City of Carlsbad Habitat Management Plan
Annual Report

Reporting Year 10, Nov. 2013 – Oct. 2014

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Batiquitos Lagoon Foundation

Buena Vista Audubon

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Acronyms and Definitions

Annual Reports – Preserve-specific annual reports, which summarize management and monitoring activities, threats, and monitoring results, are due in November of every year. Pre-HMP preserves are generally not required to prepare annual reports unless stipulated in previously negotiated agreements with the city and/or Wildlife Agencies. HMP-wide annual reports (e.g., the current report) are due to the Wildlife Agencies in December of every year. HMP annual reports summarize gains and losses in the HMP preserve system, current status of individual preserves and species, management and monitoring activities, and a financial summary. Every third year, the HMP annual report includes an analysis of species monitoring data. The latest three-year report was prepared as part of the 2010/2011 HMP annual report.

ASMD – Area Specific Management Directive.

BLF – Batiquitos Lagoon Foundation

California Gnatcatcher Core Area – An area identified in the MHCP that is considered critical to the recovery of the coastal California gnatcatcher. Approximately 500 acres of core habitat must be conserved by the MHCP jurisdictions as a condition of coverage for gnatcatcher. Although the core area is located outside of the City of Carlsbad, the city is responsible for 307.6 acres of conservation.

Caltrans – California Department of Transportation. Caltrans is responsible for the design, construction, maintenance, and operation of the California State Highway System and Interstate Highway segments within the state's boundaries.

City – City of Carlsbad.

CDFW – California Department of Fish and Wildlife (formerly CDFG – California Department of Fish and Game).

CNDDB – California Natural Diversity Database, operated and maintained by CDFW.

CNLM – Center for Natural Lands Management, a non-profit organization that provides management and biological monitoring of mitigation and conservation lands in perpetuity.

Compliance Monitoring – Monitoring to determine if the HMP is being properly implemented pursuant to the Implementing Agreement (IA) and state and federal take authorizations/permits.

Conservation Easement (as defined in California Civil Code Section 815.1) – Any limitation in a deed, will, or other instrument in the form of an easement, restriction, covenant, or condition, which is or has been executed by or on behalf of the owner of the land subject to such easement and is binding upon successive owners of such land, and the purpose of which is to retain land predominantly in its natural, scenic, historical, agricultural, forested, or open-space condition.

Critical Location – An area that must be substantially conserved for a particular sensitive species to be adequately conserved by the MHCP. Critical locations often coincide with major populations of the same sensitive species, but not all major populations are considered critical.

Edge Effects – Impacts to natural open space resulting from adjacent, contrasting environments, such as developed or disturbed land. When an edge is created, the natural ecosystem is affected for some distance in from the edge.

Effectiveness Monitoring – Monitoring habitat and species to determine if the HMP is protecting sensitive biological resources as planned and if any adaptive management is needed.

EMP – SANDAG's *TransNet* Environmental Mitigation Program, a funding allocation category for the costs to mitigate habitat impacts for regional transportation projects. Funding grants from this program may be used for habitat acquisition, management, and monitoring activities as needed to help implement the Multiple Habitat Conservation Program (MHCP).

ESA – Endangered Species Act.

Existing Hardline Preserve Areas – Natural habitat open space areas, such as Ecological Reserves and Dawson-Los Monos Reserve that were preserved prior to final approval of the HMP, or areas that were previously Proposed Hardline Areas or Standards Areas that have secured preservation, long-term management and monitoring, and a non-wasting endowment to fund activities in perpetuity.

FPA – Focused Planning Area.

GIS – Geographic Information System.

Habitrak – A GIS-based tool that was developed and is maintained by CDFW for habitat accounting. The tool calculates the acreage, type, and location of vegetation communities that are gained (conserved), or lost (impacted) from the HMP planning area.

HCP – Habitat Conservation Plan, a planning document required as part of an application for an incidental take permit from the USFWS that describes the anticipated effects of the proposed taking; how those impacts will be minimized, or mitigated; and how the HCP is to be funded.

HMP – Habitat Management Plan; serves as the MHCP Subarea Plan for the City of Carlsbad.

HOA – Home Owners' Association

HRS – Habitat Restoration Sciences, Inc. A for-profit native habitat restoration and general engineering firm specializaing in installation and long term maintenance of natural areas.

IA – Implementing Agreement. The legal agreement between the City of Carlsbad, CDFW, and USFWS that ensures implementation of the Carlsbad Habitat Management Plan (HMP),

binds each of the parties to perform the obligations, responsibilities, and tasks assigned, and provides remedies and recourse should any of the parties fail to perform.

Landowner – The legal entity that owns the land in fee-title. The landowner has the ultimate responsibility to ensure that preserve management is secured prior to habitat impacts. Often, the management responsibility is contracted to a third party.

LFMZ – Local Facility Management Zone, one of 25 Growth Management Plan sub-areas of the City of Carlsbad used for planning and financing infrastructure improvements and other city services and facilities concurrent with development.

Major Population – A population of sensitive species considered sufficiently large to be self-sustaining with a minimum of active or intensive management intervention (especially for plants) or that at least supports enough breeding individuals to contribute reliably to the overall metapopulation stability of the species (especially for animals). Also includes smaller populations that are considered important to long-term species survival.

Management Unit – Groupings of adjacent or nearby preserve parcels that have similar management needs.

MHCP – Multiple Habitat Conservation Program – a subregional conservation plan prepared and administered by SANDAG that encompasses the cities of Carlsbad, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, and Vista. The goal of the MHCP is to conserve approximately 19,000 acres of habitat and contribute toward the regional habitat preserve system for the protection of more than 80 rare, threatened, or endangered species.

NCCP – Natural Community Conservation Planning Program – a program of CDFW that takes a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity throughout the State. The MHCP is a sub-regional component of the statewide NCCP.

Non-wasting Endowment – An endowment with sufficient principal that provides for the set up costs and management/monitoring of a preserve in perpetuity through investment returns. The endowment is designed to increase in value over time in order for the generated revenues to increase, and thus keep pace with inflation. Pre-HMP preserves generally did not require endowments to fund management, unless specified in a previously negotiated agreement with the city and/or Wildlife Agencies.

OSMP – Open Space Management Plan, which serves as the Preserve Management and Monitoring Plan referenced in Section 12.3 of the Implementing Agreement.

PAR – Property Analysis Record, a cost analysis that estimates the management and monitoring costs of a specific preserve in perpetuity, often in the form of an endowment to fund long-term management. A PAR is based on industry accepted parameters, allows an objective cost/benefit analysis for each line item, and adjusts for inflation.

PMP – Area-specific Preserve Management Plan, the permanent management plan developed for a particular preserve within the preserve System. The city has contracted Center for Natural Lands Management to develop a master PMP for all city-owned preserves which addresses each preserve individually.

Preserve – Land conserved with a conservation easement, restrictive covenant, deed restriction, or transfer of fee title to the city or California Department of Fish and Game that is being managed to HMP and MHCP standards. (Note: lands already set aside for preservation through an open space easement prior to HMP adoption have limited management activities until a regional funding source is available).

Preserve Manager – The entity responsible for monitoring and managing the preserve. The majority of preserve lands are owned/managed by the city, CDFW, CNLM, or private Homeowner's Associations (HOAs). Pursuant to State due-diligence legislation that took effect January of 2007, preserve managers must be certified by either the city or CDFW before they can begin managing lands in the city.

Priority Species – Sensitive species that have site-specific permit conditions requiring populations to be tracked individually using GIS.

Proposed Hardline Preserve Areas – Areas identified in the HMP as natural habitat open space that were proposed for permanent conservation and perpetual management during the design phase of development projects but not completed prior to final approval of the HMP.

RY – Reporting Year, or from November 1, 2012 to October 31, 2013

Rough Step Assembly - A policy that requires development (losses) occur in "rough step" with land conservation (gains) during preserve assembly to ensure that development does not greatly outpace land conservation. It is generally understood by the Wildlife Agencies that losses should be no more than 10% greater than gains.

SANDAG – San Diego Association of Governments. SANDAG is the San Diego region's primary public planning, transportation, transit construction, and research agency, providing the public forum for regional policy decisions about growth, transportation planning and transit construction, environmental management, housing, open space, energy, public safety, and binational topics.

SDHC – San Diego Habitat Conservancy; a non-profit organization that provides management and biological monitoring of mitigation and conservation lands in perpetuity. Prior to February of 2009, SDHC was called Helix Community Conservancy.

SDMMP – San Diego Management and Monitoring Program; The SDMMP is a science based program seeking to provide a coordinated approach to management and biological monitoring of lands in San Diego that have been conserved through various programs including the Multiple Species Conservation Program, the Multiple Habitats Conservation

Program, the TransNet Environmental Mitigation Program, and various other conservation and mitigation efforts.

Standards Areas – Areas that were included in the MHCP Focused Planning Area (i.e., considered high priority for inclusion into the preserve system), but for which projects had not been proposed prior to the city's HMP approval. Because potential protected habitat areas had not been delineated, a set of zone-specific conservation standards were established as a condition of future project approval.

Take – As defined in the Federal Endangered Species Act; to harm, harass, pursue, hunt, shoot, wound, kill, trap, capture, or collect a listed species or attempt to do so, including impacts to the habitats upon which these listed species depend.

TET – The Environmental Trust. TET was a habitat management company that owned and managed several preserves in Carlsbad until declaring bankruptcy in 2005. Their properties were unmanaged until CDFW acquired title and management responsibility in early 2010.

TransNet - the San Diego County half-cent sales tax for transportation improvements first approved by voters in 1988 and extended in 2004. The Environmental Mitigation Program (EMP) is a component of TransNet that funds habitat related environmental mitigation activities required to implement projects identified in SANDAG's Regional Transportation Plan, including a funding allocation for habitat acquisition, management, and monitoring activities as needed to help implement the Multiple Species Conservation Program (MSCP) and the Multiple Habitat Conservation Program (MHCP).

USACOE – U.S. Army Corps of Engineers

USFWS – U.S. Fish and Wildlife Service

Wildlife Agencies – Term used collectively for the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service.

Executive Summary

This is the tenth annual HMP summary report, covering the period of November 1, 2013 to October 31, 2014. This report summarizes the preserve status, implementation activities, and preserve gains and losses that have occurred during the current reporting period. Highlights of HMP activities are summarized below.

Current Status of Preserves

The existing preserves continued to be managed, monitored, and/or maintained during the reporting period. Established private and city-owned Hardline Preserves were managed and monitored in accordance with their approved Preserve Management Plans; California Department of Fish and Wildlife (CDFW) preserves were managed subject to available funding and resources; and pre-existing natural open space areas were maintained according to their respective Open Space Easements, if applicable. Descriptions of the different categories of preserves are contained in Section 1.3.

Lake Calavera Mitigation Parcel

There was one debit during the reporting period for 1.4 acres; cumulative debits to date are 83.2 acres. A total of 170.0 acres (credits) remain.

Gnatcatcher Core Area Conservation Obligation

At the start of the reporting period, the remaining Core Area obligation consisted of acquisition of 20.45 acres of occupied coastal sage scrub habitat. During this reporting period the city met its fourth and final funding obligation of a four-year agreement to fund an endowment on the Perkins property, owned by Center for Natural Lands Management, bringing the remaining Core Area obligation to 12.93 acres.

Land Acquisitions

There were no land acquisitions inside of the HMP Planning Area during the reporting period.

Habitat Gains and Losses

The only habitat gain and loss during the reporting period involved the Fair Oaks Valley project with 26.1 acres impacted by development and 55.2 acres set aside for preservation.

Rough-Step Preserve Assembly

The rough step policy states that during preserve assembly, development (losses) must occur in "rough step" with land conservation (gains). Although a precise definition of "rough step" was not included in the MHCP or HMP, it is generally understood by the Wildlife Agencies that losses should be no more than 10% greater than gains (C. Beck, CDFW, pers. comm. 2007). This policy was developed for NCCP plans to ensure that development does not greatly outpace land preservation. To date, 1,564.7 acres have been lost in Carlsbad since inception of the HMP, and therefore, no less than 1,408.2 acres (1,564.7-156.5) must be preserved. A cumulative total of 5,931.8 acres have been gained in the preserve system, which greatly exceeds the minimum required by the rough step policy. The rough step policy will continue to be followed for all new development projects (e.g., in Standards Areas) because the city requires that native habitat be conserved (impact mitigation/habitat gain) prior to issuing a grading permit (habitat impact/habitat loss).

Regulatory Compliance

The city is in compliance with the terms and conditions of the Implementing Agreement, NCCP take authorization/permit, and federal ESA section 10(a)(1)(B) take authorization/permit, and HMP zone-specific standards, as summarized in Tables 5 – 8 in the body of the report. Three HMP permits were approved, and three minor amendments (two Consistency Findings and one mapping correction) were processed during the current reporting period.

Preserve Management and Monitoring

Key management and monitoring activities in HMP preserves conducted this year included invasive species removal, installation and maintenance of fences and signage, rare plant counts and habitat assessments, vegetation mapping, sensitive bird species surveys, wildlife corridor tracking, , and public outreach activities.

Patrolling and Enforcement

The Environmental Management division of Public Works continues to coordinate with preserve managers, Carlsbad Parks and Recreation Department, CDFW, and the Carlsbad and Oceanside Police Departments on a multi-pronged approach to enforcement within the preserve system using education, deterrence, and patrolling.

Financial Summary

In-lieu Mitigation Fee Program. A total of $66,415.64 of *in-lieu* mitigation fees was collected and $217,075.50 was expended during the reporting period. The expenditure, totaling $217,075.50, was made in October 2014 to purchase 7.52 acres of habitat for the Gnatcatcher Core Area obligation. As of October 31, 2014, the account had a negative balance of $776,032.69. This shortfall will be reimbursed with future *in-lieu* mitigation fees.

Preserve Management Endowments. During the reporting period, a total of $362,766 was used by CNLM, SDHC, HRS, San Diego Urban Corps Habitat Services and Helix Environmental for management and monitoring activities on 13 preserves. Endowment and remaining initial funds for these properties totaled $10,138,746 as of October 31, 2014.

1.0 Plan Administration

1.1 Introduction

The purpose of this document is to provide an update on the status of the Habitat Management Plan (HMP) preserve system, and implementation activities that have occurred during the current reporting period (November 1, 2012 – October 31, 2013). The information in this report will be used in compliance monitoring to determine if the HMP is being properly implemented pursuant to relevant regulations and permit conditions. Annual tracking and reporting of the HMP Preserve's gains, losses, management, and monitoring is required by Sections 12.1 and 12.2 of the Implementing Agreement (IA), dated November 12, 2004; the Federal Fish and Wildlife 10(a)(1)(B) Permit No. TE022606-0, dated November 12, 2004; and the NCCP Permit No. 2835-2004-001-05, dated November 15, 2004. This annual report covers year eight of the 50-year HMP implementation permits.

1.2 HMP Compliance Monitoring and Effectiveness Monitoring

1.2.1 HMP Conservation Goals

In order to evaluate the city's *compliance* with the HMP, and the *effectiveness* of the MHCP/HMP with respect to natural resources protection, it is necessary to understand the underlying goals of the plan, which are summarized below (See HMP p. A-2 for a complete list):

- Conserve the full range of vegetation community types, with a focus on sensitive habitat types.
- Conserve populations of narrow endemic species and other covered species.
- Conserve sufficient habitat, functional biological cores, wildlife movement corridors, and habitat linkages, including linkages that connect coastal California gnatcatcher (*Polioptila californica californica*) populations and movement corridors for large mammals, to support covered species in perpetuity.
- Apply a "no net loss" policy to wetlands, riparian habitats, and oak woodlands.
- Implement appropriate land use measures to ensure the protection of preserve lands in perpetuity.
- Meet conservation goals stated above while accommodating orderly growth and development in the city.
- Coordinate and monitor protection and management of conserved lands within the preserve system.
- Minimize costs of Endangered Species Act (ESA)-related mitigation and HMP implementation.

1.2.2 Compliance Monitoring

Compliance monitoring, also known as implementation or regulatory monitoring, is required pursuant to the city's HMP Implementing Agreement (permit) with the Wildlife Agencies (CDFW and USFWS) to ensure that the city is performing the conservation and implementation actions described in the Implementing Agreement. Compliance monitoring tracks whether the city is doing what it agreed to do from a regulatory perspective, such as conserving particular species locations and acres of habitat, monitoring the condition of the habitat and species, and performing required management actions (MHCP Vol. I). The Preserve steward assists the city by conducting compliance monitoring and reporting for agency review. Habitat tracking results are provided in Section 1.4; regulatory compliance is discussed in Section 1.5; and management and monitoring activities are summarized in Section 2.0.

1.2.3 Effectiveness Monitoring

Effectiveness monitoring, also known as biological, ecological or validation monitoring, determines the effectiveness of the conservation program. Effectiveness monitoring evaluates how well the conservation and management actions are achieving the biological goals stated in the MHCP and HMP within the city and across the MHCP planning area as a whole. The preserve-level monitoring program is used to evaluate the effectiveness of management actions at specific preserve areas (MHCP Vol. III). At the subregional (MHCP-wide) level, effectiveness monitoring involves assessing status and trends in populations of covered species, and assessing how well the conservation strategy is working to maintain natural ecological processes (MHCP Vol. III). The city is responsible for biological monitoring on city-owned properties and for reporting monitoring results from other properties within the HMP. The Wildlife Agencies are responsible for monitoring on their own properties (i.e., reserves owned by CDFW or lands within Batiquitos Lagoon owned by the California State Lands Commission) and for conducting subregional monitoring and analysis.

Monitoring the effectiveness of the MHCP and HMP is more challenging than compliance monitoring because the biological goals are broad and it may take many (upwards of ten) years before trends in species populations and habitat conditions are detectable. Species and habitat monitoring is conducted by the preserve managers. The city, Preserve steward, preserve managers, and Wildlife Agencies are currently working together to develop a functional city-wide monitoring program that will help answer questions about population trends and wildlife movement. In addition, the city is coordinating with the San Diego Management and Monitoring Program (SDMMP), which is developing regional and preserve-level monitoring and management protocols for use throughout San Diego County.

1.3 Current Status of Preserves

This section contains a description of the different categories of preserves within the HMP preserve system, accounting of the mitigation credits at the city's Lake Calavera Mitigation Parcel, status of the city's Gnatcatcher Core Area conservation obligation, and summary of in-lieu mitigation fee program.

1.3.1 Categories of HMP Preserves

Lands within the HMP preserve system can be grouped into four categories: (1) established private and city-owned Hardline Preserves; (2) California Department of Fish and Game Ecological Reserves; (3) pre-existing natural open space preserves; and (4) future preserves (Proposed Hardline Preserves and Standards Areas). These categories of preserve lands are distinguished by the level of management, ownership, and/or status as described below and shown in Figure 1.

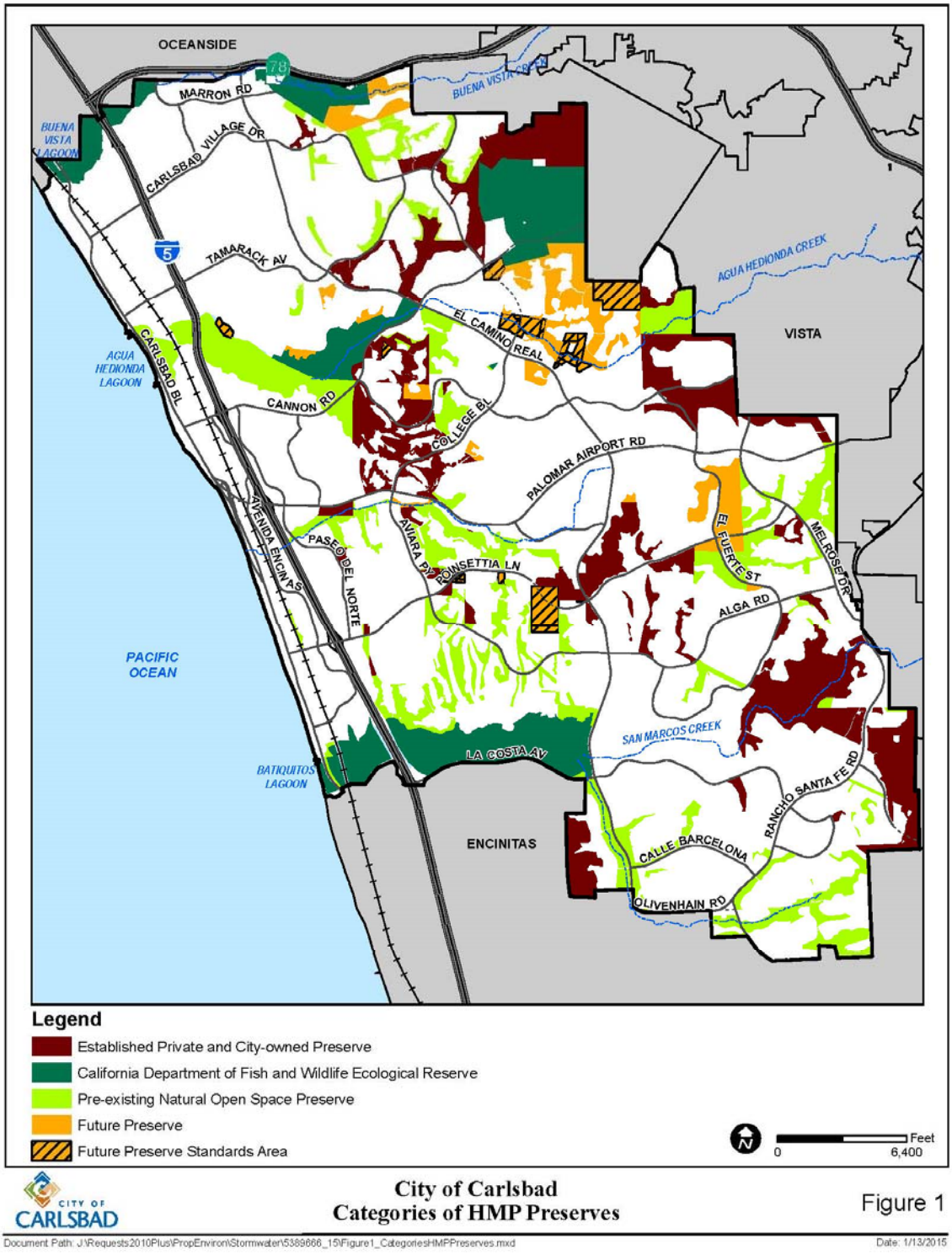
Established Private and City-owned Hardline Preserves

These Hardline Preserves were established during or after the adoption of the HMP. They have approved Preserve Management Plans implemented by preserve managers and funded through non-wasting endowments or, in the case of the city-owned preserves, through annual budget appropriations. The city requires annual reports for all of these preserves. The underlying property owners for these preserves are a preserve management entity, homeowner's association, or the city. Except for the city-owned properties, all of these Hardline Preserves are protected by a recorded Conservation Easement. Examples of these preserves include Rancho La Costa, Carlsbad Oaks North, Kelly Ranch, Lake Calavera, and the Crossings Golf Course, among others.

California Department of Fish and Game Ecological Reserves

These Hardline Preserves were established prior to or subsequent to the adoption of the HMP and are all owned by the State of California. According to the HMP Implementing Agreement, the level of management and monitoring of the CDFW preserves is based upon the available State funding and resources. Currently there are no finalized Reserve Management Plans for the CDFW ecological reserves in Carlsbad but management follows draft plans. CDFW obtains State Wildlife Grant funding annually for management and monitoring activities on preserves. Management accounts are established for Carlsbad Highlands Ecological Reserve and Agua Hedionda Lagoon Ecological Reserve. The Batiquitos Lagoon Ecological Reserve is managed and monitored by CDFW and funded through a mitigation account established by the Port of Los Angeles and held by CDFW. The Buena Vista Creek Ecological Reserve is managed by Center for Natural Lands Management (CNLM), a non-profit management entity, through a contract and funded by an endowment held by CNLM. The city receives some CDFW monitoring data for the lagoon preserves and a CNLM prepared annual report for the Buena Vista Creek Reserve.

Figure 1. Categories of HMP Preserves



Pre-existing Natural Open Space Preserves

These Hardline Preserves predated the adoption of the HMP and are composed of natural open space areas within subdivisions or master plan communities (owned by the respective homeowner's association), the University of California's Dawson-Los Monos Reserve, and areas owned by Cabrillo Power, San Diego Gas and Electric, and the San Dieguito Union High School District. The lands were included in the HMP because of their biological resources and ecological value. There are no Preserve Management Plans or active management and monitoring associated with these preserves and maintenance of the property is the responsibility of the property owner. Generally, management consists of trash pick-up and fence maintenance. The HMP envisioned that future management and monitoring of these lands would be financed through a regional funding source. All of the preserves owned by homeowner's associations are protected by an Open Space Easement. The Dawson-Los Monos Reserve is owned by the Regents of University of California and has no open space or conservation easement protection. Examples of the homeowner's association owned preserves include Calavera Hills Phase I, Aviara, and Arroyo La Costa.

Future Preserves (Proposed Hardline Preserves and Standards Areas)

These preserves are identified in the HMP and are associated with developable lands but have yet to begin management and monitoring. As a condition of approval for any development on the property, the developer is obligated to establish the preserve by gaining approval of a Preserve Management Plan, contracting with a management entity, depositing a non-wasting endowment or other secure financing mechanism, and recording a Conservation Easement. An Equivalency Finding, approved by the city and Wildlife Agencies, is required for any alterations to the Proposed Hardline Preserve and the final preserve design for Standards Areas must be approved by the city and Wildlife Agencies through a Consistency Finding. Examples of these future preserves include Mandana and Kato.

1.3.2 Lake Calavera Mitigation Parcel

The city-owned Lake Calavera Mitigation Parcel, also known as the Lake Calavera Preserve, provides mitigation as needed for upland habitat impacts related to city construction projects. Credits are deducted on an acre-for-acre basis, regardless of the type of habitat being impacted, except for impacts to gnatcatcher-occupied coastal sage scrub, southern maritime chaparral, and maritime succulent scrub. No credits can be sold to outside entities. Table 1 shows total debits to date. There was one city project that required mitigation of habitat impacts at Lake Calavera Mitigation Parcel, the El Camino Real Southbound Widening, for a total of 1.4 acres.

Table 1. Mitigation Acreage at Lake Calavera Mitigation Parcel through RY 10 (2013-2014)

Credits and Debits	Acres[1]
INITIAL CREDITS	***256.0***
Total Debits as of October 31, 2013	84.6
Year 10 Project-Related Deductions (Nov. 2013-Oct. 2014)	
1. El Camino Real Southbound Widening	1.4
Total Debits	**86.0**
TOTAL ACRES AVAILABLE AS OF OCTOBER 31, 2014	**170.0**

[1] Rounded to the nearest tenth of an acre.

1.3.3 Gnatcatcher Core Area Preservation Obligation Acreage

As of the final approval of the HMP in 2004, 264.5 acres of the 307.6 acre Gnatcatcher Core Area preservation obligation had been met through project related mitigation in the Core Area and additional onsite restoration within the HMP Plan Area. The remaining obligation consisted of acquisition of 43.02 acres of occupied coastal sage scrub habitat and reimbursement for 50.13 acres of land that was acquired by a private developer in anticipation of the HMP Core Area requirements. The history of the Gnatcatcher Core Area, including how the previous obligations were met, is detailed in earlier annual reports.

Table 2. Status of Carlsbad HMP Gnatcatcher Core Area Obligation through RY 10 (2013-2014)

Core Area Components	Component Acreage		Total Acreage
TOTAL CORE AREA CONSERVATION REQUIREMENT			**307.60**
1. Acquisition by the City			
Alemir Property – land in excess of mitigation requirements.	*50.13*		
Perkins Property – 30.09 acres of conservation credit for endowing long-term management on portion of property.			
October 24, 2011	*7.53*		
October 11, 2012	*7.52*		
October 21, 2013	*7.52*		
October 22, 2014	*7.52*		
Subtotal of Acquisition		**80.22**	
2. Project-Related Mitigation		**150.26**	
3. Onsite Conservation Restoration Credits		**64.19**	
Total Core Area Conservation			**294.67**
REMAINING CORE AREA CONSERVATION REQUIREMENT			**12.93**

During the reporting period, the city completed implementation of The Agreement Regarding Conservation Credits re: City of Carlsbad HMP Offsite Core Area, dated July 26, 2011. This agreement states that the city will receive 30.09 acres of conservation credit for contributing funds annually over a 4-year period; the conservation credits will be earned incrementally. The fourth and final increment was earned as of October 22, 2014. Table 2 shows the current status of Core Area conservation credits.

1.3.4 *In-lieu* Mitigation Fee Program

Under certain circumstances, project impacts to non-sensitive upland habitats that occur outside of the HMP preserve may be mitigated through a fee rather than onsite or offsite conservation. These funds can only be used to offset the cost of Gnatcatcher Core Area conservation. A total of $66,415.64 of *in-lieu* mitigation fees were collected during the reporting period. A detailed accounting of the *in-lieu* mitigation fees and expenditures is given in Section 3 (Financial Summary).

1.4 Habitat Gains and Losses

Pursuant to the HMP and IA, the city is required to provide an annual accounting of the amounts and locations of habitat lost and conserved over time due to public and private development projects and land acquisition. This information will be used to demonstrate to the Wildlife Agencies that (a) the HMP preserve is being assembled as anticipated; (b) the habitat conservation goals of the HMP are being achieved; and (c) habitat conserved is in rough step with development. Habitrak is a GIS database tool that was designed to satisfy these tracking and reporting requirements by providing standard tracking protocols and reporting output. It uses standard baseline spatial databases (e.g., vegetation, preserve boundaries, and parcel boundaries) and development project footprints to prepare standardized tables and maps for annual reporting.

1.4.1 Target Acreage

Habitrak, a CDFW maintained database, is used by the city to calculate the number of acres added to the HMP preserve every year (although it does not calculate gains within the Gnatcatcher Core Area which is outside of the city limits). Some of the habitat types used in the standard Habitrak table outputs are more specific than those used in HMP Table 8. To make it easier to compare the Habitrak tables with the HMP table for compliance monitoring, Table 3 below lists acres of target conservation and compares habitat categories in HMP Table 8 to categories used in Habitrak. Note that the GIS data layers used for this analysis included the more detailed habitat categories.

