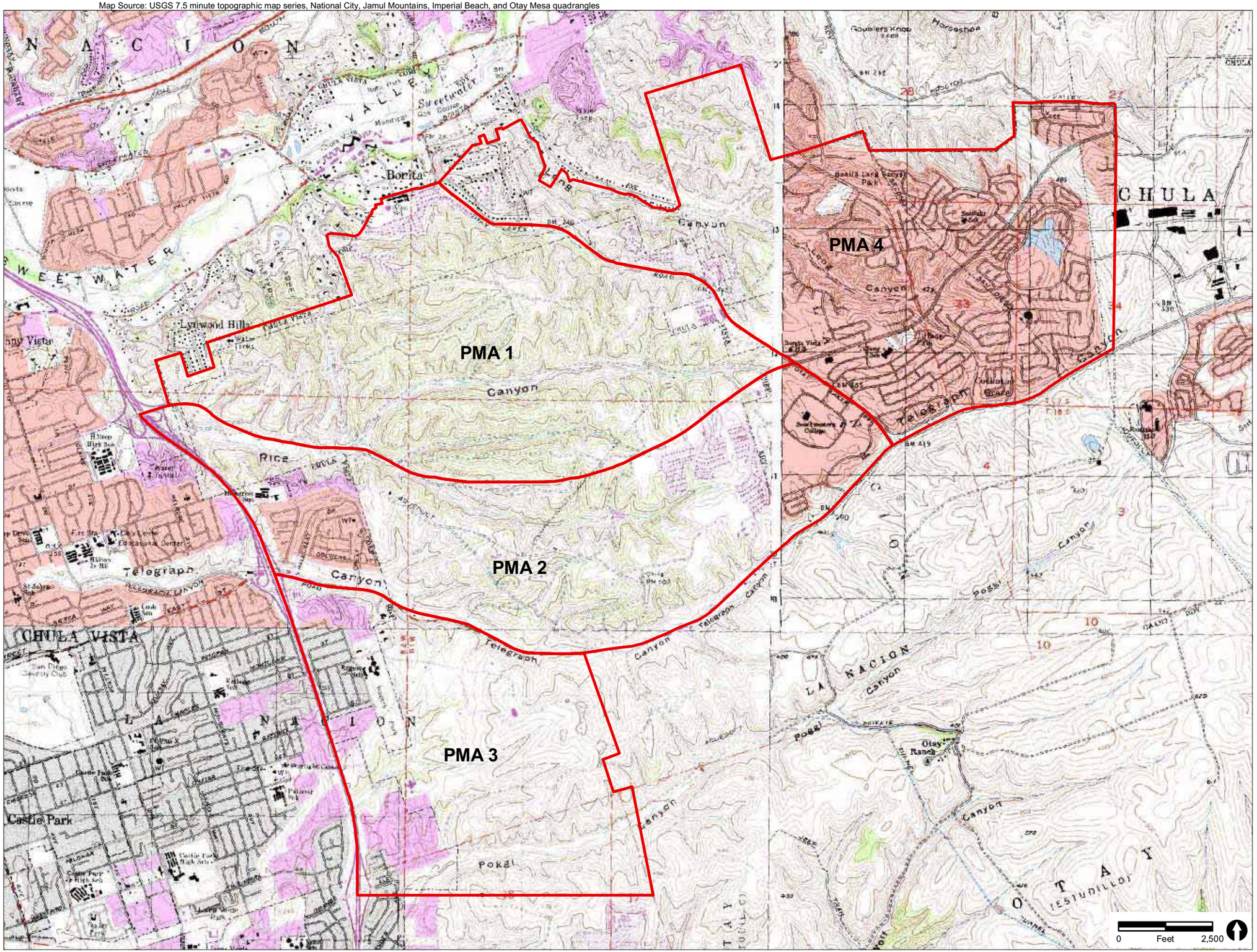
Map Source: USGS 7.5 minute topographic map series, National City, Jamul Mountains, Imperial Beach, and Otay Mesa quadrangles



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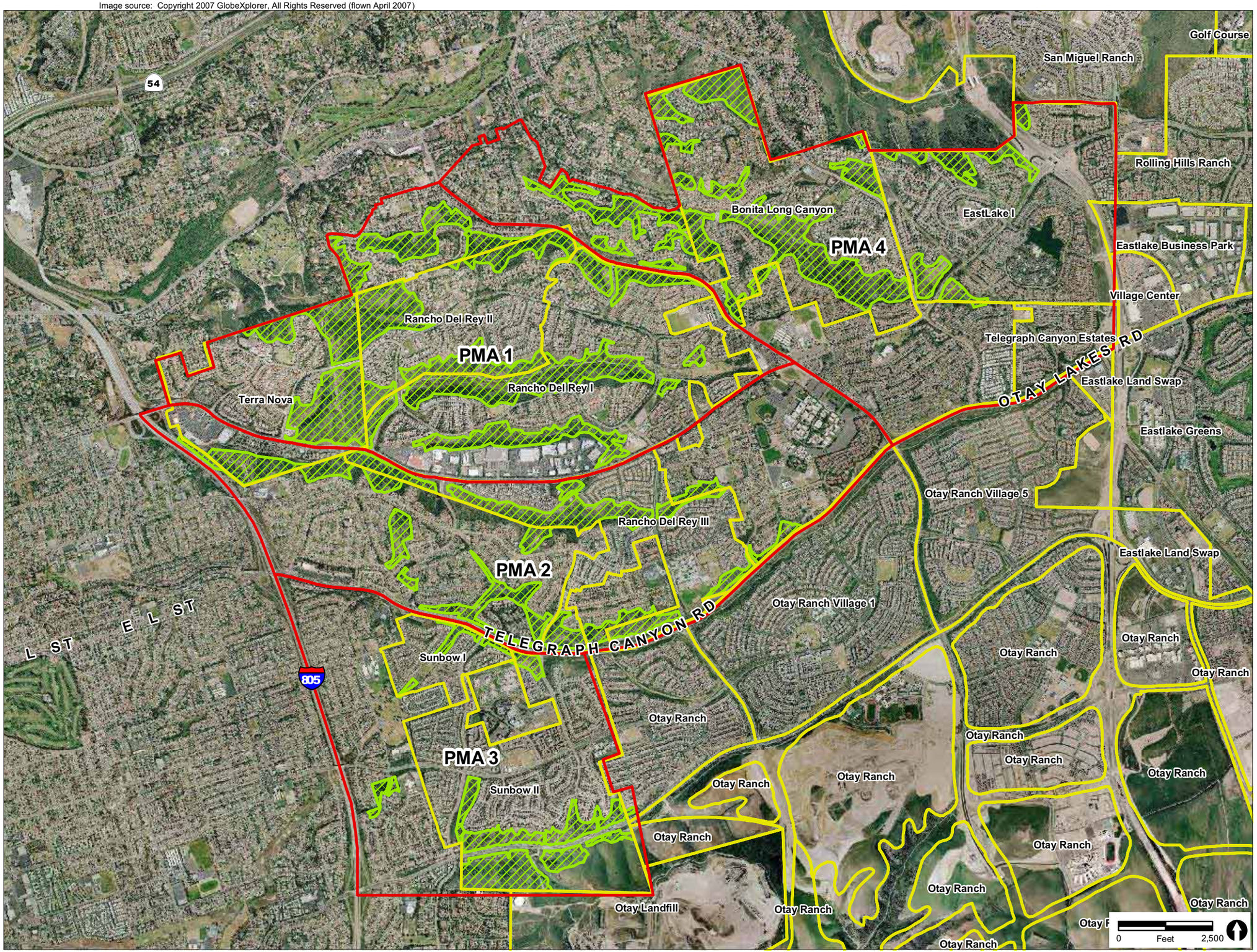
Preserve Management Area (PMA) Boundary

FIGURE 2

Central City Preserve on USGS Map

Image source: Copyright 2007 GlobeXplorer, All Rights Reserved (flown April 2007)



Preserve Management Areas

Major Projects

PMA Subunits

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FIGURE 3

Aerial Photograph of the Central City Preserve

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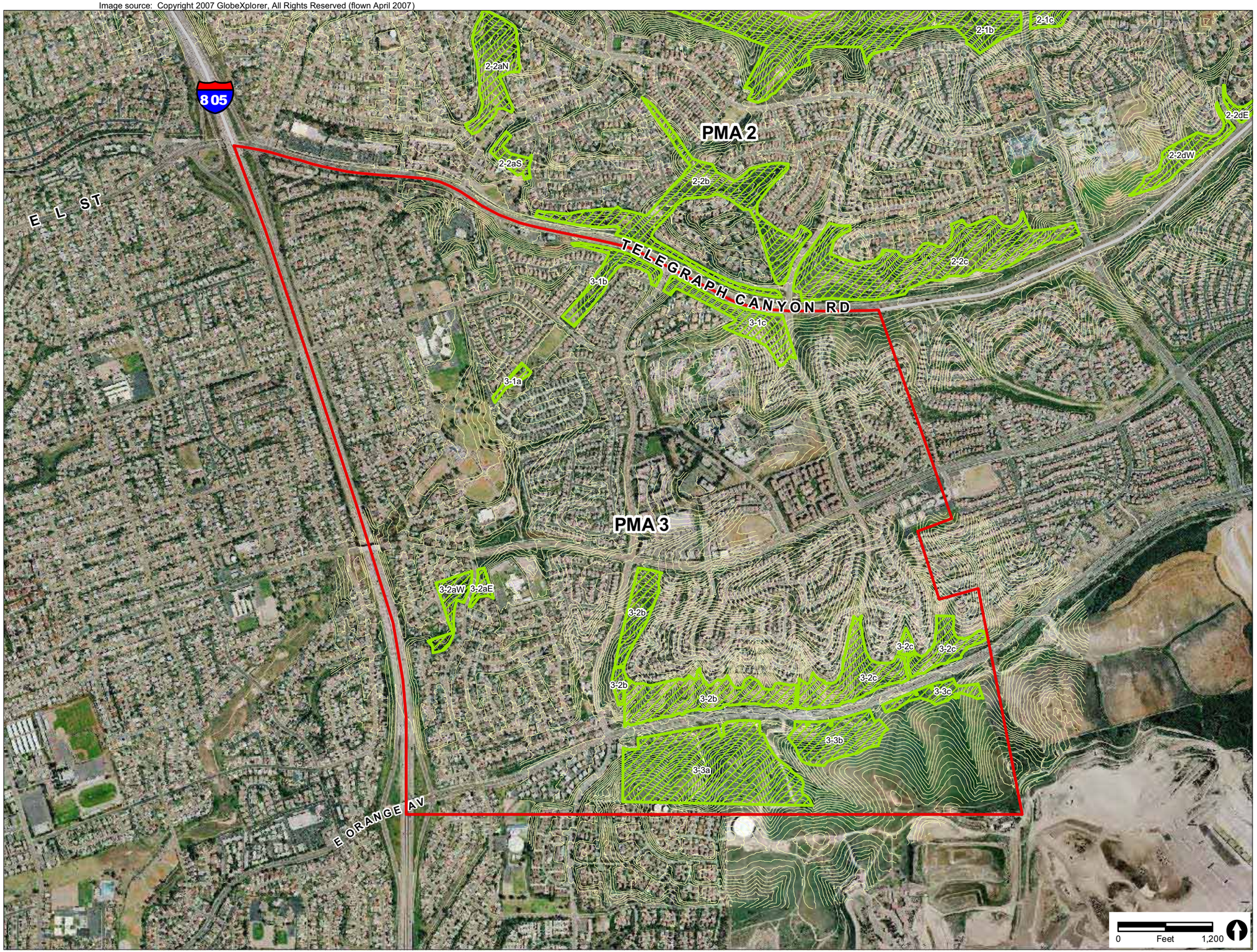

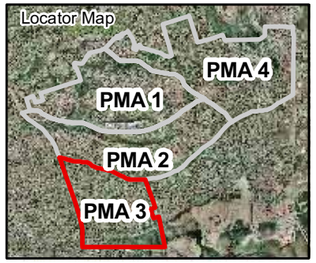

Preserve Management Areas

- PMA 3
- Other PMAs
- PMA Subunits
- 10ft Topographic Lines

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FIGURE 4

Preserve Management Area 3 (PMA 3)

1.5 PMA Ownership and Requirements

The open space of PMA 3 is owned and managed by the City of Chula Vista. Management responsibilities are outlined in Section 7.0 of the MSCP Subarea Plan (City of Chula Vista 2003). Preparation of the ASMDs required for specific management actions is described below.

The City will designate a Habitat Manager to accomplish the long-term Preserve management activities identified in the ASMDs. The Habitat Manager will be tasked to accomplish the day-to-day operations associated with managing the Preserve and will be authorized to make decisions related to allocation of Preserve management program funding. Although the management structure for each of the PMAs may differ, the Habitat Manager will be responsible for coordinating Preserve management activities within each PMA. The Habitat Manager will determine Preserve management program priorities, and will be responsible for the allocation of the Biological Enhancement Program funds discussed in Section 8.0 of the MSCP Subarea Plan (City of Chula Vista 2003). The Habitat Manager will coordinate Planned Responses to Changed Circumstances in the Preserve, should they occur.

2.0 DESCRIPTION OF PMA 3

2.1 Vicinity Map and Location Description of the PMA

PMA 3 includes 10 subunits, 3-1a through 3-1c, 3-2aE, 3-2aW, 3-2b, 3-2c, and 3-3a through 3-3c, totaling 135.7 acres. This PMA is located east of I-805 and south of Telegraph Canyon Road (see Figure 4).

2.2 History of Land Use within PMA 3

Historically, the natural lands within PMA 3 were likely used for cattle ranching; over time, lands within the PMA were converted to residential and commercial development. Development includes the Sunbow I and Sunbow II subdivisions.

2.3 Physical Setting of the PMA

2.3.1 Site Description

2.3.1.1 Topography

PMA 3 contains 10 subunits of preserve lands totaling 135.7 acres. The central portion of PMA 3 contains gently sloping, west-facing hills that rise from 200 feet in the east to over 500 feet (see Figure 2). The north and northwest part of PMA 3 contains slopes dropping into Telegraph Canyon to the north. The southern third of the PMA is bisected by Poggi Canyon with steep, incised canyons to the north and south. The southwestern part of the area contains more gradual slopes around an arroyo that feeds into Poggi

Canyon to the southeast of the area. All streams in the area are intermittent or ephemeral (USGS 1967a, 1967b).

2.3.1.2 Soils

PMA 3 contains the following soil types: Olivenhain cobbly loam, Linne clay loam, Diablo clay, Salinas clay loam, Gaviota sandy loam, Huerheuro-Urban land complex, and marine terrace soil. Olivenhain cobbly loam soils occupy the upper slopes in the central part of the site. Linne clay loams predominate on the south-facing slopes above Poggi Canyon, with Diablo clays on the north-facing slopes. Salinas clay loam soils form the base of Poggi Canyon. Gaviota sandy loams dominate on the slopes south of Telegraph Canyon and around the canyon draining to Poggi Canyon. Gaviota sandy loams are well-drained, shallow, brown to yellowish brown soils formed from weathered sandstone. Huerhuero-Urban land complex soils occur in the low areas in the northeastern and southeastern corners of the site. These marine terrace soils had already been altered by cut and fill for building sites when the soils were surveyed (USGS 1967b).

These soils support a great variety of plant life, including narrow endemic species in scattered populations, including variegated dudleya, Otay tarplant on Linne and Diablo clays, and snake cholla and San Diego barrel cactus populations on Olivenhain cobbly loam soils.

2.4 Current Land Use

Surrounding land uses include residential development interspersed with open space canyons, commercial development, and schools. In PMA 3, the northern portion has generally been developed for urban uses, while the canyon area in the southern portion of the PMA makes up the majority of the Preserve.

3.0 BASELINE BIOLOGICAL INFORMATION

The City of Chula Vista was awarded a grant from the State of California Natural Community Conservation Planning (NCCP) grant program to fund the Central City Preserve baseline biological study, as well as preparation of this ASMD. As described in Section 7.3.1 of the Subarea Plan, baseline biological studies were conducted to better define the locations and biological values of resources found in the Central City PMAs. The primary goal of these studies was to identify specific biological resources appropriate for management focus and to define functional biological management units for the PMA. As described in Section 7.3.1 of the Subarea Plan (City of Chula Vista 2003), this baseline survey was anticipated to pay particular attention to potential locations of narrow endemic species, specifically Otay tarplant.

3.1 Sensitive Species

For purposes of the baseline study, a species will be considered sensitive if it is: (1) listed by state or federal agencies as threatened or endangered or are candidates or proposed for such listing; (2) considered rare, endangered, or threatened by the state of California and listed in the NDDB (2003a, 2003b, 2003c, 2003d, 2003e); (3) a narrow endemic or covered species in the City of Chula Vista MSCP Subarea Plan (City of Chula Vista 2003); (4) on Lists 1B or 2 of the CNPS *Inventory of Rare and Endangered Vascular Plants of California* (2001); or (5) considered sensitive by local conservation organizations or specialists. Noteworthy plant species are those on Lists 3 or 4 of the CNPS *Inventory*. Sensitive habitat types are those identified by the NDDB (State of California 2003e) and Holland (1986). Assessments for the potential occurrence of sensitive or noteworthy species are based upon known ranges and habitat preferences for the species and species occurrence records from the NDDB.

