

City of Carlsbad Habitat Management Plan Annual Report

Reporting Year 16, November 2019–October 2020

March 2021



Environmental Management

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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 3-year report was prepared as part of the 2016/2017 HMP annual report.

ASMD – Area Specific Management Directive

BLF – Batiquitos Lagoon Foundation

Caltrans – California Department of Transportation. Caltrans is responsible for 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)

CNDDDB – 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 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 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

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.

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

HMP Hardline– an HMP Hardline is a preserve that has been set aside for permanent conservation and is protected by a conservation easement, which runs permanently with the land. Hardline properties cannot be developed.

HOA – Homeowners’ Association

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

Implementing Agreement – The legal agreement between the City of Carlsbad, CDFW, and USFWS that ensures implementation of the Carlsbad 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

IPM – Integrated Pest Management, a science-based, decision-making process that combines biological, physical and chemical tools in a way that achieves control objectives while minimizing economic, health, and environmental risk

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 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 meta-population stability of the species (especially for animals). A Major Population 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. The MHCP serves as an umbrella framework to guide the preparation of city-specific plans such as the Carlsbad Habitat Management Plan.

NCC – Natural Communities Coalition, a non-profit group in Orange County whose main purpose is to coordinate the land management, monitoring, and research across the approximately 38,000-acre Reserve System

NCCP – Natural Community Conservation Planning, 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 setup costs and management/monitoring of a preserve in perpetuity through investment returns. The endowment is designed to increase in value over time 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 CNLM to develop a master PMP for all city-owned preserves that addresses each preserve individually.

Preserve – Land conserved with a conservation easement, restrictive covenant, deed restriction, or transfer of fee-title to the city or CDFW 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 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 to October 31

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

SDG&E – San Diego Gas and Electric

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, a science-based program that provides 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 MHCP, 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.

T&C – Terms and Conditions

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 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 and the MHCP.

UC – Urban Corps Habitat Services, a non-profit organization that provides management and biological monitoring of mitigation and conservation lands in perpetuity

USACE – U.S. Army Corps of Engineers

USFWS – U.S. Fish and Wildlife Service

Wildlife Agencies – Term used collectively for CDFW and USFWS

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Executive Summary

Covering the period from November 1, 2019 to October 31, 2020, this sixteenth annual Habitat Management Plan (HMP) report summarizes the preserve status, implementation activities, and preserve gains and losses that have occurred during the current reporting period. Highlights of the 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 and/or Covenants, Conditions, and Restrictions, if applicable. Descriptions of the different categories of preserves are contained in Section 1.3.

Two properties changed from Proposed Hardline to Existing Hardline with established long-term management since the last HMP Annual Report. The 15.1-acre Aura Circle property was purchased by the city, adding 5.6 acres of previously developable land to the HMP, and the San Diego Habitat Conservancy began long-term management of the 173-acre Bressi Ranch Preserve.

Lake Calavera Mitigation Parcel

During the reporting period, there were no debits from the mitigation parcel. To date, cumulative debits and adjustments for wetland mitigation sites are 94.9 acres, leaving a total of 111.2 acres (credits) remaining.

Gnatcatcher Core Area Conservation Obligation

On February 25, 2020, the City Council authorized payment in the amount of \$1,104,114 to purchase the remaining 12.93 acres of Gnatcatcher Core Area credits on the Luchia Property, which is located just east of the city boundary in the Core Area. The Gnatcatcher Core Area obligation has now been met in full.

Land Acquisitions

During the reporting period, two properties were acquired by the city using Proposition C funds: 1.3-acre Paseo del Norte Property (pre-existing hardline and 15.1-acre Aura Circle Property (9.5 acres of Proposed Hardline and 5.6 acres of developable land).

Habitat Gains and Losses

A total of 5.6 acres of habitat was gained as part of the Aura Circle land purchase. There were no losses during the reporting period.

Regulatory Compliance

Minor Amendments: During the reporting period, there were no HMP Minor Amendments.

Preserve Management and Monitoring

Ongoing management and monitoring activities in HMP preserves conducted this year included invasive species monitoring and control, installation and maintenance of fences and signage, rare plant counts and habitat assessments, vegetation mapping, sensitive bird species surveys, wildlife movement monitoring, and public outreach activities, which are summarized in Appendix B. Highlights discussed in Section 2.1 of this report include consequences of COVID-19, notable new species observations (native grass thought to be extinct and mountain lions), completion of Phase 1 of the Ward's Weed Eradication Program, and other invasive species monitoring. In addition, the 2020 triennial biological monitoring report was completed and is included in Appendix C.

Financial Summary

Habitat Mitigation Fee Program: A total of \$29,998.15 of in-lieu mitigation fees was collected during the past year. On February 25, 2020, the City Council authorized payment of \$1,104,114 to purchase the remaining 12.93 acres of Core Area Credit, which was taken from the General Fund Account because there were not sufficient funds in the Mitigation Fee Account to cover the cost. The current balance of the Habitat Mitigation Fee Fund is -\$1,244,016, which will be paid off through future fees.

Preserve Management Endowments: During the reporting period, a total of \$793,633 was spent by the land managers on management and monitoring activities on 24 preserves and endowments for these properties (not including most lands owned by the city) totaled \$17,851,104.

1.0 Plan Administration

1.1 Introduction

The Habitat Management Plan (HMP) is a citywide conservation plan that describes how the city will comply with state and federal environmental laws while remaining consistent with the city's General Plan and Growth Management Plan. The HMP was developed in coordination with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife (collectively, the Wildlife Agencies) as part of a regional planning effort under the North County Multiple Habitat Conservation Program (MHCP). Annual tracking and reporting of habitat gains, losses, management, and monitoring is required by Sections 12.1 and 12.2 of the Implementing Agreement (Nov. 12, 2004); the Federal Fish and Wildlife 10(a)(1)(B) Permit No. TE022606-0 (Nov. 12, 2004); and the NCCP Permit No. 2835-2004-001-05 (Nov. 15, 2004). This annual report covers year 16 of the 50-year HMP permit period.

1.2 HMP Compliance Monitoring and Effectiveness Monitoring

1.2.1 HMP Conservation Goals

To evaluate the city's compliance with the HMP and the effectiveness of the MHCP/HMP program 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 related mitigation and HMP implementation.

1.2.2 Compliance Monitoring

Compliance monitoring is required by the HMP-related permits and Implementing Agreement to ensure that 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 working with the preserve managers to ensure coordinated management across the city. Habitat tracking results are provided in Section 1.4; regulatory compliance is discussed in Section 1.5 and Appendix A; and management and monitoring activities are summarized in Section 2.0 and Appendix B, and the Triennial Monitoring Report is included in Appendix C.

1.2.3 Effectiveness Monitoring

Effectiveness monitoring, also known as biological, ecological, or validation monitoring, determines the effectiveness of the conservation program by evaluating if the preserve assembly and management actions are achieving the HMP/MHCP goals within the city and across the MHCP planning area. The preserve-level monitoring program is used to evaluate the effectiveness of management at specific preserve areas (MHCP Vol. III). At the subregional (MHCP-wide) level, effectiveness monitoring evaluates the 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).

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 years or decades before trends in species populations and habitat conditions are detectable. Species and habitat monitoring, and monitoring to evaluate the effectiveness of management are being conducted on individual preserves as well as the regional landscape level. This work is being done through a partnership with the city, preserve steward, preserve managers, Wildlife Agencies and San Diego Management and Monitoring Program, which has developed regional and site-specific monitoring and management strategic plans and protocols for conserved lands across San Diego County.

1.3 Current Status of Preserves

This section contains: (1) a description of the different categories of preserves within the HMP preserve system, (2) an accounting of the mitigation credits at the city's Lake Calavera Mitigation Parcel, (3) the status of the city's Gnatcatcher Core Area conservation obligation, and (4) the status of the HMP Mitigation Fee Fund.

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) CDFW Ecological Reserves; (3) pre-existing natural

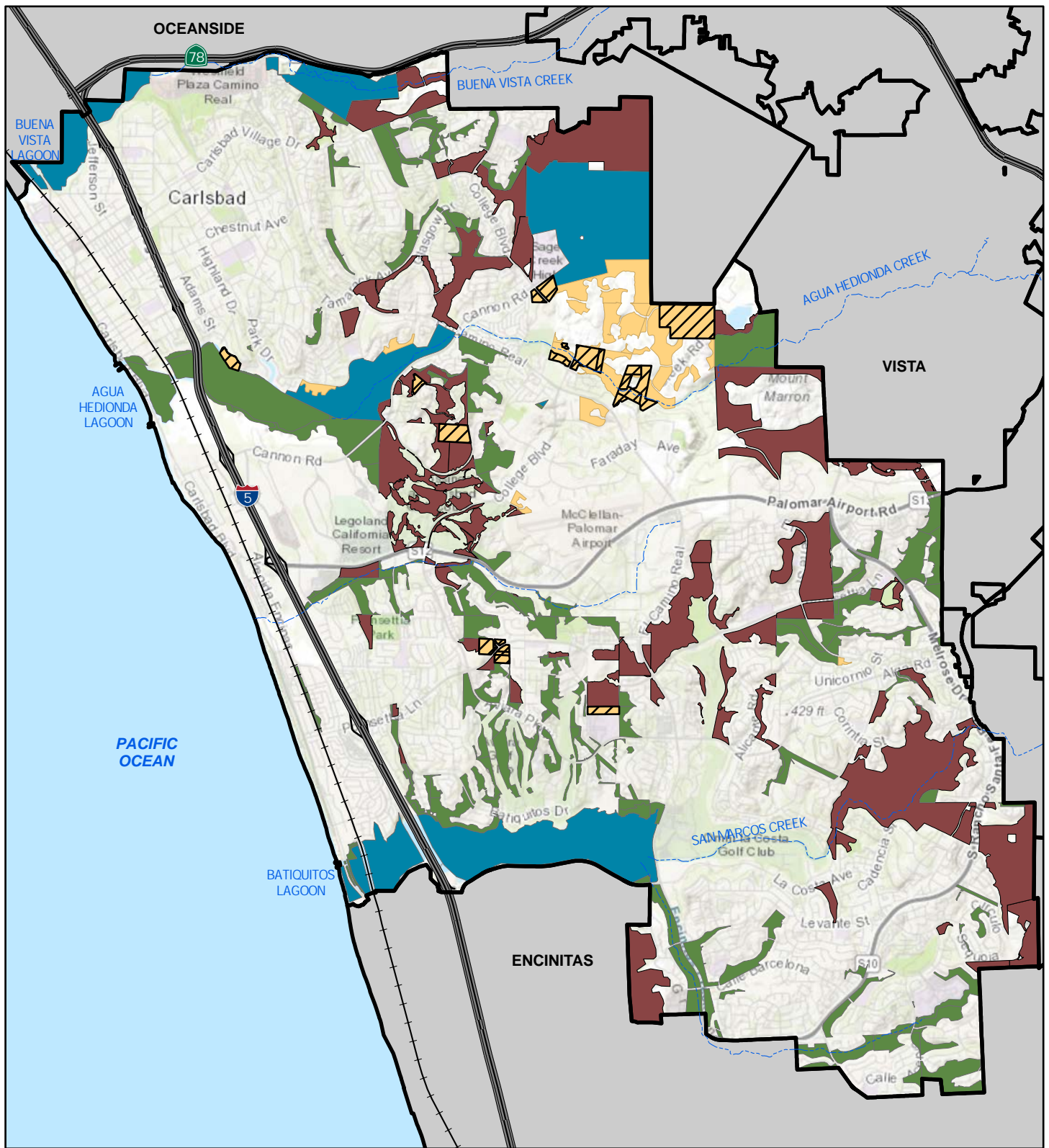
open space preserves; and (4) future preserves (Proposed Hardline Preserves and Standards Areas). These categories of preserve lands are distinguished by the level of management, ownership, and/or status as described below and shown in Figure 1.