Table 3. HMP Target Conservation of Habitats
(Comparison of Habitat Categories in HMP and Habitrak)

HMP Table 8		Habitrak	
Habitat Type	**Target Acres**	**Habitat type**	**Target Acres**
Coastal sage scrub	2,139	Maritime succulent scrub	29
		Coastal sage scrub	2,003
		Coastal sage-chaparral scrub	107
		Subtotal	*2,139*
Chaparral	676	Chaparral	676
Southern maritime chaparral	342	Southern maritime chaparral	342
Oak woodland	24	Coast live oak	20
		Other oak woodland	4
		Subtotal	*24*
Riparian	494	Riparian forest	82
		Riparian woodland	17
		Riparian scrub	395
		Subtotal	*494*
Marsh	1,252	Southern coastal salt marsh	143
		Alkali marsh	9
		Freshwater marsh	165
		Freshwater	53
		Estuarine	789
		Disturbed wetland	93
		Subtotal	*1,252*
Grassland	707	Grassland	707
Eucalyptus woodland	99	Eucalyptus woodland	99
Disturbed lands	745	Agriculture	185
		Disturbed Land	244
		Developed	316
		Subtotal	*745*
Total Target Conservation within Carlsbad	**6,478**	**Total Target Conservation within Carlsbad**	**6,478**
Carlsbad's Gnatcatcher Core Area Contribution	308[1]	Not tracked in Habitrak	N/A
Total HMP Target Conservation	**6,786**		

[1] Rounded to the nearest acre.

1.4.2 Land Acquisitions

There were no land acquisitions inside of the HMP planning area during the reporting period.

1.4.3 Habitat Gains and Losses

Habitat gain and loss during the reporting period involved the Fair Oaks Valley project with 26.1 acres impacted by development and 55.2 acres set aside for preservation. The current HMP

conditions are shown in Figure 2 and the areas of gains and losses in the HMP during the reporting period and from previous years are displayed in Figure 3.

1.4.4 Rough-Step Preserve Assembly

As stated in the IA (12.1 Record Keeping) "Habitat conservation under the HMP must proceed concurrently and in rough step with development." Although 'rough step' has not been defined in the HMP or MHCP, the general standard adopted by the Wildlife Agencies is that acres of habitat gain must be within approximately 10% of habitat losses (Christine Beck, CDFG, pers. comm. 2007). This policy was developed for NCCP plans to ensure that development does not greatly outpace land preservation. To date, 1,564.7 acres have been lost in Carlsbad since inception of the HMP, and therefore, no less than 1,408.2 acres (1,564.7-156.5) must be preserved. A cumulative total of 5,931.8 acres have been gained in the preserve system, which greatly exceeds the minimum required by the rough step policy. The rough step policy will continue to be followed for all new development projects (e.g., in Standards Areas) because the city requires that native habitat be conserved (impact mitigation/habitat gain) prior to issuing a grading permit (project impact/habitat loss) pursuant to the mitigation ratios described in the HMP. Measures required to be in place prior to permit issuance include: management cost analysis, non-wasting endowment for perpetual management, conservation easement, preserve management plan, and a contract with an approved preserve manager. Some projects that were approved prior to final HMP approval were issued grading permits before all of these elements were put in place. The city continues to work towards ensuring permanent management for these properties, either in concert with Wildlife Agency sign-off of project mitigation sites or assisting USACOE and USFWS in enforcing the provisions of the project Biological Opinion. Habitat impacted *outside* of the HMP is mitigated through an *in-lieu* mitigation fee.

Figure 2. 2014 Current Conditions

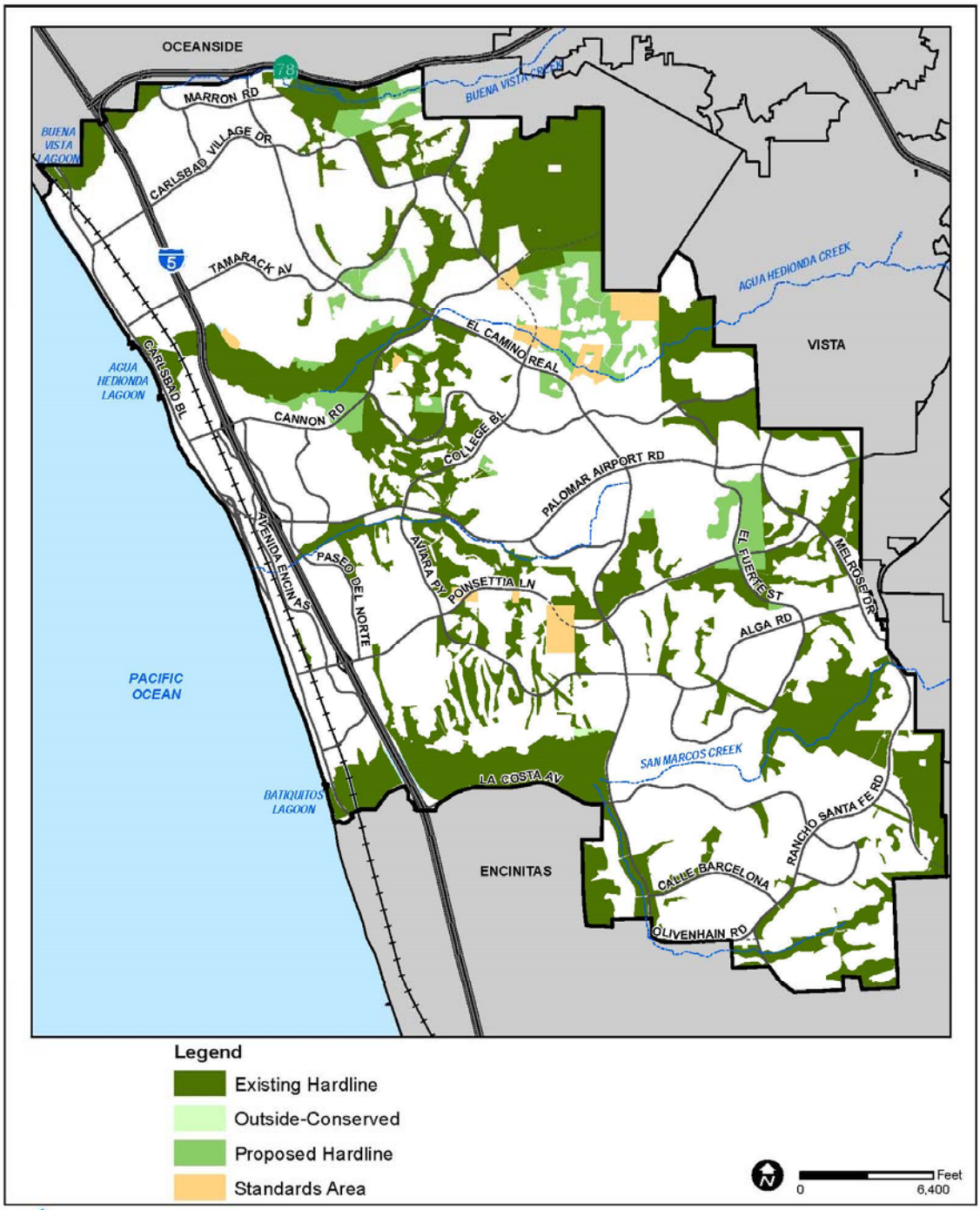
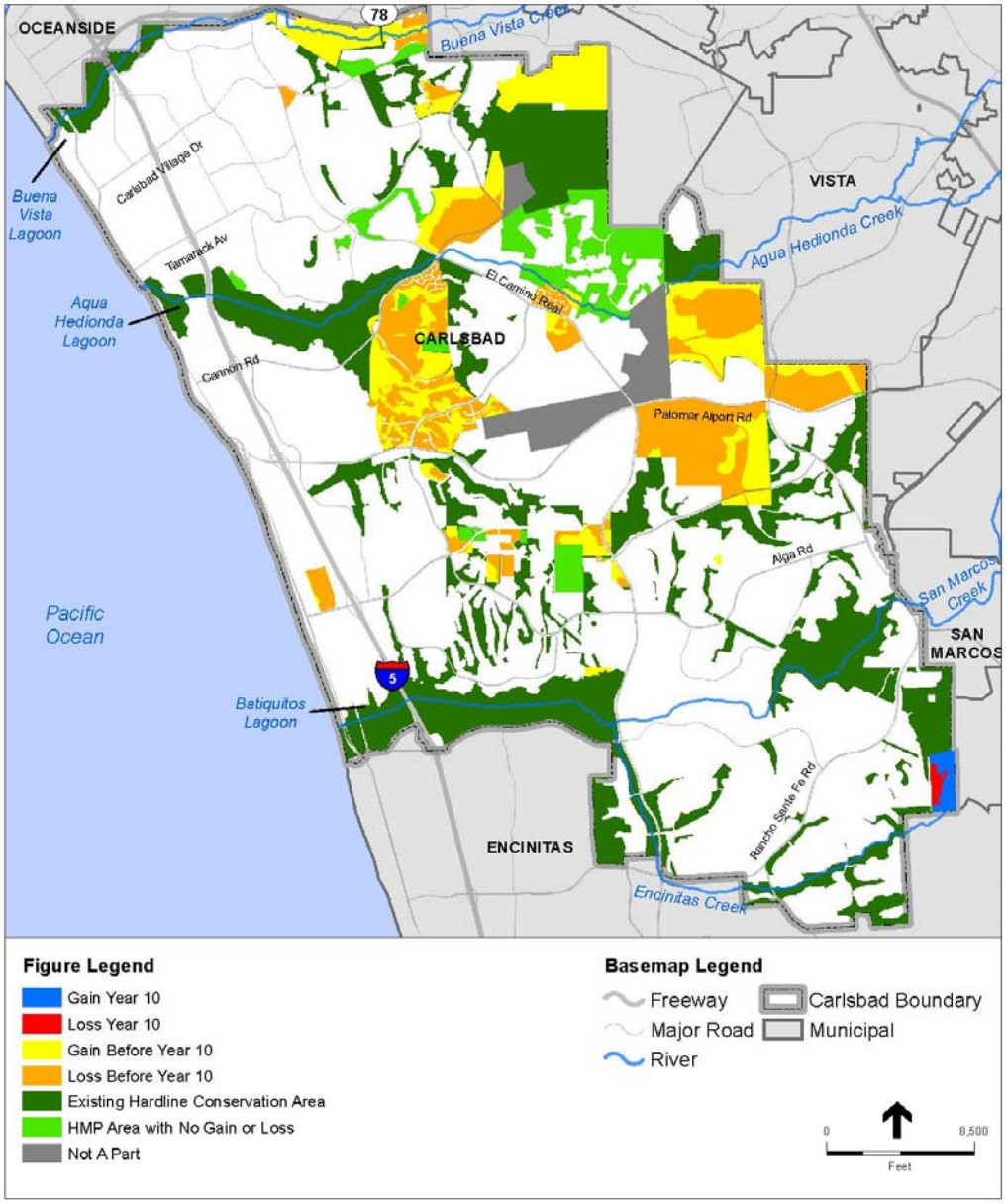


Figure 3. Project Gains/Losses by Report Year



SOURCE: CNDDB, USFWS, CNLM (Recent location 2012-2014)

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Figure 3
City of Carlsbad
Project Gains and Losses by Reporting Year

1.5 Regulatory Compliance

To ensure regulatory compliance, the city is implementing the HMP (1) through the project review process for new development projects; (2) by issuing HMP permits when impacts to habitat or covered species are involved; (3) by issuing incidental take permits when take of a listed species is involved; and (4) by ensuring consistency with the terms and conditions of the IA, and State NCCP and Federal Fish and Wildlife permits.

1.5.1 HMP-related Permits and Amendments

During the current reporting period, three HMP permits for private development projects were approved by the city. Table 4 also includes a status update for HMP permits that have been submitted but are currently pending or incomplete. No incidental take permits were issued this reporting period.

Table 4. HMP Permits in Process during RY 10 (2013-2014)

HMP Permit No.	Project Name	Date	Status
HMP 07-05	Villagio – Kelly Ranch	05/14/2007	Pending
HMP 11-03	Robertson Ranch West Village	05/06/2011	Incomplete
HMP 13-02	Daybreak Community Church	07/22/2014	Approved
HMP 14-01	Tierra La Costa	04/23/2014	Approved
HMP 14-02	College Blvd Mitigation	07/03/2014	Incomplete

Two Minor Amendments were processed during the reporting period as described below. See HMP Section E-3 and Implementing Agreement Section 20.1 for a description of Minor Amendment types and the HMP amendment process.

1. **Consistency Finding.** The Daybreak Community Church development project, which is within a Standards Area in LFMZ 20, was processed as a Consistency Finding and received Wildlife Agency concurrence on February 13, 2014. The project added 1.66 acres to the preserve and incorporated 2.20 acres of pre-existing preserve into long term management and monitoring.
2. **Equivalency Finding.** The Batiquitos Lagoon Foundation Visitor's Center Equivalency Finding was approved by the city on April 28, 2014 and no comments were received from the Wildlife Agencies within the 30 day review period. The revised preserve boundary resulted in a net gain of 4.07 acres, including 0.11 acres of coastal salt marsh and 1.18 acres of disturbed native grassland/coastal sage scrub. Two Equivalency Findings were approved by the Wildlife Agencies for the Quarry Creek Master Plan, one on September 19, 2014 and one on December 16, 2014, resulting in a net gain of 7.96 acres.

3. **Other Minor Amendments (pursuant to Section 20.1 of the Implementing Agreement).** No other minor amendments were processed during the reporting period.

1.5.2 City Compliance with Terms and Conditions of Take Authorization

To satisfy the terms and conditions of the state and federal take authorization, the city is required to fulfill the obligations outlined in Sections 10 – 14 of the IA, the Conditions of the State NCCP Permit, and Terms and Conditions of the Federal ESA Section 10(a)(1)(B) Incidental Take Authorization/Permit. Implementation tasks associated with these regulations are completed or ongoing, and are described in Tables 5-7. In cases where a particular condition is worded the same in more than one document, a reference is made to a previous table in which compliance is described, to avoid redundancy.

Table 5. Summary of City Compliance with HMP Implementing Agreement Requirements through RY 10 (2013-2014)

A Section	Obligation	City Compliance
10.10	**Duty to Enforce:** To enforce the terms of the Take Authorization, HMP, and IA and ensure HMP lands are conserved in perpetuity.	▪ The city requires compliance with the HMP as a condition of approval for new development projects, which includes conservation in perpetuity, a non-wasting endowment, and a management agreement with a preserve manager. ▪ On March 14, 2006 the city passed the Habitat Preservation and Management Requirements Ordinance (Carlsbad Municipal Code § 21.210), which includes a section on enforcement (§21.210.19) for violations of the HMP. ▪ The city is developing a coordinated multi-departmental trail enforcement program (Section 2.1.6) and continues to work with local preserve managers for enforcement activities. ▪ Complaints made by citizens regarding possible violations of the HMP within preserves are investigated on a case by case basis.
11.1	**Preserve System:** To ensure the establishment and management in perpetuity of a 6,757-acre preserve system.	▪ The city has currently gained 5,931.8 acres of habitat within the HMP planning area and 294.67 acres of habitat within the MHCP Gnatcatcher Core Area (over 95% of the overall target acreage). See Section 1.4.3 for more details.
11.2	**Project Mitigation Measures:** To require additional mitigation measures to mitigate impacts to covered species in all future development projects.	▪ As a condition of approval for new development projects, the city requires that all potential impacts to HMP covered species be avoided, minimized, and/or mitigated.
11.3	**Regulatory Implementation:** A. Urgency Ordinance – interim HMP enforcement B. Amend Open Space and Conservation Element of General Plan to incorporate HMP C. Amend Open Space Ordinance to incorporate Conserved Habitat Areas D. Amend Municipal Code to incorporate Standards Area compliance E. Amend General Plan to identify HMP as priority use for open space lands F. Wetlands Protection Program	A. The Emergency Ordinance was approved by the City Council November 9, 2004. B. Revisions to the policy statements regarding the HMP were approved by the City Council in July, 2005. C. Revisions were made to Carlsbad Municipal Code § 21.53.230 and approved by the City Council in March, 2006. Conserved Habitat Areas were included as undevelopable open space lands preserved exclusively and in perpetuity for conservation purposes consistent with the HMP. Submitted to California Coastal Commission on April 3, 2006 – application is under review. D. A new chapter (§ 21.210) was added to the Zoning Ordinance to address habitat preservation and management requirements. Section 21.210.040 B. specifically addresses Standards Area compliance. Approved by the City Council in March 2006. City staff is working with Coastal Commission staff on the related implementation plan for the Local Coastal Program. E. The General Plan was revised to make conservation of habitat a priority use for the 15% of otherwise developable land which the Growth Management Plan already requires to be set aside for open space purposes (the city defines five categories of open space). Approved by the City Council July 2005. F. New subsections (§21.210.040 D.5 and §21.210.070 A.5) were added to the Municipal Code to address the protection of wetland habitat. The ordinance states that wetlands impacts will be avoided, minimized, or mitigated (in that order). Approved by the City Council in March 2006. Submitted to Coastal Commission on April 3, 2006. Compliance is enforced on a project-by-project basis during environmental review and in conjunction with other wetland permitting agencies such as Coastal Commission, CDFW and USACOE.

Table 5. Summary of City Compliance with HMP Requirements through RY 10 (2013-2014) *continued*

A Section	Obligation	City Compliance
11.4	**Additional Implementation Measures:** To implement measures included in MHCP.	▪ The MHCP, HMP, and OSMP conservation measures are currently being implemented during the approval process for all development projects and preserve management activities. ▪ See Section 1.6 for details about additional implementation measures.
11.5	**Regional Conservation:** To effectuate the conservation of 307.6 acres of land within the MHCP Gnatcatcher Core Area, and convey the property to a qualified preserve manager.	▪ The city has met 294.67 acres of its coastal sage scrub conservation obligation through acquisition (80.22 acres), project mitigation (150.26 acres), and habitat enhancement credit (64.19 acres). ▪ The city reimbursed Lennar (developer) for the 50.13 acres that were purchased up-front (see above) on April 26, 2011 ▪ The city entered into an agreement on July 26, 2011 with the Wildlife Agencies and Conservation Fund to acquire 30.09 acres of conservation credit over four years. The city made the fourth payment on October 22, 2014 and received 7.52 acres of credit. ▪ The Core Area properties are protected under a Conservation Easement, and are being monitored and managed by the Center for Natural Lands Management (CNLM).
11.6	**Cooperative Regional Implementation:** To participate in MHCP Elected Officials Committee.	▪ To date, the City of Carlsbad is the only MHCP jurisdiction with an approved subarea plan, so this is not applicable at this time; however, the city participates in meetings to discuss MHCP-wide issues with other MHCP jurisdictions and SANDAG as needed.
12.1 **12.2** **12.4** **12.5**	**Monitoring and Reporting:** To track habitat gains and losses within the HMP area (which should occur in rough step with one another); to maintain its database of biological resources; to submit an annual report by December 1 of each year; to hold a public meeting to discuss HMP implementation; and to provide the Wildlife Agencies with additional reports if necessary for compliance monitoring; and to certify all reports.	▪ Habitat gains and losses are being tracked through Habitrak. Rough step preserve assembly is built into the city's permitting process (See Section 1.4.4 for details.) ▪ Currently the city is working with the Preserve steward, preserve managers, city GIS staff, the San Diego Management and Monitoring Program, and SDSU's Institute for Environmental Monitoring and Management to determine the best approach to develop and manage monitoring data. ▪ Protocols and standards will be developed with regard to baseline surveys and monitoring (survey methods and data format), entry and attributing of GIS data, and data management. ▪ Annual public HMP workshops are held every year to give participants an opportunity to learn about current HMP preserve assembly, management, and monitoring, and to ask questions and provide comments. ▪ Annual HMP status reports are submitted to Wildlife Agencies each year. The public also has an opportunity to view these reports prior to the annual meeting and provide comments.

Table 5. Summary of City Compliance with HMP Requirements through RY 10 (2013-2014) *continued*

IA Section	Obligation	City Compliance
12.3	**Preserve Management and Monitoring Plan:** To prepare a preserve management and monitoring plan that will detail recommendations in HMP Section F.	The Open Space Management Plan (OSMP) is the Preserve Management and Monitoring Plan described in IA Section 12.3, and the subarea framework management plan described in MHCP Vol. III, Section 1.2. The first complete draft was finalized in May 2004. The document was completed in September 2004 and accepted by the Carlsbad City Council in December 2005. Currently the OSMP is being reviewed by the California Coastal Commission as part of the HMP Local Coastal Program Implementation Plan; the city is implementing OSMP policies citywide.
13.0	**Adaptive Management:** To ensure that adaptive management actions do not result in less mitigation than provided for the HMP Covered Species under the original terms of the HMP, unless approved by the Wildlife Agencies.	▪ The city complies with this policy by having ongoing discussions with preserve managers on management activities and by requiring adaptive management within all actively managed preserves. ▪ The city is coordinating with the regional adaptive management and monitoring through the San Diego Management and Monitoring Program. ▪ The city has developed a compliance checklist for the preserve managers; the checklist includes a section on adaptive management activities (pilot study design, methods, results, etc.).
14.0	**Funding:** 14.1 MCHP Core Area Participation 14.2 Preserve Management and Monitoring Plan 14.3 Management of City-owned public lands 14.4 Management of private lands in HMP area 14.5 Management of Existing Hardline areas 14.6 Program Administration 14.7 Habitat *In-lieu*-Mitigation Fees	14.1 The city has met 294.67 acres of its 307.6-acre coastal sage scrub conservation obligation. The city must cause conservation of an additional 12.93 acres; this obligation will be funded through *in-lieu* mitigation fees. 14.2 The Preserve Management and Monitoring Plan (known as the Open Space Management Plan or OSMP) was completed in September 2004 using city funds and a Local Assistance Grant from CDFW. 14.3 City-owned preserves are currently being actively managed and monitored by CNLM. 14.4 The city requires all private development projects within the HMP to fully fund perpetual management of associated preserve land prior to issuing a grading permit. 14.5 Hardline preserves in existence before final HMP approval are owned and managed by several other entities, including the CDFW, private HOAs, University of California, SDG&E, Cabrillo Power, and SDUHS. 14.6 The HMP program is being overseen by Michael Grim (City of Carlsbad Property and Environmental Management Department). In addition, the city has contracted with Environmental Science Associates (ESA) to serve as the city's Preserve steward, who coordinates management throughout the HMP Preserve, and monitors HMP compliance and management effectiveness. 14.7 The city has implemented an *in-lieu*-mitigation fee program for new development that will fund the city's remaining Gnatcatcher Core Area obligations.

Table 6. Summary of City Compliance with Terms and Conditions of CDFW Permit through RY 10 (2013-2014)

CDFW NCCP Permit Terms and Conditions (T&C)	Description of City Compliance
Section 6.1 Conditions A through F are the same as those stated in A through F of the IA, Section 11.3 (See Table 12). They are summarized below. A. Urgency Ordinance –interim HMP enforcement. B. Amend Open Space and Conservation Element of General Plan to incorporate HMP. C. Amend Open Space Ordinance to incorporate Conserved Habitat Areas. D. Amend Municipal Code to incorporate Standards Area compliance. E. Amend General Plan to identify HMP as priority use for open space lands. F. Wetlands Protection Program.	See Table 9, IA Section 11.3.
G. This permit is subject to compliance with the MHCP Volumes I-III, HMP, including Addenda 1 and 2, and the IA.	All project approvals within the city are subject to these requirements as a condition of approval.
H. Coverage for thread-leaved brodiaea and approval of the Fox-Miller Project. The conditions are as described in the USFWS 10(a) Permit Condition 7 (Table 12).	See Table 11, USFWS 10(a) Permit Condition 7 for a description of compliance.
I. All monitoring and reporting must comply with MHCP Vol. I and III, and IA Section 12. Annual reports are due no later than December 1 of each year. MHCP Volume II includes the following policies and conditions: • Standard Best Management Practices (Appendix B) • General Outline for Revegetation Plans (Appendix C) • Narrow Endemic Species and Critical Population Policies (Appendix D) • Conditions for Estuarine Species (Appendix E) • CEQA requirements for quantifying and mitigating impacts	See description for Condition G. MHCP Vol. II policies and conditions are reviewed during regular HMP compliance review for all new projects within Carlsbad. In addition, these policies have been integrated and/or referenced in the city's Guidelines for Biological Studies.

Table 7. Summary of City Compliance with the Terms and Conditions of USFWS Permit through RY 9 (2012-2013)

Federal ESA 10(a) Permit Terms and Conditions (T&C)	Description of City Compliance
1. All sections of Title 50 Code of Federal Regulations (CFR) 13, 17.22, and 17.32 are conditions of this permit.	Appropriate language has been integrated into the HMP and IA; therefore, compliance with these documents ensures compliance with Title CFR sections.
2. The permittee is subject to compliance with the MHCP, HMP, and IA.	The city complies with all regulations as described in Tables 10 and 11.
3. The amount and form of take are authorized as described below. Referenced tables are from Attachment 2 of the T&C, and are the same as List 1-3 Species in HMP Section C. Coverage for species in HMP Tables 2 and 3 below require the city to submit in writing a request for coverage, including documentation showing compliance.	See next page.

Table 7. Summary of City Compliance with Terms and Conditions of USFWS Permit through RY 9 (2012-2013) *continued*

Federal ESA 10(a) Permit Terms and Conditions (T&C)	Description of City Compliance
3. *continued* Table 1. (a) No take authorized for the following species: *Chorizanthe orcuttiana* – Orcutt's spineflower *Dudleya blochmaniae* ssp. *blochmaniae* – Blochman's dudleya *Euphorbia misera* – Cliff spurge *Hazardia orcuttii* – Orcutt's hazardia *Quercus dumosa* – Nuttall's scrub oak *Pelecanus occidentalis californicus* – California brown pelican *Falco peregrinus* – American peregrine falcon *Rallus longirostris levipes* - Light-footed clapper rail *Sterna antillarum browni* – California least tern *Charadrius alexandrinus nivosus* – Western snowy plover *Sterna elegans* – Elegant tern	Table 1 (a). No take of these species has been authorized by the city.
Table 1. (b) Take authorization is or will be (upon listing) granted for: **Listed species:** *Empidonax traillii extimus* – Southwestern willow flycatcher *Vireo bellii pusillus* – Least Bell's vireo *Polioptila californica californica* – Coastal California gnatcatcher **Not yet listed:** *Panoquina errans* – Salt marsh skipper *Euphyes vestris harbisoni* – Harbison's dun skipper *Plegadis chihi* – White-faced ibis *Accipiter cooperii* – Cooper's hawk *Pandion haliaetus* - Osprey *Icteria virens* – Yellow-breasted chat *Aimophila ruficeps canescens* – So. California rufous-crowned sparrow *Passerculus sandwichensis beldingi* – Belding's savannah sparrow *P.s. rostratus* – Large-billed savannah sparrow *Cnemidophorus hyperythrus beldingi* – Orange-throated whiptail	Table 1 (b). The city did not authorize take for any of these species during the current reporting period.
Table 2. Take authorization contingent upon other MHCP subarea plans being permitted for the following species: *Acanthomintha ilicifolia* – San Diego thornmint *Ambrosia pumila* – San Diego ambrosia *Ceanothus verrucosus* – Wart-stemmed ceanothus *Dudleya viscida* – Sticky dudleya *Ferocactus viridescens* – San Diego barrel cactus *Quercus engelmannii* – Engelmann oak	Table 2. No other MHCP subarea plans have been permitted, and therefore take authorization for these species has not been granted by the city.
Table 3. (a) Take authorization contingent upon adequate funding and legal access to manage and monitor the following species: *Arctostaphylos glandulosa* ssp. *crassifolia* – Del Mar manzanita *Baccharis vanessae* – Encinitas baccharis *Brodiaea filifolia* – Thread-leaved brodiaea *Comarostaphylis diversifolia* ssp. *diversifolia* – Summer-holly *Corethrogyne filaginifolia* var. *linifolia* – Del Mar sand aster *Pinus torreyana* ssp. *torreyana* – Torrey pine	Table 3 (a). Take authorization for thread-leaved brodiaea was granted by the Wildlife Agencies to the city on December 2, 2005 based upon the management required for Fox-Miller property. Take of this species was not granted during the reporting period. No take of any other species from this list has been granted by the city.

Table 7. Summary of City Compliance with Terms and Conditions of USFWS Permit through RY 9 (2012-2013) *continued*

Federal ESA 10(a) Permit Terms and Conditions (T&C)	Description of City Compliance
Table 3. (b) Take is contingent upon (a), described above, *and* the city receiving legal control over the vernal pools adjacent to the Poinsettia Train Station. *Eryngium aristulatum* var. *parishii* – San Diego button-celery *Myosurus minimus* ssp. *apus* – Little mousetail *Navarretia fossalis* – Spreading navarretia *Orcuttia californica* – California Orcutt grass *Streptocephalus woottoni* - Riverside fairy shrimp *Branchinecta sandiegonensis* - San Diego fairy shrimp Table 3. (b) Take is contingent upon (a) and (b), described above, and upon other MHCP subarea plans being permitted. *Iva hayesiana* – San Diego marsh-elder	Table 3 (b). The city has not taken legal control of the Poinsettia Lane Vernal Pools and has not requested take for vernal pool species. No other take authorizations have been requested.
4. The FESA Section 10(a) constitutes a Special Purpose Permit for the take of HMP covered species which are listed as threatened or endangered under the FESA, and which are also protected by the Migratory Bird Treaty Act of 1918, as amended. The Special Purpose Permit will be valid for three years after effective date and may be renewed as long as 10(a) permit conditions are being met. *Sterna antillarum browni* - California least tern *Empidonax traillii extimus* - Southwestern willow flycatcher *Vireo bellii pusillus* - Least Bell's vireo *Passerculus sandwichensis beldingi* - Belding's savannah sparrow	The Special Purpose Permit has been in effect during the current reporting period. No take of these species has been granted.
5. The Permittee shall not allow clearing and grubbing in known or potentially occupied California gnatcatcher habitat between February 15 and August 31.	This requirement is included in Municipal Code 21.210.040 and HMP Table 9. Compliance is a condition of approval for every new development project.
6. Specific standards (described in the T&C) must be met if the city proceeds with any of the following plans: (a) Cannon Road Reach 4 (b) Extension of Melrose Drive through the Shelley Property (c) Marron Road through Buena Vista Creek Ecological Reserve	None of these projects have been proposed at this time.
7. To receive coverage for thread-leaved brodiaea, the city must demonstrate that: (a) The Fox-Miller project meets the narrow endemic standards for this critical location and major population of this species; (b) The proposed hardline shown in Addendum 2 (2003) of the HMP is not permitted (it does not meet the MHCP standards); (c) The Wildlife Agencies must concur with the Fox-Miller project proposal, and the conserved area must be managed and monitored to MHCP standards in perpetuity; and (d) If all conditions are met, the Fox-Miller project can be permitted under the HMP through the HMP amendment process	(a) The boundary for the brodiaea population has been established. (b) The boundary was expanded. (c) The Wildlife Agencies have approved the Fox-Miller project. The restoration and non-restoration areas are currently under management and monitoring by Helix via annual contract with the landowner. Long term management of the property will be provided by SDHC when the 5-year restoration areas are signed off by the Wildlife Agencies. (d) Brodiaea coverage was granted by the Wildlife Agencies through a minor amendment December 2, 2005.