Sensitive plant and wildlife species information is presented in detail in the baseline biological resources report, including the following attachments and figures (RECON 2004). Attachment 4 of the Baseline Biological Resources Report lists the sensitive plant species known to occur or with potential to occur in the PMAs. Attachment 5 of the Baseline Biological Resources Report lists sensitivity status codes. Attachment 6 of the Baseline Biological Resources Report provides complete general descriptions of all sensitive plant species present in the Central City Preserve. Attachment 8 of the Baseline Biological Resources Report lists the sensitive animal species known to occur or with potential to occur in the PMAs. Attachment 9 of the Baseline Biological Resources Report provides complete general descriptions of all sensitive wildlife species known to occur in the Central City Preserve. Descriptions include sensitivity status, life history, and range. Figures 9a through 9f of the Baseline Biological Resources Report map the locations of sensitive wildlife and plants detected during the current surveys.

3.1.1 Sensitive Plant Species

Ten listed, sensitive, and rare plant species are present in PMA 3. These species are discussed below and photographs of each of the MSCP covered plant species known to occur in PMA 3 are provided in Attachment B. Several sensitive plant species are historically known from the PMA or are known to occur in the vicinity of the site, but were not observed during surveys. These species and their potential to occur are discussed in the Baseline Biological Resources Report (RECON 2004). ASMD management priorities and directives for these sensitive species are discussed in Section 5.0.

3.1.1.1 MSCP Covered Species

Otay tarplant (*Deinandra conjugens* [=*Hemizonia conjugens*]). Otay tarplant is a federally listed threatened, state listed endangered, CNPS List 1B, and narrow endemic species covered under the MSCP. Populations totaling approximately 40,000 individuals

are present in subunit 3-3a; approximately 10,000 individuals are present in subunit 3-3b and three individuals are present in subunit 3-3c.

Critical habitat for Otay tarplant has been designated by the USFWS (2002). Three Critical Habitat Units (CHU) have been designated by USFWS including Unit 1, the Sweetwater/Proctor Valley CHU; Unit 2, the Chula Vista CHU (CHU 2); and Unit 3, the Otay Valley/Big Murphy's CHU. The Chula Vista CHU contains approximately 520 acres including the portions of populations known from Poggi Canyon that was previously reported to support 10,000 individuals. The Chula Vista CHU contains populations in the western extent of the species distribution, which although isolated from each other, may contain significant amounts of genetic diversity and, are therefore, considered essential to the conservation of the species (USFWS 2002).

The Chula Vista CHU includes four management subunits of PMA 3: 3-2b, 3-2c, 3-3a, and 3-3b. These management subunits correspond to Chula Vista CHU areas F, G, and H as identified in the Federal Register Final Rule on Otay Tarplant Critical Habitat (USFWS 2002).

Management actions for these populations are described Section 5.0.

Snake cholla (*Cylindropuntia californica* var. *californica* [= *Opuntia parryi* var. *serpentina*]). This perennial cactus is a narrow endemic species covered under the MSCP and a CNPS List 1B species. A few individuals are scattered throughout Diegan coastal sage scrub in PMA subunit 3-2c.

San Diego barrel cactus (*Ferocactus viridescens*). San Diego barrel cactus is a CNPS List 2 and MSCP covered species. Small populations of San Diego barrel cactus are scattered throughout the Diegan coastal sage scrub in subunits 3-2b, 3-2c, and 3-3c.

Orcutt's bird's-beak (*Cordylanthus orcuttianus*). Orcutt's bird's-beak is a CNPS List 2 and MSCP covered species. Four populations of Orcutt's bird's-beak, totaling approximately 275 individuals, are present in subunit 3-3b.

3.1.1.2 Other Sensitive Species

San Diego sand aster (*Lessingia filaginifolia* var. *filaginifolia* [= *Corethrogyne filaginifolia* var. *incana*]). San Diego sand aster is a CNPS List 1B species. Small, scattered populations are present in subunits 3-3a and 3-3c, mostly in the Diegan coastal sage scrub.

Golden-spined cereus (*Bergerocactus emoryi*). Golden-spined cereus is a CNPS List 2 species. A few individuals are present in the maritime succulent scrub near Olympic Parkway in subunit 3-2b.

San Diego marsh elder (*Iva hayesiana*). San Diego marsh elder is a CNPS List 2 species. A few individuals are present in subunits 3-3b and 3-3c within the southern willow scrub vegetation of the major drainage.

Small-flowered morning glory (*Convovulus similans*). Small-flowered morning glory is a CNPS List 4 species. Populations exceeding a thousand individuals are present in the grassland habitat in subunits 3-3a and 3-3c.

Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*). Southwestern spiny rush is a CNPS List 4 species. A few individuals are present in subunits 3-3a, 3-3b, and 3-3c, within southern willow scrub vegetation that is present in the major drainage that runs through these subunits.

San Diego County viguiera (*Viguiera laciniata*). San Diego County viguiera is a CNPS List 4 species. A few San Diego County viguiera shrubs are widely scattered in the coastal sage scrub vegetation of subunits 3-2b, 3-3a, 3-3b, and 3-3c.

3.1.2 Sensitive Wildlife

3.1.2.1 Reptiles

One sensitive reptile species was observed in PMA 3. This species is discussed below. A number of other sensitive species have a potential to occur; these species are discussed in the Baseline Biological Resources Report (RECON 2004).

MSCP Covered Species

Belding's orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*). The Belding's orange-throated whiptail is a CDFG species of special concern and MSCP covered species. This species was observed in subunit 3-3b and has the potential to occur in the southern subunits of PMA 3 where larger areas of native vegetation are present.

3.1.2.2 Sensitive Birds

Three sensitive bird species were detected on PMA 3. These species are discussed below and are shown on Figures 9a through 9f in the Baseline Biological Resources Report (RECON 2004). Several other sensitive bird species have the potential to occur; these species are discussed in the baseline biological resources report.

MSCP Covered Species

Coastal California gnatcatcher (*Polioptila californica californica*). The coastal California gnatcatcher is a federally listed threatened species, a CDFG species of special concern, and an MSCP covered species.

For the purposes of this report, a 'gnatcatcher location' may represent either an individual or pair of gnatcatchers. Six coastal California gnatcatchers locations are mapped in PMA 3. Three coastal California gnatcatchers locations are mapped in the maritime succulent scrub in subunit 3-2c. Two coastal California gnatcatchers locations are mapped in the maritime succulent scrub in subunit 3-2b. One gnatcatcher location is mapped in the coastal sage scrub in subunits 3-1b and 3-3a. Gnatcatchers have the potential to occur in subunit 3-3b in the coastal sage scrub. Subunits 3-1a, 3-2aW, 3-2aE, and 3-3c contain either insufficient quality or quantity of suitable habitat to be likely to support coastal California gnatcatchers.

Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*). The southern California rufous-crowned sparrow is a CDFG species of special concern and an MSCP covered species. This species was observed in the maritime succulent scrub habitat in subunit 3-2c. There is a moderate potential for this species to occur in the remaining southern subunits.

Other Sensitive Species

Yellow warbler (*Dendroica petechia*). The yellow warbler is a CDFG species of special concern. This species was detected in subunit 3-3b. This species is expected to occur in the southern willow scrub habitat in subunits 3-3a and 3-3c as well.

3.2 Botanical Resources

General plant species information is provided in the Baseline Biological Resources Report (RECON 2004): plant species historically observed in PMA 3 are listed in Attachment 3 and Attachment 14 provides a list of plants identified during the baseline biological surveys in each subunit of PMA 3. A total of 147 plant species were identified in PMA 3. Of this total, 96 (65.3 percent) are species native to San Diego County and 51 (34.7 percent) are non-native species.

There are eight vegetation communities present on PMA 3: Diegan coastal sage scrub, disturbed Diegan coastal sage scrub, maritime succulent scrub, southern willow scrub, native grassland, non-native grassland, eucalyptus, and disturbed. The acreages of these vegetation communities in PMA 3 are shown in Table 1 below. Vegetation communities mapped on-site are shown on Figures 9a-9f in the Baseline Biological Resources Report (RECON 2004). The following text provides detailed descriptions of the vegetation communities specific to PMA 3. General vegetation community descriptions are provided in Attachment 2 of the Baseline Biological Resources Report (RECON 2004).

TABLE 1
VEGETATION COMMUNITIES AND
LAND COVER TYPES ON PMA 3

Vegetation Type	Acres
Maritime succulent scrub	44.3
Diegan coastal sage scrub	35.7
Disturbed Diegan coastal sage scrub	3.0
Native grassland	10.8
Non-native grassland	19.5
Southern willow scrub	5.2
Eucalyptus woodland	1.7
Disturbed	15.8
Total for PMA 3	135.7

3.2.1 Maritime Succulent Scrub (44.3 acres) (Holland Code 32400)

Maritime succulent scrub is present in subunits 3-2b and 3-2c. The maritime succulent scrub in PMA 3 is dominated by San Diego barrel cactus, Mohave yucca (*Yucca schidigera*), and jojoba (*Simmondsia chinensis*). This vegetation community occurs mainly on south-facing slopes.

3.2.2 Diegan Coastal Sage Scrub (35.7 acres) and Disturbed Diegan Coastal Sage Scrub (3.0 acres) (Holland Code 32500)

Diegan coastal sage scrub is present in subunits 3-2b, 3-2aE, 3-2aW, 3-2b, 3-2c, 3-3a, 3-3b, and 3-3c. In PMA 3, this community is dominated by species such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*), broom baccharis (*Baccharis sarothroides*), common encelia (*Encelia californica*), coast goldenbush (*Isocoma menziesii*), lemonadeberry (*Rhus integrifolia*), and San Diego County viguiera.

Disturbed Diegan coastal sage scrub is present in subunits 3-1a, 3-1c, and 3-3a, in areas that include a greater percentage of weedy, non-native species. These include star-thistle (*Centaurea melitensis*), Russian thistle (*Salsola tragus*), tree tobacco (*Nicotiana glauca*), horehound (*Marrubium vulgare*), black mustard (*Brassica nigra*), wild oats (*Avena* sp.), and bromes (*Bromus* spp.).

3.2.3 Native Grassland (10.8 acres) (Holland Code 42100)

Two areas of native grassland are present in subunit 3-3a. These areas are dominated by species including needlegrass (*Nassella* sp.), common goldenstar (*Bloomeria crocea*), and blue-eyed grass (*Sisyrinchium bellum*). Both areas support large populations of Otay tarplant, a sensitive plant species. The southern native grassland area also supports a substantial population of small-flowered morning glory, another

sensitive plant species. Non-native grass species such as wild oats and bromes have invaded the native grassland areas to some extent.

3.2.4 Non-native Grassland (19.5 acres) (Holland Code 42200)

This vegetation community is present in subunits 3-3a, 3-3b, and 3-3c, and generally contains species such as bromes, wild oat, and perennial ryegrass (*Lolium perenne*).

3.2.5 Southern Willow Scrub (5.1 acres) (Holland Code 63320)

Southern willow scrub is present in subunits 3-2b, 3-3a, 3-3b, and 3-3c. In PMA 3, southern willow scrub is primarily dominated by western sycamore (*Platanus racemosa*), western cottonwood (*Populus fremontii*), Gooding's black willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), and red willow (*Salix laevigata*).

3.2.6 Eucalyptus Woodland (1.7 acres)

Eucalyptus woodland occurs in subunits 3-2aW and 3-2aE. Eucalyptus trees (*Eucalyptus* spp.) provide raptors with good perching sites and potential nesting habitat. Some species of eucalyptus excrete toxic substances from the roots in order to create conditions that are unfavorable for most other plant species to grow, which results in a very sparse understory, if any at all.

3.2.7 Disturbed (15.8 acres) (Holland Code 12000)

Disturbed habitat is present in subunits 3-1a, 3-1b, 3-1c, 3-2aE, 3-2aW, and 3-2b. Disturbed habitat found in PMA 3 includes trails and open areas that have been cleared of vegetation. These disturbed areas have a mixture of bare ground, native, and non-native vegetation including California buckwheat, broom baccharis, wild oat, ripgut grass (*Bromus diandrus*), star-thistle, and filaree.

3.2.8 Invasive Exotic Plant Species

The major invasive exotic threats to native plant species in the Central City Preserve Area are non-native grasses, including pampas grass (*Cortaderia jubata*), bromes, wild oats, perennial ryegrass, and herbaceous species, such as sweet fennel and black mustard. These species quickly establish populations in disturbed areas and the interface of disturbed areas and native habitat. Non-native grasses, sweet fennel, and black mustard invade native habitats and replace the native herbaceous understory species. At the end of the growing season of these non-natives, they dry out and provide fuel for wildfires.

Pampas grass is found in only one subunit in PMA 3: 3-1b. Wind disperses this species' seed and it will rapidly outcompete native plants for resources. While it is not currently a serious threat to natural resources in PMA 3, given the method of dispersal and the fact

that pampas grass has been used in the plant palette of adjacent non-Preserve open space districts that may be managed by the City and homeowner's associations, this species could pose a threat in the future.

Star-thistle, a ubiquitous weed that occurs throughout PMA 3, is a serious threat to native species, particularly narrow endemic species, such as Otay tarplant, that inhabit open grassland.

Other invasive plant species pose a threat to native plant species, habitat structure, and wildlife species populations. These species include sweet fennel (*Foeniculum vulgare*) and tamarisk (*Tamarix* sp.), which are present now, and could include hollow-stem asphodel (*Asphodelus fistulosus*), ice plant (various species), and filaree (*Erodium* sp.) at a future date.

Figure 9e in the Baseline Biological Resources Report (RECON 2004) illustrates the locations of invasive exotic species mapped in PMA 3. Attachment 14 of the Baseline Biological Resources Report lists all the plant species observed, both native and non-native within each PMA subunit. This plant list is more comprehensive than the map depiction of invasive plant locations. Since the focus of this biological study was to identify locations of narrow endemic plant species, efforts were directed towards that goal, and not every population of invasive species were mapped but all non-native species were recorded in Attachment 14 of the Baseline Biological Resources Report (RECON 2004).

3.3 Zoological Resources

General zoological resource information is presented in the Baseline Biological Resources Report (RECON 2004). Attachment 15 of the Baseline Biological Resources Report provides a list of species present within each subunit of PMA 3. Wildlife species observed to date include 11 butterflies, 2 reptile species, 40 species of birds, and 4 species of mammals.

3.3.1 Reptiles

The diversity and abundance of reptile species vary with habitat type. Many reptiles are restricted to certain vegetation communities and soil types, although some species may forage in adjacent communities. Other species are ubiquitous and use a variety of vegetation types for foraging and shelter.

One reptile species was observed in PMA 3: Belding's orange-throated lizard—a sensitive species that is discussed in the Section 3.1. Other common species expected to occur include western fence lizard (*Sceloporus occidentalis*), common side-blotched lizard (*Uta stansburiana*), and the San Diego gopher snake (*Pituophis catenifer annectens*).

3.3.2 Birds

The ability of native habitats to support a diversity of bird species is dependent on quality, habitat size and diversity, and the degree of fragmentation. Diegan coastal sage scrub provides good foraging, nesting, and cover for a variety of birds, including songbirds. Grassland habitats support a number of grassland birds and provides foraging habitat for raptors as well. Riparian habitats typically have a high number of bird species because they provide protection and food even throughout the dry summer months.

Bird species commonly observed in the Diegan coastal sage scrub and maritime succulent scrub include Anna's hummingbird (*Calypte anna*), bushtit (*Psaltriparus minimus minimus*), western scrub-jay (*Aphelocoma californica*), California towhee (*Pipilo crissalis*), and house finch (*Carpodacus mexicanus frontalis*).

Riparian vegetation communities provide habitat for many resident and migratory bird species. Species observed in the southern willow scrub include common yellowthroat (*Geothlypis trichas*), lesser goldfinch (*Carduelis psaltria*), and song sparrow (*Melospiza melodia*).

Birds and raptors observed in non-native grassland and disturbed habitats include mourning dove (*Zenaida macroura marginella*), northern mockingbird (*Mimus polyglottos*), house finch, western meadowlark (*Sturnella neglecta*), and red-tailed hawk (*Buteo jamaicensis*).

3.3.3 Mammals

Naturally vegetated areas provide cover and foraging opportunities for a variety of mammal species. Many mammal species are nocturnal and are detected during daytime surveys by sign such as scat, tracks, and burrows.

Mammal species detected in PMA 3 include desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Spermophilus beecheyi*), coyote (*Canis latrans*), and bobcat (*Lynx rufus*). These species are likely to occur in any of the vegetation communities and habitats found within PMA 3.

4.0 CENTRAL CITY PMA MANAGEMENT

The Central City PMA Preserve lands are already dedicated to the City and are surrounded by existing urban development. The City Planning Component Framework Management Plan (Section 7.5 of the MSCP Subarea Plan) serves as the Framework Management Plan for the Central City PMA (City of Chula Vista 2003). This ASMD for PMA 3 incorporates the requirements of the City Planning Component Framework Plan,

as well as the requirements incorporated into Table 3-5 of the MSCP Subregional Plan (Appendix A; City of Chula Vista 2003).