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 are funded through non-wasting endowments or, in the case of the city-owned preserves, through annual budget appropriations. The city requires site specific annual reports for these preserves. The property owners for these preserves are a preserve management entity, homeowners association (HOA), or the city. Except for the city-owned properties, these Hardline Preserves are protected by recorded conservation easements. Examples of these preserves include Rancho La Costa, Carlsbad Oaks North, Lake Calavera and the Crossings Golf Course, among others.

California Department of Fish and Wildlife 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. Except for the Buena Vista Creek Ecological Reserve, there are currently no finalized long-term management plans for the CDFW Ecological Reserves in Carlsbad. Management is guided by draft plans, which have not been submitted to the city. CDFW obtains State Wildlife Grant funding annually for management and monitoring activities on CDFW's preserves. Management accounts have been established for Carlsbad Highlands Ecological Reserve and Agua Hedionda Lagoon Ecological Reserve. The Batiqitos 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 land management entity, through a contract and funded by a non-wasting 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 Ecological Reserve.



Legend

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



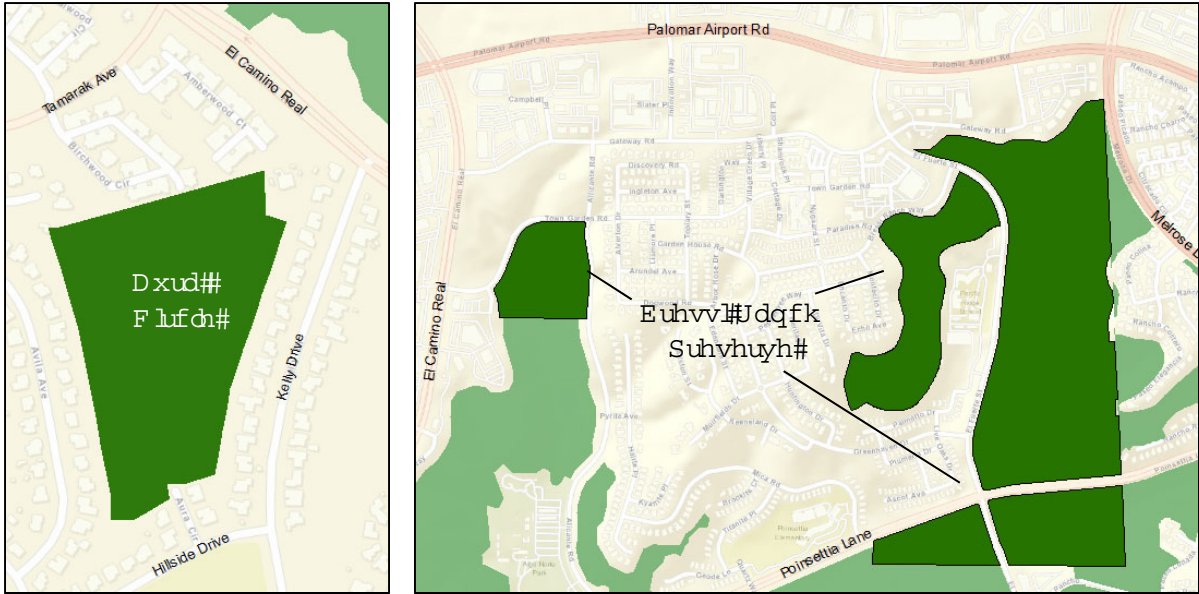
Pre-Existing Natural Open Space Preserves

These Hardline Preserves predate the HMP and are composed of natural open space areas within subdivisions or master plan communities (owned by the respective HOA), the University of California's Dawson-Los Monos Reserve, and areas owned by Cabrillo Power, San Diego Gas and Electric (SDG&E), 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 pickup and fence maintenance. The HMP envisioned that future management and monitoring of these lands would be financed through a regional funding source. The preserves owned by HOAs 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 HOA-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 preparing a preserve management plan approved by the city and Wildlife Agencies, contracting with a qualified land manager, funding a non-wasting endowment or other secure financing mechanism, and recording a conservation easement. An HMP Minor Amendment - Equivalency Finding, approved by the city and Wildlife Agencies, is required for any alterations to the Proposed Hardline Preserve boundary, and the final preserve design for Standards Areas must be approved by the city and Wildlife Agencies through an HMP Minor Amendment - Consistency Finding. Examples of these future preserves include Mandana and Kato.

Two properties changed from Proposed Hardline to Existing Hardline with established long-term management since the last HMP Annual Report. The city purchased the 15.1-acre Aura Circle property in February, 2020 and placed it under long-term management by Center for Natural Lands Management. Originally proposed for 9.5 acres of preserved open space, the city will gain an additional 5.6 acres of HMP hardline by converting the developable acreage on the property to preserved open space (see Section 1.4.2 for more details). In December 2020, San Diego Habitat Conservancy took over long-term management of the 173-acre Bressi Ranch Preserve. Active management of this preserve will be critical in our efforts to combat Ward's weed (*Carrichtera annua*), since approximately 87% of the infestation in Carlsbad occurs on the Bressi Ranch Preserve (see Section 2.3.1 for more details).



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.

The HMP (Section D.3.B) states that there are 266.1 available acres on Lake Calavera Preserve and the Implementing Agreement (Section 10.7) states that there are 206.1 acres. The Wildlife Agencies and city have agreed to use the more conservative 206.1 acres stated in the Implementing Agreement for tracking purposes.

In addition to the use of the Lake Calavera Mitigation Parcel for upland mitigation credits, the city also uses the property for wetland mitigation through active habitat creation, restoration, and/or enhancement of disturbed areas within the preserve, in coordination with the Wildlife Agencies and wetland permitting agencies. Once an area has been mapped and identified as mitigation for a city project, it is no longer eligible for future mitigation credits, and the acreage of the mitigation site is debited from the available balance. During the reporting period, there were no debits. Cumulative upland debits and adjustments for wetland mitigation sites to date are 94.9 acres, leaving a total of 111.2 acres (credits) remaining (see Table 1).

Table 1. Mitigation Acreage at Lake Calavera Mitigation Parcel RY 16 (2019–2020)

Credits and Debits	Acres¹
Initial Credits	206.1
Total acres available as of November 1, 2019	111.2
Year 16 Deductions (Nov. 2019–Oct. 2020)	0.0
Total acres available as of October 31, 2019	111.2

¹ Rounded to the nearest tenth of an acre.

1.3.3 Gnatcatcher Core Area Preservation Obligation Acreage

When the HMP was being developed, the Wildlife Agencies determined there was not enough coastal sage scrub habitat in the city to conserve the coastal California gnatcatcher. Because of this limitation, the city was required to preserve an additional 307.6 acres of coastal sage scrub in the Gnatcatcher Core Area, a large block of high quality habitat southeast of the city, which is regionally important for the long-term survival of the species.

On February 25, 2020, the City Council authorized payment in the amount of \$1,104,114 to purchase the remaining 12.93 acres of Gnatcatcher Core Area credits on the Luchia Property, which is located just east of the city boundary in the Core Area. This payment provided by the city was used to establish long-term management on the 40-acre property (\$755,273), and contribute toward the purchase price of the property (\$348,840) as part of an agreement between the city, U.S. Fish and Wildlife Service (USFWS), CDFW, and CNLM. As of April 3, 2020, the land purchase has been completed and long-term management has been initiated. As documented in a letter from the USFWS and CDFW dated December 19, 2019, the city has now fulfilled its Gnatcatcher Core Area obligation in full. Table 2 shows the status of Core Area conservation credits.

Table 2. Status of Carlsbad HMP Gnatcatcher Core Area Obligation through RY 16 (2019–2020)

Core Area Components	Acres
Total Core Area Conservation Requirement	307.6
Core Area Credits Acquired as of November 1, 2019	294.7
Core Area Credits Acquired in RY 16 (2019-2020)	12.9
Remaining Core Area Conservation Requirement	0.0

1.3.4 Habitat Mitigation Fee Program

The purchase of Gnatcatcher Core Area credits is funded through the Habitat Mitigation Fee Program (called the *In-lieu* Mitigation Fee Program in the HMP). Project impacts to certain upland habitat types require a mitigated fee, which is deposited into the Habitat Mitigation Fee Fund. These funds can only be used to offset the cost of Gnatcatcher Core Area conservation. A total of \$29,998 of in-lieu mitigation fees was collected during the reporting period, and \$1,104,114 was expended during the reporting period. A detailed accounting of the in-lieu mitigation fees and expenditures is given in Section 3.1.2.