Table 7. Summary of City Compliance with Terms and Conditions of USFWS Permit through RY 9 (2012-2013) *continued*

Federal ESA 10(a) Permit Terms and Conditions (T&C)	Description of City Compliance
8. To minimize impacts to the California gnatcatcher, rufous-crowned sparrow, and orange-throated whiptail the city must: (a) Maintain and/or widen the habitat corridor between the city and Oceanside as much as feasible, and (b) If the driving range adjacent to the Kelly/Bartman property is proposed for a different use, the city will ensure that an on-site corridor is established on the driving range property.	(a) The corridor on the NE boundary of Carlsbad is conserved. Along the northern boundary, the Buena Vista Creek ER was acquired in 2007, resulting in 100% conservation, and the Summit (Kelly-Bartman) property was acquired by CDFW in 2010. (b) No other uses for this property have been proposed at this time.
9. As part of the project review process, a qualified biologist shall survey for all species with immediate and conditional coverage.	The city has included this as a condition of approval for all new projects.
10. The city will contact the USFWS Carlsbad Office immediately regarding any violations or potential violations of the FESA or the Migratory Bird Treaty Act.	The city regularly communicates with the USFWS on regulatory issues, and contacts the appropriate personnel immediately upon learning of any potential problems.
11. The city will notify the USFWS within one working day of finding any dead, injured, or sick threatened/endangered species.	No such individuals have been reported to or observed by the city.
12. All monitoring and reporting for this permit shall be in compliance with the MHCP (Vol. I and III) and the IA (Section 12).	See IA Section 12 discussion in Table 10 above for compliance information.
13. A copy of this permit must be on file with the city, its authorized agents, and third parties under the jurisdiction and direct control of the city.	A copy of this permit is on file with the city and is available to any interested parties.

1.5.3 City Compliance with HMP Zone-Wide Standards

The city is also required to ensure that all projects within Standards Areas comply with the zone-specific standards outlined in HMP Section D (Table 8). All projects that occur within a Standards Area are processed as a Consistency Finding. During this process, projects must demonstrate compliance with the standards before they receive concurrence from the Wildlife Agencies and are approved by the city; therefore, all approved development within Standards Areas is consistent with the HMP.

A total of 182.6 acres of coastal sage scrub occurs within Standards Areas throughout the HMP. To date, 16.1 acres have been lost (8.8%), and 62.5 acres have been conserved (34.2%). Zone-wide standards require at least 67% (122.3 acres) of the coastal sage scrub to be conserved. Therefore, the city must conserve at least 59.8 more acres of coastal sage scrub within the Standards Areas. Table 8 summarizes property-specific and linkage-related standards and current status. Refer to HMP Section D pp. D-73 through D-82 for additional zone-specific standards.

Table 8. Compliance with Zone-Wide Standards through RY 10 (2013-2014)

Zone	Zone-Specific Standard	Current Status
All Zones	A minimum of 67% of coastal sage scrub and 75% of the gnatcatchers shall be conserved overall within the Standards Areas.	Total coastal sage scrub habitat within Standards Areas: 182.6 acres. Coastal sage scrub loss = 16.1 acres (8.8%). Coastal sage scrub gains = 62.5 acres (34.2%). An additional 59.8 acres must be conserved to meet 67% conservation in the Standards Areas. Occupied gnatcatcher habitat is mitigated at 2:1, therefore there will be no net loss of gnatcatcher habitat within Standards Areas. The 75% standard is applied to every project individually.
Zone 1	Preserve at least 50% of coastal sage scrub and avoid areas occupied by gnatcatchers. Applies to several vacant lots on north shore of Agua Hedionda Lagoon and a larger, vacant in-fill lot SW of El Camino Real and Kelly Drive.	Vacant lots on north shore of Agua Hedionda: no projects have been finalized for these parcels. In-fill parcel (Aura Circle): property changed to a Proposed Hardline preserve during Coastal Commission processing of HMP. A tentative map conserving the Proposed Hardline preserve was approved however no grading permit has been issued.
Zone 2	1. Kelly/Bartman property: 50% of this property shall be conserved and must form a continuous corridor from the SE corner of the property to the northern edge. 2. Spyglass property: grasslands impacted on this property shall have offsite mitigation at 2:1 ratio.	Kelly-Bartman property (Summit): Existing Hardline preserve approved with 50% conservation including an open space corridor from the SE to the northern site boundary. Spyglass property: has been developed and grassland impacts were mitigated at a 2:1 ratio through restoration at Carlsbad Highlands Mitigation Bank.
Zone 8	1. Kirgis property: a maximum of 25% can be developed. 2. Callaghan property: a maximum of 50% can be developed. No impacts to narrow endemic species on either property.	Kirgis property: tentative map approved with 75% percent conservation however no grading permit has been issued. Callaghan property: no tentative map has been approved for this property.
Zone 14	Areas of upland habitat outside Linkage B may be taken in exchange for restoration and enhancement inside of the linkage as long as the result is conservation of at least 67% coastal sage scrub and associated gnatcatcher populations within southern portions of the zone.	Robertson Ranch encompasses the entirety of Zone 14. Due to agricultural activities, very little coastal sage scrub existed in the southern portion of the zone. The Existing Hardline Preserve, as approved by the Wildlife Agencies in 2005, 2007 and 2012, preserves 70% of the coastal sage scrub throughout the zone.
Zone 15	Maintain and enhance habitat linkages across Linkage C and adjoining Cores 3 and 5. Areas of upland habitat outside Linkage C may be taken in exchange for restoration and enhancement inside of the linkage as long as there is a no net loss of coastal sage scrub and associated gnatcatcher populations within southern portions of the zone.	Terraces at Sunny Creek and Rancho Milagro, occur within Core Area 5 in the southern portion of Zone 15. No net loss of coastal sage scrub has occurred.
Zone 20	Create continuous habitat through Linkage F between Core Areas 4 and 6. No net loss of coastal sage scrub or maritime succulent scrub within standards areas of the zone.	Projects: Emerald Pointe, North Coast Calvary Chapel, and Muroya. All three projects were processed through a Consistency Finding and approved by the City and Wildlife Agencies. No net loss of coastal sage scrub or maritime succulent scrub occurred.
Zone 21	Ensure habitat connectivity and wildlife movement east-west across the zone.	Projects: Poinsettia Place and Manzanita Partners, both Existing Hardline Preserves, provide east-west connectivity from El Camino Real to the Local Facilities Management Zone boundary.
Zone 25	At least 75% of the Sherman property must be conserved.	As of March 2007, 100% of the Sherman property (Buena Vista Creek Ecological Reserve) has been conserved.

1.6 Other Implementation Activities

1.6.1 Public Outreach

In coordination with the Carlsbad Parks and Recreation Department, the Center for Natural Lands Management and the City's Preserve Steward offer information about the HMP and preserve management at volunteer events such as National Public Lands Day, National Trails Day, and trail maintenance events. The city also conducted the HMP Annual Meeting at the City Faraday Center on March 25, 2014.

1.6.2 Poinsettia Fire

On May 14. 2014, the City of Carlsbad experienced the largest fire in recent history. Known as the Poinsettia Fire, the blaze consumed approximately 320 acres of natural open space, 295 acres of which was either existing or future HMP preserve. The preserves, acreages, and preserve managers (if applicable) within the burn area are listed below.

Aviara Premier Collection	29.83
Brehm-Aviara	2.37
Daybreak Community Church	3.23
Encantada	5.13
Fairfield Inn	0.09
Las Suerva	0.71
Manzanita Partners (HRS)	32.30
Marbrisa	0.88
Morning Ridge (Dudek)	19.36
Palomar B L C	0.27
Palomar Oaks Business Center	23.09
Pavoreal	12.92
Poinsettia Hills	12.45
Poinsettia Place (SDUC)	11.54
Rancho La Costa (CNLM)	60.78
SSR Western	0.57
Viadana	6.99
Zephyr Court	0.04
Baker (Standards Area)	0.54
R A D C/C A D C (Standards Area)	61.37
Reiter (Standards Area)	10.17
Saska (Standards Area)	0.73

Based on existing vegetation mapping data, the dominant native vegetation types included in the burn area are southern maritime chaparral (150.3 acres), southern mixed chaparral (60.9 acres), coastal sage scrub (27.1 acres), grasslands (15.5 acres), oak woodland (9.2 acres), and the

vernal pool complex in the Manzanita Partners preserve. The fire also burned agricultural (28.3 acres) and disturbed areas (22.0 acres).

Sensitive species previously mapped within the burn area include: Coastal California gnatcatcher (*Polioptila californica californica*), Thread-leaved brodiaea (*Brodiaea filifolia*), Nuttall's scrub oak (*Quercus dumosa*), Wart-stemmed ceanothus (*Ceanothus verrucosus*), Engelmann oak (*Quercus engelmanni*), Del Mar manzanita (*Arctostaphylos glandulosa* ssp*. crassifolia*), Summer holly (*Comarostaphylis diversifolia* ssp*. diversifolia*), Del Mar mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*), Coast live oak (*Quercus agrifolia*), and Ashy spike moss (*Seleginella cinerascens*).

Immediately following the fire, the city began coordinating with the Wildlife Agencies, preserve managers, property owners, other governmental agencies (such as Natural Resource Conservation Service (NRCS) and other local jurisdictions that have experienced wildfires in their preserves), and biological consultants to assess damage, determine necessary immediate and short-term management actions, identify potential outside funding sources, and begin planning for long term monitoring. The city developed a cross-departmental Fire Recovery Team, based upon an Incident Command organizational structure, which met every week to discuss all fire related issues, including actions within the open space areas. The areas of concern for the preserves were invasive weeds, junk and debris, access control, and erosion control.

As of October 31, 2014, the city had obtained property owner consent to allow the Carlsbad Watershed Network's Invasive Vegetation Control Program to enter their property and treat invasive weeds; organized a volunteer junk removal day and removed 11.8 tons of large junk and abandoned bulky items; coordinated with property owners on access control from city rights-of-way; and worked with two consulting firms to assess areas of high erosion potential and prepare an emergency erosion control plan. Some preserve managers worked independently to address issues. For example, CNLM installed fencing and began treatment of invasive weeds on their Rancho La Costa preserve and San Diego Urban Corps Habitat Services removed junk and debris on their Poinsettia Place preserve.

The city's Preserve Steward worked with CNLM to develop a post-fire monitoring strategy to track the trajectory of habitat recovery and the effectiveness of interim management actions in order to inform future decisions on the need for active restoration. The post-fire monitoring strategy was based on CNLM's *Blossom Valley Habitat Conservation Area Post-fire Monitoring and Management Strategy* (Tierra Data Inc., 2005), which includes a strong foundation in fire ecology by providing conceptual models relating fire to vegetation communities and species populations.

2.0 Preserve Management and Monitoring

2.1 Key Management Activities

2.1.1 City-Owned Preserves

All city-owned preserves have been actively managed by CNLM since December, 2008. The city preserves consist of 13 properties scattered throughout Carlsbad totaling 600.4 acres (Figure 4). Management activities this year included evaluation, assessment, and treatment of medium and zero tolerance invasive non-native plant species, enforcement patrols, installation of signs and kiosks, public education/outreach, participation in volunteer events, and coordination with police and fire departments on enforcement issues.

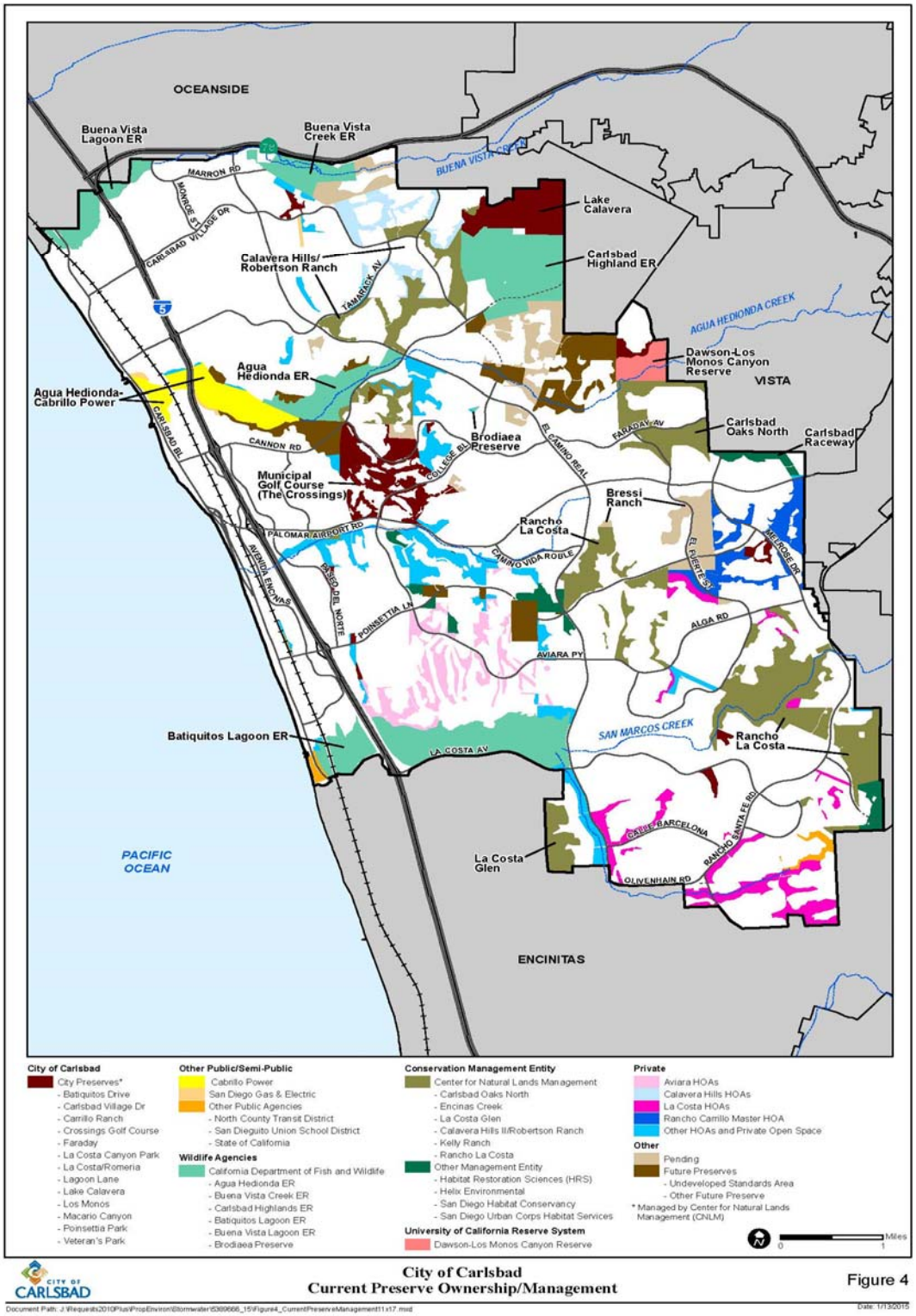
2.1.2 Other Actively Managed Preserves

Areas conserved since approval of the HMP are actively managed and monitored as required by the HMP and MHCP (Level 3, as defined in the MHCP). The preserves in this category are managed by CNLM, CDFW, San Diego Habitat Conservancy, San Diego Urban Corps Habitat Services, Habitat Restoration Sciences, and Helix Environmental. Ongoing management and monitoring activities on preserves throughout the HMP consist of invasive species removal, patrolling, vegetation mapping, species and habitat monitoring, installation and maintenance of fences, signs, and kiosks, and public outreach. These activities are summarized in Appendix A. A more detailed preserve-specific account of these activities is available in the preserve-specific annual reports submitted by preserve managers, which are available from the preserve managers upon request.

2.1.3 Pre-Existing Natural Open Space Preserves

Pre-existing natural open space preserves (i.e., areas that were already conserved at the time the HMP was approved) continue to be managed according to pre-existing management funding and arrangements. The majority of these preserves are managed by various HOAs. Other landowners responsible for management include University of California San Diego (Natural Reserve System), SDG&E, Cabrillo Power, North County Transit District (NCTD) and San Dieguito Union High School District. Pre-existing natural open space preserves are managed at a property maintenance level, which generally consists of fence maintenance and trash removal.

Figure 4. Preserve Ownership/Management



2.2 Monitoring

2.2.1 Species and Habitat Monitoring

A variety of biological surveys were conducted throughout the preserve system during the reporting period (Table 9). In addition, incidental observations of sensitive plants and wildlife were recorded by CNLM on properties it manages.

Table 9. Biological Monitoring Conducted in RY 10 (2013-2014)

Preserve	Surveys Conducted
Agua Hedionda Ecological Reserve	Light-footed clapper rail (*Rallus longirostris levipes*) surveys.
Batiquitos Lagoon Ecological Reserve	Light-footed clapper rail surveys; nest monitoring for California least terns (*Sterna antillarum browni*); monthly bird counts.
Buena Vista Creek Ecological Reserve	Thread-leaved brodiaea (*Brodiaea filifolia*) population and life-stage monitoring.
Buena Vista Lagoon Ecological Reserve	Light-footed clapper rail surveys; monthly bird counts.
Calavera Hills/ Robertson Ranch	Coastal sage scrub monitoring; thread-leaved brodiaea index plots performed; quarterly wildlife tracking; noted sensitive animal sightings.
Carlsbad Raceway	Conducted baseline sensitive species surveys; established vegetation monitoring plots and photo monitoring points; documented wildlife movement using cameras.
Carlsbad Oaks North	Documented wildlife movement using wildlife cameras; coastal California gnatcatcher surveys; thread-leaved brodiaea index plots performed; mapped flowering Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*); censused San Diego thornmint population (*Acanthomintha ilicifolia)* counted Nuttall's scrub oak (*Quercus dumosa)*; coastal sage scrub vegetation study plot monitoring ; monitored and planted additional corms to thread-leaved brodiaea impact area .
City Preserves	Performed thread-leaved brodiaea counts and habitat assessments; monitored Wiggin's cryptantha (*Cryptantha wigginsii*) population; noted sensitive animal sightings.
Emerald Pointe	Mapped vegetation communities and sensitive species.
Encinas Creek	Focused surveys for least Bell's vireo (*Vireo bellii pusillus)*; wildlife movement monitoring using cameras.
Kelly Ranch	Completed two coastal sage scrub releves; Counted Orcutt's hazardia (*Hazardia orcuttii*) seedlings and adults; Completed a releve pivot-plot survey of wart-stemmed ceanothus (*Ceanothus verrucosus*) dominated chaparral.
La Costa Collection	Monitored Del Mar sand aster (*Corethrogyne filaginifolia* var. *linifolia)* population.
Poinsettia Place	Monitored populations of Nutall's scrub oak, wart-stemmed ceanothus, and summer holly (*Comarostaphylis diversifolia ssp diversifolia*).
Rancho La Costa	Wildlife corridor tracking; conducted surveys for least Bell's vireo; focused surveys for Orcutt's hazardia, Orcutt's brodiaea (*Brodiaea orcutti*), and San Diego Thornmint; conducted census of Orcutt's hazardia; conducted thread-leaved brodiaea index plots and life stage tracking; coastal sage scrub vegetation study plot monitoring.

2.2.2 Wildlife Movement

On May 28, 2013, the city accepted a Local Assistance Grant from the California Department of Fish and Wildlife for the study of wildlife movement through the HMP preserve. The objective of the study is to evaluate the effectiveness of MHCP identified corridors and local corridors connecting core areas by evaluating animal passage through constrictions or pinch-points in the corridors. The grant period began in August 2013 and will continue through March 2015. The study involves three phases:

- Phase 1 - Linkage/Pinch-point Inventory: Using methods compatible to those used by the U.S. Geological Survey (USGS) for the Multiple Species Conservation Plan (MSCP) in San Diego, identify and evaluate potential linkages and pinch-points through the HMP. Investigate each of the identified potential pinch-points and inventory its characteristics, take images, and assess its suitability for future monitoring through wildlife cameras and/or tracking. As required by the grant agreement, the city submitted a draft interim report documenting Phase 1 activities and findings on October 31, 2013.
- Phase 2 – Wildlife Movement Monitoring: Starting on January 29, 2014, the city and Preserve Steward installed 11 cameras at eight pinch points, focusing on Agua Hedionda Creek, Encinitas Creek, and the Carlsbad Raceway preserve. In mid to late July, 2014, the Preserve Steward relocated two cameras and installed three additional cameras, focused on the Kelly Ranch and La Costa areas of the city. CNLM is operating wildlife cameras at several locations. As of the end of the reporting period, city staff and CNLM continued to maintain the cameras and collect data. CNLM is also collaborating with north San Diego County representatives of the San Diego Tracking Team on a tracking transect within the Calavera Hills Phase II preserve.
- Phase 3 – Analysis and Report: After analysis of the field data, the functionality of the corridors and constraints of the pinch-points will be assessed and any potential adaptive management available to improve mobility will be identified. Also the monitoring techniques will be evaluated and recommendations for improvement, if applicable, will be offered. A final report will be prepared detailing these analyses and evaluations.

2.3 Patrolling and Enforcement

Enforcement, as used in the habitat conservation and preservation realm, involves a combination of education, deterrence, and punitive actions. The goal of enforcement is to reduce or ideally eliminate human impacts to native flora and fauna, habitats, and ecological preserves from unauthorized human activities. The city continues to coordinate and cooperate with local preserve managers and the Carlsbad and Oceanside Police Departments in enforcing the rules and regulations within HMP preserves.

In general, human activity within most preserves, has minimal effect on the sensitive plant and animal species. There have been no reports of threatened or endangered plant populations being

impacted or vernal pools being damaged by human activity. The majority of people accessing the preserves do so using authorized trails. However, serious impacts can occur with only a few individuals therefore frequent education and outreach, access control efforts, and patrolling are needed on an ongoing basis. Below is a summary of the reported enforcement activities on HMP preserves.

Buena Vista Creek Ecological Reserve (CDFW, managed by CNLM)

- Conducted weekly visits;
- Removed 14 encampments;
- Met with city HMP staff, Carlsbad Watershed Network (San Elijo lagoon Conservancy staff), and Carlsbad Police Department regarding policing downstream to potentially avoid upstream encampment migration.
- Noted to hikers and bikers that no official trails have been established within the Ecological Reserve therefore the entire area is off limits.

Carlsbad Oaks North

- Conducted visits four times per month, combining patrolling with trash clean-up and invasive weed treatments;
- Responded to inquiries from neighboring residents about human usage of preserve;
- Removed two encampments.

Carlsbad Raceway

- Conducted quarterly visits, combining patrolling with trash clean-up, mapping of invasive weeds, biological monitoring, and observations of biodiversity and coastal California gnatcatcher;
- Prepared and distributed informational brochure to adjacent Owner's Association.

City Preserves

- Conducted patrols for 12 to 16 hours per week at Lake Calavera preserve;
- Noted steady decline in unwanted activities at Lake Calavera preserve, with graffiti, kiosk vandalism, dogs-off-leash, dog excrement, and skateboarding in the dam spillway being the primary issue areas.
- Conducted weekly to monthly patrols at other city preserves;
- Participated in city events to assist with public outreach and education about human usage of preserve;
- Repaired and maintained kiosks, and replaced damaged signs, as needed.

Emerald Pointe

- Conducted quarterly visits, combining patrolling with trash clean-up, mapping of invasive weeds, biological monitoring, and observations of biodiversity and coastal California gnatcatcher;
- Conducted public outreach with neighboring residents and adjacent Homeowner's Association.

Encinas Creek

- Conducted monthly visits, on average, combining patrolling with trash clean-up and invasive weed treatments;
- Noted damage to wildlife camera and loss of data;
- Noted dogs-off-leash resulting in minimal impacts to habitat.

Kelly Ranch

- Conducted visits two to three times per month, combining patrolling with trash clean-up and invasive weed treatments;
- Replaced kiosk materials including weed information, updated contact information, and a larger preserve map;
- Noted deteriorating vegetation conditions along trail edge due to human activity.

La Costa Collection

- Conducted quarterly visits, combining patrolling with trash clean-up and biological monitoring;
- Removed two encampments.

La Costa Glen

- Regular visits, combining patrolling with trash clean-up, invasive weed treatments, and sensitive species observations;
- Responded to inquiries from neighboring residents about human usage of preserve;
- Removed a few small encampments.

Manzanita Partners

- Conducted regular visits, combining patrolling with habitat and sensitive species monitoring.

Poinsettia Place

- Conducted quarterly visits, combining patrolling with biological monitoring.
- Removed an extensive encampment

Rancho La Costa

- Portions of preserve visited weekly, sometimes combined with biological surveys;
- Noted significant increase in trespass attempts at Box Canyon, probably due to summer weather conditions (e.g. 9:1 increase in June compared to previous two years);
- Carlsbad Police Department issued 19 citations to four large groups at Box Canyon;
- Coordinated with San Diego Mountain Biking Association to block unauthorized trails and educate public about proper trail use within the preserve;
- Repaired and updated materials in six mini-kiosks and two large kiosks.

With regard to CDFW Ecological Reserves, Law Enforcement promotes compliance with laws and regulations protecting fish and wildlife resources; investigates habitat destruction, pollution incidents and illegal commercialization of wildlife. Wardens also serve the public through general law enforcement, mutual aid and homeland security. In the City of Carlsbad, CDFW enforcement officers conduct regular patrols of the CDFW preserves (i.e. Buena Vista Lagoon Ecological Reserve, Carlsbad Highlands Ecological Reserve, Agua Hedionda Lagoon, and Batiquitos Lagoon).

3.0 Financial Summary

3.1 City Funding in Support of HMP

The city uses funding to support implementation of the HMP in two ways: (1) permanent funding allocated specifically for HMP coordination and management of city lands, and (2) existing resources, including administrative staff and staff from the Property and Environmental Management Department, the Planning Division of the Community Development and Economic Department, the Parks and Recreation Department, and the Police Department.

3.1.1 HMP Implementation

The majority of the city's ongoing costs to support HMP implementation are activities required by the HMP or the IA. Two of the city's main responsibilities are (1) oversight of the HMP Preserve, and (2) direct, active management of 600.4 acres of preserve land owned by the city.

To fulfill the first responsibility, the city dedicated a senior-level staff planner and provides other administrative support for HMP coordination. The city also contracted with a biological consulting firm to serve as the city's Preserve steward, coordinating management throughout the HMP preserve, and monitoring HMP compliance and management effectiveness. According to IA Section 14.5, at the time of HMP adoption the annual cost of program administration was estimated to be approximately $99,173 in 2013 dollars (U.S. Department of Labor Consumer Price Index). This reporting period, the city provided $95,000 in the annual budget to fund the contract for Preserve steward costs.

The second responsibility is being accomplished through the city's contract with CNLM, a non-profit preserve management company for the management of city-owned HMP preserves. Installation and maintenance of boundary fencing was provided by the city; therefore, the cost for fence installation was not the responsibility of CNLM. However, CNLM installs and maintains sections of interior fencing to block off unauthorized trails as feasible.

3.1.2 *In-lieu* Habitat Mitigation Fees

As described in Section 1.3.5, *in-lieu* habitat mitigation fees are collected from developers for project-related impacts to certain types of native habitat outside of the preserve. These habitats include non-native grassland, disturbed lands, eucalyptus, agricultural lands, unoccupied coastal sage scrub, coastal sage/chaparral mix, and chaparral (except southern maritime chaparral). The purpose of these fees is to fund the city's obligation to acquire, protect, and manage the Gnatcatcher Core Area.

As shown in Table 10, 15 mitigation fees (totaling $66,415.64) were paid during the current reporting period. One expenditure was made during the reporting period. On October 22, 2013, $217,075.50 was used to purchase 7.52 acres of coastal sage scrub habitat in the Core Area, which will be actively managed in perpetuity in accordance with the HMP. The shortfall was advanced by the City using the General Fund. *In-lieu* fees will continue to be collected for habitat impacts, as appropriate, and will be used to reimburse the General Fund and to purchase the remaining required Core Area acreage.