4.1 Current Management in the Central City PMA

The City Public Works Operations Department is currently managing lands within the Central City PMA (City of Chula Vista 2003). Management tasks currently funded and undertaken include Priority 1 general maintenance tasks, including:

- Removal of trash, debris, and other solid waste
- Maintenance of trails and fences
- Implement security programs to enforce “no trespassing” rules, and curtail illegal activities and activities that may degrade resources, such as grazing, shooting, illegal plant, dumping, and off-road-vehicle traffic
- Limited weeding along the Preserve/urban boundary interfaces

Subsequent to the adoption of the Subarea Plan and issuance of Take Authorization to the City from the Wildlife Agencies, the Habitat Manager will be assigned to coordinate with the City Public Works Operations Department and to expand Preserve management activities within the Central City PMA. As discussed in Section 8.3.1.1 of the Subarea Plan (City of Chula Vista 2003), a new Central City Preserve Biological Enhancement Program (BEP) will be established, providing funds for enhanced management within the Central City PMA. Working with a qualified biologist selected by the City, the Habitat Manager will determine the priorities for enhanced management and long-term monitoring in the Central City PMA based upon this ASMD and will assume responsibility for allocation of the Biological Enhancement Program funds. These funding mechanisms are described in Section 11.1.

4.2 City Planning Component Framework Management Plan

Framework Management Plans, as described in the MSCP Subarea Plan (City of Chula Vista 2003), establish two levels of management activities for the Preserve (Priority 1 and Priority 2). The following summarizes the principles used to develop the recommendations for Preserve management priority levels. Only the portions of the Priorities discussion pertinent to the Central City Preserve and PMA 3 are included here. For a full discussion of Priority actions, please refer to Section 7.3 of the Subarea Plan.

Priority 1: Measures for managing and maintaining biological resources within the Preserve, including management tasks that are necessary to ensure that the covered species are adequately protected. These management directives will be funded through financing mechanisms created by the City or through project financing pursuant to Section 8.0 (of the Subarea Plan) and carried out by the City or appropriate managing entity. These management directives will be included in each ASMD.

Priority 2: These measures are not required for covered species status, rather they are recommendations for enhancing the quality and function of the Preserve, including public education and provision of barriers (vegetation, rocks/boulders, and/or fencing) to direct public access. Where provisions of barriers is required to meet specific species management goals, detailed in Table 3-5 of the MSCP Subregional Plan, installation of such barriers will become a condition of the ASMDs and will be Priority 1. In instances where new populations of covered species/narrow endemics have been identified within a PMA, barriers may be needed to protect these previously unknown populations. In those cases, the installation of barriers may be determined to be a Priority 1 action. Although Priority 2 directives will be incorporated into these ASMDs to the extent feasible, it is recognized that many of these directives cannot be implemented immediately, but will instead occur over the life of the Subarea Plan as funding sources become available.

The following sections discuss the management issues identified in the Subarea Plan for the Central City PMA. Management issues specific to PMA 3 are also discussed as appropriate including management priorities for narrow endemic plants, covered plant and animal species, focusing on the coastal California gnatcatcher and other sensitive species identified within PMA 3.

5.0 PMA 3 MANAGEMENT DIRECTIVES

5.1 Priority 1 Management Directives

Priority 1 long-term Management Directives apply to all PMA 3 subunits and include the following maintenance and management activities that are explained in additional detail in Sections 7.4.5 and 7.5 of the MSCP Subarea Plan and Attachment C:

- Quarterly Preserve Tour: Tour all subunits to identify areas requiring major refuse removal, security program implementation, maintenance of trails and fences, and invasive exotic (weed) species removal.

- Quarterly Litter Removal and Access Control Maintenance: Remove minor litter and/or dumping. Arrange for the removal of large litter and/or dumping (if necessary). Repair and maintain trails, fencing, and signage as needed. Implement any necessary security programs to enforce “no trespassing” rules, curtail illegal activities and activities that may degrade resources, such as illegal planting, dumping, vagrant encampments, and off-road-vehicle traffic.

- Limited weeding along Preserve/urban interfaces: Arrange for weed removal in areas identified as invasive weed concerns to the extent the budget will allow. Notify homeowner’s association of any invasive species planting violations or other issues.

- Annual Report: Prepare an annual report that includes activities and accounting of budget expenditures, qualitative reporting of Preserve status and summary of available quantitative biological information, incidental sightings of sensitive plant and animal species, and the adaptive management work program for the coming year.

5.2 Priority 2 Management Directives

The following long-term Priority 2 tasks, listed in order of importance, include the following survey and restoration activities. These tasks will be conducted to the extent that funding is available and as otherwise directed in the annual adaptive management work program created by the Habitat Manager. A summary of the Priority 2 tasks recommended in each subunit is provided in Table 2. However, due to changing conditions over time, the necessity of performing these tasks should be evaluated and adjusted at the discretion of the Habitat Manager.

- Brush management: Every three years evaluate the need for brush management measures as detailed in Section 8.0 of the ASMDs and schedule as needed.

- Narrow endemic quantitative surveys: As funding allows, approximately once every five years conduct global positioning system (GPS) census surveys of reference locations of narrow endemics. The timing of surveys should take into account the blooming period of the species.

- MSCP covered wildlife species quantitative surveys: Approximately once every five years conduct surveys for MSCP covered wildlife species, particularly the coastal California gnatcatcher. Bird surveys should be conducted in January or early February to coincide with pre-nesting behavior. Bird territoriality and mating behavior at the start of the mating season should provide for more thorough survey results.

- Photopoint surveys/spring qualitative surveys: As funding allows, establish photopoints in the following areas of each subunit: populations of narrow endemic plants, areas with problem weed invasions, and native vegetation areas adjacent to weed-infested areas. Conduct baseline photos for all points.

  Once every five years, photodocument known locations of narrow endemic species within the Preserve. The timing of this management task should correspond to the blooming period of the target species.

  Once every 10 years, photodocument areas with problem weed invasions and the adjacent native habitat areas to track the changes in the level of weed invasion, and to ensure that weed populations are not expanding into native habitat.

- Targeted weed eradication/restoration: Management for weed eradication as budget and adaptive management priorities set by the Habitat Manager allow.

TABLE 2
PRIORITY 2 MANAGEMENT DIRECTIVES

Priority 2 Management Directives to be Implemented as Funding Becomes Available (listed in order of importance)	Subunit									
	3-1a	3-1b	3-1c	3-2aE	3-2aW	3-2b	3-2c	3-3a	3-3b	3-3c
1 - Brush Management	●	●	●	●	●	●	●	●	●	●
2 - Narrow endemic quantitative surveys		●				●	●	●	●	●
3 - MSCP covered wildlife species quantitative surveys		●				●	●	●		
4 - Photopoint surveys	●	●	●	●	●	●	●	●	●	●
5 - Targeted weed eradication/restoration								●		
6 - Drainage, culvert, and desiltation basin maintenance	●	●		●	●	●		●	●	●
7 - Flood control measures	●	●		●	●	●		●	●	●
8 - Evaluate status and maintenance needs of existing trails		●				●	●	●	●	●
9 - Habitat connectivity enhancement	●	●	●	●	●					
10 - Public outreach/education	●	●	●	●	●	●	●	●	●	●

NOTE: The intent of this table is to graphically depict Priority 2 tasks to be completed as funding is available and in order of importance.

The following additional Priority 2 management directives should be pursued as funding becomes available. These management directives are further described in Attachment C and Sections 7.4.5 and 7.5 of the Subarea Plan

- Drainage, culvert, and desiltation basin maintenance: perform standard maintenance of culverts and cleaning desiltation basins.
- Flood control measures: Perform standard maintenance, such as clearing and dredging existing flood channels.
- Evaluate the status and maintenance needs of existing trails: Assess the conditions of existing trails and determine which require maintenance;
- Habitat connectivity enhancement: improve habitat quality on the edges of adjacent subunits.
- Public outreach/education: educating the public about the biological resources and benefits of the open space Preserve.

6.0 SUBUNIT-SPECIFIC DIRECTIVES

This section focuses on the individual subunits and provides a summary of the MSCP covered species and vegetation communities present. Management issues and tasks unique to each subunit are discussed as well.

6.1 Subunit Priority

In order to provide a framework for making decisions about the priorities for conducting management tasks, in consultation with the Wildlife Agencies, the subunits of PMA 3 were ranked according to the types and population numbers of sensitive species and habitats. The high priority subunits are recommended to be given primary consideration for weeding, trail management, and other sensitive species management issues. The high priority subunits are considered the most biologically valuable and the most worthy of funding expenditure. Money spent on these subunits would provide the greatest benefit to covered species.

In order to rank the subunits that require priority attention for management tasks, the following features were considered: sensitive vegetation community acreages, the presence of narrow endemic and MSCP covered plant species, and the presence of MSCP covered animal species. These features were listed by subunit, with amounts of vegetation acreage or number of individuals recorded where applicable, and these features were given a high, medium, or low rank. High ranking biological features included large acreages of maritime succulent scrub habitat or regionally significant populations of narrow endemic plants and animals, such as Otay tarplant, San Diego thornmint, coastal cactus wren, and coastal California gnatcatcher. Moderate ranking

was given to smaller acreages of maritime succulent scrub or large patches of coastal sage scrub, and to smaller populations of narrow endemics and covered animal species. The lowest ranking was given to small areas of maritime succulent and coastal sage scrub and small populations of narrow endemic plants and covered animals with less regional sensitivity. All covered species were given at least a low rank when present within a subunit.

High ranking features scored eight points, medium ranking features scored three points, and low ranking features scored one point. The points were totaled, and the subunits ranked based on total number of points. In cases where two or more subunits had identical totals, those subunits were ordered according to total acreage, with the larger acreage given a higher priority ranking. The spreadsheet used to determine the total points scored is provided in Attachment D. The priority ranking results are presented in Table 3 with a brief description of the important features of the subunit.

TABLE 3
SUBUNITS RANKED BY PRIORITY

Priority	Subunit	Ranking Features
1	3-3a	High: Native grassland, southern willow scrub, Otay tarplant Moderate: California gnatcatcher
2	3-3b	High: Southern willow scrub, Otay tarplant
3	3-3c	High: Southern willow scrub, Otay tarplant Moderate:
4	3-2c	Moderate: Maritime succulent scrub, snake cholla, California gnatcatcher
5	3-2b3-3c	Moderate: Maritime succulent scrub, southern willow scrub, California gnatcatcher
6	3-1b	California gnatcatcher
7	3-1c	No points
8	3-2aW	No points
9	3-2aE	No points
10	3-1a	No points

6.2 Subunit-Specific Management Directives

This section focuses on the individual subunits and provides a summary of the MSCP covered species and vegetation communities present. Management issues and tasks unique to each subunit are discussed as well.

6.2.1 Subunit 3-1a

Figure 9a in the Baseline Biological Resources Report shows the locations of biological resources in this subunit (RECON 2004).

6.2.1.1 Summary Description

Table 4 summarizes the area of each habitat type in subunit 3-1a. No covered species are known to occur in this subunit.

TABLE 4
VEGETATION COMMUNITIES AND LAND COVER TYPES
SUBUNIT 3-1a

Vegetation Community or Land Cover Type	Acreage
Disturbed coastal sage scrub	0.8
Disturbed	0.6
TOTAL	1.4

Subunit 3-1a, the smallest subunit in PMA 3, is a small area with disturbed habitat that currently does not support any covered species. Within PMA 3, this subunit ranks tenth in priority for implementing management actions.

6.2.1.2 Management Issues

Management issues for biological resources in subunit 3-1a include weeding to reduce edge effects.

Priority management task recommendations in order of importance to be performed as funding becomes available:

- Control weeds as funding allows, primarily mustard and annual grasses, in Diegan coastal sage scrub and disturbed areas to maintain habitat quality over the long term.

6.2.2 Subunit 3-1b

Figure 9b in the Baseline Biological Resources Report shows the locations of biological resources in this subunit (RECON 2004).

6.2.2.1 Summary Description

Table 5 summarizes the area of each habitat type in subunit 3-1b. The following covered species are known to occur in this subunit:

Animals

- Coastal California gnatcatcher (MSCP covered species; one location)

TABLE 5
VEGETATION COMMUNITIES AND LAND COVER TYPES
SUBUNIT 3-1b

Vegetation Community or Land Cover Type	Acreage
Coastal sage scrub	3.4
Disturbed	3.6
TOTAL	7.0

Subunit 3-1b is the sixth largest PMA 3 subunit. Within PMA 3, this subunit ranks sixth in priority for implementing management actions. Native vegetation covers approximately half of this subunit that supports one coastal California gnatcatcher location.

6.2.2.2 Management Issues

Management issues for biological resources in subunit 3-1b include weeding to reduce edge effects for narrow endemics and monitoring of trail use to determine if recreational activities are impacting covered species.

Long-term management of coastal California gnatcatcher habitat may include weeding to reduce the risk of catastrophic fire. Management actions may also require that surrounding native brush, i.e., lemonadeberry, may need to be thinned periodically to ensure that successional changes, in the absence of fire, do not slowly eliminate gnatcatcher habitat.

Priority management task recommendations in order of importance to be performed as funding becomes available:

- Control weeds as funding allows, primarily mustard and annual grasses, in Diegan coastal sage habitats to maintain habitat quality for coastal California gnatcatcher.

- Every five years, the Habitat Manager should assess the need for selected thinning of lemonadeberry shrubs in coastal California gnatcatcher habitat to ensure that successional changes, in the absence of fire, do not slowly eliminate habitat for this covered bird species.

6.2.3 Subunit 3-1c

Figure 9b in the Baseline Biological Resources Report shows the locations of biological resources in this subunit (RECON 2004).

6.2.3.1 Summary Description

Table 6 summarizes the area of each habitat type in subunit 3-1c. No covered species are known to occur in this subunit.

TABLE 6
VEGETATION COMMUNITIES AND LAND COVER TYPES
SUBUNIT 3-1c

Vegetation Community or Land Cover Type	Acreage
Disturbed coastal sage scrub	1.0
Disturbed	9.3
TOTAL	10.3

Subunit 3-1c is the fifth largest PMA 3 subunit. Within PMA 3, this subunit ranks seventh in priority for implementing management actions. The majority of subunit 3-1c is disturbed land, with a small pocket of disturbed coastal sage scrub. This subunit does not support any covered species.

6.2.3.2 Management Issues

Management issues for biological resources in subunit 3-1c include weeding to reduce edge effects.

Priority management task recommendations in order of importance to be performed as funding becomes available:

- Control weeds as funding allows, primarily mustard and annual grasses, in Diegan coastal sage scrub and disturbed areas to maintain habitat quality over the long term.

6.2.4 Subunit 3-2aE

Figure 9c in the Baseline Biological Resources Report shows the locations of biological resources in this subunit (RECON 2004).

6.2.4.1 Summary Description

Table 7 summarizes the area of each habitat type in subunit 3-2aE. No covered species are known to occur in this subunit.

TABLE 7
VEGETATION COMMUNITIES AND LAND COVER TYPES
SUBUNIT 3-2aE

Vegetation Community or Land Cover Type	Acreage
Coastal sage scrub	0.9
Eucalyptus woodland	0.1
Disturbed	0.5
TOTAL	1.5

Subunit 3-2aE is the ninth largest subunit in PMA 3. Within PMA 3, this subunit ranks ninth in priority for implementing management actions. Subunit 3-2aE does not support any covered species.

6.2.4.2 Management Issues

Management issues for biological resources in subunit 3-2aE include weeding to reduce edge effects.

Priority management task recommendations in order of importance to be performed as funding becomes available:

- Control weeds as funding allows, primarily mustard and annual grasses, in Diegan coastal sage scrub and disturbed areas to maintain habitat quality over the long term.

6.2.5 Subunit 3-2aW

Figure 9c in the Baseline Biological Resources Report shows the locations of biological resources in this subunit (RECON 2004).

6.2.5.1 Summary Description

Table 8 summarizes the area of each habitat type in subunit 3-2aW. No covered species are known to occur in this subunit.

TABLE 8
VEGETATION COMMUNITIES AND LAND COVER TYPES
SUBUNIT 3-2aW

Vegetation Community or Land Cover Type	Acreage
Coastal sage scrub	1.8
Eucalyptus woodland	1.7
Disturbed	1.2
TOTAL	4.7

Subunit 3-2aW is the seventh largest subunit in PMA 3. Within PMA 3, this subunit ranks eighth in priority for implementing management actions. Approximately one-third of this subunit is vegetated with coastal sage scrub. The remainder of the subunit is non-native vegetation. Subunit 3-2aW does not support any covered species.

6.2.5.2 Management Issues

Management issues for biological resources in subunit 3-2aW include weeding to reduce edge effects.

Priority management task recommendations in order of importance to be performed as funding becomes available:

- Control weeds as funding allows, primarily mustard and annual grasses, in Diegan coastal sage scrub and disturbed areas to maintain habitat quality over the long term.

6.2.6 Subunit 3-2b

Figures 9d and 9e in the Baseline Biological Resources Report show the locations of biological resources in this subunit (RECON 2004).