1.4 Habitat Gains and Losses

Pursuant to the HMP and Implementing Agreement, 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: (1) the HMP preserve is being assembled as anticipated; (2) the habitat conservation goals of the HMP are being achieved; and (3) 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

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 Habittrak)**

HMP Table 8		Habittrak	
Habitat Type	Target Acres ¹	Habitat type	Target Acres ¹
Coastal sage scrub	2,139	Maritime succulent scrub	29
		Coastal sage scrub	2,003
		Coastal sage-chaparral scrub	107
		<i>Subtotal</i>	<i>2,139</i>
Chaparral	676	Chaparral	676
Southern maritime chaparral	342	Southern maritime chaparral	342
Oak woodland	24	Coast live oak	20
		Other oak woodland	4
		<i>Subtotal</i>	<i>24</i>
Riparian	494	Riparian forest	82
		Riparian woodland	17
		Riparian scrub	395
		<i>Subtotal</i>	<i>494</i>
Marsh	1,252	Southern coastal salt marsh	143
		Alkali marsh	9
		Freshwater marsh	165
		Freshwater	53
		Estuarine	789
		Disturbed wetland	93
<i>Subtotal</i>	<i>1,252</i>		
Grassland	707	Grassland	707
Eucalyptus woodland	99	Eucalyptus woodland	99
Disturbed lands	745	Agriculture	185
		Disturbed Land	244
		Developed	316
		<i>Subtotal</i>	<i>745</i>
Total Target Conservation within Carlsbad	6,478²	Total Target Conservation within Carlsbad	6,478²
Carlsbad's Gnatcatcher Core Area Contribution	308	Not tracked in Habittrak	N/A
Total HMP Target Conservation	6,786²		

¹ Rounded to the nearest acre.

² Note that the target acreage includes 100% of all Standards Area parcels. However, a portion of these parcels are expected to be developed; therefore, the final total will be slightly less than the target value.

1.4.2 Land Acquisitions

During the reporting period, two properties were acquired using Proposition C funds. In Carlsbad, the City Council cannot authorize the spending of more than \$1 million of general fund money for property acquisition or improvements without prior approval from voters. In 2002, voters

passed Proposition C, which allowed the City Council to exceed the \$1 million amount on four projects, including the purchase of land from willing sellers for open space/trails purposes.

Paseo del Norte Property

On November 12, 2019, the City Council authorized the purchase of the 1.3-acre Paseo del Norte Preserve property, located between I-5 and Paseo del Norte, south of Palomar Airport Road. The disturbed wetlands onsite provide an opportunity for wetland mitigation credits within the coastal zone, which can be difficult to find. The potential mitigation credits are expected to be used for city infrastructure projects. This land acquisition will not add acreage to the HMP preserve system, as it was already designated as a pre-existing hardline.

Aura Circle Property

On February 11, 2020, the City Council authorized the purchase of the 15.1-acre Aura Circle property, located south of the Tamarack Avenue-El Camino Real intersection. The property initially consisted of 9.5 acres of Proposed Hardline and 5.6 acres of developable land zoned for single family residential homes. The entire property is now under long-term management by CNLM; 5.6 acres have been added to the HMP preserve system; and the entire property will now be designated as “Existing Hardline” (permanently conserved).

1.4.3 Habitat Gains and Losses

During RY 16 (2019–2020) a total of 5.6 acres of habitat was gained (permanently protected and added to HMP preserve system) from the purchase of the Aura Circle property, as discussed above. Zero acres were lost (impacted). Since adoption of the HMP, 6,195 acres have been gained and 1,760 acres have been lost. Figure 2 shows the status of the preserve system.

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 Implementing Agreement, and State NCCP and Federal Fish and Wildlife permits.

1.5.1 HMP Amendments

Amendments processed during the reporting period are 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.

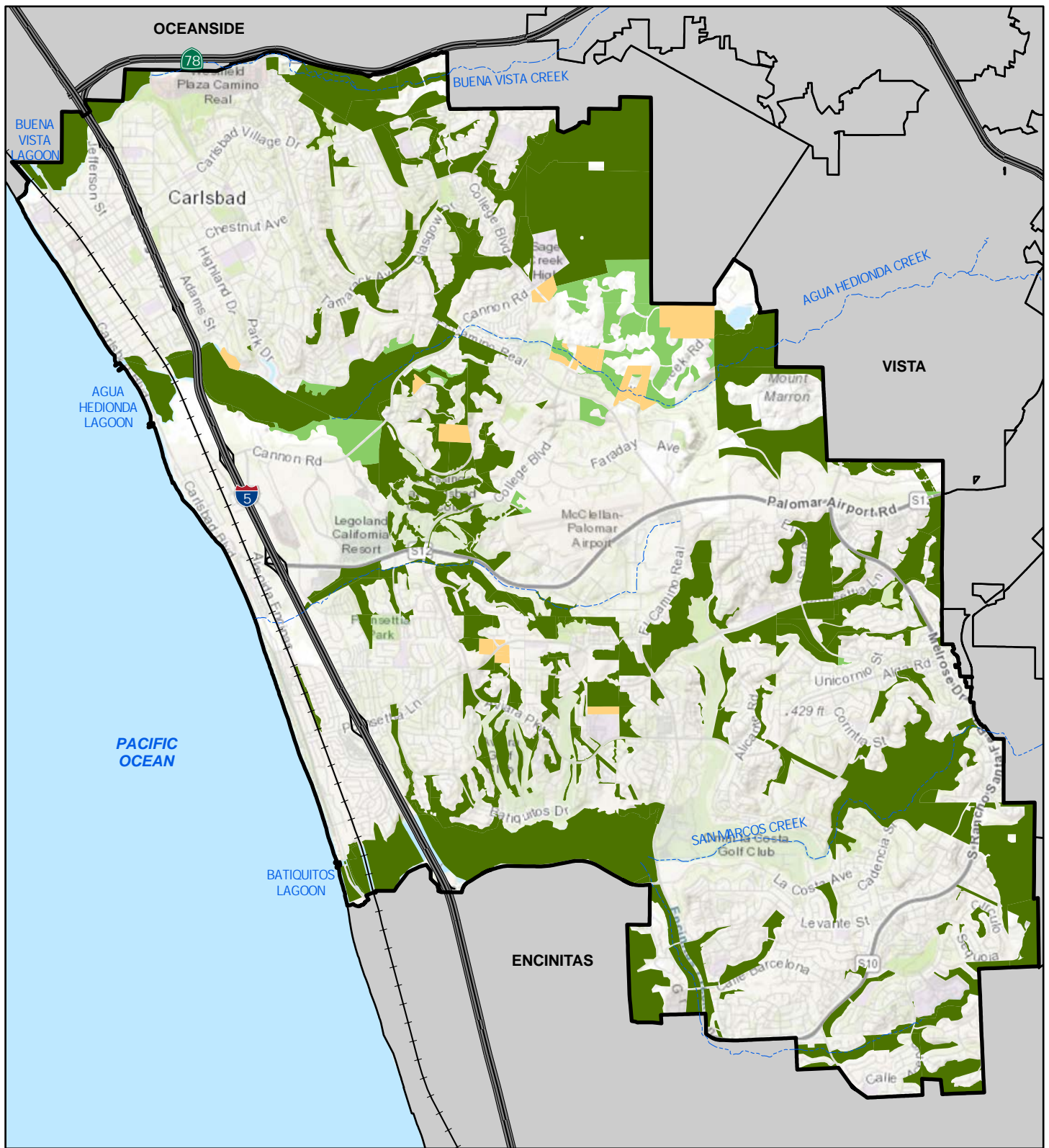
1. **Consistency Finding:** During the reporting period, no minor amendments were processed through a Consistency Finding.
2. **Equivalency Finding:** During the reporting period, no minor amendments were processed through an Equivalency Finding.
3. **Other Minor Amendments (pursuant to Section 20.1 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 Implementing Agreement, 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 Appendix A.

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 with 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. Appendix A summarizes property-specific and linkage-related standards and current status. Refer to HMP Section D pages D-73 through D-82 for additional zone-specific standards.



Legend

- Existing Hardline
- Proposed Hardline
- Standards Area



2.0 Biological Management and Monitoring

The Wildlife Agencies have issued permits to jurisdictions and participating landowners for implementation of regional conservation plans like the HMP throughout California to address the development, conservation, and land management activities of conserved lands. One of the primary commitments made by permittees is to maintain the long-term habitat value of the preserve system and its ability to support viable populations of covered species. This section highlights some of the monitoring and management activities conducted by the HMP Division that took place during the reporting period and summarizes the Triennial Long-term Monitoring Report (included in its entirety in Appendix C). Appendix B includes a preserve-by-preserve summary of activities conducted by preserve managers and environmental organizations.

2.1 Consequences of the Covid-19 Pandemic

Most biological monitoring and management occurs during the spring and summer, generally between February and July. In 2020, many activities had to be postponed or canceled due to the COVID-19 pandemic, including a planned expansion of the HMP volunteer program. The goal of the volunteer program is to protect native habitat and species on unmanaged preserves by performing invasive species removal, installation of interpretive signage, repairing habitat damaged from unauthorized trail use, and other management tasks. Long-term monitoring, such as wildlife movement studies, was ongoing but reduced in 2020. Implementation of a newly developed inspection program was also postponed. The purpose of the inspection program is to evaluate the condition of the unmanaged preserves, identify threats, and prioritize potential remedial management actions.

Another outcome of the pandemic was heavy use of the outdoors by the public, which resulted in significant damage to native habitat and rare plants from off-trail use. Enjoying the outdoors was one of the few things residents could safely do, and many people had more free time than usual. The unmanaged preserves had some of the most damage because there was no land manager patrolling those areas, but even actively managed preserves were damaged because land managers did not always have the resources to keep up with the increased use.

2.2 Notable New Species Observations

In 2020 there were two significant observations in Carlsbad, as described below.

2.2.1 Native Grass Species Thought to be Extinct



Prairie false oat (*Sphenopholis interrupta* subsp. *californica*) was thought to be extinct. Previously, it was only known from two locations in Baja California, Mexico from the 1880s. In April, 2020, botanists Jessie Vinje (Conservation Biology Institute) and Margie Mulligan (San Diego Natural History Museum) discovered this species in Carlsbad while conducting rare plant surveys. The species was found on clay soils while surveying for another clay soil species (few species can tolerate soils with a high clay content). Not only did they rediscover a species that was thought to be extinct for over 100 years, but this was the first known record from the United States. The botanists plan to survey throughout Carlsbad and other areas within the county in 2021 to see if they can find other locations.