Table 10. *In-lieu* Mitigation Fee Account Activity in RY 10 (2013-2014)

Date	Description	Habitat Impacted	Total
11/01/13	**Beginning Fund Total**		**$(625,372.83)**
Fees Collected 11/01/13– 10/31/14			
01/15/14	Parker Residence	0.41 ac. of disturbed lands	$1,239.84
02/12/14	Gaitaud Residence	0.22 ac. of disturbed lands	$654.72
02/12/14	Tabata Ranch	0.9 ac of disturbed lands	$2,721.60
03/21/14	Carlsbad Desalination Plant	0.92 ac. of non-native grassland	$13,906.72
04/23/14	Fidelman Yuki Lane	0.83 ac. of disturbed lands	$2,509.92
04/28/14	Coastal 10	0.49 ac. of disturbed lands	$1,481.76
05/13/14	Spec House	0.22 ac. of disturbed lands	$665.28
06/17/14	1181 Oak Avenue	0.80 ac. of disturbed lands	$2,419.20
06/23/14	Takami	0.31 ac. of disturbed lands	$937.44
07/02/14	Tierra La Costa	0.18 ac of non-native grassland 0.56 ac. of disturbed lands	$13,785.93
08/19/14	King Property	1.12 ac. of disturbed lands	$3,386.88
08/21/14	Valley 17	3.76 ac. of disturbed lands	$11,370.24
09/12/14	La Costa Vista	0.40 ac. of disturbed lands	$1,190.40
09/19/14	De Anda Residence	0.26 ac of non-native grassland 0.06 ac. of disturbed lands	$4,111.60
10/08/14	The Enclave	1.97 ac. of disturbed lands	$6,034.11
		Total Fees Collected 11/01/13 – 10/31/14	*$66,415.64*
		Total Revenue 11/01/13 – 10/31/14	***$**66,415.64*
Funds Expended for Core Area Conservation 11/01/13 – 10/31/14			
10/22/13	Perkins Property	7.52 acres conservation credit	$217,075.50
		Total Funds Expended 11/01/13 – 10/31/14	***$217,075.50***
10/31/13	**Account Balance**		**$(776,032.69)**

3.2 Status of Preserve Management Endowments

The endowment activity and status for preserves funded through endowments are given in Table 11. This includes all preserves managed by CNLM, SDHC, HRS, and San Diego Urban Corps Habitat Services. CDFW's Carlsbad Highlands Ecological Reserve and Agua Hedionda Lagoon Ecological Reserve are funded through State Wildlife Grant funding. The Batiquitos Lagoon Ecological Reserve is funded through a mitigation account established by the Port of Los Angeles and held by CDFW.

Table 11. Endowment Status for HMP Preserves in RY 10 (2013-2014)

Site Name	Preserve Manager[1]	Inception Date	Original Endmt	Inflation Adj. Original Endmt as of 9/30/14[2]	Endowmt 9/30/14	RY 13-14 Budget	RY 13-14 Expend.	Initial & Capital 9/30/14	Total Funds as of 09/30/14
Buena Vista Creek Ecological Reserve	CNLM	4/2007	$776,644	$889,356	$1,101,084	$37,360	$38,356	$0	$1,101,084
Calavera Hills II/Robertson Ranch E[3]	CNLM	6/2006	$1,650,293	$1,943,621	$2,427,928	$88,139	$83,038	$0	$2,427,928
Carlsbad Oaks North	CNLM	3/2006	$1,020,311	$1,201,664	$1,414,889	$51,146	$51,305	$0	$1,414,889
Cassia Professional Offices	CNLM	1/2007	$100,844	$115,479	$144,429	$5,056	$5,102	$0	$144,429
Emerald Pointe	SDHC	12/2006	$194,068	$228,562	$232,272	$9,570	$9,570	$0	$232,272
Encinas Creek	CNLM	5/2008	$427,004	$470,894	$609,517	$19,217	$20,265	$0	$609,517
Kelly Ranch	CNLM	3/2002	$296,125	$390,828	$488,346	$15,275	$15,634	$0	$488,346
La Costa Collection	SDUCHS	2012	$378,756	$391,688	$436,107	$12,671	$12,671	$0	$436,107
La Costa Glen	CNLM	1/2013	$624,800	$636,805	$811,287	$30,397	$33,559	$66,797	$878,084
La Costa Villages	CNLM	2/2002	$1,364,400	$1,800,743	$2,062,354	$78,218	$82,404	$0	$2,062,354
Manzanita Partners	HRS	10/2012	$51,000	$52,741	$51,565	$1,600	$1,444	$0	$51,565
Nelson	CNLM	6/2001	$72,180	$96,770	$104,379	$3,545	$4,103	$0	$104,379
Poinsettia Place	SDUCHS	7/2011	$167,935	$177,263	$187,792	$5,315	$5,315	$0	$187,792
TOTAL			**$7,124,360**	**$8,396,414**	**$10,071,949**	**$357,509**	**$362,766**	**$66,797**	**$10,138,746**

[1] CNLM = Center for Natural Lands Management, SDHC = San Diego Habitat Conservancy, HRS = Habitat Restoration Sciences, SDUCHS = San Diego Urban Corps Habitat Services.

[2] Adjusted for inflation to the current dollar value as of 9/30/14 based on Bureau of Labor Statistics Consumer Price Index.

[3] CNLM merged funds for these two projects to provide a cost savings for Robertson Ranch East Village

4.0 References

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Habitat Management Plan for Natural Communities in the City of Carlsbad (City of Carlsbad). 2004.

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Appendix A

Summary of Management and Monitoring Activities within HMP Management Units

November 1, 2012 - October 31, 2013

Summary of HMP Management and Monitoring Activities, Nov 2013 – Oct 2014

Management Unit (MU)	Management Entity[1]	Management and Monitoring Activities
Agua Hedionda	**Preserve Manager: CDFG**	**Agua Hedionda Lagoon Ecological Reserve** ▪ Information not provided
	AH Lagoon Foundation	**Agua Hedionda Lagoon** ▪ Public education including: bat pollination talk, migratory bird festival (perils of migrating birds talk), World Water Day (water conservation, pollution, and wetlands education), Earth Day (*Caulerpa taxifolia* talk), and coyote spotlight hike ▪ Environmental Stewardship School field trip serving all CUSD students, other students residing in Carlsbad ▪ Trail Clean Up: North Shore Hubbs Trail (invasive species removal), and Trail Clean Up Day (all trails), weekly cleaning of North Shore Trail, Kelly School Trail, and Discovery Center Trail ▪ Hosted Carlsbad Watershed network meetings ▪ Conducted public outreach via recycled holiday craft nights ▪ Birding walks (monthly) ▪ Community Outreach at businesses, schools and City of Carlsbad events ▪ Lagoon Day run and Kayak Regatta for public awareness of Carlsbad lagoons
Arroyo La Costa	**HOAs**	Property-level management
Batiquitos Lagoon	**Preserve Manager: CDFG**	**Batiquitos Lagoon Ecological Reserve** ▪ Information not provided
	Batiquitos Lagoon Foundation	**Batiquitos Lagoon** ▪ Continued management of Cholla Point property, including erosion control. ▪ Maintained native plant demonstration garden near Park Hyatt-Aviara North Shore trailhead ▪ Managed Weed-Whacking/Trail Maintenance program for community, colleges, high schools, elementary schools, scouting organizations, corporations and other groups. ▪ Conducted eight annual Kayak Batiquitos Lagoon Clean-up event ▪ Released six males and one female light-footed clapper rails, as part of the breeding program ▪ Conducted monthly bird counts ▪ Conducted educational public walks and talks ▪ Hosted over ten thousand visitors at the educational nature center ▪ Hosted City of Carlsbad Arts Council Club Pelican art and environmental education program ▪ Designed and implemented Exploring Arts and Nature educational program ▪ Implemented high school and college internship program and hosted Eagle Scout service projects. ▪ Worked on acquiring approximately 11 acres of additional property adjacent to the ecological reserve ▪ Maintaining two restoration projects, totaling approximately eight acres. ▪ Hosted three restoration events ▪ Developing a strategic plan to improve nesting areas near North Shore Trail ▪ Developing an *Eyes on Nests* strategy to allow volunteers to aid in bird monitoring activities ▪ Served on Southern California Wetlands Recovery Project Task Force, North San Diego County Land Management Group, Carlsbad

Summary of HMP Management and Monitoring Activities, Nov 2013 – Oct 2014 *continued*

Management Unit (MU)	Management Entity[1]	Management and Monitoring Activities
		Watershed Network, and San Diego Conservation Resources Network ▪ Working to implement California's Marine Life Protection Act ▪ Public outreach and education about open space, lagoons, and marine environment at Street Faire and Beach Fest
Bressi/Carrillo	**Helix Environmental Planning**	**<u>Carlsbad Raceway</u>** ▪ Conducted a property inspection to assess the condition of the preserve ▪ Conducted baseline documentation and sensitive species surveys to map habitat and locations of sensitive plants and animals. ▪ Vegetation monitoring plots and photo monitoring points were established to monitor preserve health. ▪ Performed quarterly inspections to document habitat composition and needs, remove trash, and flag non-native plants ▪ Documented quarterly inspection, including observations and activities using quarterly log reports ▪ Performed non-native plant flagging, mapping, and removal ▪ Provided public outreach and education in the form of an annual newsletter
Buena Vista Creek	**Landowner: CDFG Preserve Manager: CNLM**	**<u>Buena Vista Creek Ecological Reserve</u>** ▪ Fourteen illegal encampments were disbanded and cleaned-up ▪ Trash was removed from former encampments and other localities ▪ Invasive plant species were removed completely from riparian corridors on two separate occasions ▪ Native forb and trees were installed in the riparian corridor ▪ Non-native removal occurred on upland enhancement areas ▪ Site visits occurred to monitor for any new invasive occurrences, and to inform trespassers of their infringement ▪ The Supplemental Environmental Project (SEP) restoration area was maintained ▪ Objectives and tasks within the SEP Scope of Work (SOW) were codified. ▪ Thread-leaved brodiaea (*Brodiaea filifolia*) population and life-stage monitoring was conducted ▪ Fuel zones were mowed as required ▪ An annual work plan for the upcoming management year was developed
	Preserve Calavera	**<u>Buena Vista Creek</u>** ▪ Continued to work towards mitigation plan for 2010 sewer spill. ▪ Supported planning for public trails with Quarry Creek project and the City's Master Trails Plan update. ▪ Continued efforts toward minimizing impacts of the Quarry Creek development on the Buena Vista Creek Ecological Reserve. ▪ Continued work with Coastkeeper for water quality and stream condition evaluations of Buena Vista Creek.
Buena Vista Lagoon	**Preserve Manager: CDFG**	**<u>Buena Vista Lagoon Ecological Reserve</u>** ▪ Information not provided
	Preserve Calavera	**<u>Buena Vista Lagoon/Watershed</u>** ▪ Partnered with Buena Vista Audubon Society to hold third Endangered Species Day event – the only such event in North County. ▪ Supported community education on native plants, wildlife, and preserve management issues at various fairs and outreach events.
	Buena Vista Audubon Society	**<u>Buena Vista Lagoon Ecological Reserve</u>** ▪ Conducted monthly lagoon bird counts ▪ Conducted monthly basic birding walks and classes at lagoon

Summary of HMP Management and Monitoring Activities, Nov 2013 – Oct 2014 *continued*

Management Unit (MU)	Management Entity[1]	Management and Monitoring Activities
		▪ Conducted school tours of Nature Center and lagoon and Summer Nature Camp ▪ Native Plant Outreach, Native Plant Club, and weekly native plant gardening ▪ Invasive plant species removal in conjunction with CDFG ▪ Weekly lagoon clean-up by challenged individuals ▪ Lagoon clean-ups in conjunction with Kiwanis and Eagle Creek Outfitters
Calavera	**Preserve Manager: CNLM**	**<u>Calavera Hills Phase II/Robertson Ranch East</u>** ▪ Sensitive animals observed on-site were noted ▪ Clay lens habitat was assessed ▪ Restoration of Village R was maintained ▪ CSS Restoration of Village H was continued and additional funding was secured ▪ 200 square meters of grassland within Village H was dethatched ▪ A dethatching experiment was performed within the thread-leaved brodiaea population of Village H ▪ Fennel (*Foeniculum vulgare*) and other non-natives were controlled at the Village H grasslands ▪ CSS forbs and shrubs were seeded at Village X ▪ Both chemical and mechanical treatments of non-native plant species were performed at Village X ▪ Thread-leaved brodiaea index plots and population trend monitoring was performed ▪ Two articles on thread-leaved brodiaea were partially completed ▪ Nonnative plant species were controlled throughout the property ▪ Controlled seepage through CE compliance ▪ Performed regular patrol, site enforcement, and trash pickup ▪ Existing trail blockages were maintained and new blockages were added
	Preserve Manager: CDFG	**<u>Carlsbad Highlands Ecological Reserve</u>** ▪ information not provided
	Preserve Calavera	**<u>Calavera area</u>** ▪ Continued quarterly wildlife tracking surveys. ▪ Funded additional ground surveys of wildlife corridor pinchpoints in support of City grant to study movement corridors. ▪ Arranged for an assessment of increased enforcement options of Calavera Highlands by Sheriff's Department ▪ Held annual native plant hike and supported hikes by the City. ▪ Partnered with the city on several trail building and clean-up projects. ▪ Served as trail co-captain stocking kiosks, picking up dog feces, dealing with horses, and monitoring trail conditions. **<u>Village H</u>** ▪ Secured a grant for a two year, Phase 2 restoration of about 2 acres.

Summary of HMP Management and Monitoring Activities, Nov 2013 – Oct 2014 *continued*

Management Unit (MU)	Management Entity[1]	Management and Monitoring Activities
Faraday	**Preserve Manager: CNLM**	**Kelly Ranch** ▪ Noted and mapped sensitive plants and animals when observed ▪ Performed baseline conditions survey of the two Del Mar manzanita locations ▪ Completed two CSS releves ▪ Counted Orcutt's hazardia (*Hazardia orcuttii*) seedlings and adults ▪ Completed a releve pivot-plot survey of wart-stemmed ceanothus (*Ceanothus verrucosus*)dominated chaparral ▪ Removed or treated non-native plant species, including dozens of Natal grass (*Melinis repens*) and dozens Saharan mustard (*Brassica tournefortii*) individuals ▪ Performed regular patrol, site enforcement, and trash removal ▪ Conducted annual CE compliance visit ▪ Replaced kiosk materials as necessary
Los Monos	**Preserve Manager: CNLM**	**Carlsbad Oaks North** ▪ Any sensitive animals observed were mapped ▪ Performed CSS monitoring ▪ Index plots and life-stage tracking studies of thread-leaved brodiaea (*Brodiaea filifolia*) was performed ▪ Maintained thread-leaved brodiaea impact area ▪ Conducted surveys of the San Diego horned lizard (*Phrynosoma blainvillii*) ▪ The San Diego thornmint (*Acanthomintha ilicifolia*) population was counted and habitat conditions were assessed ▪ Non-native grasses in selected areas were chemically treated with Fusilade®II ▪ Non-natives such as bull thistle (*Cirsium vulgare*), pampas grass (*Cortaderia selloana*), and fennel (*Foeniculum vulgare*) were controlled witihin the area ▪ Conducted CE compliance on non-fee title parcels ▪ Developed annual work plan for coming year ▪ Patrolled the area regularly, cleaned up trash, and performed site enforcement
	Preserve Calavera	**Carlsbad Oaks North** ▪ Worked with city to install wildlife crossing warning signs above Faraday Ave undercrossing **Dawson Los Monos Preserve** ▪ Coordinated community education hike. ▪ Performed follow-up inspection of fire safety demonstration plots.
Poinsettia/Aviara	**Helix Environmental**	**North Coast Calvary Chapel Open Space** ▪ Information not provided
	Aviara Master HOA	Property-level management

Summary of HMP Management and Monitoring Activities, Nov 2013 – Oct 2014 *continued*

Poinsettia/Aviara ***continued***	**Other HOAs**	Property-level management
	Preserve Manager: San Diego Habitat Conservancy	**<u>Emerald Pointe</u>** ▪ Performed quarterly inspections to document habitat composition and needs, remove trash, and flag non-native plants ▪ Documented quarterly inspection, including observations and activities, using quarterly log reports ▪ Conducted vegetation mapping review in the field to determine if vegetation mapping data from 2009 was still accurate for the area ▪ Performed non-native plant flagging, mapping, and removal ▪ Dethatched test plots near the San Diego thornmint population ▪ Monitored San Diego thornmint population ▪ Provided public outreach and education in the form of an annual newsletter
	San Diego Urban Corps Habitat Services?	**<u>City Ventures</u>** ▪ Non-native plant species removal ▪ Del Mar mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*) monitoring ▪ Conducted site monitoring to inspect overall condition, remove trash and debris, dismantle encampments, monitor sensitive plant and animal species.
	CNLM	**<u>Encinas Creek/North County Habitat Bank</u>** ▪ Performed surveys for least Bell's vireo (*Vireo bellii pusillus*) ▪ Performed camera surveys to determine presence and use of the Preserve by large mammals ▪ Controlled non-native plant species ▪ Installed a four-strand barbed wire fence in the north western corner of the site to deter trespassers ▪ Initiated site preparation in the south eastern restoration area ▪ Conducted regular patrols, site enforcement, and trash pickup ▪ Composed budgets, annual reports, and work plans
	Habitat Restoration Sciences	**<u>Manzanita Partners</u>** ▪ Inspected and replaced signs and fences as necessary – conducted prior to the fire. ▪ Patrolled and conducted site assessments on a regular basis, removed trash, and monitored non-native presence. ▪ Replaced vernal pool markers ▪ Conducted a City-sponsored large trash clean-up day ▪ Noted all animal and plant species observed and mapped locations of any sensitive species
	San Diego Urban Corps Habitat Services	**<u>Poinsettia Place</u>** ▪ Performed biological monitoring of rare plant populations on-site, established photo points ▪ Held Preserve Managers meeting to discuss post-fire strategies ▪ Conducted general monitoring to survey for fire-breaks, trash, and illegal encampments ▪ Removed trash and debris on-site and disbanded illegal encampments

Summary of HMP Management and Monitoring Activities, Nov 2013 – Oct 2014 *continued*

Villages of La Costa	**Preserve Manager: CNLM**	**Rancho La Costa** ▪ The Poinsettia fire, a large wildfire that burned approximately 60 acres of Southern Maritime Chaparral habitat at the Greens, requires staff resources to protect this area, oversee activities, and increase patrols. ▪ The Cocos-Washingtonia Fire burned roughly 3.7 acres of Pfau Conservation Easement and Frank's Peak ▪ Continued long-term monitoring plots for coastal sage scrub ▪ Wildlife corridor tracking was performed ▪ Surveys for Least Bell's vireo were conducted on various parcels ▪ Focused surveys were conducted for sensitive plants: San Diego thornmint (*Acanthomintha ilicifolia*), Orcutt's brodiaea, and Orcutt's hazardia ▪ Habitat conditions of the San Diego thornmint were assessed ▪ A census was taken of Orcutt's hazardia individuals and habitat improvements were made ▪ Continued long-term research of the sensitive thread-leaf brodiaea; index plots were used in continued research and a life stage tracking study was initiated ▪ Non-native plant species were controlled; a long-term eucalyptus (*Eucalyptus* sp.) removal project was initiated in Copper Creek ▪ Funds obtained from Vallecitos Water District as compensatory mitigation for impacts at a different CNLM-owned HCA were used to enhance wetland vegetation on the Greens parcel ▪ Considerable time was spent dealing with internment camps, cleaning up trash, preventing trespass, and educating the public about conservation and site sensitivities of the HCA ▪ Trail improvements were conducted by staff and volunteers ▪ Volunteers made improvements to various structures ▪ Fence and signs were installed at locations throughout ▪ Fuel breaks were maintained per City of Carlsbad Fire Department regulations ▪ CE compliance monitoring was conducted and all required documents were prepared ▪ Rangers patrolled the HCA throughout the year and ensured summer visitors to Box Canyon did not enter the area
Multiple MUs	**Preserve Manager: CNLM**	**City of Carlsbad Preserves** ▪ Performed habitat assessments and counts of thread-leaved brodiaea ▪ Non-native species considered to be zero or moderate-tolerance plants were treated or removed ▪ Non-native plant species occurring within the Crossing Golf restoration area were removed ▪ Conducted routine patrols to protect the preserve, maintain fences, and provide information to visitors ▪ Visitors to Lake Calavera were provided with outreach materials ▪ CNLM staff met with City staff and the Preserve Steward to discuss Preserve management, monitoring , and other issues within the city ▪ Participated in volunteer events organized by the City
	Preserve Calavera	▪ Worked with SD County Vector Control to develop Standard Operating Procedures for staff work in sensitive habitat
	City Parks and Recreation Department	▪ Trail clean up and maintenance monthly through volunteers ▪ Quarterly trail volunteer meetings ▪ Public outreach events such as National Trails Day and National Public Lands Day

Appendix B

Habitrak Reports
Year 10

November 1, 2013 - October 31, 2014

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Summary of Project Gains

MHCP West San Diego County

From 1/1/2013 To 12/31/2014

City of Carlsbad

Project Tracking #	Project Name	Location	Applicant	APN	Date Cons.	Status	Mgmt Resp.	Conservation Type	Mit. Bank Credits Used	Acres Outside Habitat Preserve	Acres Inside Habitat Preserve	Total Acres
000-000	Fair Oaks Valley		California West Communities		11/21/2013	Gain	Non-Profit	Easement	0.00	7.59	47.86	55.45
Total for Agency: City of Carlsbad									**0.00**	**7.59**	**47.86**	**55.45**

DRAFT

Summary of Project Losses

MHCP West San Diego County

From 1/1/2013 To 12/31/2014

City of Carlsbad

Project Tracking #	Project Name	Location	Applicant	APN	Date of Loss	Status	CEQA Doc.	Activity Type	Acres Outside Habitat Preserve	Acres Inside Habitat Preserve	Total Acres
000-000	Fair Oaks Valley		California West Communities		11/21/2013	Loss	0		20.96	0.98	21.94
Total for Agency: City of Carlsbad									**20.96**	**0.98**	**21.94**

DRAFT

Summary of Habitat Losses and Gains

Plan: MHCP West San Diego County

Date Range: 1/1/2013 - 12/31/2014

Project Gain Status: Gain

Project Loss Status: Loss

City of Carlsbad

		Acres Inside the Habitat Preserve Planning Area					Acres Outside the Habitat Preserve				Total Acres			
		Habitat Loss		Habitat Gain			Habitat Loss		Habitat Gain		Habitat Loss		Habitat Gain	
Habitat Type	Target Cons.	Current Period	Cummulative	Current Period	Cummulative	Cons. to Date %	Current Period	Cummulative	Current Period	Cummulative	Current Period	Cummulative	Current Period	Cummulative
Southern Coastal Bluff Scrub	0	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maritime Succulent Scrub	29	0.00	1.55	0.00	25.51	87.96 %	0.00	0.03	0.00	5.54	0.00	1.58	0.00	31.05
Coastal Sage Scrub	2,003	0.59	16.87	44.75	1,670.19	83.38 %	16.92	177.30	7.17	15.19	17.51	194.18	51.92	1,685.37
Chaparral	676	0.00	1.92	0.00	605.27	89.54 %	0.00	65.68	0.00	0.03	0.00	67.60	0.00	605.29
Southern Maritime Chaparral	342	0.00	3.55	0.00	344.64	100.77 %	0.00	16.24	0.00	1.52	0.00	19.79	0.00	346.16
Coastal Sage-Chaparral Scrub	107	0.00	0.00	0.00	112.43	105.08 %	0.00	153.48	0.00	0.00	0.00	153.48	0.00	112.44
Grassland	707	0.39	25.44	3.11	638.90	90.37 %	4.04	230.50	0.42	2.02	4.43	255.93	3.54	640.92
Southern Coastal Salt Marsh	143	0.00	0.00	0.00	127.79	89.36 %	0.00	0.00	0.00	0.01	0.00	0.00	0.00	127.80
Alkali Marsh	9	0.00	0.00	0.00	0.00	0.00 %	0.00	0.13	0.00	0.00	0.00	0.13	0.00	0.00
Freshwater Marsh	165	0.00	0.00	0.00	138.83	84.14 %	0.00	0.89	0.00	0.28	0.00	0.89	0.00	139.10
Riparian Forest	82	0.00	0.92	0.00	62.84	76.64 %	0.00	1.25	0.00	0.42	0.00	2.18	0.00	63.27
Riparian Woodland	17	0.00	1.33	0.00	11.66	68.59 %	0.00	0.00	0.00	0.00	0.00	1.33	0.00	11.66
Riparian Scrub	395	0.00	0.16	0.00	376.57	95.33 %	0.00	9.81	0.00	0.59	0.00	9.97	0.00	377.16
Englemann Oak Woodland	0	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coast Live Oak	20	0.00	0.00	0.00	7.65	38.27 %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.65
Other Oak Woodland	4	0.00	0.00	0.00	4.82	120.54 %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.82
Freshwater	53	0.00	0.00	0.00	51.42	97.03 %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.42
Estuarine	789	0.00	0.00	0.00	776.50	98.42 %	0.00	0.00	0.00	0.01	0.00	0.00	0.00	776.51
Disturbed Wetland	93	0.00	0.00	0.00	88.63	95.30 %	0.00	11.72	0.00	0.49	0.00	11.72	0.00	89.12
Natural Floodchannel	0	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beach	0	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Saltpan/Mudflats	0	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	185	0.00	128.54	0.00	222.78	120.42 %	0.00	462.17	0.00	3.21	0.00	590.71	0.00	225.98
Eucalyptus Woodland	99	0.00	1.34	0.00	94.92	95.88 %	0.00	0.47	0.00	0.02	0.00	1.81	0.00	94.94
Disturbed Land	244	0.00	3.28	0.00	239.25	98.05 %	0.00	190.55	0.00	18.18	0.00	193.83	0.00	257.43
Urban/Developed	0	0.00	13.06	0.00	307.01		0.00	42.35	0.00	0.86	0.00	55.40	0.00	307.87
Southern Foredunes	0	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agency Total:		**0.98**	**197.98**	**47.86**	**5,907.60**		**20.96**	**1,362.56**	**7.59**	**48.38**	**21.94**	**1,560.54**	**55.45**	**5,955.98**

Note: The Agriculture and Urban/Developed category is included to account for all land included within a project and habitat preserve planning area.

DRAFT

Habitat Conservation Accounting Model

MHCP West San Diego County

From 1/1/2013 To 12/31/2014

Project Gain Status: Gain

Project Loss Status: Loss

City of Carlsbad	**Total Subarea Habitat Preserve**	**Conservation Target**	**Estimated Take**	**Conservation Ratio**	**Cumulative Conservation Inside Habitat Preserve**	**Max. Allowable Impacts for the Current Period**	**Actual Loss Inside Habitat Preserve for Current Period**	**+ or - Max. Allowable Impacts**
Southern Coastal Bluff Scrub	0	0	0	0.00	0.00	0.00	0.00	n/a
Maritime Succulent Scrub	29	29	0	0.00	25.51	0.00	0.00	n/a
Coastal Sage Scrub	2,003	2,003	0	0.00	1,670.19	0.00	0.59	+
Chaparral	676	676	0	0.00	605.27	0.00	0.00	n/a
Southern Maritime Chaparral	391	342	49	6.98	344.64	49.34	0.00	-
Coastal Sage-Chaparral Scrub	113	107	6	17.83	112.43	6.27	0.00	-
Grassland	756	707	49	14.43	638.90	44.75	0.39	-
Southern Coastal Salt Marsh	143	143	0	0.00	127.79	0.00	0.00	n/a
Alkali Marsh	9	9	0	0.00	0.00	0.00	0.00	n/a
Freshwater Marsh	165	165	0	0.00	138.83	0.00	0.00	n/a
Riparian Forest	82	82	0	0.00	62.84	0.00	0.00	n/a
Riparian Woodland	17	17	0	0.00	11.66	0.00	0.00	n/a
Riparian Scrub	395	395	0	0.00	376.57	0.00	0.00	n/a
Englemann Oak Woodland	0	0	0	0.00	0.00	0.00	0.00	n/a
Coast Live Oak	22	20	2	10.00	7.65	0.89	0.00	-
Other Oak Woodland	5	4	1	4.00	4.82	1.18	0.00	-
Freshwater	53	53	0	0.00	51.42	0.00	0.00	n/a
Estuarine	789	789	0	0.00	776.50	0.00	0.00	n/a
Disturbed Wetland	93	93	0	0.00	88.63	0.00	0.00	n/a
Natural Floodchannel	0	0	0	0.00	0.00	0.00	0.00	n/a
Beach	0	0	0	0.00	0.00	0.00	0.00	n/a
Saltpan/Mudflats	0	0	0	0.00	0.00	0.00	0.00	n/a
Agriculture	692	185	507	0.36	222.78	600.17	0.00	-
Eucalyptus Woodland	105	99	6	16.50	94.92	5.78	0.00	-
Disturbed Land	286	244	42	5.81	239.25	41.26	0.00	-
Urban/Developed	0	0	0	0.00	307.01	0.00	0.00	n/a
Southern Foredunes	0	0	0	0.00	0.00	0.00	0.00	n/a
Total Acres for Agency: City of Carlsbad					**5,907.60**		**0.98**	

Note: The Agriculture and Urban/Developed category is included to account for all land included within a project and habitat preserve planning area.