6.2.6.1 Summary Description

Table 9 summarizes the area of each habitat type in subunit 3-2b. The following covered species are known to occur in this subunit:

Plants
- San Diego barrel cactus (MSCP covered species)

Animals
- Coastal California gnatcatcher (MSCP covered species; two locations)

TABLE 9
VEGETATION COMMUNITIES AND LAND COVER TYPES
SUBUNIT 3-2b

Vegetation Community or Land Cover Type	Acreage
Maritime succulent scrub	23.3
Coastal sage scrub	3.3
Southern willow scrub	0.2
Disturbed	0.4
TOTAL	27.2

Subunit 3-2b is the second largest PMA 3 subunit. Within PMA 3, this subunit ranks fifth in priority for implementing management actions. This subunit is dominated by maritime succulent scrub and coastal sage scrub. These vegetation communities support San Diego barrel cactus and two coastal California gnatcatcher locations.

6.2.6.2 Management Issues

Management issues for biological resources in subunit 3-2b include weeding to reduce edge effects for narrow endemics and monitoring of trail use to determine if recreational activities are impacting covered species. Over the long term, San Diego barrel cactus can be covered by the canopy of adjacent native species and this may cause the slow decline of populations due to competition. Long-term management of San Diego barrel

cactus populations may require that surrounding native brush be thinned to reduce competition and the threat of catastrophic fires.

Long-term management of coastal California gnatcatcher may include weeding to reduce the risk of catastrophic fire. Management actions may also require that surrounding native brush, i.e., lemonadeberry, is thinned periodically to ensure that successional changes in the absence of fire do not slowly eliminate this habitat.

Priority management task recommendations in order of importance to be performed as funding becomes available:

- Annually monitor trail use adjacent to San Diego barrel cactus populations to determine if recreational activities are impacting this species. If these populations are being impacted, the Habitat Manager should evaluate whether trail closures or realignment of trails is appropriate.

- Every three to five years the Habitat Manager should assess the need for shrub thinning adjacent to San Diego barrel cactus populations to ensure that the cactuses are not outcompeted by native shrubs over the long term.

- Control weeds as funding allows, primarily mustard and annual grasses, in Diegan coastal sage habitats to maintain habitat quality for coastal California gnatcatcher.

- Every five years, the Habitat Manager should assess the need for selected thinning of lemonadeberry shrubs in coastal California gnatcatcher habitat to ensure that successional changes, in the absence of fire, do not slowly eliminate habitat for this covered bird species.

6.2.7 Subunit 3-2c

Figures 9d, 9e, and 9f in the Baseline Biological Resources Report show the locations of biological resources in this subunit (RECON 2004).

6.2.7.1 Summary Description

Table 10 summarizes the area of each habitat type in subunit 3-2c. The following covered species are known to occur in this subunit:

Plants
- Snake cholla (MSCP covered species; narrow endemic)
- San Diego barrel cactus (MSCP covered species)

Animals
- Coastal California gnatcatcher (MSCP covered species; three locations)

TABLE 10
VEGETATION COMMUNITIES AND LAND COVER TYPES
SUBUNIT 3-2c

Vegetation Community or Land Cover Type	Acreage
Maritime succulent scrub	21.0
Coastal sage scrub	1.0
TOTAL	22.0

Subunit 3-2c is the third largest PMA 3 subunit. Within PMA 3, this subunit ranks fourth in priority for implementing management actions. This subunit is vegetated entirely by maritime succulent scrub and coastal sage scrub. These communities support populations of snake cholla and San Diego barrel cactus. Three gnatcatcher locations were identified in subunit 3-2c.

6.2.7.2 Management Issues

Management issues for biological resources in subunit 3-2c include weeding to reduce edge effects for narrow endemics and monitoring of trail use to determine if recreational activities are impacting covered species. Over the long term, snake cholla and San Diego barrel cactus can be covered by associated native species and this may cause the slow decline of populations due to competition. Long-term management of snake cholla and San Diego barrel cactus populations may require that surrounding native brush be thinned to reduce competition and the threat of catastrophic fires.

Long-term management of coastal California gnatcatcher habitat may include weeding to reduce the risk of catastrophic fire. Management actions may also require that surrounding native brush, i.e., lemonadeberry, may need to be thinned periodically to ensure that successional changes in the absence of fire do not slowly eliminate this habitat.

Priority management task recommendations in order of importance to be performed as funding becomes available:

- Annually monitor trail use adjacent to snake cholla and/or San Diego barrel cactus populations to determine if recreational activities are impacting this species. If these populations are being impacted, the Habitat Manager should evaluate whether trail closures or realignment of trails is appropriate. Any proposed trail closures must be reviewed and coordinated with trail planning efforts within the City.

- Every three to five years the Habitat Manager should assess the need for shrub thinning adjacent to snake cholla and/or San Diego barrel cactus populations to ensure that the cactuses are not outcompeted by native shrubs over the long term.

- Control weeds as funding allows, primarily mustard and annual grasses, in Diegan coastal sage habitats to maintain habitat quality for coastal California gnatcatcher.

- Every five years, the Habitat Manager should assess the need for selected thinning of lemonadeberry shrubs in coastal California gnatcatcher habitat to ensure that successional changes, in the absence of fire, do not slowly eliminate habitat for this covered bird species.

6.2.8 Subunit 3-3a

Figure 9e in the Baseline Biological Resources Report shows the locations of biological resources in this subunit (RECON 2004).

6.2.8.1 Summary Description

Table 11 summarizes the area of each habitat type in subunit 3-3a. The following covered species are known to occur in this subunit:

Plants
- Otay tarplant (MSCP covered species; narrow endemic)

Animals
- Coastal California gnatcatcher (MSCP covered species; two locations)

TABLE 11
VEGETATION COMMUNITIES AND LAND COVER TYPES
SUBUNIT 3-3a

Vegetation Community or Land Cover Type	Acreage
Coastal sage scrub	19.4
Disturbed coastal sage scrub	1.2
Native grassland	10.9
Non-native grassland	11.2
Southern willow scrub	2.0
TOTAL	44.7

Subunit 3-3a is the largest PMA 3 subunit. Within PMA 3, this subunit ranks first in priority for implementing management actions. Coastal sage scrub dominates this subunit and supports two coastal California gnatcatcher locations. The coastal sage scrub and grassland communities support populations of Otay tarplant totaling 40,000 individuals. The southern willow scrub vegetation does not currently support any covered species.

Significant areas of sweet fennel and tamarisk are mapped in this subunit.

6.2.8.2 Management Issues

Management issues for biological resources in subunit 3-3a include weeding to reduce edge effects for narrow endemics and monitoring of trail use to determine if recreational activities are impacting covered species. Periodic thatch removal in the Otay tarplant

habitat area is also recommended to ensure the long-term persistence of this population of approximately 40,000 plants.

Long-term management of coastal California gnatcatcher habitat may include weeding to reduce the risk of catastrophic fire. Management actions may also require that surrounding native brush, i.e., lemonadeberry, may need to be thinned periodically to ensure that successional changes in the absence of fire do not slowly eliminate gnatcatcher habitat.

Priority management task recommendations in order of importance to be performed as funding becomes available:

- Periodically dethatch dry annual weeds from Otay tarplant occupied habitat, approximately once every five years or as determined by the Habitat Manager and as funding allows.
- Perennial weed species that are recommended to have first priority for control include tamarisk and sweet fennel. Control and removal would be conducted as funding allows.
- Control weeds as funding allows, primarily mustard and annual grasses, in Diegan coastal sage habitats to maintain habitat quality for coastal California gnatcatcher.
- Every five years, the Habitat Manager should assess the need for selected thinning of lemonadeberry shrubs in coastal California gnatcatcher habitat to ensure that successional changes, in the absence of fire, do not slowly eliminate habitat for these covered bird species.

6.2.9 Subunit 3-3b

Figures 9e and 9f in the Baseline Biological Resources Report show the locations of biological resources in this subunit (RECON 2004).

6.2.9.1 Summary Description

Table 12 summarizes the area of each habitat type in subunit 3-3b. The following covered species are known to occur in this subunit:

Plants
- Otay tarplant (MSCP covered species; narrow endemic)
- Orcutt's bird's-beak (MSCP covered species)

Animals
- Belding's orange-throated whiptail (MSCP covered species)

TABLE 12
VEGETATION COMMUNITIES AND LAND COVER TYPES
SUBUNIT 3-3b

Vegetation Community or Land Cover Type	Acreage
Coastal sage scrub	4.9
Non-native grassland	6.2
Southern willow scrub	1.5
TOTAL	12.6

Subunit 3-3b is the fourth largest PMA 3 subunit. Within PMA 3 this subunit ranks second in priority for implementing management actions. This subunit is dominated by non-native grassland and coastal sage scrub. These communities support populations of Otay tarplant totaling approximately 10,000 individuals. Four populations of Orcutt's bird's-beak totaling 275 individuals are present in the coastal sage scrub. The coastal sage scrub also supports Belding's orange-throated whiptail. The southern willow scrub vegetation does not currently support any covered species.

6.2.9.2 Management Issues

Management issues for biological resources in subunit 3-3b include weeding to reduce edge effects for narrow endemics and monitoring of trail use to determine if recreational activities are impacting covered species. Periodic thatch removal in the Otay tarplant habitat area is also recommended to ensure the long-term persistence of this population of approximately 10,000 plants.

Management measures for Orcutt's bird's-beak may include periodic weeding in Orcutt's bird's-beak occupied habitat to reduce competition from exotics species. This weeding program can be conducted on a five-year rotation or at the discretion of the Habitat Manager.

Management for the Belding's orange-throated whiptail in the PMA will consist of maintaining existing open habitat and encouraging habitat inhabited by prey species. This can be accomplished through periodic weeding and trash removal. Belding's orange-throated whiptail's preferred prey species is termites. Areas where this prey would be present, such as in woodpiles and sticks and leaf litter, should be left undisturbed or disturbance should be minimized during other management actions such as weed-control efforts.

Priority management task recommendations in order of importance to be performed as funding becomes available:

- Periodically dethatch dry annual weeds from Otay tarplant occupied habitat, approximately once every five years or as determined by the Habitat Manager.

- Periodically weed in Orcutt's bird's-beak occupied habitat to reduce competition from exotics species, approximately once every five years or as determined by the Habitat Manager.

- Every three to five years the Habitat Manager should assess the need for shrub thinning adjacent to Orcutt's bird's-beak populations to ensure that these species are not outcompeted by native shrubs over the long term.

- Woodpiles, sticks, and leaf litter should be left undisturbed or disturbance should be minimized during other management actions, such as weed-control efforts, to maintain habitat quality for Belding's orange-throated whiptail.

6.2.10 Subunit 3-3c

Figure 9f in the Baseline Biological Resources Report shows the locations of biological resources in this subunit.

6.2.10.1 Summary Description

Table 13 summarizes the area of each habitat type in subunit 3-3c. The following covered species are known to occur in this subunit:

Plants
- Otay tarplant (MSCP covered species; narrow endemic; 3 individuals)
- San Diego barrel cactus (MSCP covered species)

TABLE 13
VEGETATION COMMUNITIES AND LAND COVER TYPES
SUBUNIT 3-3c

Vegetation Community or Land Cover Type	Acreage
Coastal sage scrub	1.1
Non-native grassland	2.0
Southern willow scrub	1.4
TOTAL	4.5

Subunit 3-3c is the seventh largest PMA 3 subunit. Within PMA 3, this subunit ranks third in priority for implementing management actions. The coastal sage scrub vegetation in this subunit supports three Otay tarplant individuals and San Diego barrel cactus. The southern willow scrub vegetation does not currently support any covered species.

6.2.10.2 Management Issues

Management issues for biological resources in subunit 3-3c include weeding to reduce edge effects for narrow endemics and monitoring of trail use to determine if recreational activities are impacting covered species. Periodic thatch removal in the Otay tarplant

habitat area is also recommended to ensure the long-term persistence and growth of this population of three plants.

Over the long term, San Diego barrel cactus can be covered by associated native species and this may cause the slow decline of populations due to competition. Long-term management of San Diego barrel cactus populations may require that surrounding native brush be thinned to reduce competition and the threat of catastrophic fires.

Management tasks in order of importance to be performed as funding becomes available:

- Periodically dethatch dry annual weeds from Otay tarplant occupied habitat, approximately once every five years or as determined by the Habitat Manager.
- Annually monitor trail use adjacent to San Diego barrel cactus populations to determine if recreational activities are impacting this species. If these populations are being impacted, the Habitat Manager should evaluate whether trail closures or realignment of trails is appropriate. Any proposed trail closures must be reviewed and coordinated with trail planning efforts within the City.

7.0 SPECIES-SPECIFIC DIRECTIVES

7.1 Management Issues and Monitoring of MSCP-Covered Species

Each covered species has specific management directives within the MSCP Preserve system. Management directives for each covered species known to occur in PMA 3 are summarized in Table 14. This summary is taken from Table 3-5 of the MSCP Subregional Plan contained within Appendix A of the City of Chula Vista Subarea Plan (City of Chula Vista 2003). As described in Section 7.3.1 of the Subarea Plan, the baseline biological surveys in the Central City PMA were intended to pay particular attention to potential locations of Narrow Endemic Species, and specifically, Otay tarplant. The ASMDs for the Central City Preserve focus on management goals and activities to ensure survival of these important species. Table 14 provides an overview of management and monitoring activities for covered species. These management and monitoring activities are recommended to be implemented as funding is available.

7.2 Management and Monitoring of Other Sensitive Biological Resources

There are several plant and animal species within the Preserve that are considered sensitive, but are not covered by the MSCP. Specific management directives are provided for below. Future surveying and monitoring of all plant and wildlife species discussed below is recommended as funds become available. Monitoring for these species shall include recording incidental sightings by qualified biologists or the Habitat

TABLE 14
SPECIES-SPECIFIC DIRECTIVES

Otay tarplant (*Deinandra conjugens*)
Otay tarplant is a federally listed threatened and state listed endangered species. This species is on the list of narrow endemics, which requires jurisdictions to specify and implement measures in their Subarea plans to avoid or minimize impacts to all populations. ***MSCP Conditions of Coverage*** Area-specific management directives must include specific measures for monitoring of populations and adaptive management of preserves, taking into consideration the extreme population fluctuations from year to year, and specific measures to protect against detrimental edge effects to this species. ***Baseline Biological Survey Summary*** Populations totaling approximately 40,000 individuals are present in subunit 3-3a; approximately 10,000 individuals are present in subunit 3-3b and three individuals are present in subunit 3-3c. ***Management*** Otay tarplant is threatened by invasion of non-native annual grasses and herbs. Otay tarplant is somewhat tolerant of weed competition, but over time the populations are likely to decline without implementation of weed control measures. Control of non-native weeds is recommended for the large populations of Otay tarplant (see Figures 9e and 9f in the Baseline Biological Resources Report). It is recommended that a weeding program be implemented on a three- to five-year rotation at the discretion of the Habitat Manager and as funding is available. Currently, the competitive effects of these weedy species are impacting Otay tarplant. These effects likely include direct competition for light and water, particularly in the seedling and early rosette stage, when the plants have a short stature and can easily be covered by weedy species (Dodero pers. obs.). Competition for water can be intensified in dry rainfall years when moisture supplies are limited. In weedy sites, Otay tarplant population numbers may be depressed even further in dry years, than would be the case than in a less weedy environment. In addition to direct competitive effects, in many instances, the weedy thatch material can completely cover the ground in tarplant habitat that naturally would be more open. The weedy thatch reduces or eliminates open ground that is essential for pollinators to nest in. An effective method of weed management in the Otay tarplant habitat area can include periodic thatch removal to decrease competition from weed species. Another method that can be used, at the discretion of the Habitat Manager, is to increase the number of individuals in a declining population through the implementation of a seed-bulking program. Seed bulking entails growing plants in cultivation to increase the amount of seed available for restoration or enhancement purposes. In the case of Otay tarplant, the implementation of weed control efforts, such as thatch removal, will likely be sufficient to allow declining populations to rebound from existing seedbanks. ***Monitoring*** The distribution and abundance of Otay tarplant shall be measured both qualitatively and quantitatively within the Preserve. A qualified biologist with experience identifying Otay tarplant and native grassland habitat restoration should conduct the long-term biological monitoring.

TABLE 14
SPECIES-SPECIFIC DIRECTIVES
(continued)

Otay tarplant (*Deinandra conjugens*)
Qualitative: Permanent reference points should be established within the Preserve at three to five of the representative sites with high-density Otay tarplant populations identified in the baseline biological resources report and at the discretion of the Habitat Manager. The reference sites should be field-surveyed using GPS equipment and a permanent marker, such as stake or a sign, should identify each reference site. Photographs of the reference Otay tarplant populations should be taken annually, at approximately the same time of year and from the same aspect. Qualitative monitoring of the Otay tarplant will include a photodocumentation survey conducted every five years in late spring/early summer and will be timed to coincide with the peak flowering period of the Otay tarplant (May to June). The focus of these surveys is to identify weed invasion and competition and ascertain, at the discretion of the Habitat Manager, if dethatching and weed management actions are appropriate. The results of this qualitative survey should be contained in that year's annual report. **Quantitative:** The distribution and abundance of Otay tarplant should be measured quantitatively at least once every five years. A quantitative survey should be conducted in the first rainfall year that is at least 70 percent of the historic average. If none of five years meet the rainfall criterion, then the survey should be conducted in year five. An initial quantitative survey should be conducted in the first year that meets the rainfall criterion. The official baseline population abundance and coverage data, collected for the baseline biological survey, will be used to compare future years and determine when and what adaptive management measures should be taken. The quantitative survey should use field GPS equipment to map the aerial coverage of Otay tarplant in each subunit. The survey will also include an estimate of the relative cover of other native and weed plant species present. The results of this quantitative survey should be reported in that year's annual report and compare the relative cover of the survey year to the official baseline coverage.