2.2.2 Mountain Lion Observation



Although there have been a few eye-witness accounts of a possible mountain lion (*Puma concolor*) in Carlsbad, until recently, we have not obtained clear evidence such as a photo. On November 3, 2020,

a photograph of a mountain lion was first captured by a trail camera by CNLM just east of Carlsbad on Rancho La Costa Preserve (photo on the left), which extends into Carlsbad near Avenida Soledad. Shortly thereafter, a sighting in Carlsbad near Babilonia Street was reported on the local news and corroborated with a video (still shot from video on the right). Extensive research being conducted on radio collared mountain lions in the region show that the vast majority of mountain lion territories and movement occur north of State Route 76 and east of Interstate 15 (Vickers et al. 2017). This individual was likely a young male just passing through.

2.3 Invasive Species Early Detection and Rapid Response

Invasive non-native plants and animals are some of the biggest threats to the HMP preserve system and most costly to manage. In partnership with land managers, regional groups and agencies, the HMP Division uses the early detection and rapid response (EDRR) strategy to catch new infestations early when they are smaller and less costly to eradicate or control. This section discusses some of the key invasive species currently under surveillance.

2.3.1 Ward's Weed Eradication Program

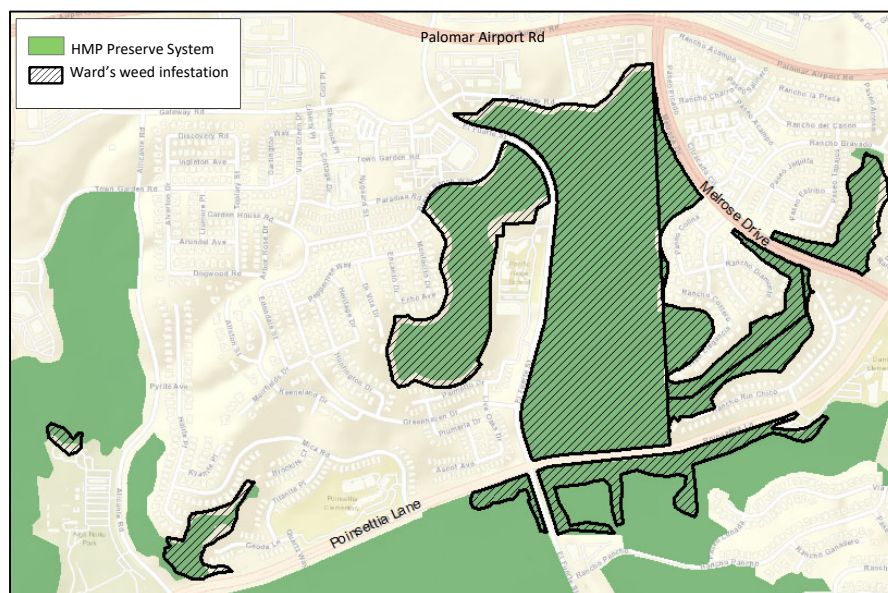
Ward's weed, a small annual in the mustard family, was first discovered in Carlsbad in 2007, which was the only extant location in North America. Now it has spread to approximately 200 acres of

habitat within the HMP preserves (see map below). Approximately 98% of the known locations in the United States occur in Carlsbad. The remaining locations are small isolated populations in San Diego County. This species is a prolific seed producer, may spread rapidly as a dense mat, and creates flashy fuel after drying up in the summer, creating a wildfire risk.

On Oct. 8, 2019, Carlsbad City Council approved a program to eradicate Ward's weed because of the threat to native habitats, protected plant and animal species, and recreational and agricultural areas in Carlsbad. Phase 1 of the program, consisting of intensive treatment using pre-emergent herbicide Gallery throughout the infested area, was initiated in November 2019 and completed in February 2021. A single treatment has been shown to be effective at suppressing seed germination for at least two years. Phase 2, which is expected to last at least three years, will consist of surveillance and spot treatment as necessary.

For more information, visit the Ward's weed information page at:

<https://www.carlsbadca.gov/services/depts/pw/environment/habitat/wardsweed.asp>.



2.3.2 Other High Priority Invasive Species Surveillance

Land managers continued ongoing surveillance and adaptive management for the invasive shot hole borer (*Euwallacia* spp.), gold-spotted oak borer (*Agrilus auroguttatus*), and the Italian white snail (*Theba pisana*), among others. The two borer species are relatively new invaders to Southern California and are known to cause significant damage to native trees in a short period of time. The invasive shot hole borer has been confirmed from at least four preserves in Carlsbad and there are unconfirmed signs at several other locations. Although the gold-spotted oak borer has not been confirmed in Carlsbad, it has been confirmed in Oak Riparian Park in Oceanside, which is

adjacent to Lake Calavera Preserve. Because knowledge of these species is evolving rapidly, the city and land managers coordinate regularly with the Eskalen Lab at the University of California Cooperative Extension to ensure that the adaptive management responses are based on the best available science.

The Italian white snail has been in San Diego County for about 100 years. In the early 1900s, it caused significant damage to agricultural plants in San Diego but was thought to be eliminated after an intensive eradication program in the 1920s (Martin and Wilen 2018). The snails reappeared in San Diego County a few times since then but didn't show the explosive growth of the early 1990s until recently. In recent years, several locations of explosive growth of the Italian white snail have been identified in Carlsbad. In one location in the Bressi Ranch area, ornamental tree trunks were 100% covered with the snails, which are known to climb up onto vegetation during the hot summer months to avoid ground-level heat. Although it is unknown if the snails can significantly damage native plants, the snail is now considered to be a high alert species by the University of California Department of Agriculture and Natural Resources because of its explosive growth in San Diego County. Currently, the city and land managers are not aware of effective management for this species. After scraping and crushing the snails from the trees in Bressi Ranch, the snails reappeared the following year in the same density. It is notable that the Italian white snail in Carlsbad is often observed in the same location as Ward's weed, which also originated in the Mediterranean region.

2.4 Long-term Biological Monitoring

Long-term biological monitoring is required by the HMP, and results are reported every three years. Site-specific monitoring is conducted by the preserve managers on actively managed preserves, which accounts for approximately 70% of the HMP preserve system. Vegetation monitoring is accomplished by mapping every five years to evaluate changes in the boundaries of vegetation types over time. CNLM also conducts more detailed studies to evaluate the structure, composition and species richness of coastal sage scrub habitat using permanent sampling plots established evenly across the landscape in Carlsbad.

Focused species surveys are required for a subset of the sensitive species that occur in Carlsbad (MHCP 2003, Vol. III). For discussion purposes, these species are organized into the following functional groups (species that share similar life history characteristics):

- **Upland Plants:** San Diego thornmint (*Acanthomintha ilicifolia*), Thread-leaved brodiaea (*Brodiaea filifolia*), Del Mar Mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*), Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), Encinitas baccharis (*Baccharis vanessae*), and Orcutt's hazardia (*Hazardia orcuttii*).

- **Vernal Pool Species:** California Orcutt grass (*Orcuttia californica*), little mouse-tail (*Myosurus minimus* ssp. *apus*), San Diego button celery (*Eryngium aristulatum* var. *parishii*), spreading navarretia (*Navarretia fossalis*), Riverside fairy shrimp (*Streptocephalus woottoni*), and San Diego fairy shrimp (*Branchinecta sandiegonensis*).
- **Lagoon/Coastal Bird Species:** Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), California least tern (*Sterna antillarum browni*), Ridgeway Rail (*Rallus longirostris levipes*), and western snowy plover (*Charadrius alexandrinus nivosus*).
- **Riparian Bird Species:** least Bell's vireo (*Vireo bellii pusillus*), and southwestern willow flycatcher (*Empidonax traillii extimus*).
- **Upland Bird Species:** coastal California gnatcatcher (*Polioptila californica californica*).

See the 2020 triennial monitoring report for the results and a discussion of current status, threats and management (Appendix C).

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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 Environmental Management Division, Planning Division, Parks and Recreation Department, and 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 Implementing Agreement. Two of the city's main responsibilities are: (1) oversight of the HMP Preserve and (2) direct, active management of 618 acres of preserve land owned by the city.

To fulfill the first responsibility, the city dedicates a senior-level coordinator and provides other staff support for HMP implementation. The city also contracted with a biological consulting firm to serve as the city's preserve steward, coordinating management throughout the HMP preserve and evaluating management effectiveness. 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. CNLM conducts regular biological monitoring and habitat management throughout the city's preserves, including maintenance fences and signage, closure of unauthorized trails, regular patrols, invasive species removal, and public outreach.

In addition, although not funded through the HMP Program, the city has two permanent full time rangers who patrol open space areas, including parks, trails, and habitat preserves. The ranger program is administered by the Police Department, which allows the rangers to have citation authority and close contact with the Homeless Outreach Team and police officers, which are often needed to deal with issues such as encampments and other unauthorized access.

3.1.2 Habitat Mitigation Fees

As described in Section 1.3.5, habitat mitigation fees are collected from developers for project-related impacts to certain types of native habitat and deposited into the Habitat Mitigation Fee Fund. Impacted habitats that require a fee include unoccupied coastal sage scrub, coastal sage/chaparral mix, and chaparral (except southern maritime chaparral) (Group C); occupied coastal sage scrub (Group D); non-native grassland (Group E); and disturbed lands, eucalyptus, or agricultural lands (Group F). The purpose of the habitat mitigation fee program is to fund the city's obligation to acquire, protect, and manage lands in the Gnatcatcher Core Area.

As shown in Table 4, mitigation fees totaling \$29,998.15 were collected during the current reporting period. On February 25, 2020, the City Council authorized payment of \$1,104,114 to purchase the remaining 12.93 acres of Core Area Credit. The current balance of the Habitat Mitigation Fee Fund is -\$169,600.19. Since the adoption of the HMP, the city has taken advantage of opportunities to purchase Core Area credits when they become available. On several occasions, the cost of credits exceeded the available Habitat Mitigation Fee funds, requiring an advance from the General Fund and resulting in a negative fund balance. In-lieu fees will continue to be collected for habitat impacts, as appropriate, and will be used to reimburse the General Fund.