Appendix C

Triennial Monitoring Summary

Triennial Monitoring Summary Report

Carlsbad Habitat Management Plan (HMP)

Prepared for
City of Carlsbad

February 2015

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TABLE OF CONTENTS

Triennial Monitoring Summary Report
Carlsbad HMP

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1.0 Introduction

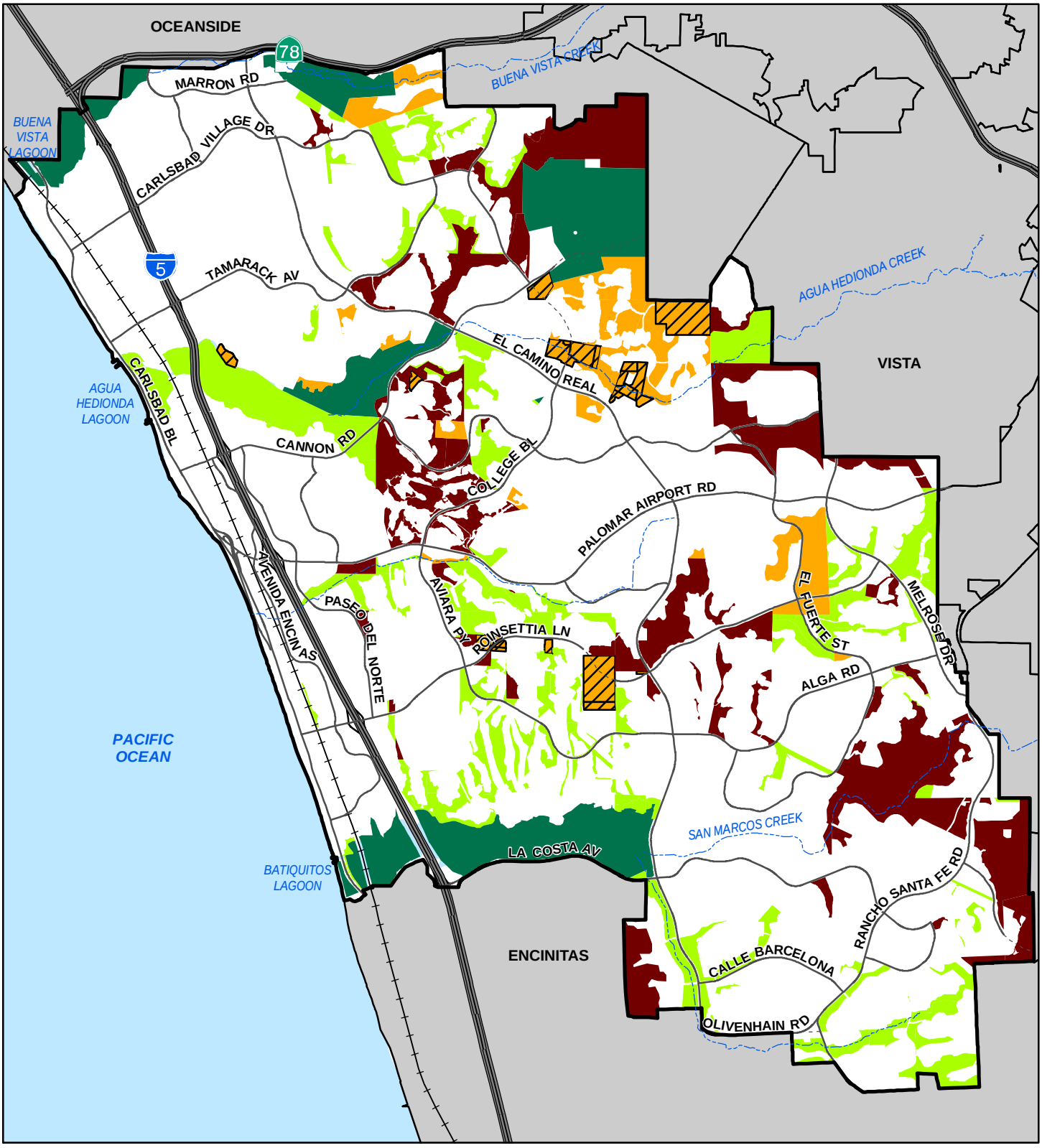
This report summarizes the results of biological monitoring that has been conducted within the Carlsbad Habitat Management Plan (HMP) preserve system since adoption of the HMP in November of 2004. This monitoring summary is provided every three years, pursuant to the HMP and Open Space Management Plan (TAIC 2004). Monitoring is conducted by the on-site preserve manager of each preserve. The monitoring results are then submitted through site-specific annual reports and GIS data to the HMP Preserve Steward, who summarizes the data every three years into a triennial monitoring summary report.

The preserve system is made up of several categories of HMP preserves (Figure 1):

1. Established private and city-owned preserves - established after approval of the HMP. These preserves are funded through endowments or other permanent funding sources for active management.
2. California Department of Fish and Wildlife (CDFW) ecological reserves - owned and managed by CDFW.
3. Pre-existing preserves - established prior HMP approval. These preserves are generally owned and managed by private HOAs. Management on these lands is minimal, consisting mostly of access control and trash collection.
4. Standards Areas - undeveloped areas within the HMP boundary. When these areas are developed, specific HMP standards must be followed, including the permanent conservation of a portion of the property.

For the most part, monitoring data is collected on established private and city-owned preserves and CDFW ecological reserves. Figure 2 shows the land owner and preserve manager for individual preserves. Results of monitoring for vegetation communities and species are summarized below.

In the last couple of years, drought and wildfire had a significant impact on the condition of the preserve system. Severe drought conditions were especially prominent during the 2012/2013 and 2013/2014 wet season. The wet season generally occurs between October and February. When looking at annual rainfall totals between October and September, the average rainfall in Carlsbad (based on historical weather data from Palomar Airport) is 10.3 inches. Total rainfall in Carlsbad over the last two years was only 6.2 inches in 2012/2013 and 4.7 inches in 2013/2014 (McConnell 2014), which is only 60 percent and 46 percent, respectively, of the average.



Legend

- Established Private and City-owned Preserve
- California Department of Fish and Wildlife Ecological Reserve
- Pre-existing Natural Open Space Preserve
- Standards Area
- Future Preserve Standards Area

N

0 — Feet — 6,400

CITY OF CARLSBAD

City of Carlsbad
Categories of HMP Preserves

Figure 1

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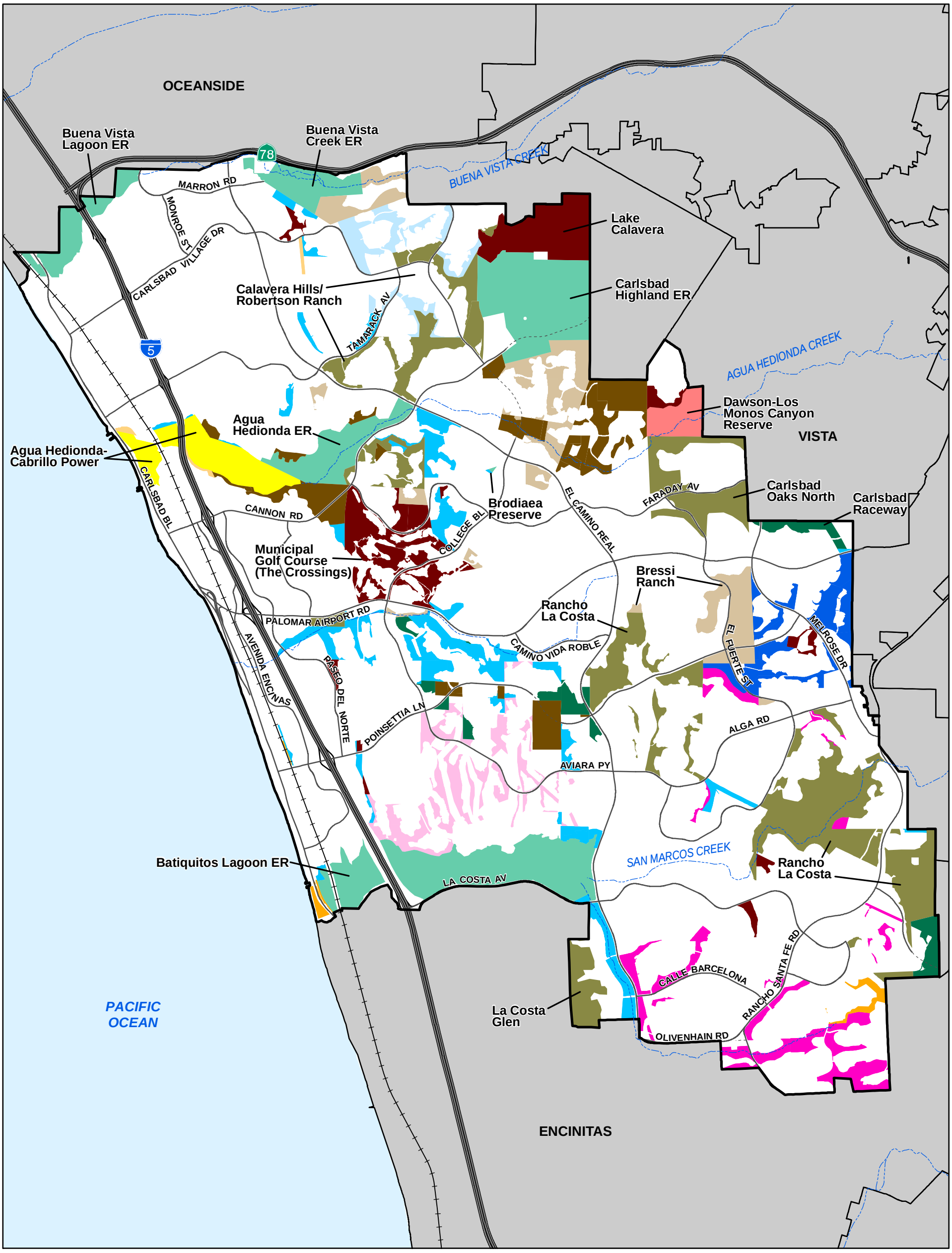
Date: 1/13/2015



City of Carlsbad
- City Preserves*
  - Batiquitos Drive
  - Carlsbad Village Dr
  - Carrillo Ranch
  - Crossings Golf Course
  - Faraday
  - La Costa Canyon Park
  - La Costa/Romeria
  - Lagoon Lane
  - Lake Calavera
  - Los Monos
  - Macario Canyon
  - Poinsettia Park
  - Veteran's Park

Other Public/Semi-Public
- Cabrillo Power
- San Diego Gas & Electric
- Other Public Agencies
  - North County Transit District
  - San Dieguito Union School District
  - State of California

Wildlife Agencies
- California Department of Fish and Wildlife
  - Agua Hedionda ER
  - Buena Vista Creek ER
  - Carlsbad Highlands ER
  - Batiquitos Lagoon ER
  - Buena Vista Lagoon ER
  - Brodiaea Preserve

Conservation Management Entity
- Center for Natural Lands Management
  - Carlsbad Oaks North
  - Encinas Creek
  - La Costa Glen
  - Calavera Hills II/Robertson Ranch
  - Kelly Ranch
  - Rancho La Costa
- Other Management Entity
  - Habitat Restoration Sciences (HRS)
  - Helix Environmental
  - San Diego Habitat Conservancy
  - San Diego Urban Corps Habitat Services

University of California Reserve System
- Dawson-Los Monos Canyon Reserve

Private
- Aviara HOAs
- Calavera Hills HOAs
- La Costa HOAs
- Rancho Carrillo Master HOA
- Other HOAs and Private Open Space

Other
- Pending
- Future Preserves
  - Undeveloped Standards Area
  - Other Future Preserve

* Managed by Center for Natural Lands Management (CNLM)

N

0 1 Miles

CITY OF CARLSBAD

City of Carlsbad
Current Preserve Ownership/Management

Figure 2

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Date: 1/13/2015

The drought conditions helped pave the way for the Poinsettia Fire, which burned over 300 acres in Carlsbad in May of 2014, most of which was within the HMP boundary. On the day the fire broke out, the area was experiencing extreme Santa Ana conditions, which is a fairly rare occurrence at that time of year, bringing the humidity levels down and bringing temperatures up to almost 100 degrees Fahrenheit.

2.1 Vegetation Communities

2.1.1 Vegetation Mapping

Long-term vegetation monitoring within the HMP is accomplished through periodic mapping and focused studies. Mapping is conducted within preserves by the preserve managers every five years to document changes in vegetation community boundaries over time. Vegetation communities have been mapped using the Holland (1986) classification system, as revised by Oberbauer (2008), which is the classification system used in the MHCP and HMP. Recently, the San Diego Association of Governments (SANDAG) commissioned an effort to develop a classification system that conforms to national and statewide mapping efforts. The resulting *Vegetation Classification Manual for Western San Diego County* was completed in 2011 (SANDAG 2011). This system is based on alliances and associations, which are defined by the presence and abundance of diagnostic species. Because this classification is much more fine-scaled, mapping is more time-consuming; however, it provides more information about variation within the habitat. Although not required by the HMP, preserve managers are encouraged to use this newer classification system. Information about preserve-level changes in vegetation mapping is provided in site-specific annual reports.

2.1.2 Long-Term Coastal Sage Scrub Monitoring

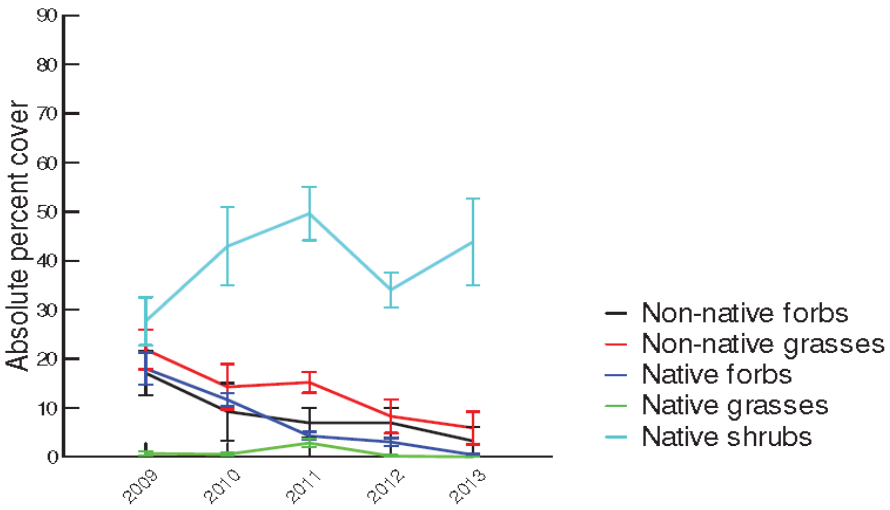
The Center for Natural Lands Management (CNLM) began a long-term monitoring program in coastal sage scrub (CSS) habitat during the spring of 2009 by setting up modified Whittaker plots (see CNLM 2010a for methods and rationale). CNLM collaborated with Dr. Douglas Deutschman of San Diego State University (SDSU) in 2010 to develop a rotating panel approach to monitoring for a trial period prior to determining the ideal sample replicate size. Various sites in Carlsbad, which are distributed evenly across the landscape, will be visited every year on a three-year return interval. A selection of the sites will be visited every year. The purpose of the study is to track and evaluate changes in the structure and composition of coastal sage scrub over time.

In 2009, CNLM established 15 plots and collected data from 9 of the plots. In 2010, an additional five plots were established and data were collected from 9 of the plots (3 of which were repeats of data collected in 2009). In 2011, four more plots were established. To date, 40 plots have been established within CNLM-managed preserves, and data have been collected from 36 of these plots. Two have been identified on CDFW land, but have not yet been installed,

as they will be rotated into the annual monitoring during 2016. Starting in the spring of 2015, six additional plot locations will be added within the Aviara Master Association area in locations of documented gnatcatcher presence. Two of the six sites will be visited every year, repeating on a three-year return interval (rotating panel approach), which will complement the larger fraction of total plots visited annually throughout Carlsbad.

Results

To date, it appears that no change in shrub cover has occurred over time (see graph below). However, there have been noticeable declines in non-native grass cover over the repeated monitoring years (2009/2012 and 2010/2013). Additionally, both non-native and native forb cover is markedly lower over time, with native forb cover having the largest decrease. No statistical testing has been done on these data, but the size of the error bars, and distance between those bars suggests that the native forb cover is significantly lower in 2012 than in 2009, and also much lower in 2013 than in 2010. These declines relate to the highly variable rainfall experience during the years since 2009, especially the drought conditions experienced in 2012 and 2013.

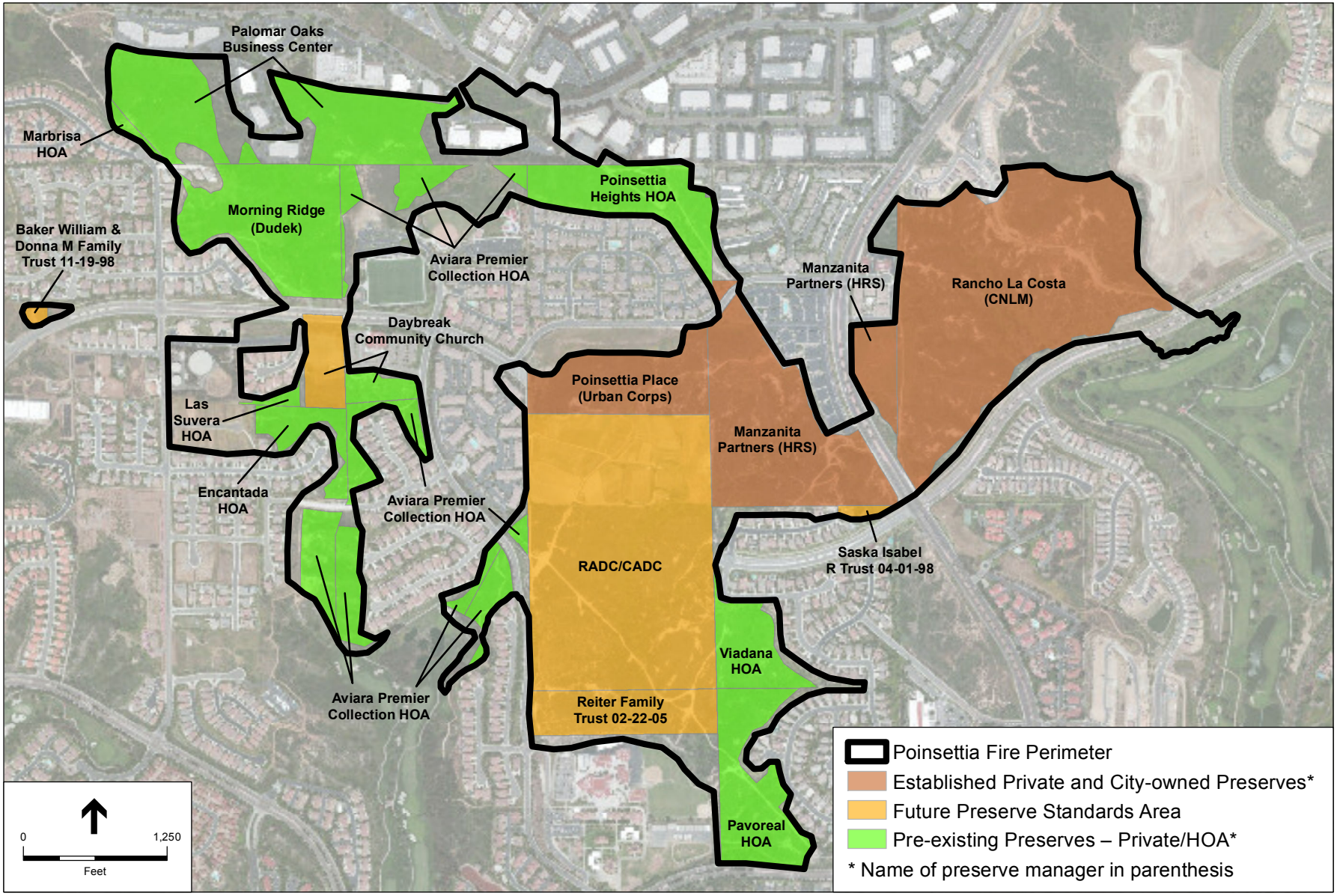


Average Vegetation Percent Cover in CSS. Note that plots are repeated on a three-year return interval (+/-1s.e). For example, 2009 shrub cover is most similar to 2012 shrub cover because these are the same plots being re-read.

2.1.3 Post-Fire Monitoring

In May of 2014, approximately 317 acres of habitat burned in the Poinsettia Fire (Table 1). The majority of this habitat was within the HMP preserve boundary in pre-existing preserves (private HOA lands), actively managed preserves (established private and city-owned), and Standards Areas (future preserves) (Figure 3). In order to evaluate the trajectory of habitat recovery, the City of Carlsbad (City), in coordination with the Preserve Steward and CNLM, developed a post-

fire monitoring protocol, which consists of a quantitative and qualitative assessment in 26 locations throughout the burn area, stratified by habitat type (southern maritime chaparral, southern mixed chaparral, coastal sage scrub, vernal pools, and oak woodland/forest). The



SOURCE: City of Carlsbad

City of Carlsbad Preserve Steward . 120574

Figure 3

Fire Perimeter - Preserves and Preserve Manager

monitoring will be conducted annually for five years, starting in the spring of 2015 to inform preserve managers about adaptive management actions that may be needed to ensure successful habitat recovery.

Table 1. Vegetation Types within the Poinsettia Fire Burn Area*

Vegetation Type	Acres
Southern Maritime Chaparral	150.3
Chaparral	60.9
Coastal Sage Scrub	27.1
Agricultural	28.3
Disturbed	22.4
Grassland	15.5
Oak Woodland	9.2
Wetlands	1.2
Eucalyptus Woodland	1.0
Riparian Scrub/Woodland/Forest	0.6
TOTAL	**316.5**

* including natural lands outside of the HMP boundary

2.2 Species

This section summarizes the monitoring results for species with site-specific permit conditions (i.e., those that require individual populations to be tracked) (MHCP 2003, Vol. III). The species are grouped by general type, including upland plants, vernal pool plants and animals, lagoon/coastal birds, riparian birds, upland birds, and wildlife movement. Long-term focused species monitoring is being conducted to document species persistence in the preserve system, and to inform site-specific management actions. The information summarized in this report comes from site-specific annual reports, regional species monitoring reports, and GIS data.

Table 2 below summarizes the years during which focused species surveys have been conducted on each preserve. Figures 4 – 9 show the known locations of these species based on data from Preserve Managers, California Natural Diversity Database (CNDDB), and the U.S. Fish and Wildlife Service (USFWS). Figure 10 shows the habitat linkages and potential pinch points (barriers to movement) that were evaluated as part of a wildlife movement evaluation study. These maps are located at the end of this report.

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Table 2. Priority Species Surveys Conducted on Actively Managed Preserves

Species	Agua Hedionda Lagoon ER	Batiquitos Lagoon ER	BV Lagoon ER	1-Ac Brodiaea Preserve	BV Creek ER	Calavera/Rob Ranch E	Carlsbad Highlands ER	Carlsbad Oaks N	Carlsbad Raceway	City Preserves	City Ventures	Emerald Pointe	Encinas Ck	La Costa Glen	Kelly Ranch	Manzanita Partners	Morning Ridge	Poinsettia Place	Rancho La Costa
Upland Plant Species																			
San Diego thornmint	NP	NP	NP	NP	NP	2008-2012[2]	NP	2007-2014[2]	NP	NP	NP	2010, 2014	NP	NP	NP	NP	NP	NP	2005-2014[2]
Thread-leaved brodiaea	NP	NP	NP	Not surveyed	2011-2014[2]	2006-2014[2]	2008	2007-20014[2]	NP	2010-2014[2]	NP	NP	NP	NP	NP	NP	NP	NP	2005-2014[2]
Del Mar manzanita	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	2013, 2014	2009, 2014	2013	2008	2004, 2014	2005, 2008, 2014
Del Mar mesa sand aster	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	2014	NP	NP	2007	NP	1998, 2013	NP	NP	NP
Encinitas baccharis	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	2013, 2014 not found	NP	NP	NP	NP	NP
Orcutt's hazardia	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	2004-2014[2, 3]	NP	NP	NP	2004-2014[2, 3]
Vernal Pool Species																			
California Orcutt grass Little mousetail San Diego button-celery Spreading navarretia Riverside fairy shrimp San Diego fairy shrimp	Vernal pools do not occur on these preserves								Vernal pool present; species not surveyed	Vernal pools do not occur on these preserves						Vernal pools burned in 2014	Vernal pools do not occur on these preserves		
Lagoon/Coastal Species																			
Belding's savannah sparrow	1973-2010[1]	1973-2010[1]	1973-2010[1]	Lagoon species do not occur on these preserves															
California least tern	not surveyed	2001-2014[2]	not surveyed																
Western snowy plover	2001-2014[2]	2001-2014[2]	2001-2014[2]																
Light-footed clapper rail	2000-2014[2]	2000-2014[2]	2000-2014[2]																
Riparian Bird Species																			
Least Bell's vireo	2008	NSI	NSI	NP	2008, 2009, 2010, 2014	2008, 2009, 2013, 2014	NSI	NP	NP	2009, 2010, 2011, 2014	NP	NP	2008-2014[2]	NP	NP	NP	NP	NP	2014
SW willow flycatcher	NSI	NSI	NSI	NP	2008, 2009, 2010, 2014	2008, 2009, 2013, 2014	NSI	NP	NP	2009, 2010, 2011, 2014	NP	NP	2008-2011[2]	NP	NP	NP	NP	NP	NP
Upland Bird Species																			
California gnatcatcher	2008, 2010, 2013	2008, 2010, 2013	NSI	NP	2008, 2010, 2013	2007, 2010, 2013	2008, 2010, 2013	2007, 2010, 2013	2014	2011, 2013	NP	2009, 2012	2009, 2013	x	2003-2007, 2010, 2013		2005, 2013	X	2005, 2007, 2010, 2013

NP = Not present

NSI - no survey information

[1] Every 5 years

[2] Annually

[3] Transplanted population

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Site-specific species monitoring will not be able to provide information about population trends. However, regional monitoring and associated research being coordinated by the San Diego Management and Monitoring Program (SDMMP) will provide information about population trends, genetic exchange, and best management practices for individual species. To this end, the SDMMP has prepared a science-based regional Management Strategic Plan (MSP) (2013), which provides regional and local (population-specific) goals and objectives. Other pertinent documents include the Connectivity Strategic Plan (2013; to be revised in 2015), Invasive Plant Strategic Plan (2012; to be revised in 2015), Wild Fire Management Strategic Plan (to be completed in 2015), and the Monitoring Strategic Plan (to be completed in 2015). The City and HMP Preserve Steward will continue to coordinate with regional monitoring and management efforts and will incorporate site-specific recommendations as necessary.

2.2.1 Upland Plants

San Diego Thornmint

Acanthomintha ilicifolia

Status: federally threatened, state endangered

Critical Locations and Major Populations

The 1999 MHCP identified critical locations and major populations in scattered locations throughout Carlsbad, mostly in private HOA preserve lands. Other populations of San Diego thornmint are located within the Carlsbad Oaks North and Rancho La Costa Preserve.

Management Actions Conducted to Protect the Species

Best Management Practices (BMPs) for San Diego thornmint are currently being developed based on the best available science and local knowledge of land managers (SDMMP 2013). Within Carlsbad, this species is under active management within Carlsbad Oaks North, Emerald Pointe, and Rancho La Costa preserves. Active management on these preserves generally focuses on intensive invasive species removal around thornmint populations (including hand weeding around plants), thatch removal, and access control. HOA-managed properties only include a basic level of management (e.g., trash pick-up and fence maintenance).

Long-Term Monitoring

Long-term monitoring for selected populations of San Diego thornmint in Carlsbad has been ongoing since 2008. Regional monitoring efforts to understand the species as a whole is being coordinated by the SDMMP.

Overall Condition and Major Threats

Monitored populations of San Diego thornmint in Carlsbad occur at Carlsbad Oaks North, Emerald Pointe, and Rancho La Costa Preserve (Figure 4). As is typical for many annual species, San Diego thornmint counts varied tremendously at each location between 2008 and 2014, including 151 to 648 plants at Carlsbad Oaks North, 6 to 110 in Emerald Pointe, and 79 to 965 at Rancho La Costa, as shown in the table and graph below. A fourth occurrence at the Calavera Hills/Robertson Ranch East Preserve was observed to have two to four individuals between 2008 and 2010, but none were observed in 2011 or 2012, and this location is no longer monitored (McConnell 2012). The status of San Diego thornmint on preserve land managed by private HOAs is unknown at this time.

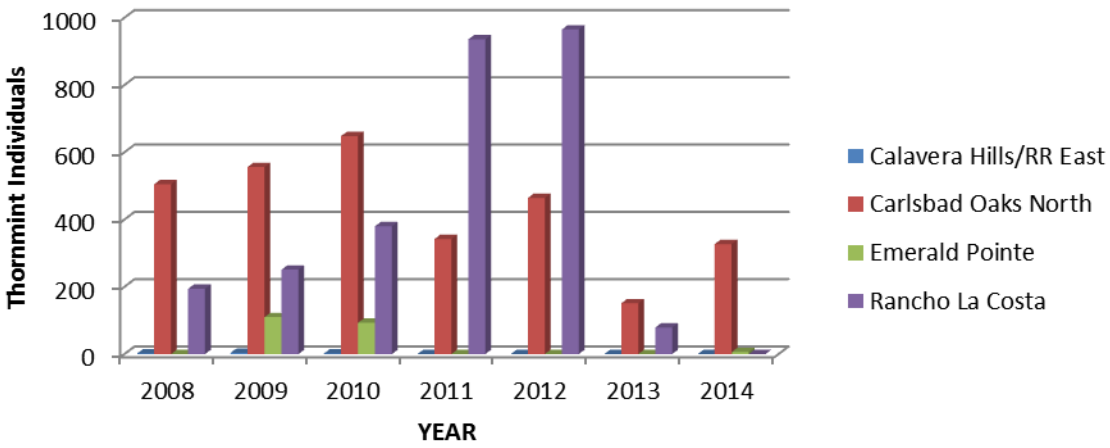
Population of San Diego Thornmint on Carlsbad Preserves with Rainfall Data

Number of Individuals

Preserve	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Calavera Hills/Robertson Ranch East	2	4	2	0	0	NS	NS
Carlsbad Oaks North	505	556	648	342	464	151	327
Emerald Pointe	NS	110	93	NS	NS	NS	6
Rancho La Costa (the Greens)	194	251	380	936	965	79	652
Rainfall totals* (inches)	**-**	**-**	**12**	**17**	**10**	**6.2**	**4.7**

NS = not surveyed
*Measurements from Palomar-McClellan Airport in Carlsbad, CA (NOAA 2014)
- = no data

Population of San Diego Thornmint on Carlsbad Preserves



Due to the high annual variability of the populations, it is difficult to determine the overall trend of a specific population or the species as a whole. To better understand what drives dynamics of the species populations in Carlsbad, CNLM has been conducting studies to evaluate the status of the plants in relation to weather, cover of native and non-native forbs and grasses, and invasive species removal. CNLM is also conducting genetic studies to understand the genetic diversity and structure of the species. Additionally, regional monitoring and management efforts for San Diego thornmint are being coordinated by CNLM through the San Diego Thornmint Working Group, and by the

SDMMP through the San Diego Thornmint Adaptive Management Framework, which was developed by the Conservation Biology Institute (2014).