TABLE 14
SPECIES-SPECIFIC DIRECTIVES
(continued)

Snake cholla (*Cylindropuntia californica* var. *californica*)
Snake cholla is on the list of narrow endemics, which requires jurisdictions to specify and implement measures in their Subarea plans to avoid or minimize impacts to all populations. ***MSCP Conditions of Coverage*** Area-specific management directives must include specific measures to protect against detrimental edge effects to this species, and promote translocation opportunity where appropriate. ***Baseline Biological Survey Summary*** During rare plant surveys in 2003, snake cholla individuals were mapped scattered throughout Diegan coastal sage scrub in PMA subunits 3-1b, 3-2b, 3-2c, 3-3a, 3-3b, and 3-3c. ***Management*** Some populations of snake cholla in PMA 3 occur adjacent to dirt trails in open maritime succulent scrub and Diegan coastal sage scrub. Where located next to these trails, the use of brush piles may be effective at redirecting bicycles and foot traffic. Planting of additional native plant species to redirect recreational activities should only be done where the plantings of shrubs will not cause competition with the snake cholla. Over the long term, snake cholla can be covered by associated native species and this may cause the slow decline of populations due to competition. Long-term management of snake cholla populations may require that surrounding native brush be thinned to reduce competition and the threat of catastrophic fires that may eliminate snake cholla populations if the fires are of sufficient intensity to kill both stems and roots. Previous snake cholla translocation and propagation efforts in PMA 2 in Rancho Del Rey SPA III (RECON 2002) have been effective in minimizing development impacts and similar propagation efforts can be used to increase population densities in areas where the species is in decline as determined by the Habitat Manager. ***Monitoring*** The distribution and abundance of snake cholla should be measured both qualitatively and quantitatively within the Preserve. A qualified biologist with experience identifying snake cholla should conduct the long-term biological monitoring. **Qualitative:** Permanent reference points should be established within the Preserve at representative sites identified in the baseline biological resources report. Choosing sites where snake cholla occurs adjacent to trails would be particularly useful in tracking the status of the population, as well as trail widening. Qualitative monitoring of the snake cholla will include one photodocumentation survey conducted any time of the year, once every five years. The focus of these surveys is to identify whether the shrub cover is covering the snake cholla (i.e., restricting the snake cholla's access to sunlight) and if trails are widening adjacent to snake cholla populations. This will aid in determining if shrub thinning and/or trail maintenance management actions are needed. The results of this qualitative survey should be contained in that year's annual report.

TABLE 14
SPECIES-SPECIFIC DIRECTIVES
(continued)

Snake cholla (*Cylindropuntia californica* var. *californica*)
Quantitative: The distribution and abundance of snake cholla should be measured quantitatively at least once every five years. The official baseline population abundance and coverage data, collected for the baseline biological survey, will be used to compare future years and determine when and what adaptive management measures should be taken. The quantitative survey should use field GPS equipment to map the aerial coverage of snake cholla. The survey will also include an estimate of the relative cover of other native and weed plant species present. The results of this quantitative survey should be reported in that year's annual report and compared to population numbers with the baseline data.

TABLE 14
SPECIES-SPECIFIC DIRECTIVES
(continued)

San Diego barrel cactus (*Ferocactus viridescens* var. *viridescens*)
San Diego barrel cactus is an MSCP covered species. In PMA 3, San Diego barrel cactus is typically found on dry hills within open coastal sage scrub or maritime succulent scrub communities. ***MSCP Conditions of Coverage*** Area-specific management directives must include specific measures to protect against detrimental edge effects, unauthorized collection, and include appropriate fire management/control practices to protect against a too-frequent fire cycle. ***Baseline Biological Survey Summary*** During rare plant surveys in 2003, RECON recorded small populations of San Diego barrel cactus were mapped scattered throughout the Diegan coastal sage scrub in subunits 3-2b and 3-3c. ***Management*** Area-specific management directives must include measures to protect this species from edge effects, unauthorized collection, and include appropriate fire management and control. Primary management for this species is periodic monitoring to determine whether weed control measures are required to enhance habitat quality. Over the long term, San Diego barrel cactus can be covered by associated native species and this may cause the slow decline of populations due to competition. Long-term management of San Diego barrel cactus populations may require that surrounding native brush be thinned to reduce competition and the threat of catastrophic fires. ***Monitoring*** The distribution and abundance of San Diego barrel cactus should be measured both qualitatively and quantitatively within the Preserve. **Qualitative:** Permanent reference points should be established within the Preserve at three to five of the representative sites identified in the baseline biological resources report at the discretion of the Habitat Manager. Choosing sites where coast barrel cactus occurs adjacent to trails would be particularly useful in tracking the status of the population as well as trail widening. Qualitative monitoring of the coast barrel cactus will include one survey conducted any time of the year, once very five years. The focus of these surveys is to identify whether the shrub cover is covering the San Diego barrel cactus (i.e., restricting the San Diego barrel cactus' access to sunlight) and if trails are widening adjacent to San Diego barrel cactus populations. This will aid in determining if shrub thinning and/or trail maintenance management actions are needed. The results of this qualitative survey should be contained in that year's annual report. **Quantitative:** The distribution and abundance of San Diego barrel cactus should be measured quantitatively at least once every five years. The official baseline population abundance and coverage data, collected for the baseline biological survey, will be used to compare future years and determine when and what adaptive management measures should be taken.

TABLE 14
SPECIES-SPECIFIC DIRECTIVES
(continued)

San Diego barrel cactus (*Ferocactus viridescens* var. *viridescens*)
The quantitative survey should use field GPS equipment to map the aerial coverage of San Diego barrel cactus. The survey will also include an estimate of the relative cover of other native and weed plant species present. The results of this quantitative survey should be reported in that year's annual report and compared to population numbers with the baseline data.

TABLE 14
SPECIES-SPECIFIC DIRECTIVES
(continued)

Orcutt's bird's-beak (*Cordylanthus orcuttianus*)
Orcutt's bird's-beak is a CNPS List 2 and MSCP covered species that occurs in coastal sage scrub habitat, particularly near streams and riparian habitat. ***MSCP Conditions of Coverage*** At the time permit amendments are proposed, strategies to provide protection for this species within the amendment area must be included. ***Baseline Biological Survey Summary*** Four populations of Orcutt's bird's-beak, totaling approximately 275 individuals, are present in subunit 3-3b. ***Management*** Recommended management for this species in Poggi Canyon includes weeding to reduce competition with exotics species. Long-term management of Orcutt's bird's-beak populations may require that surrounding native brush be thinned periodically as determined by the Habitat Manager to maintain open habitat and reduce competition with native shrubs in the absence of fire. ***Monitoring*** The distribution and abundance of Orcutt's bird's-beak should be measured both qualitatively and quantitatively within the Preserve. **Qualitative:** Permanent reference points should be established within the Preserve in subunit 3-3b, as identified in the baseline biological resources report. The reference sites should be field-surveyed using GPS equipment and a permanent marker, such as stake or a sign, should identify the reference site. Photographs of the reference Orcutt's bird's-beak population should be taken annually from the same aspect. Qualitative monitoring of the Orcutt's bird-beak will include one survey conducted during the spring flowering period once very five years. The results of this qualitative survey should be contained in that year's annual report. **Quantitative:** The distribution and abundance of Orcutt's bird's-beak should be measured quantitatively at least once every five years. A quantitative survey should be conducted in the first rainfall year that is at least 70 percent of the historic average. If none of five years meet the rainfall criterion, then the survey should be conducted in year five. An initial quantitative survey should be conducted in the first year that meets the rainfall criterion. The official baseline population abundance and coverage data, collected for the baseline biological survey, will be used to compare future years and determine when and what adaptive management measures should be taken.

TABLE 14
SPECIES-SPECIFIC DIRECTIVES
(continued)

Orcutt's bird's-beak (*Cordylanthus orcuttianus*)
The quantitative survey should use field GPS equipment to map the aerial coverage of Orcutt's bird's-beak. The survey will also include an estimate of the relative cover of other native and weed plant species present. The results of this quantitative survey should be reported in that year's annual report and compared to population numbers with the baseline data.

TABLE 14
SPECIES-SPECIFIC DIRECTIVES
(continued)

Belding's orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*)
Belding's orange-throated whiptail is a CDFG species of concern and is covered under the MSCP. Suitable habitat to support the species is present throughout PMA 3. ***MSCP Conditions of Coverage*** Area-specific management directives must address edge effects. ***Baseline Biological Survey Summary*** During RECON surveys in 2003, this species was mapped in subunit 3-3b. ***Management*** Management for Belding's orange-throated whiptail on the PMA will consist of monitoring efforts, maintaining existing potential habitat, encouraging habitat inhabited by prey species, and maintaining linkages to off-site habitat. Belding's orange-throated whiptail's preferred prey species is termites, and areas where this prey would be present, such as in woodpiles and sticks and leaf litter should be left undisturbed or disturbance should be minimized by other management actions such as weed control efforts. When budgets allow, populations near development should be monitored for trends that might change due to edge effects such as domestic pets, exotic plants, and invasive ants (USGS and San Diego State University [SDSU] 2001). ***Monitoring*** Whenever qualified biologists are working within the Preserve, they should record incidental sightings of Belding's orange-throated whiptail and hand-map the location of that sighting. Those sightings should be reported in the annual report as a list of observed sensitive species.

TABLE 14
SPECIES-SPECIFIC DIRECTIVES
(continued)

Coastal California gnatcatcher (*Polioptila californica californica*)
The coastal California gnatcatcher is federally listed as threatened, a CDFG species of special concern, and an MSCP covered species. The coastal California gnatcatcher typically occurs in or near sage scrub and prefers habitat dominated by California sagebrush. The bird also uses chaparral, grassland, and riparian woodland habitats where they occur adjacent to sage scrub. ***MSCP Conditions of Coverage*** Area-specific management directives must include specific measures to reduce edge effects and minimize disturbance during the nesting period, fire protection measures to reduce the potential for habitat degradation due to unplanned fire, and management measures to maintain or improve habitat quality including vegetation structure. ***Baseline Biological Survey Summary*** Six coastal California gnatcatchers locations are mapped in PMA 3. Two coastal California gnatcatchers locations are mapped in the maritime succulent scrub in subunits 3-2b and 3-2c. One gnatcatcher location is mapped in the coastal sage scrub in subunits 3-1b and 3-3a. ***Management*** MSCP management directives for this species include; measures to reduce and minimize disturbance to habitat during the nesting period between February 15 to August 15, and fire protection measures to reduce the potential of habitat degradation and conversion due to unplanned fires. Areas containing high value gnatcatcher habitat, i.e., maritime succulent scrub and California sagebrush-dominated Diegan coastal sage scrub, are priority conservation areas. Management measures to maintain or improve habitat quality of high value conserved habitat are also required by the management directives for this species. It is recommended that suitable habitat in PMA 3 be monitored for coastal California gnatcatcher to determine the long-term status of the species, and the appropriate areas of habitat to be maintained or enhanced through weed control, if necessary. Occupied gnatcatcher areas should be monitored for the presence of brown-headed cowbirds (*Molothrus ater*), to prevent brood-parasitism. Threats to coastal California gnatcatcher habitat are primarily from weed invasion, particularly by black mustard. Mustard is invading to varying extent Diegan coastal sage and maritime succulent habitat in PMA 3. This weed invasion makes these communities more susceptible to repeated fires that can change their structure and diversity. High priority should be given to controlling mustard invasions in gnatcatcher habitat. Another management issue is the successional changes that occur in these habitats in the absence of fire. Over time, large shrubs, primarily lemonadeberry (*Rhus integrfolia*), tend to cover slopes completely to the exclusion of other shrub species. This is especially evident on north facing slopes. This domination by a single plant species reduces the suitability of habitat for the gnatcatcher by decreasing the plant and insect diversity that the birds need to survive. Every five years, the Habitat Manager should survey large shrub (i.e., lemonadeberry) cover in the PMA to determine if weeding is necessary to improve habitat quality and diversity for the gnatcatcher.

TABLE 14
SPECIES-SPECIFIC DIRECTIVES
(continued)

Coastal California gnatcatcher (*Polioptila californica californica*)
Since prescribed fire is not likely to be used in canyons adjacent to houses, a shrub-thinning program may be implemented, at the discretion of the Habitat Manager and as funding is available. Trimming large shrubs by hand would minimize disturbance of adjacent habitat. This shrub material can be removed from the site or used in adjacent Preserve areas as wildlife habitat. ***Monitoring*** The distribution and abundance of coastal California gnatcatcher should be measured quantitatively within the Preserve. A qualified biologist holding a valid U.S. Fish and Wildlife Service 10(a)(1)(A) recovery permit should conduct the long-term biological monitoring. The results of the 2003 focused surveys conducted by RECON and reported in the baseline biological resources report will constitute the baseline abundance of coastal California gnatcatchers in the Preserve. **Quantitative:** Quantitative sampling for coastal California gnatcatcher will focus on suitable coastal sage scrub habitat in the Preserve. Every five years, a single survey will be conducted during the month of February to maximize the potential for detection. The survey should be conducted only during optimal weather conditions. The results of this quantitative survey should be reported in the annual report and compare the results with the official baseline data.

TABLE 14
SPECIES-SPECIFIC DIRECTIVES
(continued)

Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)
The southern California rufous-crowned sparrow is a CDFG species of special concern and an MSCP covered species. Southern California rufous-crowned sparrows are year-round residents that can be found in coastal sage scrub that is generally steep and rocky and in grassy areas of coastal sage scrub (Unitt 1984). Southern California rufous-crowned sparrows are also known to inhabit grassland areas that have been created by fire and human disturbance when the grasslands are adjacent to coastal sage scrub (Unitt 1984). ***MSCP Conditions of Coverage*** Area-specific management directives must include maintenance of dynamic processes, such as fire, to perpetuate some open phases of coastal sage scrub with herbaceous components. ***Baseline Biological Survey Summary*** One occurrence of southern California rufous-crowned sparrow was recorded in the maritime succulent scrub habitat of subunit 3-2c in 2003. ***Management*** Under the MSCP approximately 61 percent of potential southern California rufous-crowned sparrow habitat, in addition to 71 percent of mapped localities for the species is conserved. MSCP specific management directives for this species include maintenance of fire processes to perpetuate herbaceous components in open phases of coastal sage scrub. Management for the southern California rufous-crowned sparrow should be directed at maintaining the native herbaceous component within the sparrow's habitat, either by prescribed burns or manual methods such as dethatching of grasslands or shrub thinning along the grassland costal sage scrub interface. It is recommended that dethatching be implemented on a three- to five-year rotation at the discretion of the Habitat Manager and as funding is available. ***Monitoring*** Whenever qualified biologists are working within the Preserve, they should record incidental sightings of San Diego rufous-crowned sparrow and hand-map the location of that sighting. Those sightings should be reported in the annual report as a list of observed sensitive species.

Manager. These sighting locations shall be hand-mapped and reported in the annual report as a list of observed sensitive species.

7.2.1 Plants

For most of the sensitive plants present on the Preserve, invasive weeds are the primary threat to the existing populations. These weeds may increase the risk of fire and have detrimental effects to the plants. Recreational activity is also a major cause of disturbance to the sensitive resources on the Preserve. Trampling and destroying the vegetation allows for the exotic weeds to become opportunistic. Redirecting activity to less sensitive areas when possible is recommended, and implementing an aggressive weeding management program to reduce the possibility of destructive fire. These guidelines should be considered when managing the following Priority 2 sensitive resources on the Preserve:

- San Diego sand aster – This species grows primarily in openings in coastal sage scrub, as well as in disturbed areas. It is likely that this open habitat will be maintained by periodic fires or through vegetation management activities conducted to maintain openings occupied by this species. .

- Golden-spined cereus – Over the long term, golden-spined cereus can be covered by associated native species and this may cause the slow decline of populations due to competition. Long-term management of golden-spined cereus populations may require that surrounding native brush be thinned on a five-year rotation to reduce competition and the threat of catastrophic fires.

- San Diego marsh elder – General weed management in the Preserve will be sufficient for management of this species. Changes in hydrological conditions to a wetter environment (i.e., year-round water) over the long term, may affect this species by favoring native species that require more water such as mule fat and willows. The Habitat Manager should monitor for changes in hydrological conditions on a five-year rotation, and take corrective action, if possible.

- Small-flowered morning glory – This annual species is associated with native grasslands and is frequently found growing with Otay tarplant. Weeding programs implemented for Otay tarplant will benefit small-flowered morning glory.

- Southwestern spiny rush – General weed management in the Preserve will be sufficient for management of this species.

- San Diego County viguiera – General Preserve maintenance, such as weeding and trash removal, will benefit this species.

7.2.2 Wildlife

7.2.2.1 Birds

The yellow warbler is the non-covered sensitive species found in the Preserve. General maintenance activities for other species, such as weeding programs, are anticipated to be adequate to maintain habitat quality for this species.