Table 4. Habitat Mitigation Fee Fund Activity in RY 16 (2019–2020)

Date	Description	Habitat Impacted	Total¹
11/01/19	Beginning Fund Total		-\$169,900.19¹
Fees Collected			
11/12/19	Baum Residence	0.54 acre Type F (Ag, Dist, Eucalyptus)	\$1,759.86
12/23/19	Lin Residence	0.47 acre Type F (Ag, Dist, Eucalyptus)	\$1,574.50
03/03/20	Argonauta Residence	0.44 acre Type F (Ag, Dist, Eucalyptus)	\$10,309.50
03/03/20	Argonauta Residence	0.30 acre Type D (Coastal Sage Scrub)	\$1,474.00
06/18/20	Laguna Drive Subdivision	0.09 acre F (Ag, Dist, Eucalyptus)	\$309.33
07/30/20	Goertzen Residence	0.38 acre Type D (Coastal Sage Scrub)	\$13,058.70
07/30/20	Goertzen Residence	0.39 acre Type F (Ag, Dist, Eucalyptus)	\$1,340.43
07/30/20	Goertzen Residence	0.01 acre Type E (Non-native Grassland)	\$171.83
Total Fees Collected			\$29,998.15
Funds Expended for Core Area Conservation			
02/25/20	12.93 acres of credit associated with the Luchia Property		-\$1,104,113.60
Total Funds Expended			-\$1,104,113.60
10/31/20	Account Balance		-\$1,244,015.64

3.2 Status of Preserve Management Endowments

The endowment activity and status for preserves funded through endowments are given in Table 5. During the reporting period, a total of \$793,633 was spent by the land managers on management and monitoring activities on 24 preserves and endowments for these properties (not including most lands owned by the city) totaled \$17,851,104. 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 5. Endowment Status for HMP Preserves in RY 15 (2019–2020)

Preserve Name	Managing Entity ¹	Inception Date	Original Endowment ²	Inflation-Adjusted Endowment ³	RY 19-20 Budget	RY 19-20 Expend.	Total Funds as of 9/30/20
Buena Vista Creek Ecol. Rsv.	CNLM ³	April 2007	\$776,644	\$996,165	\$43,923	\$44,546	\$1,351,700
Calavera Hills II/Rob. Ranch	CNLM ³	June 2006	\$1,834,813	\$2,389,454	\$105,373	\$104,734	\$3,638,227
Carlsbad Oaks North	CNLM ³	March 2006	\$1,020,311	\$1,332,461	\$58,750	\$59,075	\$1,888,534
Carlsbad Raceway	SDHC ⁵	April 2014	N/A ²	N/A ²	\$25,813	\$25,473	\$2,438
Cassia Professional Offices	CNLM ³	Jan. 2007	\$104,600	\$159,681	\$5,844	\$5,806	\$192,578
City-owned Preserves	City/CNLM ³	2009	N/A ²	N/A ²	Not reported	\$200,000	N/A ²
Emerald Pointe	SDHC	Aug. 2008	\$194,948	\$251,442	\$12,688	\$8,172	\$254,639
Encinas Creek	CNLM ³	May 2007	\$427,004	\$526,311	\$23,205	\$23,491	\$815,290
Kelly Ranch	CNLM ³	March 2002	\$296,125	\$456,804	\$17,903	\$20,438	\$669,350
La Costa Collection	UC	July 2005	\$378,756	\$437,022	\$18,258	\$18,258	\$439,215
La Costa Glen	CNLM ³	Jan. 2013	\$624,800	\$733,348	\$32,334	\$31,312	\$2,653,917
La Costa Villages	CNLM ³	Feb. 2002	\$1,364,400	\$2,089,767	\$101,982	\$104,240	\$2,653,917
Laurel Tree Lane Preserve	SDHC	Dec. 2017	\$365,092	\$385,464	\$23,861	\$20,919	\$406,239
Manzanita Partners	HRS	Oct. 2012	\$51,000	\$56,739	\$1,600	\$1,600	\$68,264
Muroya	SDHC	Oct. 2015	\$314,867	\$347,674	\$15,750	\$13,512	\$368,710
Nelson	CNLM ³	June 2001	\$72,180	\$104,102	\$5,098	\$4,720	\$134,739
New Crest Preserve	UC	May 2015	\$91,393	\$100,072	\$3,518	\$3,518	\$99,842
North Coast Calvary Chapel	Helix	Sept 2001	N/A ²	N/A ²	\$7,833	\$7,883	N/A ²
Paseo Del Norte	UC	Aug. 2016	\$100,009	\$108,123	\$4,250	\$4,250	\$127,060
Poinsettia Place	UC	July 2011	\$167,935	\$193,555	\$6,991	\$7,342	\$189,486
Poinsettia Station Vernal Pools	City	2019	\$181,904	\$188,174	\$11,000	\$10,914	\$192,596
Quarry Creek	SDHC	June 2015	\$806,496	\$813,715	\$36,075	\$37,300	\$825,623
Sage Creek	SDHC	April 2016	\$275,404	\$297,992	12,032	\$14,476	\$343,055
Southern	UC	Nov. 2013	\$428,747	\$469,018	\$18,222	\$21,654	\$535,685
TOTAL 2018-2019			\$9,682,480	\$12,437,083	\$592,303	\$793,633	\$17,851,104

¹ Total funds are reported as of 10/31/20 for HRS, Urban Corps, and Helix

² Long-term management is funded through an annual contract rather than an endowment

³ Original endowment amount adjusted for inflation to the current reporting year

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4.0 References

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- Vickers, W., K. Zeller, H. Ernest, K. Gustafson, and W. Boyce. 2017. Mountain Lion (*Puma concolor*) Connectivity in North San Diego County Multi-Species Plan Area *and* Assessment of Mountain Lion Habitat Use and Connectivity in Northern San Diego and Southern Riverside and Orange Counties, with Special Focus on Prioritization of North San Diego County MSCP Lands for Conservation, and Identification of Critical Highway Barriers and Solutions. A joint report to the San Diego County Association of Governments and California Department of Wildlife including appended peer-reviewed publications resulting from this research project.

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Appendix A

**City Compliance with Terms and Conditions of Take
Authorization and Zone-Wide Standards**

November 1, 2019 - October 31, 2020

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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 1 through 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.

Upon commencement of the HMP, there was a total of 189.3 acres of coastal sage scrub within Standards Areas throughout the HMP. Zone-wide standards require at least 67 percent (126.8 acres) of the coastal sage scrub to be conserved. To date, 83.7 acres have been conserved (44.2 percent) and 27.9 acres have been lost (14.7 percent). Therefore, the city must conserve at least 43.1 more acres of the remaining 77.7 acres of coastal sage scrub within the Standards Areas. Table 4 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 1. Summary of City Compliance with HMP Implementing Agreement Requirements through RY 15 (2018–2019)

IA Section ¹	Obligation	City Compliance
10.10	<p>Duty to Enforce: To enforce the terms of the Take Authorization, HMP, and IA and ensure HMP lands are conserved in perpetuity.</p>	<ul style="list-style-type: none"> ▪ 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 Section 21.210), which includes a section on enforcement (Section 21.210.19) for violations of the HMP. ▪ The city council approved the permanent continuation of the ranger program in December 5, 2017, which includes two full-time rangers patrol preserves, lagoons, beaches, and parks and they have the authority to issue citations for any violations to posted regulations. Complaints made by citizens regarding possible violations of the HMP within preserves are investigated on a case-by-case basis.
11.1	<p>Preserve System: To ensure the establishment and management in perpetuity of a 6,757-acre preserve system.</p>	<ul style="list-style-type: none"> ▪ The city has currently gained 6,192 acres of habitat within the HMP planning area (96% of the overall target acreage), and fulfilled its obligation to obtain 307.6 acres of habitat or credit within the MHCP Gnatcatcher Core Area.
11.2	<p>Project Mitigation Measures: To require additional mitigation measures to mitigate impacts to covered species in all future development projects.</p>	<ul style="list-style-type: none"> ▪ 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	<p>Regulatory Implementation:</p> <ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> A. The Emergency Ordinance was approved by the City Council in 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 Chapter 21.33 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. D. A new chapter (Section 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. The section was approved by the City Council in March 2006. The new chapter will be included in the implementation plan portion of the Local Coastal Program update, currently under way. 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). This revision was approved by the City Council in July 2005, and carried through into the updated General Plan (2015). F. New subsections (Section 21.210.040 D.5 and Section 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). These new subsections were approved by the City Council in March 2006. The sections will be included in the implementation plan portion of the Local Coastal Program update, currently under way.

		Compliance is enforced on a project-by-project basis during environmental review and in conjunction with other wetland permitting agencies such as the Coastal Commission, CDFW, and USACE.
IA Section	Obligation	City Compliance
11.4	Additional Implementation Measures: To implement measures included in MHCP.	<ul style="list-style-type: none"> The MHCP, HMP, and Open Space Management Plan (OSMP) conservation measures are currently being implemented during the approval process for all development projects and preserve management activities.
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.	<ul style="list-style-type: none"> The city has fulfilled its Gnatcatcher Core Area 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 4 years. The city made the final payment on October 22, 2014. On February 25, 2020, City Council authorized the purchase of the remaining 12.93 acres of credit. The Wildlife Agencies concurred that the city has met all Core Area obligations (letter dated December 19, 2019). The Core Area properties are protected under a conservation easement, and are being monitored and managed by the Center for Natural Lands Management.
11.6	Cooperative Regional Implementation: To participate in MHCP Elected Officials Committee.	<ul style="list-style-type: none"> To date, the city 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; to provide the Wildlife Agencies with additional reports if necessary for compliance monitoring; and to certify all reports.	<ul style="list-style-type: none"> Habitat gains and losses are being tracked through Habittrak. Rough step preserve assembly is built into the city's permitting process. Currently, the city is working with the Preserve Steward, preserve managers, city GIS staff, and SDMMMP to determine the best approach to collect and manage monitoring data. Protocols and standards have been 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.
12.3	Preserve Management and Monitoring Plan: To prepare a preserve management and monitoring plan that will detail recommendations in HMP Section F.	<ul style="list-style-type: none"> The 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.