The major threats to San Diego thornmint are invasive species, direct impacts and disturbance, habitat fragmentation with loss of pollinators, prolonged drought, and small populations that are more vulnerable to environmental conditions (SDMMP 2013). Within Carlsbad, the most important threat is invasion by purple false brome (*Brachypodium distachyon*) (M. Spiegelberg, personal communication 2014). Wildfire is another important threat. The Poinsettia Fire burned over 60 acres of habitat within Rancho La Costa Preserve in May of 2014. If not for a 4-foot by 1,000-foot containment line that was constructed by CalFire using hand tools to contain the fire, this population would have likely burned (Godfrey, 2014).

Overall, this species appears to be well protected on actively-managed properties in Carlsbad; it will be critical to continue intensive invasive species removal efforts and coordinate with CalFire to protect the Carlsbad populations should other fires break out in the future. In addition, it is recommended that the species-specific BMPs be implemented, as feasible, once they are developed by SDMMP.

Thread-Leaved Brodiaea

Brodiaea filifolia

Status: federally threatened, state endangered

Critical Locations and Major Populations

The 1999 MHCP identified critical locations/major populations in the following preserves: Calavera Hills Phase II, Carlsbad Highlands Ecological Reserve, Rancho Carrillo, Fox-Miller, Brodiaea Preserve, and Rancho La Costa.

Management Actions Conducted to Protect the Species

Known populations on CNLM-managed preserves, including Calavera Hills/Robertson Ranch East, Carlsbad Oaks North, Rancho Carrillo, and Rancho La Costa, are actively managed mostly through intensive invasive species removal (including hand weeding) and thatch removal around brodiaea populations, and access control (Figure 4). Management within CDFW-managed preserves, which include the one-acre Brodiaea Preserve and Carlsbad Highlands Ecological Reserve, is limited to basic stewardship (access control, trash removal, etc.). The brodiaea restoration area on the Fox-Miller property (mitigation for project impacts to this species) is still under restoration maintenance because it did not meet its Year 5 success criteria in 2011. Once the success criteria have been met, this area will fall under long-term management (the long-term manager is still to be determined).

Best Management Practices for thread-leaved brodiaea will be developed in the next five years by SDMMP (SDMMP 2013), and will guide land managers in San Diego County in prioritizing

management actions at the site-specific level. In the meantime, the species-specific goal for thread-leaved brodiaea established by SDMMP is to inspect and manage (i.e., inspect each occurrence to confirm presence and identify and address management issues).

Long-Term Monitoring

Long-term census monitoring of thread-leaved brodiaea is being conducted annually using index plots at all CNLM-managed preserves. Additionally, a life-stage study was established at these preserves in the winter of 2013-2014; results will be presented in next year's site-specific annual reports. The goal of the study is to provide information about the life history of thread-leaved brodiaea, including degree of flowering, variance of dormancy, and how these factors relate to flowering. This information can then be used to determine a better method for estimating counts (e.g., whether flowering counts are a suitable replacement for vegetative counts). This study will continue annually into the foreseeable future.

Overall Condition and Major Threats

Plant counts of this species vary tremendously year to year depending on timing and amount of rainfall, and the season during which the surveys were conducted (e.g., when plants are flowering or in their vegetative state). CNLM has determined that the plant count during the flowering season may represent only 2%-26% of the actual population size, since only a fraction of a population flowers at a given time. No flowering took place on any of the CNLM-managed populations in 2013 or 2014, although in some locations over 1,000 vegetative individuals were counted. Due to the large variability in the plant counts, as described above, detailed survey results will not be provided in this report; however, these details are available upon request from CNLM. Figure 4 shows known locations of thread-leaved brodiaea in Carlsbad and USFWS critical habitat for this species.

Major threats to this species are invasive species, drought, altered hydrology, erosion, off-road vehicles, herbivory, and fragmentation with reduced pollinator connectivity (SDMMP 2013). In Carlsbad, the major threat appears to be invasive species and thatch build-up. Although it is difficult to determine the population trajectory of Carlsbad occurrences (increasing, decreasing, or stable), the populations managed by CNLM appear to be well protected due to intensive, localized management efforts that are conducted at least annually. Populations managed by other entities should, at minimum, be inspected to confirm presence and population-specific threats should be identified and addressed.

Del Mar Manzanita

Arctostaphylos glandulosa ssp. *crassifolia*
Status: federally endangered

Critical Locations and Major Populations

The 1999 MHCP identified critical locations/major populations on preserve lands owned by the City, the County, private HOAs, and La Costa Villages.

Management Actions Conducted to Protect the Species

Management actions include invasive species removal, access control, and public outreach. In addition, special attention will be given to the burn areas in Rancho La Costa and Morning Ridge Preserves to encourage recovery of this population. Regionally, this species has been designated by SDMMP as a "VF" species, which means that this species is likely to persist in the Management Strategic Plan Area (MSPA) with appropriate management of the vegetation community. VF species are those with limited distribution in the MSPA and/or those that have specific vegetation characteristics that need to be managed for persistence in the MSPA (SDMMP 2013). What this means to the land manager is that by protecting and managing the vegetation community as a whole, this species is expected to remain in stable condition.

Long-Term Monitoring

Surveys for Del Mar manzanita have been conducted periodically on the following preserves: La Costa Glen, Kelly Ranch, Manzanita Partners, Morning Ridge, Poinsettia Place, and Rancho La Costa Preserve (see table below for dates) (Figure 5). No other surveys for this species in Carlsbad have been conducted. Identification of individuals to the subspecies level of on Rancho La Costa and Kelly Ranch has been conducted by CNLM and confirmed by taxonomic experts. Because the non-sensitive Eastwood manzanita (*Arctostaphylos glandulosa* ssp. *glandulosa*), also occurs on Rancho La Costa, Del Mar manzanita was re-mapped on the property pursuant to taxonomic confirmation (Spiegelberg and Vinje 2008). All individuals observed on Kelly Ranch were confirmed to be the Del Mar manzanita subspecies (McConnell 2011).

Overall Condition and Major Threats

Prior to the initiation of long-term management, it was reported that Rancho La Costa supported over 500 individuals; however, this number was greatly reduced (to nine individuals) after the shrubs were re-identified to subspecies by CNLM (M. Spiegelberg personal communication, 2011). The number of individuals reported on other actively managed preserves ranges from 2 clumps (number of individuals unknown) to 313 individuals. Three preserves burned during the Poinsettia Fire in May 2014; post-fire monitoring will determine how many of the burned individuals survived.

	Number of Del Mar Manzanita Individuals										
Preserve	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
La Costa Glen	NS	NS	NS	200[1]	NS	NS	NS	NS	NS	313	Unk[2]
Kelly Ranch	NS	NS	NS	NS	NS	2[3]	NS	NS	NS	NS	2
Manzanita Partners	NS	117	NS	NS	NS	NS	NS	NS	NS	117	NS
Morning Ridge	NS	8	NS	NS	8	NS	NS	NS	NS	NS	burned
Poinsettia Place	53	NS	NS	NS	NS	NS	NS	NS	NS	NS	burned
Rancho La Costa	NS	>500[4]	NS	NS	9	NS	NS	NS	NS	NS	burned

NS = Not Surveyed

[1] Conducted for the MHCP, prior to long-term management

[2] Unknown number; survey conducted but exact number of individuals not reported

[3] Number of clumps is reported; number of individuals unknown

[4] Survey performed prior to long-term management; taxonomic confirmation of subspecies not yet conducted

[5] Pre-fire surveys were conducted on Poinsettia Place and Rancho La Costa in 2014; post-fire counts are presumed to be zero if the entire preserve burned, including above-ground biomass. A post-fire inspection on Rancho La Costa reported seven resprouting shrubs, and one near, but undamaged by the bulldozed fire line.

The species is well protected within the Kelly Ranch Preserve. This population was reportedly in good condition during the 2014 survey. The condition of the La Costa Glen population is unknown, but it is assumed to be in good condition due to the steep topography and inaccessibility of the site. All of the Del Mar manzanita shrubs on the Morning Ridge and Poinsettia Place Preserves were burned in 2014 in the Poinsettia Fire, which burned all habitat on both preserves. Many of the Del Mar manzanita shrubs on Rancho La Costa Preserve were also damaged or destroyed during the Poinsettia Fire, which burned over 60 acres of high quality southern maritime chaparral habitat in Rancho La Costa Preserve (Godfrey 2014). Some shrubs were burned in the fire, and two were "masticated, torn up by their roots, and pushed into a pile along [a] bulldozer line corridor" that was 30 feet wide and 1,200 feet long. CNLM contends that the bulldozer line was constructed, sometime after the fire was contained, through excellent quality, non-burned southern maritime chaparral habitat. CNLM was not able to identify the responsible agency, and therefore must try to repair the damage on its own by installing erosion control and access control.

Post-fire monitoring will be conducted annually within the burned areas for approximately five years. Information collected during this effort should include a detailed description of the status (present/absent) and condition (status of recovery, signs of disease, etc.) of each Del Mar manzanita shrub, presence or absence of seedlings, and specific threats to each population. Long-term monitoring of non-burned Carlsbad populations should include this information as well.

Prior to the fire, threats to the actively managed Carlsbad populations were considered minimal due to the robustness of woody shrubs (i.e., they are not as vulnerable to drought, invasive species encroachment, or edge effects as small annuals) and the inaccessibility of most of the known locations. In burned areas, the major threat to recovery is erosion; many of the plants occur on very steep slopes that now have little to no vegetation holding the soil in place. Generally, wildfire is not considered a major threat to Del Mar manzanita; this species evolved with fire, and typically resprouts from a basal burl after it has been burned. Additionally, the seeds are dependent on fire

to germinate (USFWS 2010). Therefore, the burned populations in Carlsbad are expected to recover. As of January 2015, seven manzanita were resprouting in an area of Rancho La Costa Preserve where only two had previously been documented (S. Godfrey, pers. comm.). However, even with fire-adapted species, if the natural fire regime is altered (e.g., if fires become too frequent, or burn too hot, the effect on the species could be negative.

Del Mar Mesa Sand Aster

Corethrogyne filaginifolia var. *linifolia*

Status: California Rare Plant Rank (CRPR) 1B.1

Critical Locations and Major Populations

There are no critical locations in Carlsbad, according to the 1999 MHCP. The closest major population is at the southern boundary of Carlsbad, according to the 1999 MHCP. The majority of the population within the MHCP Subregion is in the City of Encinitas, but may extend into Carlsbad on private HOA lands.

Management Actions Conducted to Protect the Species

The City Ventures and Manzanita Partners populations are being managed through general habitat management (e.g., invasive species removal, trash removal, access control, etc.) (HRS 2014, J. Whalen Assoc. 2014,). Potentially suitable habitat for this species within the HMP preserve system, which consists of coastal bluff scrub and openings within coastal sage scrub and chaparral, is also being managed through general habitat stewardship. Del Mar Mesa sand aster was not identified by the SDMMP as a high priority for regional management and monitoring; therefore, BMPs will not be developed for this species.

Long-Term Monitoring

Long-term monitoring was initiated in 2014 for the City Ventures population of Del Mar Mesa sand aster, which was established in 2013. The surveys consist of delineating the boundaries of sand aster patches and estimating the density of the patches using 20 stratified, random 0.25-m plots (J. Whalen Assoc. 2014). Long-term monitoring for the Manzanita Partners population was initiated in 2013. Monitoring on this preserve consists of general rare plant surveys every 10 years to confirm presence. This population was burned in the Poinsettia Fire. Recovery will be assessed annually during the post-fire monitoring period. Figure 4 shows the locations of Del Mar Mesa sand aster on actively managed preserves. No other populations of this species are being monitored within Carlsbad.

Overall Condition and Major Threats

The greatest threat to the City Ventures population appears to be unauthorized access, including trails and encampments and other edge effects, such as trash and invasive species. This population is located right on the eastern edge of the preserve, adjacent to El Camino Real. The condition of the

habitat along the outer edges of the preserve was determined to be "poor" by the preserve manager due to the identified edge effects. However, with continued invasive species control, patrolling and access control, the habitat supporting this population is expected to improve. One of the primary threats to the Manzanita Partners population, if it still exists, is likely to be trampling and off-road vehicles. Although this locality is next to a dirt access road, the preserve did not experience major problems with unauthorized access prior to the fire; however, once the fire eradicated the vegetation, unauthorized access, including dirt bikes and people on foot, became an immediate problem (A. Hayworth, personal communication, 2014). Fences were installed by the City in late 2014 along road right-of-ways to deter unauthorized access in burned areas. The status of other populations of Del Mar Mesa sand aster in Carlsbad is unknown.

Encinitas Baccharis

Baccharis vanessae

Status: federally threatened, state endangered

Critical Locations and Major Populations

The closest major population is at the southern boundary of Carlsbad, according to the 1999 MHCP. The majority of the population is within Encinitas, but may extend into Carlsbad on private HOA lands. Within this major population, there are critical locations identified that may occur within Carlsbad; however, presence or absence of these observations have not been confirmed in the field since surveys were conducted in the 1990s for the MHCP, except in the La Costa Glen preserve, as described below.

Management Actions Conducted to Protect the Species

This species was identified as a high priority for regional management and monitoring (SDMMP 2013). One of the species-specific management objectives for Encinitas baccharis established by SDMMP is to inspect and manage (i.e., inspect each occurrence to confirm presence, and identify and address management issues). Potentially suitable habitat on actively managed preserves in Carlsbad is being managed through general invasive species removal and access control.

Long-Term Monitoring

One Encinitas baccharis locality was reported on the La Costa Glen preserve in the 1990s during surveys conducted for the MHCP. Long-term management for this preserve was established in January of 2013. Since then, two focused species surveys were performed by CNLM in 2013 and two were conducted in 2014. Encinitas baccharis was not observed during these recent surveys.

Overall Condition and Major Threats

The status of populations within Carlsbad is currently unknown. Major threats to this dioecious species are altered fire regime, low seedling recruitment, low seed viability, reduced reproductive potential at older age classes, fuel modification, trampling, and invasive species. Additionally, small,

isolated occurrences with little connectivity and dioecious life history make this species more vulnerable to changes in environmental conditions (SDMMP 2013).

Orcutt's Hazardia
Hazardia orcuttii
Status: state threatened

Critical Locations and Major Populations

There are no naturally occurring critical locations or major populations in Carlsbad, according to the 1999 MHCP. However, if the transplanted populations in Carlsbad prove to be self-sustaining, they would be considered critical populations.

Management Actions Conducted to Protect the Species

Orcutt's hazardia has been identified regionally as a high priority species for management and monitoring (SDMMP 2013). All known populations, including the single naturally occurring population in Encinitas and transplanted populations in Carlsbad, are under active management by CNLM. Management activities consist of intensive invasive species removal, access control, and transplant studies, which have been approved by the wildlife agencies. The transplant studies, which have been ongoing since 2003, consist of transplanting Orcutt's hazardia to new locations and studying reproduction and survival as part of a population viability analysis. By better understanding population dynamics, it is hoped that this program will reduce the possibility of local extinction (the species still occurs in northern Mexico) due to unforeseen events.

Long-Term Monitoring

Orcutt's hazardia were transplanted by CNLM to the CNLM's Kelly Ranch and Rancho La Costa preserves in 2003. CNLM has been tracking these transplants and documenting recruitment annually.

Overall Condition and Major Threats

By 2004, a total of 125 Orcutt's hazardia individuals were transplanted at Kelly Ranch and 200 individuals were transplanted at Rancho La Costa. As of 2014, a total of 254 individuals (102 adults and 152 juveniles) were observed on Kelly Ranch and 171 individuals were observed on Rancho La Costa (147 adults and 24 juveniles). Overall, the adult plants on both sites have fared well over time, becoming stable within a few years after the initial transplantation through 2012. A few individuals were lost between 2012 and 2014. For the most part, juveniles on both sites steadily increased over time. In contrast, the number of seedlings dropped to zero in 2013 and 2014 on both sites, presumably due to the extreme drought conditions experienced in San Diego County. The nearby weather station at Palomar Airport recorded only 6.2 inches of rain during the 2012 – 2013 rainfall year (October to September), reaching only 60 percent of the average 10.3 inches per year. Rainfall

in 2014 was even lower, at 4.7 inches, which is only 46 percent of average (McConnell 2014). These data suggest that drought may be a major hindrance to reproduction by reducing seedling survival.

It is interesting to note that, although there were many more adults transplanted on Rancho La Costa (200) than on Kelly Ranch (125), the number of juveniles and seedlings on Kelly Ranch (maximum annual count of 157 and 77, respectively) is consistently significantly higher than on Rancho La Costa (a maximum annual count of 24 and 8, respectively). This is likely due to the high clay content soils and non-native grasses, such as purple false brome, at Rancho La Costa. These factors make this area less suitable for Orcutt's hazardia recruits than Kelly Ranch, which has more suitable soil and fewer non-natives.

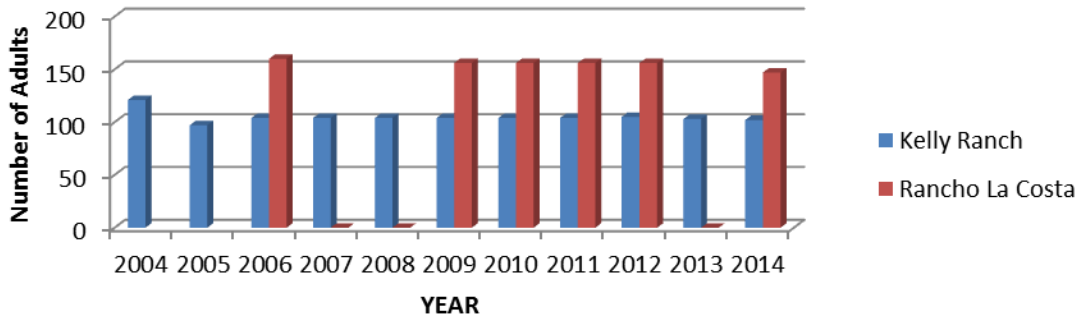
Counts of Orcutt's Hazardia Transplanted to Kelly Ranch Preserve

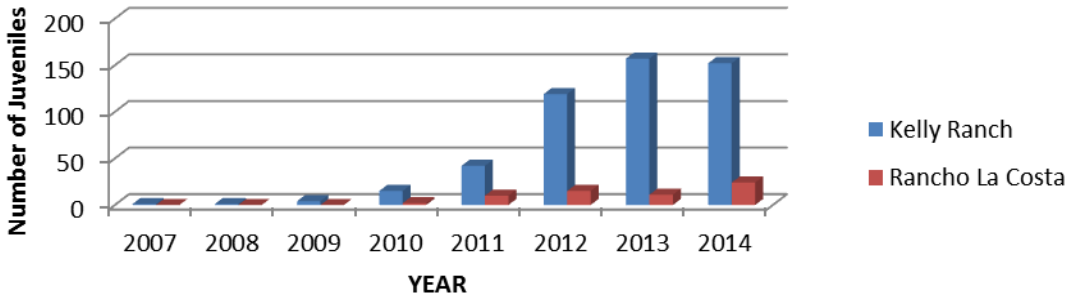
Life Stage	Number of Individuals Counted, by Year										
	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Adults (flowering)	121	97	104	104	104	104	104	104	105	103	102
Juveniles [2]	0	0	0	1	1	4	15	42	119	157	152
Seedlings	0	0	0	4	17	14	68	77	55	0	0
Total count	121	97	104	109	122	122	187	223	279	260	254

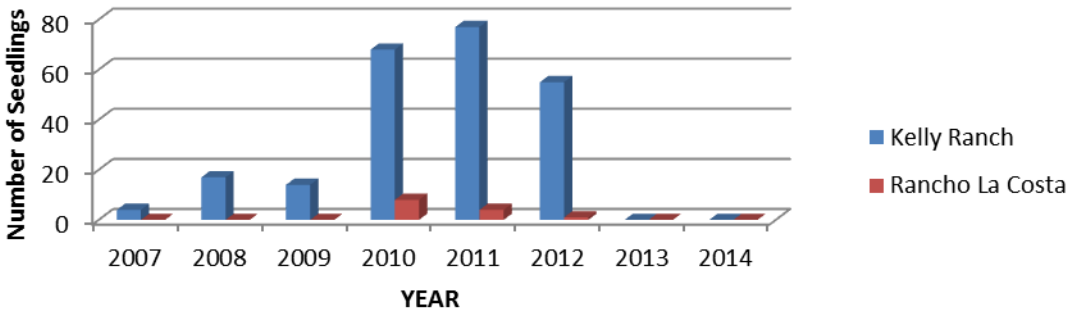
Counts of Orcutt's Hazardia Transplanted to Rancho La Costa Preserve

Life Stage	Number of Individuals Counted, by Year								
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Adults (flowering)	160	NS	NS	156	156	156	156	NS	147
Juveniles [2]	NS	NS	NS	NS	2	10	15	11	24
Seedlings	NS	NS	NS	NS	8	4	1	0	0
Total count	160	unknown	unknown	156	166	170	172	unknown	171

NS = not surveyed







The biggest threat to this species is that it occurs in only a few locations (only one of which is a natural population; all others were transplanted), and populations are very small and isolated, making this species highly vulnerable to extirpation by a catastrophic event, such as fire (SDMMP 2013). Ongoing drought appears to be a major threat as well based on the results of the transplant studies, as discussed above.

2.2.2 Vernal Pool Species

California Orcutt Grass
Orcuttia californica
Status: federally endangered, state endangered

Little Mousetail
Myosurus minimus ssp. *apus*
Status: CRPR 3.1

San Diego Button-Celery
Eryngium aristulatum var. *parishii*
Status: federally endangered, state endangered

Spreading Navarretia
Navarretia fossalis
Status: federally threatened

Riverside Fairy Shrimp
Streptocephalus woottoni
Status: federally endangered

San Diego Fairy Shrimp
Branchinecta sandiegonensis
Status: federally endangered

Critical Locations and Major Populations

There are three vernal pool complexes in the HMP preserve system: (1) Poinsettia Lane Train Station, (2) Hieatt property, north of the airport, and (3) Manzanita Partners Preserve, east of El Camino Real and south of the airport (Figure 6). The Poinsettia Lanes vernal pool has been identified as a critical location and major population for all vernal pool species listed above by the MHCP;

however, none of these species are currently covered by the HMP. Neither of the two other vernal pools were identified by the MHCP as critical locations or major populations.

Management Actions Conducted to Protect the Species

Long-term management was initiated by Habitat Restoration Inc. (HRS) on the Manzanita Partners Preserve in 2012 to preserve the quality of the vernal pool habitat through invasive species control. The vernal pools on this preserve were burned in the Poinsettia Fire. Post-fire management will focus on invasive species removal and access control. Fencing has been installed by the City along road right-of-ways to deter unauthorized access into burned areas.

Management of the Poinsettia Lanes Vernal Pools is the responsibility of North County Transit District (NCTD), and presumably consists of mowing within the railroad right-of-way as part of regular maintenance. The adjacent upland watershed buffer area, which is a semicircular area of coastal sage scrub between the vernal pools and residential development, is being managed by the Water's End HOA. This upland area has been fenced and signed to protect it from unauthorized access and to provide public education. The Hieatt property vernal pools are not being actively managed.

Long-Term Monitoring

Long-term monitoring is only being conducted at the Manzanita Partners pools, as the other two preserves are not under active management. Due to the 2014 wildfire, monitoring for the next five years will focus on post-fire recovery.

Overall Condition and Major Threats

Due to the severe drought conditions of the previous couple of years, the condition of the unmanaged vernal pools and associated species have not been evaluated since the last triennial monitoring summary report.

Poinsettia Lanes vernal pools. All of the vernal pool species that require species-specific reporting by the MHCP, as well as Orcutt's brodiaea (*Brodiaea orcuttii*), were observed on the Poinsettia Lanes vernal pools during 2008 surveys conducted by Dudek (A. Hayworth, personal communication, 2011). Based on a qualitative site visit conducted in 2014 the City's HMP Coordinator and Preserve Steward, the vernal pool area was observed to have a high cover of non-native species; however, the adjacent upland watershed buffer was in excellent condition. Currently, the primary threats to the Poinsettia Lanes vernal pool habitat and species are invasive non-native plants and long-term drought.

Manzanita Partners. The Manzanita Partners vernal pools were enhanced/restored in 2000, and five years of maintenance and monitoring was conducted by Dudek. Seven existing degraded pools were enhanced, seven suspected historic vernal pools were restored, and adjacent native upland habitat

was enhanced (Dudek 2005). In 2008, the condition of this restored vernal pool was determined to be good (A. Hayworth, personal communication, 2011); at project completion, all vernal pools held water during the rainy season, all pools had at least one of four vernal pool target plant species present, San Diego fairy shrimp were detected at five of the pools, coastal sage scrub habitat surrounding the pools was mature and healthy, and non-native species were under control and did not pose a threat to the vernal pools (Dudek 2005). A follow-up visit was made by the City HMP Coordinator and HMP Preserve Steward in April 2011 to assess the condition of the pools. The pools appeared to be in good condition overall, although there was a fairly high cover of non-native grasses. Beginning in 2013, active invasive species control was initiated as part of long-term management of the preserve. In May 2014, a wildfire consumed the entire preserve, burning the vegetation on-site completely. Post-fire monitoring will determine the trajectory of the recovery of this habitat and associated species. The greatest threats to these vernal pools are invasive species and unauthorized access (trampling, off-road vehicles, etc.).

Hieatt Property. The vernal pools on the Hieatt Property were restored by Helix Environmental Planning Inc. (Helix). The restoration plan was initiated on March 2, 2006, and was to last two years. Restoration monitoring reports have not been submitted to the City or Wildlife Agencies, and no request has been made for sign off on the success of the restoration. Prior to restoration, the pools did not contain any sensitive species, but contained the following vernal pool indicator species: dwarf wooly-heads (*Psilocarphus brevissimus* var. *brevissimus*), water pygmyweed (*Crassula aquatica*), chaffweed (*Centunculus minimus*), and grass poly (*Lythrum hyssopifolia*). On October 23, 2009, a site visit was conducted by ESA, and there were no signs of vernal pool indicator plant species nor were there other signs of a functioning vernal pool. The entire area was overrun by non-natives. The site has not been visited since.

Other Locations

Additional vernal pools have been identified to the north of the Poinsettia Lanes site along the same NCTD right-of-way (Rosie 2010), although these are outside of the HMP boundary. Several of these pools are reported to support San Diego fairy shrimp. These pools, which are generally in poor condition (few vernal pool species and dense cover of non-native grasses), are not currently protected by a Conservation Easement or other open space protection.

2.2.3 Lagoon/Coastal Bird Species

Belding's Savannah Sparrow
Passerculus sandwichensis beldingi
Status: state endangered

Critical Locations and Major Populations

The 1999 MHCP identified critical locations and major populations in Agua Hedionda Lagoon and Batiquitos Lagoon, which are managed by CDFW.

Management Actions Conducted to Protect the Species

Management actions include habitat management through invasive species control. The top priorities for CDFW to protect this species are habitat enhancement, protection and restoration in the form of improved tidal flushing, sediment control, limiting human disturbances, and the continued funding of a statewide census.

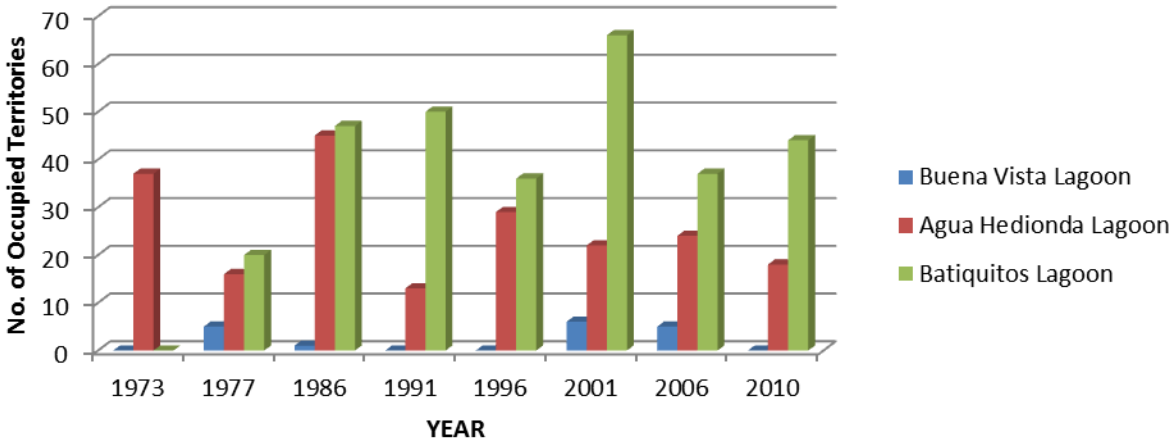
Long-Term Monitoring

Surveys are conducted approximately every five years as part of an ongoing census effort. The most recent census information available is from 2010, during which 30 coastal salt marshes in California were surveyed (Zembal and Hoffman 2010). Results of surveys conducted within Carlsbad are summarized below. See Figure 7 for a location map.

Number of Occupied Territories by Year

	1973	1977	1986	1991	1996	2001	2006	2010
Buena Vista Lagoon	0	5	1	0	0	6	5	0
Agua Hedionda Lagoon	37	16	45	13	29	22	24	18
Batiquitos Lagoon	0	20	47	50	36	66	37	44

Overall Condition and Major Threats



Approximately 3,372 breeding territories were detected in California during the 2010 census. This is the highest total since counts began in 1973 and 7.6% higher than the next highest count, reported in 2006 (Zembal and Hoffman 2010). However, the number of territories was markedly lower in 2010 than in 2006 at both Agua Hedionda and Buena Vista Lagoons. Encroachment of freshwater marsh habitat, proliferation of invasive species, and human disturbances continue to exert pressure upon Belding's savannah sparrow and the habitat necessary to support the species (Zembal and Hoffman 2010).

Buena Vista Lagoon. The 2010 surveys revealed that the formerly occupied territories no longer contained Belding's savannah sparrow. Encroachment of freshwater marsh habitat and song sparrows has contributed to the decline of this species within Buena Vista Lagoon, in addition to human disturbance. Potential for restoration of the territories exists, and is highest on the islands and the north-east portion of the inner lagoon. Additional improvements to the habitat could be made by the cleanup of trash and homeless encampments, as well as invasive species control.

However, the transition to brackish marsh habitat limits the potential of the Buena Vista to support Belding's savannah sparrow (Zembal and Hoffman 2010).