8.0 BRUSH MANAGEMENT

8.1 Introduction

Brush management is required to be undertaken in areas where urban development interfaces with open space, in order to reduce fire fuel loads and reduce potential fire hazard. In accordance with the City's MSCP Subarea Plan, the City of Chula Vista will develop a brush abatement program that will focus particularly on edges between urban areas and open space Preserve lands.

As stated in Section 7.4.5.1 of the City of Chula Vista MSCP Subarea Plan, brush management for the communities of Bonita Long Canyon, Rancho del Rey, and Terra Nova is funded by Open Space Districts or Landscape Lighting and Maintenance Districts, and the work is contracted by the City. In these communities, Zone 1 brush management extends 30 feet beyond any structure, as required by the Fire Marshal. In addition, if a property line is located more than 30 feet from the structure, 5 to 10 feet of Zone 1 brush management is undertaken outside the property line to ensure fire department access to the open space.

The Preserve boundary adjacent to existing communities begins 10 feet beyond property lines. Therefore, in most cases, Zone 1 brush management activity will be accomplished outside Preserve boundaries. Zone 2 activities are limited to the maximum extent practicable, as determined by the Fire Marshal, in order to reduce encroachment into the Preserve. Zone 3 does not apply to existing communities.

Zone 2 brush management activities are recommended within 30 feet from the Zone 1 limit. Vegetation removal and thinning should reduce the vegetation density to approximately 50 percent total cover. These recommendations should be evaluated on a case-by-case basis by the Fire Marshal.

8.2 PMA 3 Brush Management Analysis

Brush management issues will vary by slope aspect. On south-facing slopes vegetation within PMA 3 tends to be dominated by Diegan coastal sage scrub and maritime succulent scrub. On south-facing slopes these communities will tend to be more open than vegetation communities on north-facing slopes. The fuel loads will, in general, be lower on these south-facing slopes and present less of a fire hazard. Species that

dominate on south-facing aspects will include California sagebrush, jojoba, San Diego County viguiera along with various cactus species and other succulents. South-facing slopes are more likely to support sensitive or covered species than dense north-facing slopes. Covered species such as San Diego barrel cactus are commonly found on south-facing slopes within PMA 3.

On north-facing slopes within PMA 3, the vegetation tends to be far more dense than on south-facing slopes In general, north-facing slopes will have higher fuel loads and present a greater fire hazard. Species that dominate on north-facing slopes tend to be larger shrubs and small trees, particularly lemonadeberry and toyon. These species will likely need to be thinned to achieve the desired fuel loads, under the brush management guidelines for Zones 1 and 2. Because north-facing slopes naturally have better moisture conditions than south-facing slopes, vegetation growth is going to be faster on north slopes and therefore, more frequent brush management is likely to be needed there.

To reduce the long-term costs of brush management within the Preserve, the Habitat Manager should evaluate the Zone 1 and 2 areas to determine if replacement planting with non-flammable or low flammability native species is appropriate. These replacement plantings are intended to replace high fire risk shrubs that have been removed by brush management activities with low flammability species and to maintain functional wildlife habitat. If feasible, all replacement native plantings should be from seed stock or cuttings that are collected within approximately 15 miles of the area, to ensure that the local native species genetic pool is maintained.

On north-facing slopes in particular, after larger trees and shrubs are thinned or cleared, dormant native species may begin growing during the first and subsequent rainy seasons. Grasses and native bulb species may become active after competition from large shrubs is reduced. In addition, weedy species, such as mustard, may start to infill areas that have been thinned. The Habitat Manager should evaluate the need for follow-up weed control after thinning, as funding allows, and to the extent feasible, should encourage the growth of low statured native grasses, herbs, and succulents.

On north-facing slopes native bunchgrasses are excellent for replacement of higher flammability shrubs. Selected species that are appropriate for south-facing slopes may also be used on north-facing slopes, at the discretion of the Habitat Manager. The following species can be used for replacement plantings:

- Purple needlegrass (*Nasella pulchra*)
- Melic grass (*Melica imperfecta*)
- Foothill needlegrass (*Nasella lepida*)
- Blue-eyed grass (*Sisyrinchium bellum*)
- Bladderpod (*Isomeris arborea*)
- Coast cholla (*Cylindropuntia prolifera*)
- Chalk lettuce (*Dudleya pulverulenta*)

- Lady fingers (*Dudleya edulis*)
- Jojoba (*Simmondsia chinensis*)

On south-facing slopes, cacti and succulents are excellent for replacement of higher flammability shrubs. In addition, selected shrub species that are either low or slow growing can also be used at the discretion of the Habitat Manager. The following species can be used for replacement plantings:

- Coast cholla (*Cylindopuntia prolifera*)
- Shore cactus (*Cylindopuntia littoralis*)
- Snake cholla (*Cylindopuntia californica* var. *californica*)
- Mojave yucca (*Yucca schidigera*)
- San Diego barrel cactus (*Ferocactus viridescens*)
- Chalk lettuce (*Dudleya pulverulenta*)
- Lady fingers (*Dudleya edulis*)
- Fish-hook cactus (*Mamillaria dioica*)
- Golden-spined cereus (*Bergerocactus emoryi*)
- Cliff spurge (*Euphorbia misera*)
- San Diego bursage (*Ambrosia chenopodifolia*)
- San Diego County viguiera (*Viguiera laciniata*)
- Jojoba (*Simmondsia chinensis*)

8.3 Guidelines for Sensitive Species Avoidance

The Habitat Manager should follow the guidelines listed below for sensitive species when conducting brush management activities within the Preserve:

1. The Habitat Manager should assess the potential for covered and sensitive species to be impacted by brush management activities. The Baseline Biological Resources Report and subsequent monitoring survey reports should be reviewed to determine if sensitive species are known in the vicinity of the brush management area.

2. The Habitat Manager should field check the site prior to any clearing and thinning of vegetation to verify that covered and sensitive species have not moved into the area since the baseline surveys, or subsequent monitoring surveys, were completed.

3. If the Habitat Manager determines that covered or sensitive species are located in or adjacent to the proposed brush management area and may be impacted, then the Habitat Manager will develop site-specific minimization measures, such as focusing clearing and/or thinning efforts on the non-covered species. When implementing brush management actions, the goal within the Preserve is to maintain functional habitat while reducing fuel loads to levels recommended by the Fire Marshal.

8.4 Guidelines for Maintenance in Brush Management Areas

The following are management criteria and habitat maintenance and monitoring standards for the brush management areas of PMA 3. These criteria have been

incorporated into these ASMDs in order to assure that long-term habitat values are maintained within the Preserve adjacent to development where concerns for wildfire safety require management of fuel loadings.

- All brush management activities within the Preserve should be conducted in accordance with the provisions of the City's MSCP Subarea Plan in order to avoid impacts to listed species while maintaining the City's fire safety brush management criteria (see Section 7.4.4 of the Subarea Plan).
- Minimize disturbance of native herbaceous and succulent vegetation within the brush management areas.
- No disturbance of surface soils, rocks, lichens, mosses, or other cryptogams should occur within the brush management areas.
- Brush management activities should be scheduled for the summer and fall, outside the rainy season and growing season when soils and herbaceous growth is more easily impacted and wildlife breeding activity is under way.
- The Habitat Manager should clearly flag shrubs for removal or thinning prior to the fuel reduction activity, and only marked shrubs should be removed or thinned.
- The Habitat Manager should mark shrubs for removal and thinning in such a way as to maintain the maximum allowable shrub cover under City of Chula Vista MSCP Subarea Plan guidelines in Section 7.4.4.
- The Habitat Manager should mark shrubs for removal and thinning in such a way as to maintain the maximum possible shrub species diversity.
- The Habitat Manager should mark shrubs for removal and thinning in such a way as to maintain known nesting sites for the coastal California gnatcatcher and other sensitive species.
- The Habitat Manager should minimize the frequency of future removal requirements by eliminating large, fast-growing individual plants near structures and encouraging a natural vegetation change from coastal sage scrub to maritime succulent scrub, wherever appropriate.

9.0 TRAILS AND ACCESS

The following Priority 1 management directives from Section 7.5.3 of the MSCP Subarea Plan provide guidance in monitoring and managing trails and subunit access.

- Develop all new recreation facilities in or adjacent to the Preserve consistent with the adjacency guidelines found in Section 7.5.2 of the MSCP Subarea Plan.

- Locate trails, view overlooks, and staging areas in the least sensitive areas of the Preserve, particularly away from known locations of narrow endemic species. Locate trails along the edges of urban land uses adjacent to the Preserve, or the seam between land uses (e.g., agriculture/habitat) and follow existing dirt roads as much as possible rather than entering habitat or wildlife movement areas. Avoid locating trails between two different habitat types due to the typically heightened resource sensitivity in those locations.

- In general, avoid paving trails unless management and monitoring evidence shows otherwise, and will not significantly impact any sensitive species or habitat covered under the City's MSCP Subarea Plan. Clearly demarcate and monitor trails for degradation and off-trail access and use. Provide trail repair/maintenance as needed. Undertake measures to counter the effects of trail erosion including the use of stone or wood crossjoints, edge plantings of native grasses, and mulching of the trail.

- Minimize trail widths to reduce impacts to critical resources. To the maximum extent practicable, do not locate new trails wider than four feet in core Preserve areas or wildlife corridors. Where trails are planned in concert with sewer or water utility easements, the trail width should consider the easement requirements for the utility. Trails should not be encouraged within SDG&E easements. Provide trail fences or other barriers at strategic locations when protection of sensitive resources is required.

- Limit the extent and location of equestrian trails to the less sensitive areas of the Preserve. Locate staging areas for equestrian uses at a sufficient distance (e.g., 300 to 500 feet) from areas with riparian and scrub habitats to ensure that the biological values of the Preserve are not impaired.

- Limit the access to the Preserve through signage, fencing, or other appropriate barriers. The number of access points should also be limited as a means to increase Preserve management efficiency. The access points may be coordinated with cul-de-sacs or parking areas.

- Provide sufficient signage to clearly identify public access to the Preserve. Barriers such as vegetation, rocks/boulders, or fencing may be necessary to protect highly sensitive areas. Use an appropriate type of barrier based on location, setting, and use. For example, use chain link or cattle wire to direct wildlife movement, and natural rocks/boulders or split-rail fencing to direct public access away from sensitive areas. Lands acquired through mitigation may preclude public access in order to satisfy mitigation requirements.

- Off-road-vehicle activity is an incompatible use in the Preserve and should be prohibited.

- Restore areas disturbed by off-road vehicles to native habitat where possible or critical, or allow vegetation to regenerate.

9.1 Existing Trails

Existing trails throughout the PMA 3 open space are made up of narrow footpaths; wide trails used by bicycle and horseback riders; SDG&E easement access roads; and water, sewer, storm drain, and desiltation basin access roads (Figure 5). Public use of the trails on PMA 3 consist of primarily passive activities, such as jogging, hiking, bicycling, horseback riding, nature appreciation, and wildlife watching. City departments, San Diego Water Department, and SDG&E use some of the trails as access roads for utility maintenance.

9.2 Trail Monitoring

Trail monitoring is extremely important in evaluating environmental impacts resulting from a variety of uses on the trails. Some activities will impact the integrity of the trails more so than others, and will need to be actively monitored. Impacts from foot and bicycle traffic along trails should be monitored in areas adjacent to narrow endemic plant populations including Otay tarplant, San Diego thornmint, variegated dudleya, and snake cholla.

9.3 Trail Maintenance, Rerouting, and Decommissioning

There are a number of variables that contribute to trail construction and maintenance. The location of the trail, soil type, adjacent biological resources, and trail usage all contribute to its unique needs. There are general guidelines that, when adhered to, can greatly reduce or prevent trail degradation and impacts to resources, and minimize maintenance expenses.

The existing trails recommended for evaluation for rerouting or decommissioning are shown on Figure 5. The factors considered for this recommendation include trail redundancy or adjacency to a population of MSCP covered species. If decommissioning a particular trail adjacent to sensitive resources is impracticable, the Habitat Manager should pursue barrier options, such as installing fencing around the sensitive resource. Access roads for utility maintenance must remain open.

As an adaptive management strategy, the Habitat Manager should periodically (i.e., every three to five years, as funding is available) evaluate trails for possible rerouting or decommissioning. Any proposed trail closures must be reviewed and coordinated with trail planning efforts in the City.

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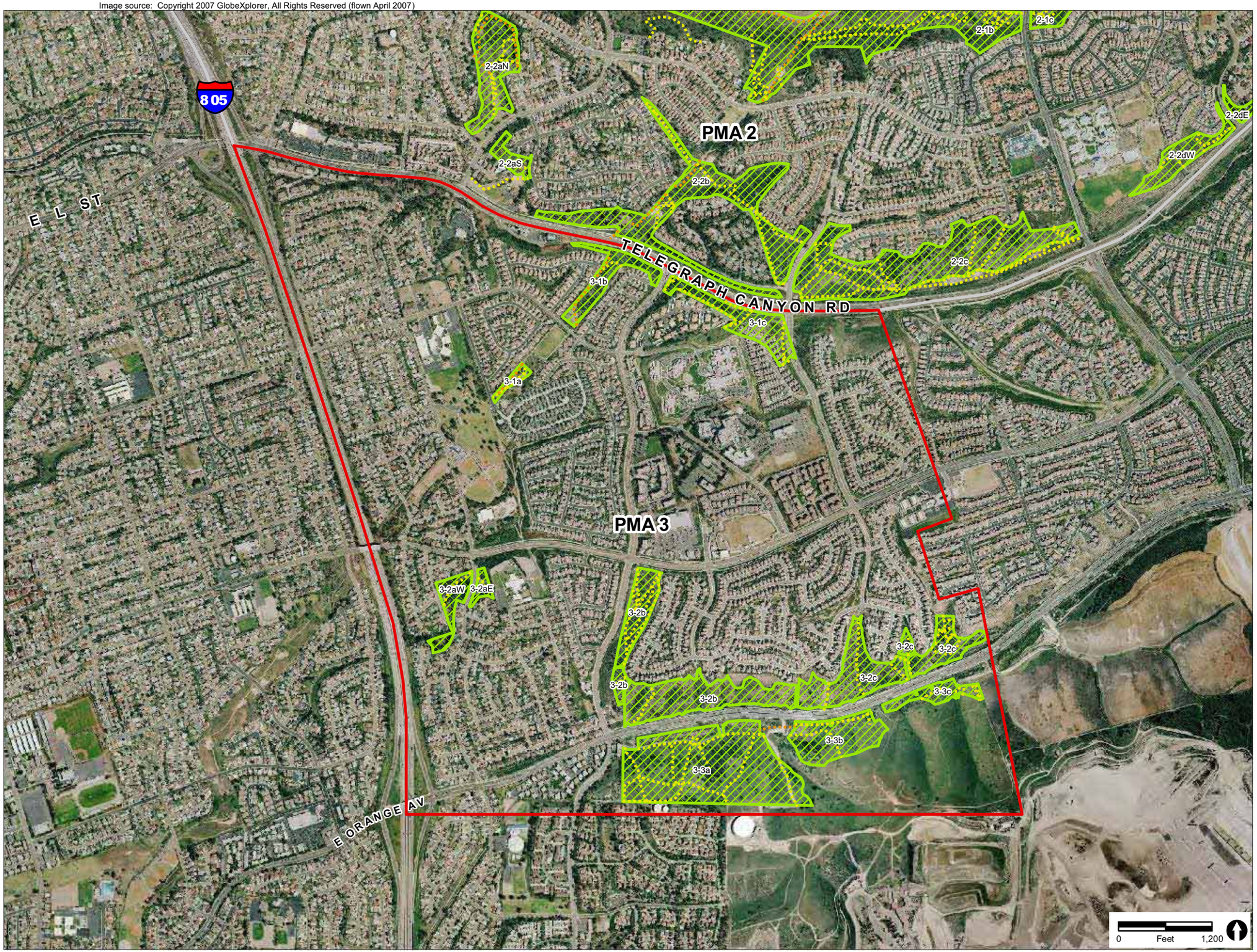

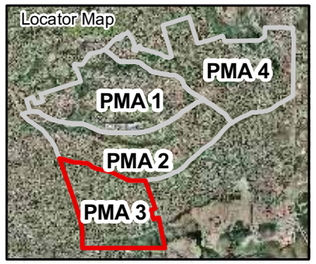

PMA 3

Other PMAs

PMA Subunits

Existing Trail

Existing Utility Maintenance Access Road (City of Chula Vista and SDG&E)

Existing Trail Recommended for Evaluation of Possible Closure

FIGURE 5

Preserve Management Area 3 Trails

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10.0 COMPATIBLE USES

The three following land uses and activities are considered compatible with the biological objectives of the Chula Vista MSCP Subarea Plan (City of Chula Vista 2003) and will be allowed within the PMA. These compatible uses are based on Section 6.2 of the MSCP Subarea Plan (City of Chula Vista 2003) and are modified to be site-specific to PMA 3.

10.1 Public Access and Recreation

Recreational activities consistent with the goals of the MSCP Subregional Plan and Section 6.2 of the Chula Vista MSCP Subarea Plan and permitted within the PMA are as follows.