IA Section	Obligation	City Compliance
13.0	<p>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.</p>	<ul style="list-style-type: none"> ▪ 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 and annual reporting. ▪ The city is coordinating with the regional adaptive management and monitoring efforts through the San Diego Management and Monitoring Program. ▪ The city has developed Guidelines for Preserve Management (TAIC 2009), which include monitoring and management priorities and a monitoring report checklist (Appendix C).
14.0	<p>Funding:</p> <p>14.1 MCHP Core Area Participation</p> <p>14.2 Preserve Management and Monitoring Plan</p> <p>14.3 Management of city-owned public lands</p> <p>14.4 Management of private lands in HMP area</p> <p>14.5 Management of Existing Hardline areas</p> <p>14.6 Program Administration</p> <p>14.7 Habitat In-Lieu Mitigation Fees</p>	<p>14.1 The city has met its 307.6-acre coastal sage scrub conservation obligation in full.</p> <p>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.</p> <p>14.3 City-owned preserves are currently being actively managed and monitored by CNLM.</p> <p>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.</p> <p>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 San Dieguito Union High School District.</p> <p>14.6 The HMP program is overseen by Rosanne Humphrey (City of Carlsbad Environmental Management Division). In addition, the city has contracted with Environmental Science Associates to serve as the city's Preserve Steward, who coordinates management throughout the HMP Preserve and monitors HMP compliance and management effectiveness.</p> <p>14.7 The city has implemented a habitat mitigation fee program for new development that will reimburse the General Fund liabilities associated with purchase of Core Area credit.</p>

¹ IA – Implementing Agreement

**Table 2. Summary of City Compliance with Terms and Conditions
of CDFW Permit through RY 15 (2018–2019)**

CDFW NCCP Permit Terms and Conditions (T&C)	Description of City Compliance
<p>Section 6.1 Conditions A through F are the same as those stated in A through F of the Implementing Agreement (IA), Section 11.3 (See Table 12). They are summarized below.</p> <p>A. Urgency Ordinance – interim HMP enforcement.</p> <p>B. Amend Open Space and Conservation Element of General Plan to incorporate HMP.</p> <p>C. Amend Open Space Ordinance to incorporate Conserved Habitat Areas.</p> <p>D. Amend Municipal Code to incorporate Standards Area compliance.</p> <p>E. Amend General Plan to identify HMP as priority use for open space lands.</p> <p>F. Wetlands Protection Program.</p>	<p>See Table 5, IA Section 11.3.</p>
<p>G. This permit is subject to compliance with the MHCP Volumes I–III, HMP, including Addenda 1 and 2, and the IA.</p>	<p>All project approvals within the city are subject to these requirements as a condition of approval.</p>
<p>H. Coverage for thread-leaved brodiaea (<i>Brodiaea filifolia</i>) and approval of the Fox-Miller Project. The conditions are as described in the USFWS 10(a) Permit Condition 7 (Table 12).</p>	<p>See Table 7, USFWS 10(a) Permit Condition 7 for a description of compliance.</p>
<p>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.</p> <p>MHCP Volume II includes the following policies and conditions:</p> <ul style="list-style-type: none"> • 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 	<p>See description for Condition G.</p> <p>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.</p>

Table 3. Summary of City Compliance with the Terms and Conditions of USFWS Permit through RY 15 (2018–2019)

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 50 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 5 and 6.
<p>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.</p> <p><u>Table 1. (a) No take authorized for the following species:</u></p> <p><i>Chorizanthe orcuttiana</i> – Orcutt’s spineflower <i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i> – Blochman’s dudleya <i>Euphorbia misera</i> – Cliff spurge <i>Hazardia orcuttii</i> – Orcutt’s hazardia <i>Quercus dumosa</i> – Nuttall’s scrub oak <i>Pelecanus occidentalis californicus</i> – California brown pelican <i>Falco peregrinus</i> – American peregrine falcon <i>Rallus longirostris levipes</i> – Light-footed Ridgway’s rail <i>Sterna antillarum browni</i> – California least tern <i>Charadrius alexandrinus nivosus</i> – Western snowy plover <i>Sterna elegans</i> – Elegant tern</p> <p><u>Table 1. (b) Take authorization is or will be (upon listing) granted for:</u></p> <p>Listed species: <i>Empidonax traillii extimus</i> – Southwestern willow flycatcher <i>Vireo bellii pusillus</i> – Least Bell’s vireo <i>Polioptila californica californica</i> – Coastal California gnatcatcher</p>	<p><u>Table 1 (a).</u> No take of these species has been authorized by the city.</p> <p><u>Table 1 (b).</u> No Incidental Take Permits have been issued by the city for these species.</p>

Federal ESA 10(a) Permit Terms and Conditions (T&C)	Description of City Compliance
<p>Not yet listed: <i>Panoquina errans</i> – Salt marsh skipper <i>Euphyes vestris harbisoni</i> – Harbison’s dun skipper <i>Plegadis chihi</i> – White-faced ibis <i>Accipiter cooperii</i> – Cooper’s hawk <i>Pandion haliaetus</i> – Osprey <i>Icteria virens</i> – Yellow-breasted chat <i>Aimophila ruficeps canescens</i> – So. California rufous-crowned sparrow <i>Passerculus sandwichensis beldingi</i> – Belding’s savannah sparrow <i>P.s. rostratus</i> – Large-billed savannah sparrow <i>Aspodoscelis hyperythrus beldingi</i> – Orange-throated whiptail</p> <p><u>Table 2. Take authorization contingent upon other MHCP subarea plans</u> being permitted for the following species: <i>Acanthomintha ilicifolia</i> – San Diego thornmint <i>Ambrosia pumila</i> – San Diego ambrosia <i>Ceanothus verrucosus</i> – Wart-stemmed ceanothus <i>Dudleya viscida</i> – Sticky dudleya <i>Ferocactus viridescens</i> – San Diego barrel cactus <i>Quercus engelmannii</i> – Engelmann oak</p> <p><u>Table 3. (a) Take authorization contingent upon adequate funding and legal</u> access to manage and monitor the following species: <i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i> – Del Mar manzanita <i>Baccharis vanessae</i> – Encinitas baccharis <i>Brodiaea filifolia</i> – Thread-leaved brodiaea <i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i> – Summer-holly <i>Corethrogyne filaginifolia</i> var. <i>linifolia</i> – Del Mar sand aster <i>Pinus torreyana</i> ssp. <i>torreyana</i> – Torrey pine</p>	<p><u>Table 1 (b).</u> No Incidental Take Permits have been issued by the city for these species.</p> <p><u>Table 2.</u> No other MHCP subarea plans have been permitted, and thus take authorization for these species has not been granted by the city.</p> <p><u>Table 3 (a).</u> 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.</p>

Federal ESA 10(a) Permit Terms and Conditions (T&C)	Description of City Compliance
<p>Table 3. (b) Take is contingent upon (a), described above, <i>and</i> the city <u>receiving legal control over</u> the vernal pools adjacent to the Poinsettia Train Station.</p> <p><i>Eryngium aristulatum</i> var. <i>parishii</i> – San Diego button-celery <i>Myosurus minimus</i> ssp. <i>apus</i> – Little mousetail <i>Navarretia fossalis</i> – Spreading navarretia <i>Orcuttia californica</i> – California Orcutt grass <i>Streptocephalus woottoni</i> – Riverside fairy shrimp <i>Branchinecta sandiegonensis</i> – San Diego fairy shrimp</p> <p>Table 3. (b) Take is contingent upon (a) and (b), described above, and upon <u>other</u> MHCP subarea plans being permitted.</p> <p><i>Iva hayesiana</i> – San Diego marsh-elder</p>	<p>Table 3 (b). The city received legal control over the vernal pools by accepting the Coastal Commission’s Irrevocable Offer to Dedicate a Conservation Easement in 2015, establishing a non-wasting endowment for management, and preparing a long-term management plan. Take for vernal pool species was granted by the Wildlife Agencies on February 20, 2019.</p>
<p>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.</p> <p><i>Sterna antillarum browni</i> – California least tern <i>Empidonax traillii extimus</i> – Southwestern willow flycatcher <i>Vireo bellii pusillus</i> – Least Bell’s vireo <i>Passerculus sandwichensis beldingi</i> – Belding’s savannah sparrow</p>	<p>The Special Purpose Permit has been in effect during the current reporting period. No take of these species has been granted.</p>
<p>5. The Permittee shall not allow clearing and grubbing in known or potentially occupied California gnatcatcher habitat between February 15 and August 31.</p>	<p>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.</p>
<p>6. Specific standards (described in the T&C) must be met if the city proceeds with any of the following plans:</p> <p>(a) Cannon Road Reach 4 (b) Extension of Melrose Drive through the Shelley Property (c) Marron Road through Buena Vista Creek Ecological Reserve</p>	<p>None of these projects have been proposed at this time.</p>

Federal ESA 10(a) Permit Terms and Conditions (T&C)	Description of City Compliance
<p>7. To receive coverage for thread-leaved brodiaea, the city must demonstrate that:</p> <p>(a) The Fox-Miller project meets the narrow endemic standards for this critical location and major population of this species.</p> <p>(b) The proposed hardline shown in Addendum 2 (2003) of the HMP is not permitted (it does not meet the MHCP standards).</p> <p>(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.</p> <p>(d) If all conditions are met, the Fox-Miller project can be permitted under the HMP through the HMP amendment process.</p>	<p>(a) The NE standards have been met.</p> <p>(b) The boundary was expanded to meet MHCP standards.</p> <p>(c) The Wildlife Agencies approved the Fox-Miller project. Mitigation requirements have not been completed. Interim management is conducted by Helix via annual contract with the landowner. Long-term management will be provided by SDHC upon mitigation signoff.</p> <p>(d) Brodiaea coverage was granted by the Wildlife Agencies through a minor amendment December 2, 2005.</p>
<p>8. To minimize impacts to the California gnatcatcher, rufous-crowned sparrow, and orange-throated whiptail, the city must:</p> <p>(a) Maintain and/or widen the habitat corridor between the city and Oceanside as much as feasible.</p> <p>(b) If the driving range adjacent to the Kelly/Bartman property is proposed for a different use, the city will ensure that an onsite corridor is established on the driving range property.</p>	<p>(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.</p> <p>(b) No other uses for this property have been proposed at this time.</p>
<p>9. As part of the project review process, a qualified biologist shall survey for all species with immediate and conditional coverage.</p>	<p>The city has included this as a condition of approval for all new projects.</p>
<p>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.</p>	<p>The city regularly communicates with the USFWS on regulatory issues, and contacts the appropriate personnel immediately upon learning of any potential problems.</p>
<p>11. The city will notify the USFWS within one working day of finding any dead, injured, or sick threatened/endangered species.</p>	<p>No such individuals have been reported to or observed by the city.</p>
<p>12. All monitoring and reporting for this permit shall be in compliance with the MHCP (Vol. I and III) and the IA (Section 12).</p>	<p>See IA Section 12 discussion in Table 10 above for compliance information.</p>
<p>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.</p>	<p>A copy of this permit is on file with the city and is available to any interested parties.</p>

Table 4. Compliance with Zone-Wide Standards through RY 15 (2018–2019)

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.	Baseline acres of coastal sage scrub habitat within Standards Areas: 189.3. Coastal sage scrub gains = 83.7 acres (44.2%). Coastal sage scrub loss = 27.9 acres (14.7%). An additional 43.1 acres must be conserved to meet 67% conservation in the Standards Areas (126.8 acres). 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 the north shore of Agua Hedionda Lagoon: no projects have been finalized for these parcels. In-fill parcel (Aura Circle): the city purchased the Aura Circle property on February 11, 2020. The entire 15-acre property has been added to the HMP and placed under long-term management.
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 southeast 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: Final 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, Manzanita Partners, and Poinsettia 61 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.