Agua Hedionda Lagoon. The 2010 surveys revealed a 25% decline in territories from 2006. The territories were concentrated along a picklweed (*Salacornia* spp.) belt on the inland edges of the inner lagoon, which is threatened by encroaching freshwater marsh. Regular dredging maintains a connection to the ocean, resulting in good potential for habitat restoration in this lagoon; however, flow is constricted due to the narrowness of the opening. Human disturbances continue to be an issue in the lagoon, although CalTrans has installed fencing along the northern edge of the lagoon to exclude potential trespassers. Although CDFW is actively working to control detrimental species, including invasive algae (*Caulerpa taxifolia*) and Algerian sea-lavender (*Limonium ramosissimum*), much of the previously existing Belding's habitat has been affected and no longer supports adequate nest cover (Zembal and Hoffman 2010).

Batiquitos Lagoon. The 2010 surveys revealed that there was a 19% increase from the 2006 surveys, which showed a 44% decrease from the 2001 numbers (Zembal and Hoffman 2010). Past restoration of Batiquitos Lagoon resulted in the expansion of pickleweed, which is a critical component of Belding's habitat, and likely led to the doubling of numbers found between the 1996 and 2001 surveys. The 44% reduction in Belding's found in 2006 was presumably influenced by the reverting of much of the habitat back to brackish marsh due to inflow of urban freshwater runoff at the eastern edge of the lagoon (Zembal and Hoffman 2010). Much of the remaining pickleweed dominated marsh habitat is too narrow to support Belding's (Zembal and Hoffman 2010).

California Least Tern

Sterna antillarum browni

Status: federally endangered, state endangered and fully protected

Critical Locations and Major Populations

The 1999 MHCP identified critical locations in all three lagoons. The population at Batiquitos Lagoon is considered a major population.

Management Actions Conducted to Protect the Species

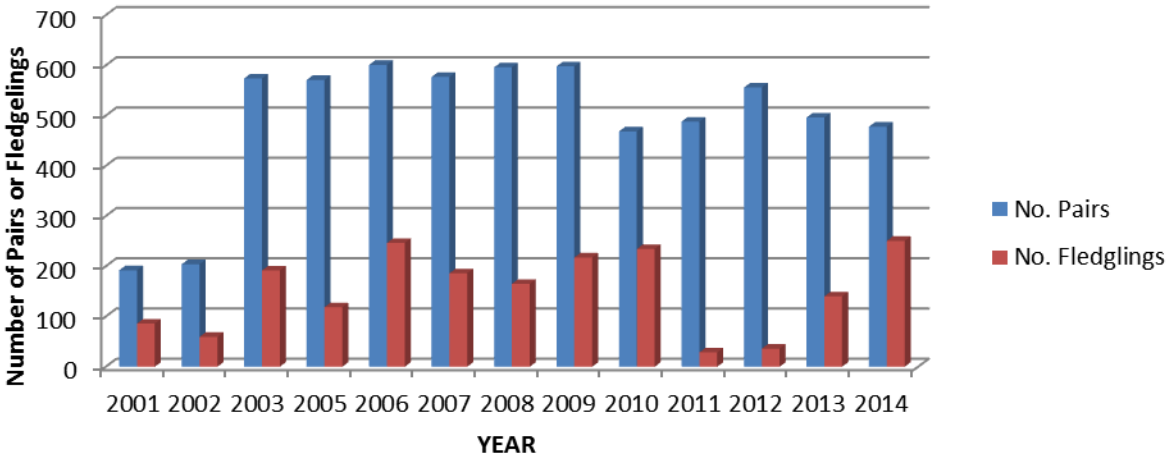
Annual management actions include use of shelters to protect chicks from predators and weather, decoys to attract adults, interpretive signage, vegetation management, and fencing (Frost 2014). Because the least tern nests on the ground, this species, especially its fledglings, is highly vulnerable to predators. Management of the species at Batiquitos Lagoon is currently being conducted by CDFW staff; however, due to budget constraints, the level of management has been reduced from pre-2011 levels. Annual monitoring and management at Batiquitos Lagoon, which has continued since then, is now conducted by local CDFW staff.

Long-Term Monitoring

Annual least tern monitoring, funded by CDFW, has been conducted annually at Batiquitos Lagoon from 1973 to 2014 (Figure 7). Biological data were collected in the following categories: estimation of breeding pairs (based on number of nests, less the number of re-nests), and productivity (total number of nests, number of eggs, number of chicks hatched, number of chicks reaching fledgling age, and number of fledglings surviving to disperse). Mortality and predation data were also collected.

Number of Nests, Pairs, and Fledglings by Year

	2001	2002	2003	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
No. Nests	222	226	615	596	627	594	610	649	480	532	563	558	479
No. Pairs	192	203-205	574	571	601	575-578	596	576-620	457-480	457-519	550-562	433-559	478
Estimated No. of Fledglings	73-99	53-66	155-228	109-128	223-270	146-226	143-187	212-233	208-261	20-37	34-38	117-163	232-269



Overall Condition and Major Threats

Throughout California. The long-term monitoring data for the California least tern was analyzed by Lewison and Deutcshman (2014) to (1) identify population trends and drivers for those trends and (2) evaluate the current monitoring and management practices. The study focused on 24 sites throughout the range of the least tern that have been monitored consistently between 1990 and 2013. Batiquitos Lagoon was one of these sites. This analysis concluded the following regarding statewide population trends:

- The number of breeding pairs and nests have declined significantly since about 2007;
- Clutch size (number of eggs per nest) has remained constant across the state over the last 10 and 20 years;
- The number of hatched eggs show variability over time, but no clear trend; and
- The number fledged has shown extreme variability and a significant decline across the state over time.

There was no significant relationship found between these productivity variables and colony size or latitude, with the exception of number of fledglings per pair, which increases significantly with latitude (more fledglings per pair in the north than in the south). In addition, the changes in productivity did not appear to be density dependent (i.e., affected by the density of a population).

Within Carlsbad. Based on 2012 monitoring data, Batiquitos Lagoon had the third highest number of breeding pairs in California (Frost 2014). Measures of productivity, including number of nests, breeding pairs, clutch size, and number of surviving fledglings have been variable over time, and it is difficult to evaluate the overall trends of this subpopulation. Most notable, however, is the precipitous drop in the number of surviving fledglings, which decreased by more than 80% between 2010 and 2011. This was likely due to the lack of funding for monitoring and predator control (Foster 2011, Sisson 2011). In 2012, the number of fledglings increased only slightly, but rebounded significantly (almost quadrupling) by 2013, and was back up to 2010 levels by 2014 (Frost 2014). Continued threat of predation from many species, including common raven (*Corvus corax*), American crow (*Corvus brachyrhynchus*), peregrine falcon (*Falco peregrinus*), great blue heron (*Ardea Herodias*), American kestrel (*Falco sparverius*), Red-tailed hawk (*Buteo jamaicensis*), and gulls (*Larus* spp.), is a major concern for the species (Frost 2014).

Light-Footed Clapper Rail (Ridgeway's Rail)*

Rallus longirostris levipes (*Rallus obsoletus levipes*)

Status: federally endangered, state endangered and fully protected

***Taxonomic Note**

Taxonomic changes to the light-footed clapper rail have been proposed recently due to an analysis of genetic data. The clapper rail species *Rallus longirostris*, which included the light-footed clapper rail and two additional California subspecies, was split into three separate species (AOU 2014). Based on this analysis, the three California subspecies have become subspecies of Ridgeway's rail (*Rallus obsoletus*), resulting in a taxonomic reclassification from *Rallus longirostris levipes* to *Rallus obsoletus levipes*.

Critical Locations and Major Populations

The 1999 MHCP identified critical locations and major populations at all three lagoons in Carlsbad.

Management Actions Conducted to Protect the Species

Management actions at all three lagoons include habitat restoration and tidal enhancement, predator study and control program, nesting site provision, adaptive management studies, captive breeding, genetic and demographic augmentation of smaller subpopulations, and continued long-term monitoring of population status and effects of management actions (Zembal et al. 2014). Priorities for CDFW are continued habitat enhancement/restoration, and funding of the statewide census. Release of captive-bred rails in Carlsbad has been conducted by a team of state, federal and

zoological organizations to contribute genetic diversity and support recovery of this species (CDFW 2014). In 2014, six rails were released into Batiquitos Lagoon in July and six additional rails were released in November. Previous releases in Batiquitos Lagoon were performed in 2004 (8 rails), 2005 (8 rails), and 2013 (6 rails). Rails were also released in Agua Hedionda Lagoon in 2004 (5 rails), 2011 (6 rails), 2012 (16 rails), and 2013 (9 rails), and in Buena Vista Lagoon in 2011 (15 rails).

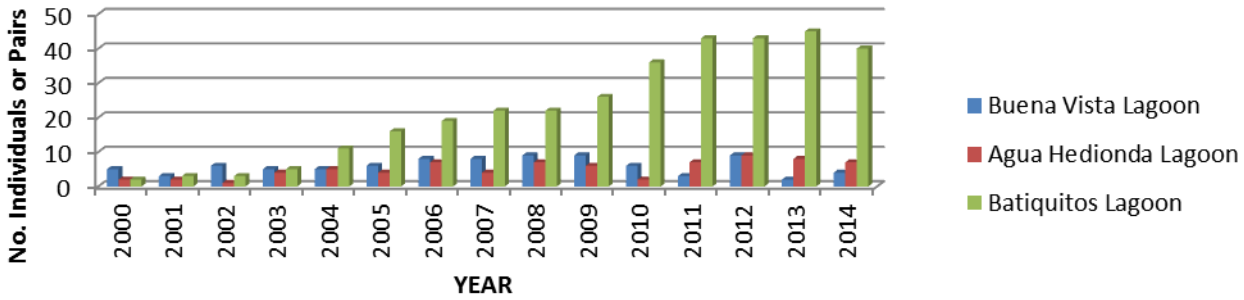
Long-Term Monitoring

In 2014, the 35th consecutive annual census of light-footed clapper rails in California coastal wetlands was conducted in 30 locations by assessing call counts. This long-term annual monitoring program, which extends from Carpinteria Marsh in Santa Barbara County to Tijuana Marsh National Wildlife Refuge on the Mexican border, is funded by CDFW. Clapper rails are typically monitored by two methods – spring call counts, and winter high tide counts. Results through the 2014 season are summarized below for areas within Carlsbad (Zembal et al. 2014). These areas are shown on Figure 7.

Number of Pairs or Unpaired Individuals of Clapper Rails by Year

Lagoon	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Buena Vista	5[1]	3[1]	6[1]	5[1]	5[1]	6[1]	8[1]	8[1]	9[1]	9[1]	6	3[1]	9[1]	2	4
Agua Hedionda	2	2	1	4	5	4[1]	7[1]	4	7	6	2[1]	7	9	8	7[1]
Batiquitos	2[1]	3[1]	3[1]	5	11	16[1]	19[1]	22	22	26[1]	36[1]	43[1]	43[1]	45	40

[1]includes unpaired individuals (all others are pairs)



Overall Condition and Major Threats

For the last three years (2012-2014), more than 500 breeding pairs of light-footed clapper rail were documented throughout their range in California. A total of 528 breeding pairs were recorded in 2014, which is the highest number recorded to date. In 2007, a total of 443 breeding pairs were documented which, at that time, was the highest number recorded since the surveys began in 1980. Up until then, the population had been steadily increasing. The population crashed to 234 pairs in 2008, presumably due to weather-related causes, but recovered by 37% in 2009 to 320 breeding pairs, and has shown a steady increase ever since (Zembal et al. 2011, 2014). Three subpopulations

occur in Carlsbad in the Buena Vista, Agua Hedionda, and Batiquitos Lagoons, which account for 11 percent of the total California population (Figure 7).

Batiquitos Lagoon. Batiquitos Lagoon supports the third largest subpopulation in the state (a high of 45 pairs in 2013), and the largest subpopulation in Carlsbad. This subpopulation has shown a steady increase ever since census monitoring began in 1980. In 2008, when many other subpopulations crashed, this subpopulation remained stable from the previous year. The only exception was in 2014, when the number of rails decreased from 45 to 40. The reason for this dip is unclear (Zembal et al. 2014). The success of this population has been supported by the release of captive-bred rails into Batiquitos Lagoon, as described above.

Agua Hedionda Lagoon. Agua Hedionda Lagoon supports the second largest subpopulation in Carlsbad. In 2014, six pairs and one advertising female were observed in this lagoon. The size of this subpopulation has varied over time from one pair in 2002 to an all-time high of nine pairs in 2012. As in Batiquitos Lagoon, this subpopulation has been augmented by the release of captive-bred rails. Although none of these captive-bred rails, which are banded, have been observed since their release, rails are being observed around the edges of the lagoon in previously unoccupied areas (Zembal et al. 2014).

Buena Vista Lagoon. The size of the Buena Vista Lagoon subpopulation has been variable over time. A high of nine pairs was detected in 2008, 2009, and 2012. Only two pairs were observed 2013 and four pairs in 2014. To augment this population, captive-bred rails have been released; however, no releases have been allowed since 2011, pending implementation of planned habitat restoration.

Despite the crash in 2008, which reduced the number of pairs by almost 50 percent, the population of light-footed clapper rails in California has recovered well, and has exceeded the maximum population size recorded prior to 2008. Habitat degradation (e.g., invasion by non-native trees and shrubs), development, and predators continue to be the greatest threats to the light-footed clapper rail. Implementation of the management actions described above appear to be successful in protecting and expanding this species within Carlsbad and across California, although it is unclear if the Agua Hedionda Lagoon and Buena Vista Lagoon subpopulations are stable and self-sustaining without the introduction of captive-bred individuals.

Western Snowy Plover

Charadrius alexandrinus nivosus

Status: federally threatened

Critical Locations and Major Populations

The 1999 MHCP identified critical locations and major populations at all three lagoons.

Management Actions Conducted to Protect the Species

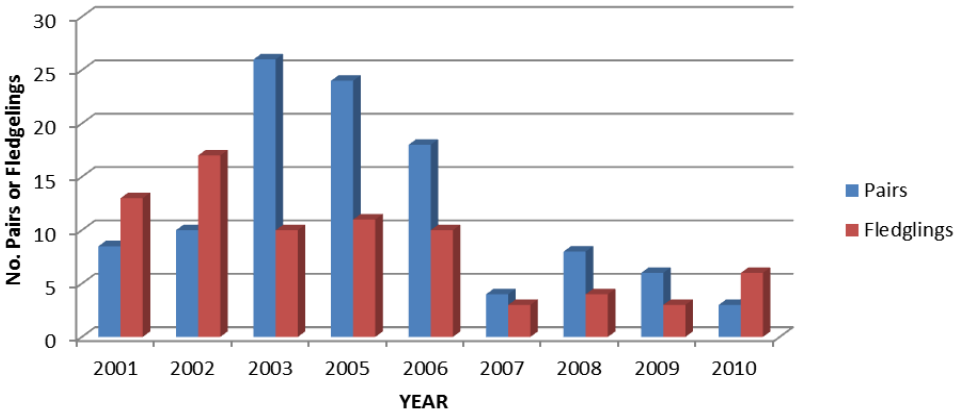
The following management activities have been conducted on Batiquitos Lagoon Ecological Reserve to encourage snowy plover nesting: (1) Habitat management –paths linking the breeding habitat with the north mud flats that had been created in 2008 were maintained via the use of herbicide and hand-weeding; (2) Predator control - exclosures (wire cages) were placed over active nests to protect the eggs from predators (Squires 2010).

Long-Term Monitoring

Western snowy plover monitoring has been conducted annually at Batiquitos Lagoon through 2014 as part of a statewide census. Surveys were not conducted in 2011 due to freeze on private contracting. Currently, annual surveys are conducted by local CDFW staff. Monitoring results beyond 2010 have not been submitted to the City; results through 2010 are summarized below. See Figure 7 for a location map.

Western Snowy Plover Monitoring Results for Batiquitos Lagoon

	2001	2002	2003	2005	2006	2007	2008	2009	2010
Nests	19	25	29	24-25	16	5	6	5	3
Pairs/Breeding Adults	8-9[1]	10[1]	26[2]	24[2]	18[2]	4[2]	8[2]	6[2]	3[1]
Fledglings	10-16	17	9-10	9-12	10+	2-3	3-4	3	6



Overall Condition and Major Threats

The numbers of nests, breeding adults, and fledglings throughout California plummeted in 2006 and 2007. The numbers remained relatively steady between 2007 and 2009 (Squires and Wolf 2010, Squires 2010), but showed a decrease in 2010. The monitoring results at Batiquitos Lagoon were consistent with this pattern. Despite the drop in number of nests and breeding pairs in 2010, a total of six chicks fledged at Batiquitos Lagoon, which is the highest number recorded since 2006. The decline in snowy plover numbers within Batiquitos Lagoon and throughout the state in recent years may be due to predator activity, as well as the decline in suitable foraging habitat (Squires 2010).

2.2.4 Riparian Bird Species

Least Bell's Vireo

Vireo bellii pusillus

Status: federally endangered, state endangered

Critical Locations and Major Populations

There are no critical locations or major populations of least Bell's vireo in the City of Carlsbad, according to the 1999 MHCP.

Management Actions Conducted to Protect the Species

This species is managed indirectly through general habitat management (e.g., trash pick-up, access control, patrols, and invasive species removal). On Buena Vista Ecological Reserve, additional management actions include active habitat restoration (cuttings/container planting and targeted invasive species removal within the riparian habitat) and cowbird trapping (2 traps for 2 months in 2012 and 2013). Regionally, this species has been designated by SDMMP as a "VF" species. VF species are those with limited distribution in the MSPA and/or have specific vegetation characteristics that need to be managed for persistence in the MSPA (SDMMP 2013). Therefore, by protecting and managing the vegetation community as a whole, this species is expected to remain in stable condition.

Long-Term Monitoring

Focused species surveys were conducted in suitable habitat on several preserves by CNLM between 2008 and 2014, as summarized below. Incidental observations made during other activities were also recorded. The purpose of the surveys is to periodically inspect suitable habitat, map occurrences, and identify threats to inform site-specific management. Figure 8 shows the locations of observations from focused surveys and incidental observations.

Estimated Number of Least Bell's Vireo Pairs

Preserve	2008	2009	2010	2011	2012	2013	2014
Buena Vista Creek Ecological Reserve	3 - 4 pair	3 pair 3 males	7 pair 3 males	3 pair[1] 2 males[1]	NS	NS	10 - 12 territorial males
Calavera Hills/Robertson Ranch East	1 pair[1] 1 male[1]	1 indv. [1]	NS	NS	NS	3 males[1]	2 males[1]
Encinas Creek	1 pair	1 pair 3 males	1 male	1 male	0	1 male	0
Rancho La Costa Preserve	NS	NS	NS	2 indv[1]	NS	NS	0[3]
City Preserves							
The Crossings Golf Course	NS	1 pair, 3 males	1 pair, 3 males	0	NS	1 male[2]	NS
Lake Calavera	NS	0	0	0	NS	0	1 male[1]
Poinsettia Park	NS	0	0	0	NS	0	NS
Lagoon Lane	NS	0	0	0	NS	NS	NS

NS = not surveyed
[1] incidental observation
[2] Migratory male
[3] Surveys consisted of one site visit only

Overall Condition and Major Threats

Since surveys began in 2008, the number of least Bell's vireo pairs and/or individual males on Buena Vista Creek Ecological Reserve, Calavera Hills/Robertson Ranch, Encinas Creek, and city-owned preserves has been somewhat variable. In Buena Vista Creek Ecological Reserve the number of territories, as indicated by pairs or territorial males, has varied from three to approximately twelve over the course of seven years. The number of potential territories on the other preserves has varied from zero to four.

Least Bell's vireo habitat is well -protected and appears to be in good condition on actively managed properties. Although no nest monitoring has occurred, this species appears to be breeding successfully in the preserve system.

Southwestern Willow Flycatcher

Empidonax traillii extimus
Status: federally endangered, state endangered

Critical Locations and Major Populations

There are no critical locations or major populations in the City of Carlsbad, according to the 1999 MHCP. USFWS proposed critical habitat is located along Agua Hedionda Creek, east of El Camino Real, and along the eastern portion of Agua Hedionda Lagoon, west of El Camino Real (Figure 7).

Management Actions Conducted to Protect the Species

Regionally, the southwestern willow flycatcher is considered to be a high priority for species-specific management (SDMMP 2013); however, regional management goals and objectives have not yet

been developed. Within Carlsbad, management consists of general stewardship of suitable habitat on actively managed preserves, including trash removal, access control, and invasive species removal.

Long-Term Monitoring

Focused species surveys for the southwestern willow flycatcher are generally conducted concurrently with least Bell's vireo surveys, as these species have similar habitat requirements (see the Table 2 for survey dates).

Overall Condition and Major Threats

A migratory southwest willow flycatcher was observed many years ago at The Crossings Golf Course (Cotton/Beland/Associates, Inc. 2000) and suitable habitat existing from near Cannon Road up to the old quarry area along Macario Creek and at Lake Calavera (Spiegelberg 2013). However, all available survey data indicate that the southwestern willow flycatcher does not currently nest in Carlsbad.

2.2.5 Upland Bird Species

Coastal California Gnatcatcher
Polioptila californica californica
Status: federally threatened

Critical Locations and Major Populations

No major or critical populations have been identified in the MHCP. However, the regional stepping-stone corridor that provides dispersal opportunities between south San Diego County and Camp Pendleton (and into Orange and Riverside Counties) runs through Carlsbad. In addition, several areas of USFWS Critical Habitat have been identified within the City (Figure 9).

Management Actions Conducted to Protect the Species

Regionally, this species has been designated by SDMMP as a "VF" species, which are species with limited distribution in the MSPA and/or have specific vegetation characteristics that need to be managed for persistence in the MSPA (SDMMP 2013). VF species are likely to remain in stable condition with appropriate management of the vegetation community. Management BMPs for coastal sage scrub vegetation will be developed by SDMMP in the future. In Carlsbad, this species is managed through general habitat stewardship, including invasive species removal, patrolling, fence and sign maintenance, erosion control, habitat evaluations, and monitoring.

Long-Term Monitoring

Regional Monitoring. Regional monitoring efforts to understand the species as a whole are being coordinated by the SDMMP. Regional survey protocols developed in 2008 (Winchell et al., 2008) are

currently being re-evaluated and revised. Regional monitoring, which may or may not include sampling points within Carlsbad, will be initiated in 2016. Other studies of interest include a genetic analysis to understand gene flow throughout the species' distribution (Vandergast et al. 2014), and a post-fire gnatcatcher habitat recovery study, which will be initiated in 2015 (K. Preston, pers. comm. 2015).

City-Wide Monitoring. The City initiated a coordinated long-term monitoring survey effort in 2010 to assess the current condition (abundance, status-pair or single, and distribution) of the gnatcatchers throughout the City's HMP preserve system. See the 2007 triennial report for more details (ESA 2007). Surveys will be conducted every three years and coordinated among preserve managers to ensure consistency. In addition to actively managed preserves, surveys are also conducted on selected preserves within privately owned open space lands in the vicinity of the Aviara Master Association. Note that not all areas of suitable habitat within the HMP boundary were included in the survey effort due to financial and staffing constraints.

The Crossings Preserve. In addition to the city-wide monitoring effort, results of monitoring within The Crossings Golf Course Preserve are highlighted below. Development of the municipal golf course in 2007 required mitigation of impacts to 12 acres of California gnatcatcher habitat through the creation, restoration, and preservation of 25 acres of new habitat. To provide flexibility for potential future mitigation needs, a total of 40 acres of mitigation was provided. The City is hoping to use the excess mitigation towards the gnatcatcher core area preservation obligation, as required by the HMP. Onsite gnatcatcher surveys during and after restoration have been conducted to document that the habitat is suitable for nesting gnatcatchers. Surveys were initiated in 2007 after initial habitat installation, and annual surveys were conducted throughout the restoration period, ending in 2011 (Dudek 2011). Surveys continued every three years as part of long-term management by CNLM.

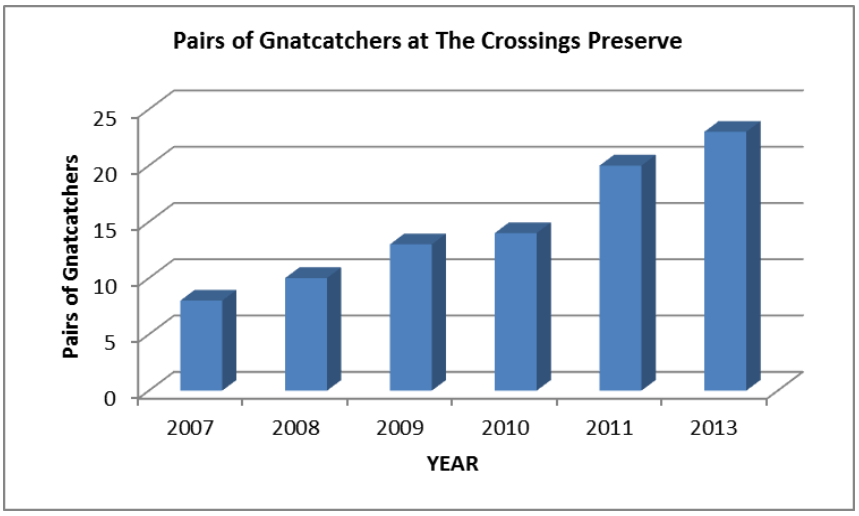
Overall Condition and Major Threats

City-Wide Monitoring. Approximately 1,500 acres of suitable habitat was surveyed in 2010 and 2013. A total of 122 pair and 33 single males (155 territories) were observed in 2013 in comparison to 85 pair and 42 males (127 total territories) observed in 2010. Observers concluded that nearly all males were single males. This is an increase of 28 territories despite little change in survey acreage (CNLM and ESA 2013). Areas with notable between-year differences include The Crossings Golf Course, which increased by 9 pair (14 to 23), Agua Hedionda Lagoon Ecological Reserve, which increased by 6 territories (4 to 10), Calavera Mountain, which increased by 5 territories (6 to 11) and Kelly Ranch, which decreased by 6 territories (8 to 2). The newly preserved La Costa Glen had 5 pair, which were observed using the preserve and adjacent slopes.

The 2010 and 2013 survey season results have provided a useful snapshot of gnatcatcher abundance, status and distribution in Carlsbad. Gnatcatchers are observed across the jurisdiction

and in all unit and vegetation patch sizes. Therefore, continued management of all unit and vegetation patch sizes is considered important for this species within the city. Small habitat patches will continue to play an important role in Carlsbad, especially during a catastrophic event, such as fire that burns some of the larger patches of coastal sage scrub (e.g., in La Costa Villages and Calavera), by serving as refugia. These small patches could be a source of CAGN recolonization after such an event occurs. In addition, the smaller patches are likely to be important "stepping stones" for gnatcatcher movement within and beyond the City.

The Crossings Preserve. In 2013, a total of 23 gnatcatcher pairs were observed within The Crossings Preserve foraging and nesting in mature coastal sage scrub creation/restoration areas. This greatly exceeds the total number of gnatcatchers observed prior to construction when a total of 17 observations were documented; it is unknown if these were pairs or unpaired individuals (Merkel and Assoc. 1998). This preserve has seen a steady increase in the number of pairs since habitat restoration was initiated, from 8 in 2007 to 10 in 2008, 13 in 2009, 14 in 2010, 20 in 2011, and 23 in 2013, as shown in the graph below.



Threats. There are currently no major threats to the coastal California gnatcatcher in the HMP preserve system other than wildfire. In May of 2014, occupied habitat supporting three documented gnatcatcher locations, based on 2013 gnatcatcher monitoring results, burned in the Poinsettia Fire. These locations were on the eastern and western borders of the Rancho La Costa Preserve, and on private HOA open space south of Poinsettia Lane.

Most of the suitable habitat in the City is under active management, or under a conservation easement or other type of open space protection. The open space on HOA lands that were surveyed in 2010 and 2013 appear to be well protected from unauthorized access and other edge effects, and the suitable gnatcatcher habitat was generally in moderate to excellent condition. Post-fire

monitoring will be conducted in burned areas to determine if management actions are necessary to recover the coastal sage scrub habitat lost in the Poinsettia Fire (approximately 27 acres).

2.2.6 Wildlife Movement

The MCHP was designed to "maintain connections between each of the major lagoon and estuary systems with larger blocks of inland habitats to allow movement for wildlife species" and allow for "demographic and genetic exchange by all species between preserve areas…to facilitate access by larger predators…between upland scrub and chaparral habitats and coastal habitats" (MHCP 2003). In order to evaluate the effectiveness of preserve design, the MHCP identifies several priority monitoring locations to establish where major constraints to mammal movement exist; some of these locations are within the HMP area. Tiering off the MHCP, a key objective of the HMP is to "maintain functional wildlife corridors and habitat linkages within the city and to the region," which is considered one of the HMP's primary contributions to regional biodiversity.

To evaluate the City's progress toward this objective, the City, in partnership with the preserve steward and CNLM, initiated a wildlife movement corridor assessment in June 2013. This assessment is being funded by a CDFW Natural Community Conservation Planning Local Assistance Grant. The purpose of the project is to:

1. Provide a baseline inventory of movement corridors and potential pinch points
    a. east to west, as described in the MHCP
    b. north to south between core areas
    c. among smaller fragments of habitat
2. Monitor selected locations to evaluate movement through potentially constrained areas
3. Provide recommendations for adaptive management

As of November 2014 (the end of the triennial report period), the initial linkage evaluation and pinch point inventory has been completed. This inventory provides information and photographs of 104 potential pinch points, including vegetation cover, length x width of culverts, level of traffic on adjacent roads, and type of substrate. Subsequent to the pinch point inventory, wildlife cameras were placed within 22 pinch point locations (generally underpasses, culverts, and bridges) for at least 3 months per location starting in January 2014, and ending in January 2015. Figure 10 shows the wildlife linkages that were assessed, potential pinch points that were evaluated, and locations of cameras. Once the study is finalized, a report will be prepared and submitted to CDFW. Results of this study will be included in the next triennial report.