1. Limited public access and passive recreation are permitted uses within the PMA. Trails are permitted pursuant to and consistent with the provisions of Section 6.3.2 of the Chula Vista Subarea Plan. Access points, new trails and facilities, and control of public access will be consistent with the City Planning Component Framework Management Plan (Section 7.5 of the Subarea Plan; City of Chula Vista 2003) and future area-specific management directives. The Appropriate Managing Entity, as defined by the Subarea Plan (i.e., the City or the Habitat Manager) is authorized to close selected areas of the Preserve to public use, temporarily or permanently, if public access has resulted in or is expected to result in significant negative impact to sensitive species. Closures to public access may also occur during breeding seasons if deemed necessary by the Appropriate Managing Entity.

2. Litter and trash removal, maintenance, repair, refurbishment, and replacement of structures in existing locations, trails, and roads are allowed as needed. These activities will be provided through PMA management programs identified in the Subarea Plan.

3. In order to allow passive recreational opportunities for the public, and ensure continued habitat values, riding and hiking trails will be allowed within the PMA only when consistent with Section 7.5.3 of the MSCP Subarea Plan. Passive recreation includes hiking, bird watching, and, under specified locations identified in approved projects and/or area-specific management plans, mountain biking, and horseback riding. Equestrian use, hiking, and bicycles may be allowed when in accordance with the MSCP Subarea Plan as determined by the Appropriate Managing Entity.

4. Some areas of the PMA may remain in private ownership. The owners of these areas may fence these areas of the PMA to deter trespassing with appropriate City permits, if applicable. Any new fencing on private or public PMA lands must

not significantly adversely affect the full functioning of the PMA and must not significantly impede wildlife movement.

5. The public access to finger canyons will be limited through fencing or other appropriate barriers and signage.

10.2 Preserve Management, Scientific, and Biological Activities

All scientific research related to habitat conservation, monitoring, and habitat restoration and enhancement activities are permitted within the PMA, subject to approval by the City and/or Appropriate Managing Entity, as applicable, including obtaining any necessary permits. All such activities must be consistent with the Subarea Plan. This includes any conditions associated with 401 certifications, U.S. Army Corps of Engineers 404 permits, State of California 1600 permits, or other resource conservation permits. In addition, reasonable access will be provided to the Wildlife Agencies for the purposes of monitoring species and habitat and evaluating compliance with the permit.

Any take resulting from management and/or scientific activities undertaken pursuant to Section 7.0 of the MSCP Subarea Plan, including Section 7.5—City Planning Component Framework Management Plan—and the Otay Ranch RMP (Appendices D, E, and/or F), and/or pursuant to area-specific management directives prepared pursuant to this Subarea Plan, will be authorized by the Take Authorizations. All of the above activities shall be carried out under a regional program implemented by the Wildlife Agencies, City of Chula Vista, or Habitat Manager.

10.3 Emergency, Safety, and Police Services

The interface between current and future urban development and the PMA requires increased coordination between the PMA managers and agencies responsible for public safety and enforcement of immigration laws. The PMA must accommodate access for emergency response, fire control and management, and enforcement of immigration laws.

All law enforcement agencies will be allowed access to the PMA, as necessary, to enforce the law. All medical, rescue, and other emergency agencies are allowed access to the PMA to carry out operations necessary to the health, safety, and welfare of the public. In PMA areas managed by the City or the City's authorized representative, the City shall allow emergency repairs to infrastructure to be made by the involved agency, consistent with normal practices and with federal and state take authorization in conformance with existing federal and state laws.

If permanent damage is caused to PMA habitat, due directly to the action(s) of City emergency crews, the City will revegetate disturbed and/or destroyed habitat or will mitigate pursuant to the MSCP Subarea Plan. Impacts will be quantified by the Habitat

Manager. Law enforcement and fire control agencies, the National Guard, the Immigration and Naturalization Service (INS), the Border Patrol, and organizations and agencies operating within the PMA are subject to all applicable requirements of federal and state law. The MSCP Subregional Plan and the Subarea Plan will create no additional permit requirements beyond those of existing federal and state law for the activities of these agencies.

11.0 ADMINISTRATION AND MANAGEMENT STRUCTURE

11.1 Adaptive Management

Adaptive management strategies need to be developed by the Habitat Manager and used to deal with inevitable successional changes in the absence of fire, climate change, and for unforeseen circumstances. Adaptive management can include management/control of selected native species, particularly lemonadeberry, so that this large shrub species does not become overly dominant.

Because the PMA is situated within urban Chula Vista, the biological resources will need to be actively managed to ensure the long-term persistence of covered species. Research has shown species diversity in fragmented habitat patches decreases with time (Soule et al. 1988 and 1992). Observation of canyon systems in the San Diego area, over a 30- to 40-year period shows that, in the absence of active management, that formerly common species that are not tolerant of human-related disturbance will disappear over time (Dodero pers. obs.).

The long-term habitat management challenge will be to adaptively manage the biological resource in a way that maximizes the chances that they will persist. Preserve monitoring efforts are designed to provide the Habitat Manager with the necessary data to detect changes in habitat quality and function over the long term. Repeat photography, as funding allows, at selected locations within each PMA subunit will be the most cost-effective tool for detecting the inevitable changes that will occur as vegetation communities.

Broad goals of adaptive management are:

- Monitor for changes in native vegetation community composition, in particular changes that negatively affect covered species including narrow endemic plants.
- If significant changes in habitat quality are detected and these changes are affecting covered species in a negative manner (i.e., population numbers are declining) review potential management actions that can reverse trends of population decline.
- Respond to changes through implementation of adaptive management strategies such as native shrub control, rare plant propagation and reintroduction; and focused

weed control programs that increase the likelihood of long-term persistence of covered species.

11.2 Habitat Manager

The City will designate an individual to implement the Chula Vista MSCP Subarea Plan Preserve management programs. The Habitat Manager should have the following experience and capabilities:

- Demonstrated experience managing biological resources, including endangered species.
- Demonstrated ability to interact effectively with local and regional conservation agencies, recreational agencies, and the local community.
- Demonstrated ability to coordinate continued monitoring efforts of the Preserve's flora and fauna.
- Demonstrated ability to efficiently manage personnel and finances.
- The ability and willingness to cooperate with local and regional agencies and direct experience in working with governing boards and/or advisory committees representing such agencies.

The Habitat Manager would be expected to implement management directives, seek additional funding for Preserve management, monitor population trends of covered species and invasive exotic species, use adaptive management strategies as conditions on the Preserve evolve, and coordinate public outreach activities.

11.3 Maintenance, Usage, and Development Guidelines

The open space in PMA 3 will be open to the public. In addition, utility easements and facilities need regular maintenance and improvement. The following guidelines are provided for public safety and for protection of native habitat and wildlife while preserving the natural park experience for everyone. If any maintenance activity adversely impacts natural or cultural resources, mitigation will be required in accordance with the City of Chula guidelines and any other applicable regulations.

11.3.1 Utilities

11.3.1.1 San Diego Gas & Electric

SDG&E has developed a Subregional Natural Community Conservation Plan (SDG&E 1995) designed to provide long-term conservation of habitats and species while allowing SDG&E to develop, install, maintain, operate, repair, and replace facilities on public and

private land within the subregional plan area, including land set aside for the protection of plants and animals.

Implementation of SDG&E's Subregional NCCP is independent of the MSCP Subregional Plan and other plans such as the Subarea Plan. Therefore, SDG&E may conduct necessary operations, maintenance, repair, and replacement activities for all facilities that are or may be located within the PMA, provided the activities are conducted in accordance with the Subregional NCCP. However, many projects will require California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) review, such as projects that are subject to permits from the California Public Utilities Commission, Coastal Commission, Energy Commission, State Lands Commission, and several other state and federal agencies.

11.3.1.2 City of Chula Vista

Existing City utilities and associated infrastructure in the Preserve should be managed and maintained according to the provisions and guidelines of Section 6.3.3 of the MSCP Subarea Plan.

12.0 ANNUAL COSTS FOR MANAGEMENT DIRECTIVES IMPLEMENTATION

12.1 Annual Cost Estimate for Management Directives

The budget and funding generated within the Central City Community Facilities Districts (CFDs) and Open Space Districts (OSDs) is set aside for the following tasks. Any additional Preserve maintenance and monitoring activities required within the Central City Preserve would be implemented as funding is available.

OSD/CFD Management Tasks:

- Landscape maintenance
- Trash collection and disposal
- Limited fire clearance and encroachment (shrub thinning)
- Regulation of off-road-vehicle use within the Preserve
- Maintain Preserve signage and fencing

Table 15 presents the annual estimated preserve management funding cost including the labor breakdown.

TABLE 15
PRESERVE MANAGEMENT FUNDING FOR CENTRAL CITY PMA 3

Priority 1—General Management Directives

Total funds available: 136 acres @ $54/acre $7,344

Preserve Tour (Quarterly and as needed)

- Tour Preserve to ensure access controls are in place, identify areas requiring major refuse removal and trail and fence maintenance
- Tour edge areas and other priority areas identified as concerns for invasives

Habitat Manager	8 hours	$50.00/hour	4 x /year	$1,600	
					$1,600

Litter Removal and Trail and Fence Maintenance (Quarterly and as needed)

- Remove litter and/or dumping
- Repair and maintain trails, fencing, and signage as needed
- Implement any necessary security programs to enforce “no trespassing” rules, curtail illegal activities and activities that may degrade resources

Labor	20 hours	$25.00/hour	4 x /year	$2,000	
Habitat Manager	4 hours	$50.00/hour	4 x /year	$800	
Miscellaneous Expenses				$226	
					$3,026

Limited Weeding along Preserve/Urban interfaces (Annual)

- Arrange and conduct weed removal in areas identified as invasive weed concerns
- Notify homeowners’ association(s) of any invasive species planting violations or other issues

Labor	36 hours	$25.00/hour	1 x /year	$900	
Habitat Manager	4 hours	$50.00/hour	1 x /year	$200	
Miscellaneous Expenses				$100	
					$1,200

TABLE 15
PRESERVE MANAGEMENT FUNDING FOR CENTRAL CITY PMA 3
(continued)

Annual Report

- Annual report of activities
- Annual accounting of budget expenditures
- Qualitative reporting of Preserve status and summary of photo surveys, if available
- Summary of available quantitative biological information, incidental sightings of covered plant and animal species
- Adaptive management program summary for upcoming year

Report production	6 hours	$25.00/hour	1 x /year	$150	
Habitat Manager	20 hours	$50.00/hour	1 x /year	$1,200	
Miscellaneous Expenses				$168	
					$1,518

Total Priority 1	**$7,344**

Priority 2—Biological Surveys and Restoration

Total funds available:	**136 acres @ $10/acre**	**$1,360**

Brush Management (Once every three years)

- Evaluate the need for and conduct brush management measures

Labor	48 hours	$25.00/hour	0.3 x /year	$360	
Habitat Manager	12 hours	$50.00/hour	0.3 x /year	$180	
Miscellaneous Expenses				$100	
					$640

Narrow Endemic Quantitative Surveys (Once every five years)

- Conduct GPS census surveys of reference locations of narrow endemics

Habitat Manager/ Biologist	12 hours	$50.00/hour	0.2 x /year	$120	
					$120

TABLE 15
PRESERVE MANAGEMENT FUNDING FOR CENTRAL CITY PMA 3
(continued)

MSCP Covered Wildlife Species Quantitative Surveys (Once every five years)

- Conduct focused surveys for MSCP covered wildlife species, particularly coastal California gnatcatcher

Habitat Manager/ Biologist	12 hours	$50.00/hour	0.2 x /year	$120	
					$120

Photopoint Surveys/Spring Qualitative Surveys (Once every five/ten years)

- Establish permanent photopoints in targeted areas (narrow endemic species locations, problem weed areas, and native vegetation areas adjacent to problem weed areas) and take baseline photos
- Every five years, photodocument narrow endemic species photopoint locations
- Every ten years, photodocument problem weed areas and native vegetation areas adjacent to problem weed areas

Habitat Manager	8 hours	$50.00/hour	0.2 x /year	$80	
Habitat Manager	8 hours	$50.00/hour	0.1 x /year	$40	
Miscellaneous Expenses				$60	
					$180

Targeted Weed Eradication (Once every three years)

- Evaluate the need for and conduct targeted weed eradication measures

Labor	24.7 hours	$25.00/hour	0.3 x /year	$180	
Habitat Manager	2.26 hours	$50.00/hour	0.3 x /year	$60	
Miscellaneous Expenses				$60	
					$300

Total Priority 2	**$1,360**

NOTE: Additional Priority 2 management directives identified in Section 5.0, such as drainage, culvert, and desiltation basin maintenance; flood control measures; habitat connectivity; and public outreach/education, will be pursued as funding becomes available.

12.2 Funding Mechanism Recommendations

12.2.1 Current Funding

City funding for primary Preserve management is to be adjusted annually consistent with the Consumer Price Index (CPI). The City estimates that the average expenditure for management in the Central City Preserve is approximately $54.00 per acre for fiscal year 2002.

General management and maintenance activities of the Central City Preserve are funded by various financing mechanisms including Open Space Districts (OSDs), Landscape Lighting and Maintenance Districts (LLMDs), Community Facilities Districts (CFDs), collectively referred to as the Central City districts, and the Biological Enhancement Program (BEP).

The Central City districts currently fund the following Priority 1 general maintenance tasks:

- Trash, debris, and other solid waste removal;
- Trail and fence maintenance;
- Security program implementation to enforce access issues and curtail illegal activities;
- Limited weeding along Preserve/urban interfaces; and
- Brush management along urban canyon edges.

Funding available from the Central City districts does not provide for restoration activities. In order to enhance the current levels of Preserve management throughout the Central City Preserve, the City will institute the BEP. For as long as the City has Take Authority, the BEP will increase the average per-acre budget in the Central City Preserve by approximately $10.00 per acre, to a total average of $64.00 per acre, exclusive of administrative costs. These monies will fund additional management activities identified and prioritized to fulfill the conditions of coverage as set in the MSCP Subarea Plan.

12.2.2 Recommendations

12.2.2.1 Volunteer Services

In order to minimize the monetary costs of routine, simple maintenance tasks such as litter removal, the Habitat Manager is encouraged to participate in local, subregional, or regional programs that promote and feasibly use volunteer services. Continual volunteer

programs may be established, such as “Friends of the Canyon”-type groups common throughout urban San Diego County. These groups would allow students, residents, and organizations the opportunity to volunteer and aid the Habitat Manager in the maintenance of the open space, and allow maintenance and management funds to be used for other Priority activities. Volunteers could assist with tasks such as weeding, native species planting, and trash removal. Pesticide application is not an appropriate volunteer task, as an application license is required.

Volunteering can be encouraged through public outreach, as discussed in Section 9.0 of Attachment C. Literature may be distributed to residents, schools, and other organizations within or adjacent to the PMA. Additionally, potential volunteer opportunities may be offered to conservation organizations such as the Chula Vista Nature Center, San Diego Canyon Coalition, the San Diego Field Ornithologists, and the San Diego chapters of the National Audubon Society and Sierra Club.

12.2.2.2 Grants and Other Funding Sources

The Habitat Manager is encouraged to actively pursue funding sources in excess of the mandated BEP funds. Additional funding sources may include federal, state, regional, local, and private programs and grants.

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ATTACHMENTS

ATTACHMENT A

Literature Reviewed

Attachment A
Literature Review

A review of existing literature relevant to the Central City Preserve Management Areas was conducted. Literature reviewed included, but was not limited to the documents listed below.

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ATTACHMENT B

Covered Plant Species Photographs

Otay tarplant (*Deinandra conjugens*)

Snake cholla
(*Cylindropuntia californica* var. *californica*)

San Diego barrel cactus
(Ferocactus viridescens)

Orcutt's bird's-beak (*Cordylanthus orcuttianus*)

ATTACHMENT C

Management Directive Descriptions

Attachment C
Management Directive Descriptions

1.0 ADJACENCY MANAGEMENT ISSUES AND EDGE EFFECTS

"Edge effects" is a general term for a variety of impacts to natural communities across a boundary with a modified landscape, such as agricultural fields or urban development. In scrub communities in an urbanizing matrix, edge effects result primarily from the impacts of human activities and influences, rather than changes in physical environmental processes. Edge effects reduce the effective size of preserves by reducing the area in which ecological processes continue without substantial modification. Further details are provided below.

1.1 Measures to Reduce Adjacency Issues and Edge Effects

1.1.1 Priority 1

- Enforce, prevent, and remove illegal and unauthorized intrusions into the Preserve on an annual basis, as well as on a complaint basis.
- Install barriers (fencing, rocks/boulders, appropriate vegetation) and/or signage where necessary to direct public access to appropriate locations.

1.1.2 Priority 2

Disseminate educational information to residents and landowners adjacent to the Preserve to heighten awareness of the Preserve's goals and purpose, and inform residents of access, appropriate plantings, construction, or disturbance within the Preserve boundaries, pet and livestock control, fire management, and other adjacency issues.

2.0 LITTER, MATERIALS STORAGE, AND ILLEGAL ACTIVITIES

Five Priority 1 management items have been identified in the MSCP Subarea Plan:

- Remove litter and trash on a regular basis, post signage to prevent and report littering in trail and road access areas, and provide and maintain trash cans and bins at trail access points.
- Impose penalties as applicable for littering, dumping, and violations of leash laws. Fines should be sufficient to prevent recurrence, cover reimbursement of costs to remove and dispose of debris, restore the area if needed, and pay for enforcement staff time.