Appendix B
Summary of Management and Monitoring
Activities within HMP Management Units
November 1, 2019–October 31, 2020

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Summary of HMP Management and Monitoring Activities, Nov 2019–Oct 2020

Preserve Area	Management Entity	Management and Monitoring Activities
<p>Agua Hedionda Lagoon area</p>	<p>Agua Hedionda Lagoon Foundation</p>	<ul style="list-style-type: none"> • Continued Environmental Stewardship school field trips for all of Carlsbad Unified School District and 9 surrounding districts as well as 13 private, charter and homeschool groups totaling 6K students prior to Covid-19 shutdowns. On track to serve 10K students, if field trips did not stop in mid-March. • Organized Free Public Education events including Bat Chats & Friends, World Water Day amongst others. • Attended Science Days & School Outreaches totaling 6 schools. • Helped approximately 66 Boy & Girl Scouts earn badges. • Educated 115 students through our Discovery Camps. • Hosted Composting workshops for the City of Carlsbad’s Composting Program led by Re-Earth Consulting. • Used a student-created bio survey application for community monitoring of flora/fauna species. • Conducted bi-weekly inspections to monitor trails and easements. • Worked with the City of Carlsbad’s Trail Rangers program for better enforcement and hiker awareness. • Worked with the City and the California Coastal Commission to ensure public safety on 3.1 miles of public access easements. • Hosted approximately 650 volunteers through trail maintenance events, and the Agua Hedionda Lagoon Discovery Center Events. • Monitored 132 acres of open space in the Coastal Zone. • Removed and monitored invasive plant species along trails and preserved areas. • Installed preventative measures for coastal bluff erosion. • Hosted monthly community bird walks and guided hikes around the lagoon (before Covid-19). • Worked with the California Department of Fish and Wildlife (CDFW) Coastal Program and the Nature Collective to address infestations of Algerian sea lavender (<i>Limonium ramosissimum</i>) in the preserve via solarization. • Released 61 monarch butterflies that were established in our pollinator garden. • Began a Preschool Playdates Program in June, which has grown to provide outdoor environmental preschool programming for 37 different children and counting. • Created 9 different environmental educational virtual offerings: Agua Apprentices, Piper Pop-Ins, Grand Pelicans Program, Awesome Agua Animals, Community Nature Resource Collection, Nature All Around Me Podcast, Academy of Environmental Stewardship – Virtual, Virtual Scavenger Hunts, Virtual Birthday Parties and a Virtual Reptile Halloween Happening. • Awesome Agua Animals, the most utilized virtual program reached 30 different classrooms in the spring of 2020 encompassing 12 different schools. • Opened our doors to the Carlsbad Educational Foundation to provide a safe space for outdoor enrichment opportunities while school was/is closed. • Implemented outdoor after school enrichment programs with rotating environmental themes each month. • Hosted Thermo Fisher Scientific on National Intern Day (July 25th 2019) where they lead water quality activities for summer campers’ grades K-6th.

Summary of HMP Management and Monitoring Activities, Nov 2019–Oct 2020
continued

Preserve Area	Management Entity	Management and Monitoring Activities
	Preserve Calavera	<ul style="list-style-type: none"> ▪ Conducted bi-monthly water quality and stream condition evaluations at three locations in sub-watershed. ▪ Continued volunteer work sessions restoring CSS and native grasslands at La Costa Canyon. ▪ Two Board members serve on WQIP Consultation Panel for Agua Hedionda Sub Watershed.
Agua Hedionda Lagoon Ecological Reserve	California Department of Fish and Wildlife	<ul style="list-style-type: none"> ▪ Treated invasive Algerian sea lavender (<i>Limonium ramosissimum</i>) and continue solarization study with Agua Hedionda Lagoon Foundation. ▪ Continued restoration efforts at Park Drive Restoration site (1.25 acres). ▪ Discovered stinkwort (<i>Dittrichia graveolens</i>) at Park Drive Restoration site and started removal program. ▪ Plan to establish boundary trail along Park Drive to connect to Kelly Trail. ▪ Removed invasive plants within reserve. ▪ Conducted weekly inspections to monitor trails and easements. ▪ Conducted western snowy plover (<i>Charadrius alexandriunus nivosus</i>) winter window surveys and light-footed Ridgway's rail (<i>Rallus longirostris levipes</i>) breeding surveys. ▪ Maintained boundary fencing and signage.
Arroyo La Costa area	HOAs	<ul style="list-style-type: none"> ▪ Property-level management (fencing and signage maintenance)
Batiquitos Lagoon area	Batiquitos Lagoon Foundation	<ul style="list-style-type: none"> ▪ Dredged the lagoon, which shrunk the sand cap, improved tidal flow, and added necessary sand. ▪ Held 15th annual Kayak Batiquitos Lagoon Clean-Up two-day event in which over 1,000 pounds of trash were removed from the lagoon ▪ Performed bird counts. ▪ Partnered with The Pacific Ridge School students and faculty members to study and document wildlife in Batiquitos Lagoons' wildlife corridors. ▪ Conducted monthly Speaker Series (limited due to COVID-19). Topics included Luiseno and Kumeyaay Native Americans and mountain lions. ▪ Conducted one Bird Walk & Talk with the public. ▪ Worked with Preserve Calavera in King Tide event and water quality monitoring.

Summary of HMP Management and Monitoring Activities, Nov 2019–Oct 2020
continued

Preserve Area	Management Entity	Management and Monitoring Activities
Batiquitos Lagoon Ecological Reserve	California Department of Fish and Wildlife	<ul style="list-style-type: none"> ▪ Performed habitat management and breeding season surveys for California least tern (<i>Sterna antillarum browni</i>), western snowy plover breeding season and wintering window surveys, and light-footed Ridgway’s rail breeding surveys. ▪ Maintained nesting sites. ▪ Captured and fitted 3 wild light-footed Ridgway’s rails with satellite transmitters as a part of a Movement Ecology and Survival of Light-footed Ridgeway’s Rail Project with the University of Idaho & USGS. ▪ Conducted Nuttall’s acmispon (<i>Acmispon prostratus</i>) monitoring following San Diego Management and Monitoring Program’s (SDMMP) Inspect and Manage (IMG) protocol. ▪ Controlled invasive plant species within the preserve. ▪ Conduct weekly inspections to monitor trails and easements. ▪ Completed Post Dredging killer alga (<i>Caulerpa taxifolia</i>) survey in all three basins. ▪ Completed Post Dredging Surf Monitoring at South Ponto State beach. ▪ Conducted Post Dredging surveys of sand deposits and lagoon shoreline. ▪ Coordinated completion of Dredging Project and demobilization with Dredging Contractor. ▪ Maintained boundary fencing and signage.
Buena Vista Creek Ecological Reserve	Landowner: California Department of Fish and Wildlife Preserve Manager: Center for Natural Lands Management	<ul style="list-style-type: none"> ▪ Monitored pollinator abundance, diversity, and visitation of thread-leaved brodiaea (<i>Brodiaea filifolia</i>). ▪ Conducted shot-hole borer (<i>Euwallacea</i> ssp.) monitoring – none detected. ▪ Treated/removed non-native invasive species, with a focus on fennel (<i>Foeniculum vulgare</i>), black mustard (<i>Brassica nigra</i>), castor bean (<i>Ricinus communis</i>), and pampas grass (<i>Cortaderis selloana</i>). ▪ Mowed fuel zones in May 2020. ▪ Conducted weekly patrols. Trespass is common, but no major issues to report. ▪ Updated kiosk materials quarterly. ▪ Routinely maintained gates and fences. Picked up trash as necessary. ▪ Completed annual stewardship plan, budget, and report.
Buena Vista Lagoon Ecological Reserve	California Department of Fish and Wildlife	<ul style="list-style-type: none"> ▪ Performed western snowy plover wintering window surveys and light-footed Ridgway’s rail breeding surveys. ▪ Controlled invasive plant species within the preserve. ▪ Cleaned up 6 homeless encampments. ▪ Removed 25 feral cat feeding stations. ▪ Conducted trail maintenance activities. ▪ Performed fire fuel reduction along north shore. ▪ Conducted weekly inspections to monitor trails and easements.

Summary of HMP Management and Monitoring Activities, Nov 2019–Oct 2020
continued

Preserve Area	Management Entity	Management and Monitoring Activities
Buena Vista Lagoon/Watershed	Buena Vista Audubon Society	<ul style="list-style-type: none"> ▪ no information available ▪
	Preserve Calavera	<ul style="list-style-type: none"> ▪ Continued bi-monthly water quality and stream condition evaluations at three locations in sub-watershed. ▪ Continued monitoring and action to reduce edge effects at El Salto falls, and in Buena Vista Creek Ecological Reserve.
Calavera Area	Preserve Calavera	<ul style="list-style-type: none"> ▪ Conducted enhanced monitoring of Carlsbad Highlands Ecological Reserve wildlife impacts. ▪ Conducted monitoring of wildlife movement corridors and pinchpoints. ▪ Conducted 2 volunteer invasive removal work sessions on CHER along New Venture Church and Seagate neighborhoods. ▪ Collected native milkweed seeds for San Diego Pollinator Alliance. ▪ Supported wildlife movement and biological surveys at Village H. ▪ Participated in city’s Trails Volunteer program.
Calavera Hills Phase II/Robertson Ranch	Center for Natural Lands Management	<ul style="list-style-type: none"> ▪ Cancelled coastal sage scrub monitoring due to COVID-19. ▪ Postponed assessment of southern mixed chaparral due to COVID-19. ▪ Postponed assessment of clay lens’ due to COVID-19. ▪ Postponed sensitive bird monitoring due to COVID-19. ▪ Conducted pollination monitoring – observed several pollinators of thread-leaved brodiaea. ▪ Conducted surveys for San Diego coast horned lizard (<i>Phrynosoma coronatum blainvillii</i>) – none detected. ▪ Mounted a wildlife camera in the College Avenue wildlife tunnel primarily to document reptiles – none detected. ▪ Repaired minor fence breaks or issues – no major maintenance was required. ▪ Treated/removed non-native invasive plant species (eucalyptus [<i>Eucalyptus</i> spp.], pampas grass, and black mustard). ▪ Maintained the old Village H restoration area. Installed 500 plantings and spread seed at the new Village H restoration area. ▪ Conducted weekly patrols. No major issues to report. ▪ Updated information kiosks regularly. ▪ Completed the annual stewardship plan and budget, annual report, and Conservation Easement (CE) compliance report.