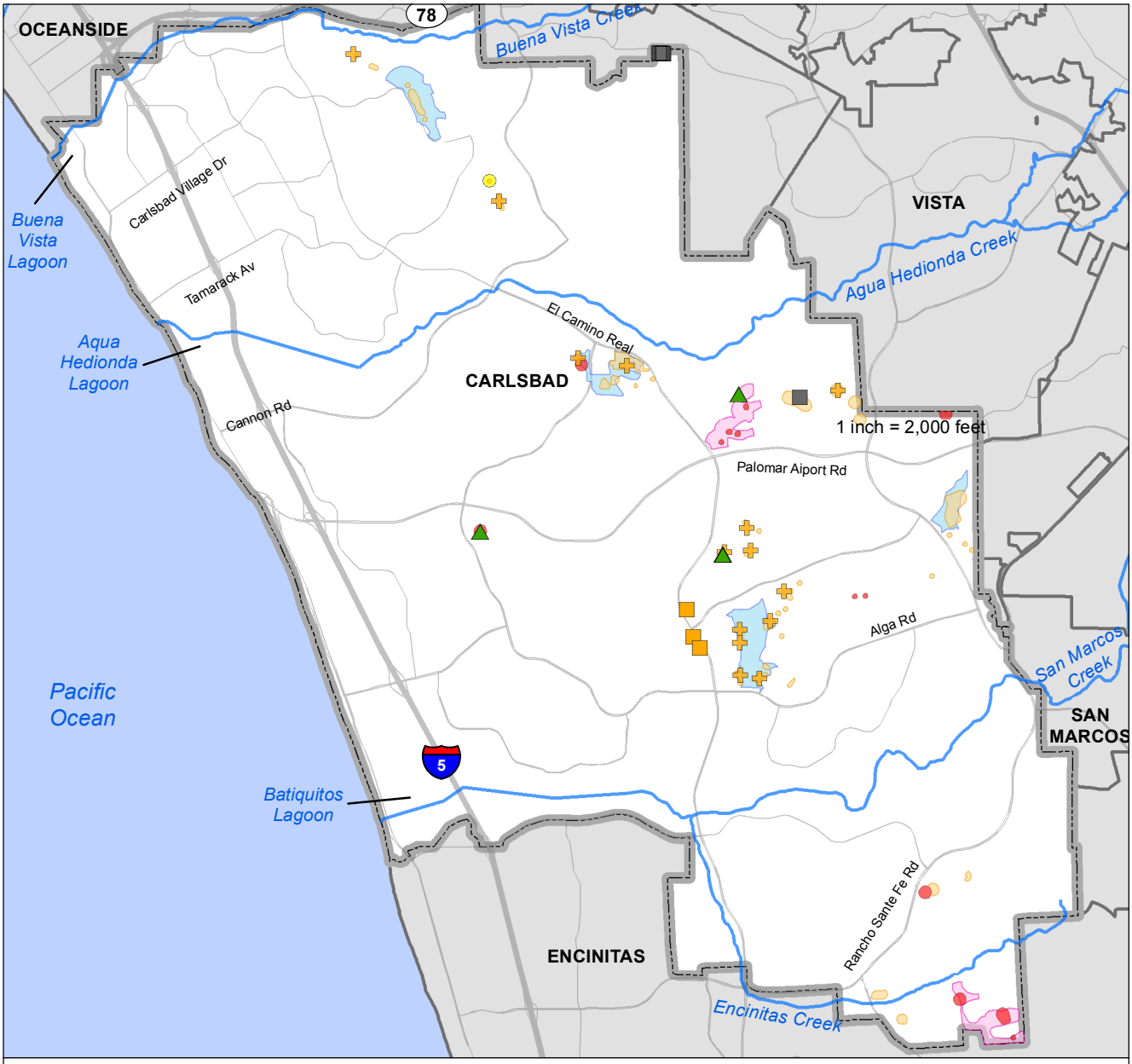


Figure Legend

CNLM Occurrence
- San Diego Thornmint
- thread-leaved brodiaea
- Del Mar sand aster

USFWS Occurrence
- San Diego thornmint
- thread-leaved brodiaea

USFWS Critical Habitat
- San Diego thornmint
- thread-leaved brodiaea

CNDDB Occurrence
- San Diego thornmint
- thread-leaved brodiaea

Basemap Legend
- Freeway
- Major Road
- River
- Carlsbad Boundary
- Municipal

0 8,500
Feet

SOURCE: CNDDB, USFWS, CNLM (Recent location 2012-2014)

Figure 4
City of Carlsbad
Current Status of Upland Herbs

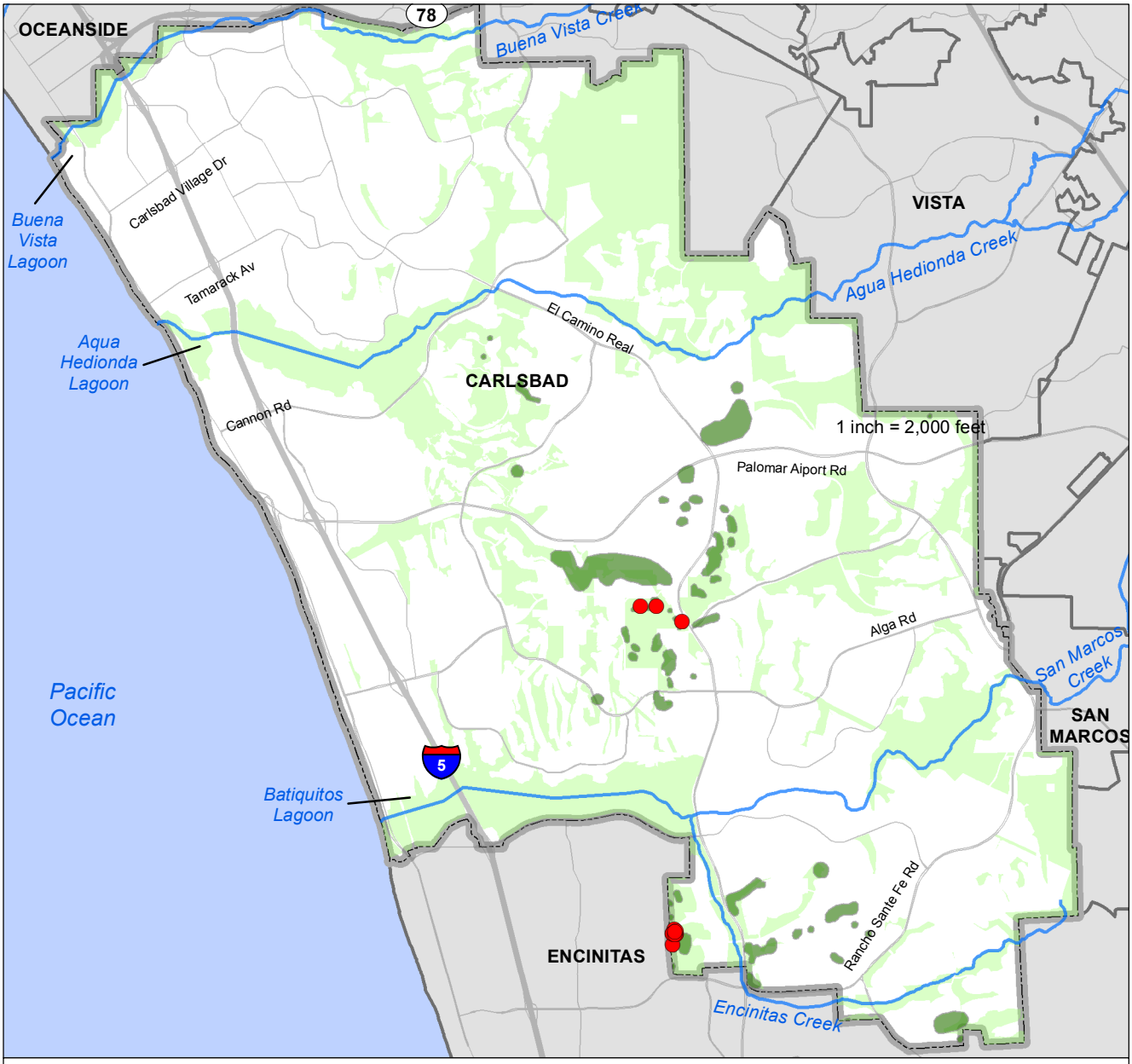


Figure Legend

CNLM Occurrence

- Del Mar manzanita

CNDDB Occurrence

- Del Mar manzanita

Basemap Legend

- Freeway
- Major Road
- River
- Carlsbad Boundary
- Municipal
- Hardlines/Softline Preserve

0 8,500 Feet

SOURCE: CNDDB, USFWS, CNLM (Recent location 2012-2014)

Carlsbad Preserve Annual Report . D211XXX

Figure 5

City of Carlsbad

Current Status of Upland Shrubs

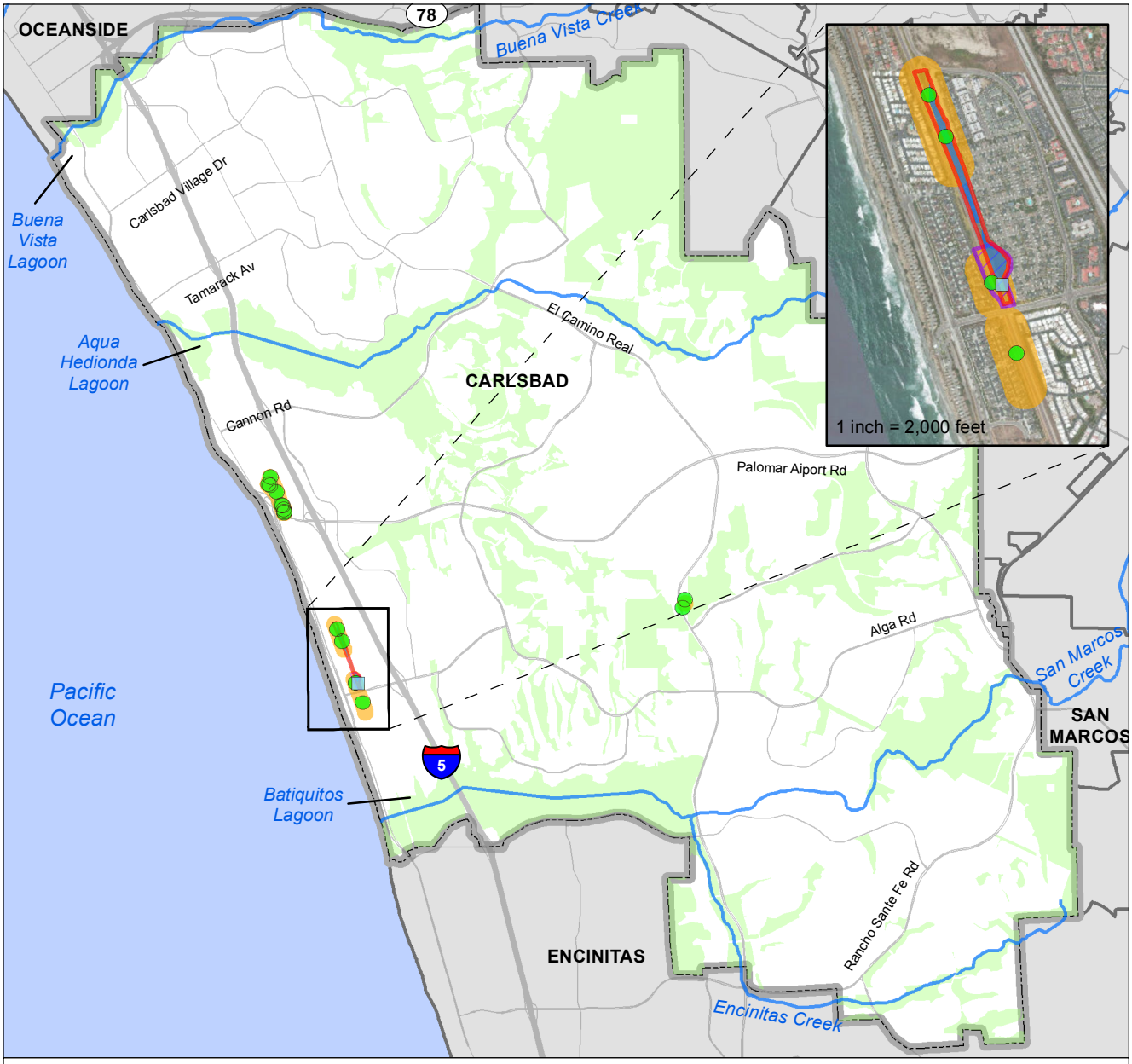


Figure Legend

USFWS Occurrence
- Riverside fairy shrimp
- San Diego fairy shrimp

USFWS Critical Habitat
- San Diego fairy shrimp
- Riverside fairy shrimp

CNDDB Occurrence
- Riverside fairy shrimp
- San Diego fairy shrimp

Basemap Legend
- Freeway
- Major Road
- River
- Carlsbad Boundary
- Municipal
- Hardlines/Softline Preserve

0 8,500
Feet

SOURCE: CNDDB, USFWS, CNLM (Recent location 2012-2014)

Figure 6
City of Carlsbad
Current Status of Vernal Pool Species

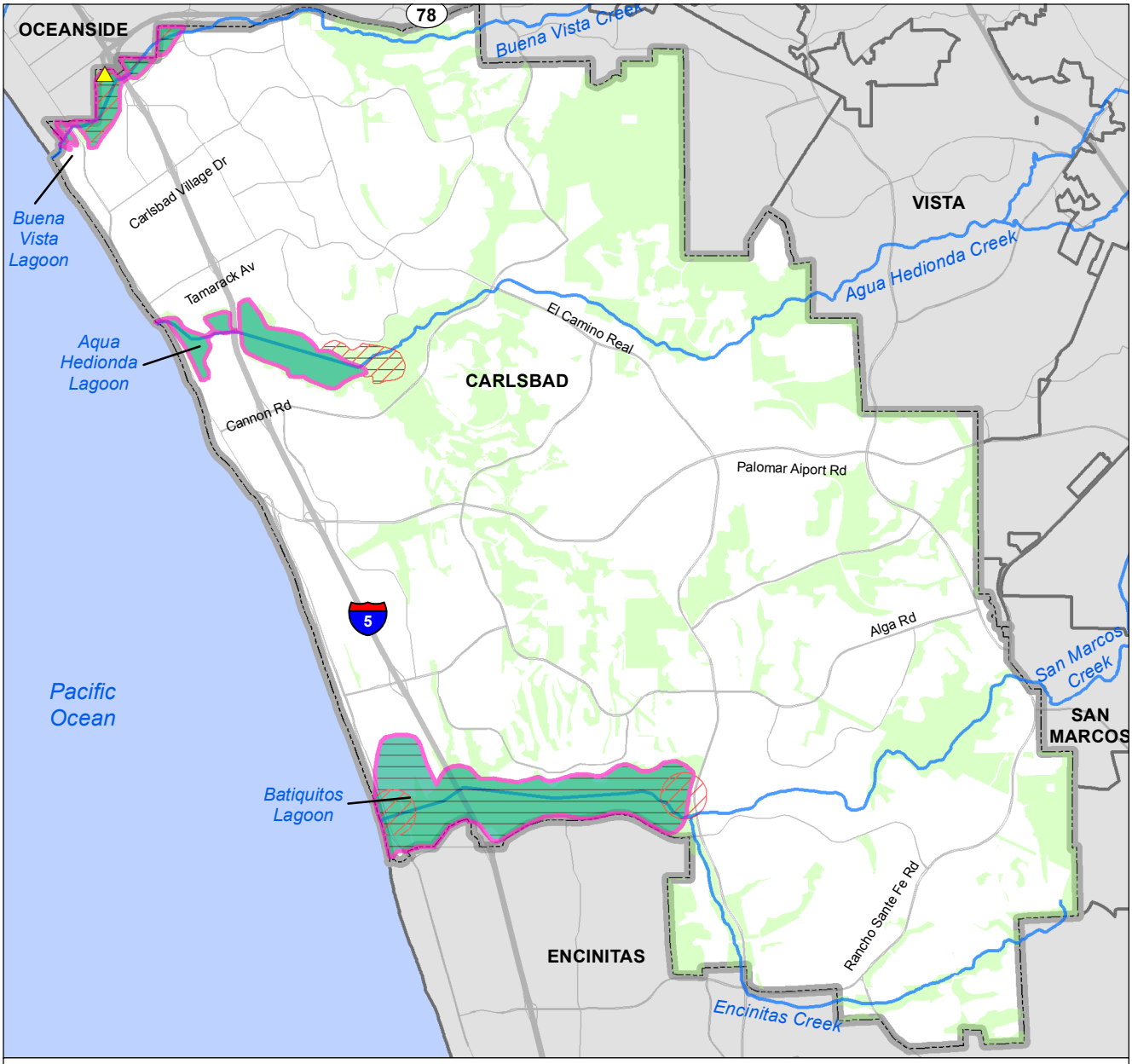


Figure Legend

USFWS Occurrence

- light-footed clapper rail

CNDDB Occurrence

- western snowy plover
- Belding's savannah sparrow
- California least tern
- light-footed clapper rail

Basemap Legend

- Freeway
- Major Road
- River
- Carlsbad Boundary
- Municipal
- Hardlines/Softline Preserve

0 8,500

Feet

SOURCE: CNDDB, USFWS, CNLM (Recent location 2012-2014)

Figure 7

City of Carlsbad

Current Status of Lagoon Species - Birds

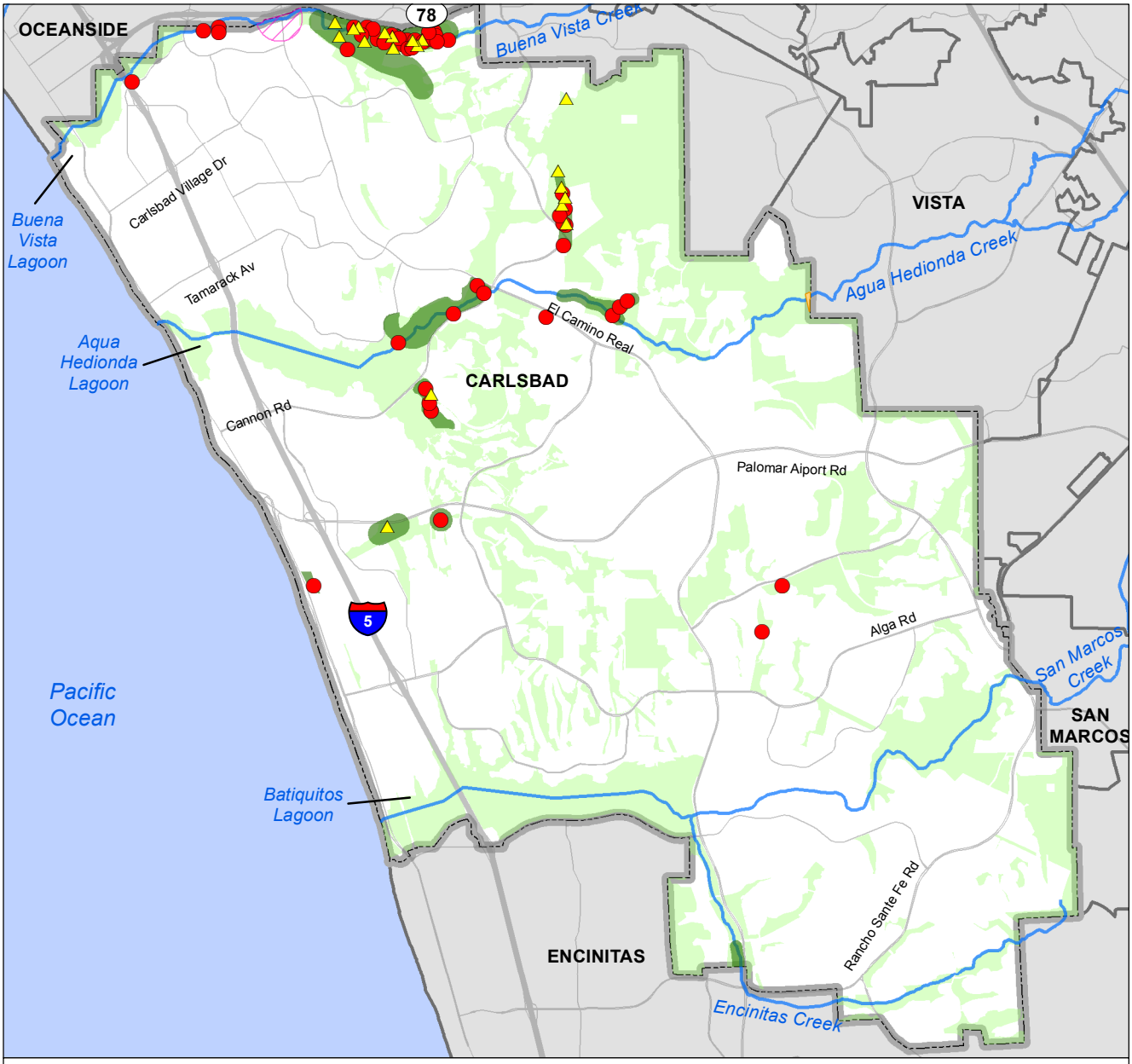


Figure Legend

CNLM Occurrence
- least Bell's vireo

USFWS Occurrence
- least Bell's vireo

USFWS Critical Habitat
- southwestern willow flycatcher

CNDDB Occurrence
- least Bell's vireo
- southwestern willow flycatcher

Basemap Legend
- Freeway
- Major Road
- River
- Carlsbad Boundary
- Municipal
- Hardlines/Softline Preserve

0 8,500
Feet

SOURCE: CNDDB, USFWS, CNLM (Recent location 2012-2014)

Figure 8
City of Carlsbad
Current Status of Riparian Birds

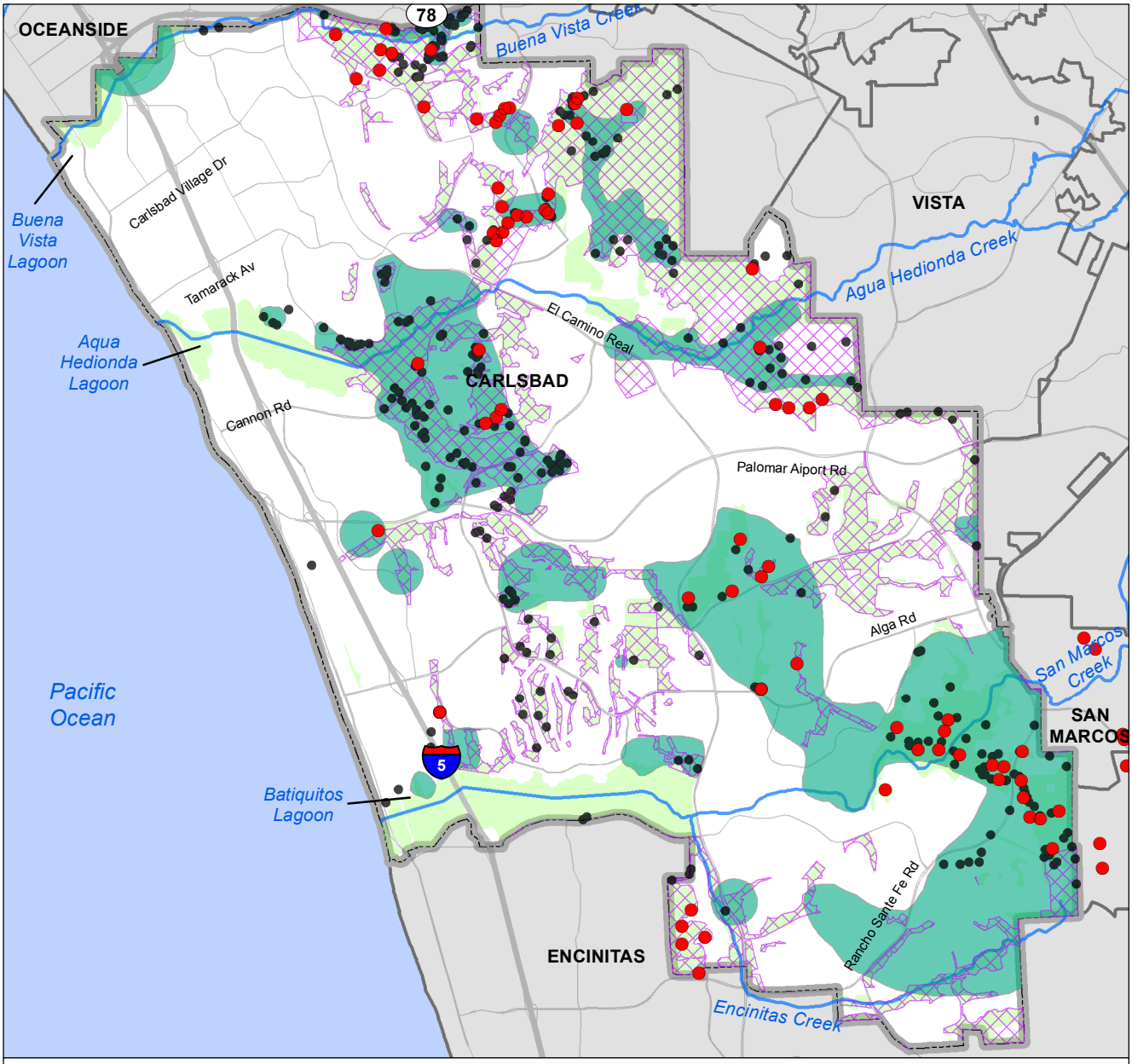


Figure Legend

CNLM Occurrence
- coastal California gnatcatcher

USFWS Occurrence
- coastal California gnatcatcher

USFWS Critical Habitat
- coastal California gnatcatcher

CNDDB Occurrence
- coastal California gnatcatcher

Basemap Legend
- Freeway
- Major Road
- River
- Carlsbad Boundary
- Municipal
- Hardlines/Softline Preserve

0 8,500
Feet

SOURCE: CNDDB, USFWS, CNLM (Recent location 2012-2014)

Figure 9
City of Carlsbad
Current Status of Coastal California Gnatcatcher

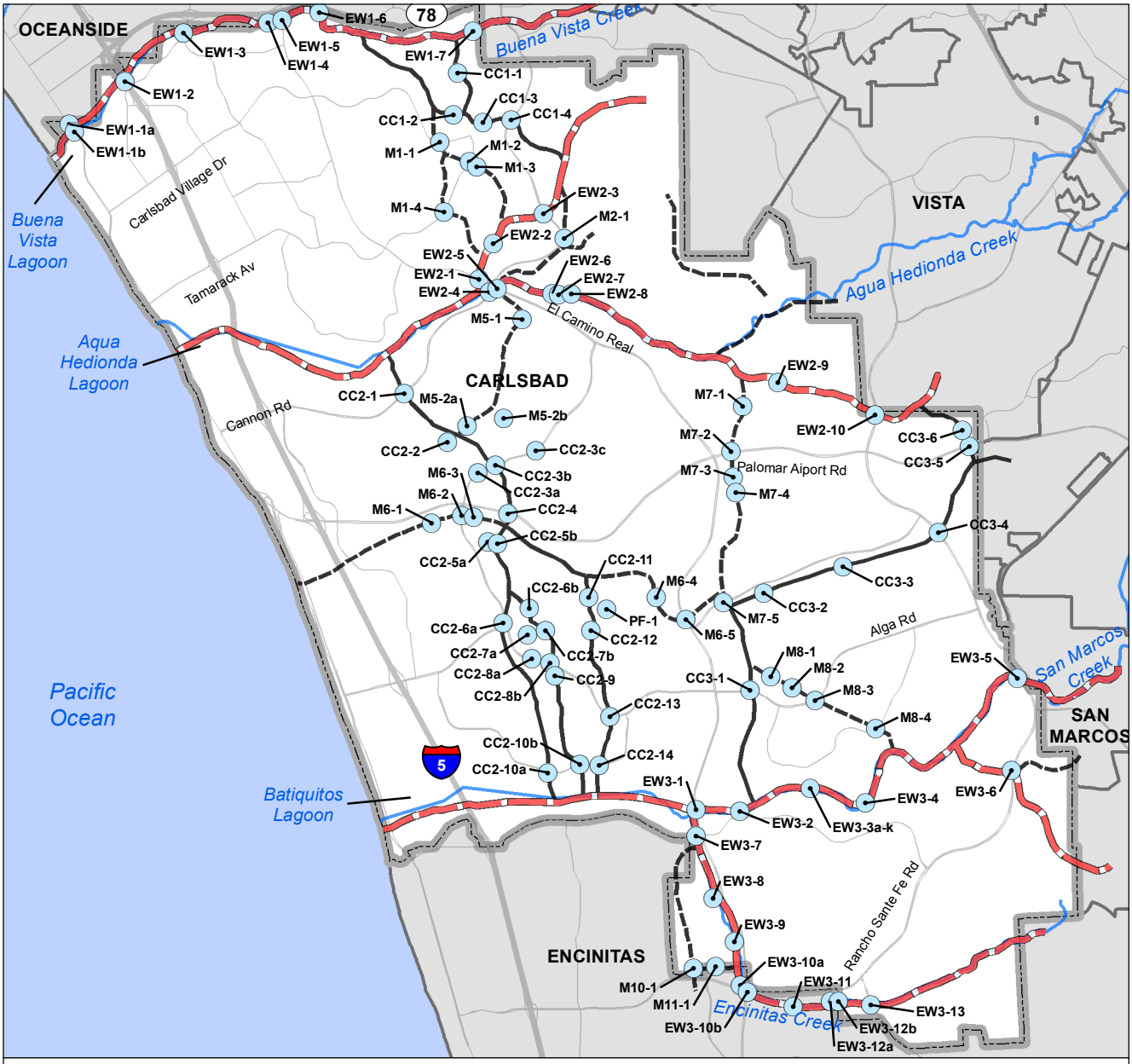


Figure Legend

- Pinch Point
- East-West
- Core to Core
- Minor

Basemap Legend

- Freeway
- Major Road
- River
- Carlsbad Boundary
- Municipal

0 8,500 Feet

SOURCE: CNDDB, USFWS, CNLM (Recent location 2012-2014)

Figure 10
City of Carlsbad
Wildlife Linkages

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