- Prohibit permanent storage of materials (e.g., equipment and hazardous/toxic chemicals) within the Preserve and ensure appropriate storage per applicable regulations in any areas that may impact the Preserve due to potential leakage.

- Keep wildlife corridor crossings within the Preserve free of debris, trash, vagrant encampments, and all other obstructions to wildlife movement.

- Monitor Preserve areas to prevent illegal or unauthorized activities, such as vagrant encampments, off-road-vehicle use, illegal plant harvesting, and so on.

3.0 BIOLOGICAL MONITORING

The purpose of biological monitoring in the Preserve is to provide data that will allow the detection of significant changes in the status of the covered species. If, over the course of a number of years, the Preserve populations show a significant decline, adaptive management will be used to devise and implement remedial measures to reverse the decline.

A significant decline in any of the listed species that are the subject of the biological monitoring should be defined as greater than 50 percent reduction in the number of individuals or the relative percent cover over a period that includes at least two criterion years. To qualify as a criterion year, the rainfall that year must equal 70 percent of the historic average yearly rainfall.

Biological monitoring costs will vary each year as a result of the type and frequency of monitoring required. In years when extensive monitoring and reporting occurs, less money may be spent on routine maintenance and vice versa. Intensive monitoring has been temporally spaced to allow the bulk of the budget in most years to be spent on maintenance and management activities that directly benefit the species. Reserves accumulated from years in which less activity occurs carry forward to future years and provide opportunity for Priority 2 tasks such as intensive monitoring and census of species.

4.0 EXOTIC AND INVASIVE PLANTS SPECIES CONTROL AND REMOVAL

The purpose of this section is to describe an adaptive management strategy for removing and controlling existing populations of exotic plant species and measures to prevent the establishment of new exotics throughout the preserved open space. Controlling exotic weed populations contributes to meeting the Conditions of Coverage for MSCP Covered Species by maintaining or improving habitat quality and reducing edge effects.

4.1 Priority 1

- Do not introduce invasive non-native species into the Preserve. Encourage adjacent residents to voluntarily remove invasive exotics from their landscape.

- Direct priority funding to the monitoring and removal of invasive non-native plant species within the Preserve consistent with recommendations in this ASMD and pursuant to specific species requirements outlined in Table 3-5 of the MSCP Subregional Plan.

- Adopt and implement a SUSMP, pursuant to requirements as a co-permittee of the RWQCB NPDES permit, to minimize impacts to existing year-round runoff flow within the Preserve to the extent feasible in order to minimize potential invasion from non-native ant species.

4.2 Priority 2

- Provide information on invasive plants and animals harmful to the Preserve and prevention methods to Preserve visitors and adjacent residents.

- Use trained volunteers to monitor and remove exotic species as part of the Preserve, neighborhood, community, school, or other organizational programs. If done on a volunteer basis, prepare and provide information on methods and timing of removal to staff and to the public if requested.

- If eucalyptus trees or other non-native trees die or are removed from the Preserve area and are replaced, use appropriate native species. Ensure that eucalyptus trees do not spread into new areas nor increase substantially in numbers over the years. Eventual replacement by native species is preferred if locations are not being used as raptor nesting sites.

- Work with the California Department of Agriculture and/or University research specialists to develop an affirmative approach to limit the potential for invasion of non-native ant species into the Preserve.

5.0 DRAINAGES, CULVERTS, AND DESILTATION BASIN MAINTENANCE

Major drainages and channels are defined here as either natural or artificial channels that provide a course for the flow of water, whether that flow is continuous or intermittent. These drainages occur in the canyon bottoms and are often associated with riparian vegetation.

Culverts are structures that allow the flow of water along the ground level or a drainage structure that extends across or beneath roadways, canals, or embankments. Culverts are used for both roadway drainage and for channel crossings. Culverts are made of a

variety of materials, including corrugated metal pipe, concrete, and plastic. They also come in a variety of shapes, including round, box, and arch. End sections are often placed on culverts to control and enhance the entrance and exit hydraulic conditions. Often times, larger culverts contribute to wildlife movement. The locations of culverts and potential wildlife movement areas are shown on Figures 5a through 5m in the Baseline Biological Resources Report.

Desiltation basins, for the purposes of this document, are man-made structures that are able to reduce the velocity of moving water with a resulting deposition of silt particles onto the bottom of the basin or behind the structure. The locations of desiltation basins are shown on Figures 5a through 5m in the Baseline Biological Resources Report.

Sewer alignments traverse various subunits. Access roads and areas for maintenance are situated on or adjacent to the sewer alignments. These maintenance roads and areas are depicted on Figures 5a through 5m in the Baseline Biological Resources Report.

The Public Works Operations Department uses existing trails and SDG&E easements for maintenance access of drainages, culverts, sewer alignments, storm drain systems, and desiltation basins. The maintenance of these features should be under the direction of the Public Works Operations Department according to the provisions set in the existing permits. When renewing or applying for permits, the Public Works Operations Department should coordinate with the Habitat Manager to ensure that the needs of both parties are met.

6.0 FLOOD CONTROL

Flood control within the PMA is a conditionally compatible use according to the Subarea Plan (City of Chula Vista 2003). The following guidelines are from Section 6.3.2 of the Subarea Plan, with site-specific modifications.

Except as provided for in Section 6.3.3—Roads and Infrastructure—of the Subarea Plan, flood control within the PMA should be limited to existing agreements with the wildlife agencies unless demonstrated to be needed pursuant to a habitat restoration plan or any other City plan for controlling U.S. waters. Floodplains within the PMA should remain in a natural condition and configuration in order to allow for the ecological, geological, hydrological, and other natural processes to proliferate or be restored.

Except as provided for in the Subarea Plan, no berming, channelization, or man-made constraints or barriers to creek, tributary, or river flows should be allowed in any floodplain within the PMA unless approved by all appropriate agencies and adequately mitigated. Review must include impacts to upstream and downstream habitats, flood-flow volumes, velocities and configurations, water availability, and changes to the water table level.

In addition, except as provided for in the Subarea Plan, no riprap, concrete, or other man-made material should be used to stabilize river, creek, tributary, and channel banks within the PMA unless approved through a U.S. Army Corps of Engineers Section 404 permit and/or State of California 1600 agreement. All river, stream, and channel banks should be constructed with natural materials and bank stabilization should be constructed using natural, native plantings.

In the Subarea Plan, Priority 1 management guidelines for flood control are as follows:

- Perform standard maintenance, such as clearing and dredging of existing flood channels and cleaning desiltation basins outside the nesting or breeding seasons (approximately March 15 through June 31) of sensitive bird or wildlife species utilizing the riparian habitat. Standard maintenance should be performed to minimize any impacts to habitat and limited to tasks required to maintain the channel in a state that can adequately carry anticipated water quantities. Standard maintenance activities include repairing erosion damage, removing excess silt and debris, and repairing damaged fences or channel structures. New drainage channels should be designed to replicate, to the maximum extent possible, natural flows, and require as little ongoing maintenance as possible. All activities in drainages will be evaluated for conformance with federal and state wetland permitting regulations. If required by law, federal Clean Water Act, Section 404 and/or state Fish and Game Code Section 1600 et seq. permits will be obtained.

- Implement the Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System (NPDES) Permit.

7.0 PUBLIC ACCESS, TRAILS, AND RECREATION

The following Priority 1 management directives from Section 7.5.3 of the MSCP Subarea Plan provide guidance in monitoring and managing public access, trails, and recreation.

- Incorporate into the City's Greenbelt Master Plan the following: location of all trails within the Preserve; guidelines for trail construction; and guidelines for design of hiking and equestrian staging areas.

- Develop all new recreation facilities in or adjacent to the Preserve consistent with the adjacency guidelines found in Section 7.5.2 of the MSCP Subarea Plan.

- Locate trails, view overlooks, and staging areas in the least sensitive areas of the Preserve, particularly away from known locations of Narrow Endemic species. Locate trails along the edges of urban land uses adjacent to the Preserve, or the seam between land uses (e.g., agriculture/habitat) and follow existing dirt roads as much as possible rather than entering habitat or wildlife movement areas. Avoid

locating trails between two different habitat types due to the typically heightened resource sensitivity in those locations.

- In general, avoid paving trails unless management and monitoring evidence shows otherwise. Clearly demarcate and monitor trails for degradation and off-trail access and use. Provide trail repair/maintenance as needed. Undertake measures to counter the effects of trail erosion including the use of stone or wood crossjoints, edge plantings of native grasses, and mulching of the trail.

- Minimize trail widths to reduce impacts to critical resources. To the maximum extent practicable, do not locate new trails wider than four feet in core Preserve areas or wildlife corridors. Where trails are planned in concert with sewer or water utility easements, the trail width should consider the easement requirements for the utility. Trails should not be encouraged within SDG&E easements. Provide trail fences or other barriers at strategic locations when protection of sensitive resources is required.

- Limit the extent and location of equestrian trials to the less sensitive areas of the Preserve. Locate staging areas for equestrian uses at a sufficient distance (e.g., 300 to 500 feet) from areas with riparian and scrub habitats to ensure that the biological values of the Preserve are not impaired.

- Limit the access to finger canyons through signage, fencing, or other appropriate barriers.

- Provide sufficient signage to clearly identify public access to the Preserve. Barriers such as vegetation, rocks/boulders, or fencing may be necessary to protect highly sensitive areas. Use an appropriate type of barrier based on location, setting, and use. For example, use chain link or cattle wire to direct wildlife movement, and natural rocks/boulders or split-rail fencing to direct public access away from sensitive areas. Lands acquired through mitigation may preclude public access in order to satisfy mitigation requirements.

- Off-road-vehicle activity is an incompatible use in the Preserve and should be prohibited.

- Restore areas disturbed by off-road vehicles to native habitat where possible or critical, or allow vegetation to regenerate.

7.1 Existing Trails

Existing trails throughout the PMA 3 open space are made up of narrow footpaths; wide trails used by bicycle and horseback riders; SDG&E easement access roads; and sewer, storm drain, and desiltation basin access roads (Figure C-1).

7.2 Trail Uses

A variety of uses will be allowed throughout the trail systems on the PMA. Recreational activities will include hiking, equestrian, and mountain biking on the multi-use trail system. When trails encounter sensitive resources, fencing will provide protection and prevention of degradation to these areas. Recreation on the PMA consists of primarily passive activities, such as jogging, hiking, bicycling, horseback riding, nature appreciation, and wildlife watching. When domestic animals are brought on the Preserves, they should be constrained (leashed) at all times and cleaned up after by the owner.

7.3 Trail Maintenance, Rerouting, and Decommissioning

This information is intended to serve trail maintenance crews. There are a number of variables that contribute to trail construction and maintenance, making this an inexact science. The location of the trail, soil type, climate, and applied usage to the trails all contribute to its unique needs. There are general guidelines, however, when adhered to that can greatly reduce or prevent trail degradation and minimize maintenance expenses.

7.3.1 Trail Rerouting and Decommissioning

Trails located adjacent to sensitive resources identified in the baseline biological report should be evaluated by the Habitat Manager for possible rerouting or decommissioning. Any proposed trail closures must be reviewed and coordinated with trail efforts in the City.

Trail rerouting is beyond the responsibilities of a trail maintenance crew. New trail alignments must be flagged by experienced park staff and then reviewed by resource specialists for compliance with the California Environmental Quality Act (CEQA). Trail maintenance crews can provide valuable assistance by alerting park staff to those trail routes that may need to be rerouted.

7.4 Trail Monitoring and Management

Trail monitoring is extremely important in evaluating environmental impacts resulting from a variety of uses on the trails. Some activities will impact the integrity of the trails more so than others, and will need to be actively monitored more closely. It is therefore

FIGURE C-1
PMA 3 Trails

beneficial to track when activities occur more frequently than others (there may be seasonal differences). Impacts from foot and bicycle traffic along trails should be monitored in areas adjacent to narrow endemic plant populations including Otay tarplant, San Diego thornmint, variegated dudleya and snake cholla.

The best application of regulations will come from regular patrolling by the Habitat Manager combined with effective education and an active monitoring program. Trail monitoring provides organizations and individuals a sense of what is occurring in the open space and a method to document degradation and damage to public lands.

8.0 HABITAT CONNECTIVITY

Roads that separate subunits decrease the habitat connectivity in PMA 3, particularly Olympic Parkway and Telegraph Canyon Road. Another factor that decreases habitat connectivity is the presence of disturbed or non-native vegetation on the edges of adjacent subunits.

To enhance habitat connectivity, based on the availability of funding, areas of disturbed vegetation in immediate proximity to road edges could be weeded and revegetated with native species. Potential areas for habitat connectivity enhancement are between the following groups of subunits: 3-1b and 3-1c, 3-2aW and 3-2aE, and 3-2b, 3-2c, 3-3a, 3-3b, and 3-3c.

9.0 PUBLIC OUTREACH AND EDUCATION

Interpretation and education has become a widespread management tool of natural resources as it has the capacity to reduce inappropriate behavior voluntarily through education (Black 2002). The level and type of education and interpretation will depend on the needs, interests, and expectations of the visitor and may include a wide range of interpretive media, including pamphlets or newsletters and signage within the Preserve. As funding becomes available, the following management measures are recommended:

- Distribute literature to residents adjacent to Preserve open space and local schools and organizations that serves to remind the community of the open space, its protected status, reasons for its establishment and ongoing existence, information on regional open space happenings, and any other information deemed pertinent by the Habitat Manager.

- Install signs at Preserve entrances and/or trail heads that are interpretive of the open space, and cover such topics as purpose, ecological descriptions, common species, and importance of the open space in and of itself and as a part of the Subregional system. Signs should also include information such as herbicide use dates, rattlesnake warnings, scheduled trail repair or maintenance, and other items of concern. Signs informing the public about restrictions to protect the Preserves should

be posted at trailheads. Restrictions include activities such as littering, allowing off-leash pets, harassing or killing endangered or other animals, fires, poaching, removing reptiles as pets, and removal of plant material. Other advisory signs could encourage visitors to pick up trash and to notify the Habitat Manager of violation.

10.0 FENCING RECOMMENDATIONS

If funding is available, permanent fencing preventing human foot and bicycle traffic may be placed at appropriate locations, such as populations of narrow endemic plant species (see Figures 5a through 5m in the baseline biological resources report), on the Preserves to limit the amount of human disturbance to the habitat, and control access as needed. The Preserve Habitat Manager should assess the need for fencing where trails are adjacent to or bisect narrow endemic plant habitat. The Habitat Manager should monitor for signs of trespass or fence damage during the quarterly Preserve tour.

At major hiking and equestrian trailheads, where necessary and as funding permits, barrier posts should be placed in the trail to prevent motorized vehicles from entering the trail while allowing hikers and horses to pass through.

ATTACHMENT D

PMA 3 Ranking Worksheet

PMA 3							Subunits				
	Ranking Criteria	**3-1a**	**3-1b**	**3-1c**	**3-2aE**	**3-2aW**	**3-2b**	**3-2c**	**3-3a**	**3-3b**	**3-3c**
Total Subunit Acreage		1.4	7	10.3	1.5	4.7	27.2	22	44.7	12.6	4.5
Maritime Succulent Scrub	> 50 acres = high; 20-50 acres = mod						23.3	21			
Coastal Sage Scrub	> 50 acres = mod; 20-50 acres = low		3.4		0.9	1.8	3.3	1	19.4	4.9	1
Disturbed Coastal Sage Scrub	none	0.8		1					1.2		
Native Grassland	> 5 acres = high; 2-5 acres = mod; 0-2 acres = low								10.9		
Non-native Grassland	> 10 acres* = low								11.3	6.2	2
Southern Willow Scrub	< 1 acre = mod; > 1 acre = high						0.2		2	1.5	1.5
Freshwater Marsh	< 1 acre = mod; > 1 acre = high										
Tamarisk Scrub	none										
`	none				0.1	1.6					
Disturbed	none	0.6	3.6	9.3	0.5	1.3	0.4				
Golden-spined Cereus	none						P				
Small-flowered Morning-glory	none								1000s		1000s
Orcutt's Bird's-beak	MSCP covered species = low									275	
Snake Cholla	≥ 30 = high ; < 30 = mod							P			
Otay Tarplant	high priority species								40K	10K	3
San Diego Barrel Cactus	MSCP covered species = low						P	P			P
San Diego Marsh Elder	none									P	P
Southwestern Spiny Rush	none								P	P	P
San Diego Sand Aster	none								P		P
San Diego County Viguiera	none						P		P	P	P
Orange-throated Whiptail	MSCP covered species = low									P	
California Gnatcatcher	≥ 5 individuals = high; < 5 = mod		1				2	3	1		
Yellow Warbler	none									P	
Southern California rufous-crowned sparrow	MSCP covered species = low							P			
Ranking using 8,3,1 System		0	3	0	0	0	10	11	28	18	17
Priority order		**10**	**6**	**7**	**9**	**8**	**5**	**4**	**1**	**2**	**3**
High Priority (8 points)											
Moderate Priority (3 points)											
Low Priority (1 point)											
P = Present											
N = Nesting											
Boldface = MSCP Covered Species											
High Priority Species											