Summary of HMP Management and Monitoring Activities, Nov 2019–Oct 2020
continued

Preserve Area	Management Entity	Management and Monitoring Activities
Carlsbad Highlands Ecological Reserve	California Department of Fish and Wildlife	<ul style="list-style-type: none"> ▪ Removed unauthorized signage. ▪ Removed 13 unsafe trail features and conducted trail maintenance. ▪ Continued habitat restoration on 2 acres. ▪ Conducted weekly inspections to monitor trails and easements. ▪ Conducted fire fuel reduction along property boundary. ▪ Controlled invasive plant species within the preserve. ▪ Maintained boundary fencing & signage. ▪ Engaged in Public Education efforts concerning allowed activities.
Carlsbad Oaks North Preserve	Center for Natural Lands Management	<ul style="list-style-type: none"> ▪ Conducted sensitive plant species monitoring for San Diego thornmint (<i>Acanthomintha ilicifolia</i>) and Blochman’s dudleya (<i>Dudleya blochmaniae</i>) – San Diego thornmint counts were the highest recorded in extant occurrence and many Blochman’s dudleya, including flowering individuals, were detected. ▪ Cancelled coastal sage scrub monitoring due to COVID-19. ▪ Cancelled coast live oak (<i>Quercus agrifolia</i>) mapping due to COVID-19. ▪ Conducted animal movement analysis – generally consistent movement through the eastern tunnel was observed; observations in the western tunnel commenced in late summer 2020. ▪ Removed hundreds of non-native invasive species (pampas grass, stinkwort, fountain grass [<i>Pennisetum setaceum</i>]) using manual, chemical, and mechanical methods. ▪ Planted 533 new plants in the planting area adjacent to the El Fuerte trail using City of Carlsbad volunteers. Maintained plants and removed invasive species with Nature Collective. ▪ Planted five (5) 15-gallon lemonadeberry (<i>Rhus integrifolia</i>), watered, and maintained them in the impact area. ▪ Maintained San Diego thornmint out-seeding areas free of invasive species, assessed habitat and counted plants – very high numbers documented at extent uphill and high germination at EFTS. ▪ Conducted regular patrols. Coordinated with City rangers and HOT team to remove persistent itinerant at tunnel. ▪ Completed the annual stewardship plan and budget, annual report, and CE compliance monitoring and reporting.

Summary of HMP Management and Monitoring Activities, Nov 2019–Oct 2020
continued

Preserve Area	Management Entity	Management and Monitoring Activities
<p align="center">Carlsbad Raceway Preserve</p>	<p align="center">San Diego Habitat Conservancy</p>	<ul style="list-style-type: none"> ▪ Performed trash removal. ▪ Conducted invasive plant species mapping and removal, primarily stinkwort, tocalote (<i>Centaurea melitensis</i>), black mustard, pampas grass, fountain grass, fennel, artichoke thistle (<i>Cynara cardunculus</i>), and sweet clover (<i>Melilotus</i> spp.). ▪ Performed quarterly patrols and reporting. Quarterly visits assessed biodiversity of the site and changes in habitat composition, trash removal needs, invasive plant mapping and removal needs, signs of trespass, and need for remedial measures. ▪ Conducted a focused survey for San Diego thornmint following SDMMP’s IMG protocol. ▪ Conducted seed collection of San Diego thornmint with San Diego Zoo Global. ▪ Installed bait station/lure traps for shot-hole borer. ▪ Conducted presence/absence surveys for Cooper’s hawk (<i>Accipiter cooperii</i>) and yellow-breasted chat (<i>Icteria virens</i>) – did not observe any individuals of either species. ▪ Conducted vernal pool assessment – no fairy shrimp (<i>Branchinecta</i> spp.) or vernal pool plant species were observed. ▪ Observed CAGN during regular site visits. ▪ Provided public outreach and education in the form of a newsletter and began coordination to design and install a volunteer mural at the two wildlife crossing locations to deter graffiti vandalism and encampments.
<p align="center">City of Carlsbad Preserves</p>	<p align="center">Center for Natural Lands Management</p>	<ul style="list-style-type: none"> ▪ Conducted sensitive plant assessments – a total of 64 thread-leaved brodiaea were observed (less than the 337 observed in 2019). ▪ Conducted oak woodland assessment – stands of coast live oak were assessed as several sites and look healthy and robust. ▪ Conducted invasive pest monitoring – shot-hole borer issues at the Crossings Golf Course seem to be contained and no gold-spotted oak borer (<i>Agrilus coxalis</i>) were observed in oak woodlands. ▪ Controlled many non-native invasive species at various sites. ▪ Cleaned brow ditches at Village H South. Previously installed erosion control measures at various sites held up well. ▪ Conducted patrols regularly with no major issues. Graffiti increased at Lake Calavera and was painted over. Ranger continues to interact with and educate patrons.
<p align="center">Dawson-Los Monos Canyon Reserve</p>	<p align="center">University of California at San Diego</p>	<ul style="list-style-type: none"> ▪ Basic stewardship-level management ▪ Educational programs and scientific research
<p align="center">Emerald Pointe Preserve</p>	<p align="center">San Diego Habitat Conservancy</p>	<ul style="list-style-type: none"> ▪ Performed quarterly inspections to document habitat composition changes, survey for illegal activities, remove trash, and remove/map non-native invasive plant species. ▪ Monitored fencing and signage – one portion of barbed wire fence is loose and schedule for repair. ▪ Manually removed invasive plant species, primarily tocalote. ▪ Pacific Ecological Foundation finalized and began work on a restoration plan to remove black mustard and hand weed around the San Diego thornmint and Palmer’s grapplehook (<i>Harpagonella palmeri</i>) locations.

Summary of HMP Management and Monitoring Activities, Nov 2019–Oct 2020
continued

Preserve Area	Management Entity	Management and Monitoring Activities
		<ul style="list-style-type: none"> ▪ Conducted photo-documentation of vegetation communities. ▪ Conducted focused survey for San Diego thornmint following SDMMMP’s IMG protocol. Coordinated with SDMMMP, CNLM, Conservation Biology Institute (CBI), and San Diego Zoo Global to prepare for seed banking and bulking if San Diego thornmint population is observed. ▪ Observed CAGN within the preserve during site visits. ▪ Provided public outreach and education in the form of a newsletter. ▪ Assessed the effects of an outdoor vacuum on mustard seeds. ▪ Contracted Lost Sage Restoration Ecology LLC to tighten fence areas where cactus was previously planted to further prevent trespass issues. ▪ Attended quarterly preserve managers’ meetings with the City for coordination with neighboring managers, as well as the annual workshop for the City’s Habitat Management Plan.
<p>Encinas Creek/North County Habitat Bank Preserve</p>	<p>Center for Natural Lands Management</p>	<ul style="list-style-type: none"> ▪ Cancelled sensitive bird surveys due to COVID-19. ▪ Conducted wildlife movement monitoring – bobcat (<i>Lynx rufus</i>) and coyote (<i>Canis latrans</i>) were observed. ▪ Conducted invasive shot-hole borer and <i>Fusarium</i> fungus monitoring – onsite habitat is regenerating from shot-hole borer impacts. ▪ Mapped sensitive species observations. ▪ Removed non-native invasive species (pampas grass, Mexican fan palm [<i>Washingtonia robusta</i>], and black mustard]. ▪ Suspended restoration activities due to COVID-19. ▪ Conducted monthly patrols – no major issues to report. ▪ Completed the annual stewardship and work plan report. Started revising the Habitat Management Plan.
<p>Fox-Miller Preserve</p>	<p>Helix Environmental Inc. (interim management)</p>	<ul style="list-style-type: none"> ▪ Treated non-native broad-leaf and grass species, primarily black mustard, bristly ox-tongue (<i>Helminthotheca echioides</i>), wild lettuce (<i>Lactuca serriola</i>), and fennel. ▪ Conducted maintenance and trash removal four times in 2019/2020 FY. ▪ Conducted assessments of habitat conditions. ▪ Inspected signage and fencing. ▪ Checked for preserve of sensitive wildlife species (CAGN, least Bell’s vireo [<i>Vireo bellii pusillus</i>; LBV], and Cooper’s hawk). ▪ Recorded all plant and animal species observed during monitoring visits. ▪ Conducted a health assessment of the thread-leaved brodiaea population within the translocation plot and the remainder of the grassland. ▪ Inspected the owl box. ▪ Communicated with maintenance personnel of any maintenance issues.

Summary of HMP Management and Monitoring Activities, Nov 2019–Oct 2020
continued

Preserve Area	Management Entity	Management and Monitoring Activities
Kelly Ranch Preserve	Center for Natural Lands Management	<ul style="list-style-type: none"> ▪ Conducted Orcutt’s hazardia (<i>Hazardia orcuttii</i>) monitoring – a total of 137 Orcutt’s hazardia were found (85 adults, 50 juveniles, and 2 seedlings). ▪ Postponed sensitive shrub assessment due to COVID-19. ▪ Postponed clay lens assessment due to COVID-19. ▪ Conducted sensitive species monitoring – no sensitive species were observed. ▪ Treated non-native invasive plants (pampas grass, natal grass [<i>Melinis repens</i>], Russian thistle [<i>Salsola tragus</i>], and tree tobacco [<i>Nicotiana glauca</i>]). ▪ Planted over 100 cliff spurge (<i>Euphorbia misera</i>) that were propagated from plant cuttings collected on-site. ▪ Conducted easement compliance monitoring – other than erosion problems resulting from high April precipitation, no issues. ▪ Conducted patrols at least once a month. Littering is common near viewpoint, but no other issues observed. ▪ Contacted neighbors and the HOA regarding issues of concern. ▪ Completed the annual stewardship plan and budget, annual report, and CE compliance report.
La Costa Collections Preserve/City Ventures	Urban Corps of San Diego County	<ul style="list-style-type: none"> ▪ Conducted general biological monitoring to monitor sensitive species and habitat condition, identify non-native invasive species, and conduct photo monitoring. ▪ Monitored revegetation area and noted additional management issues. ▪ Conducted CAGN protocol surveys. ▪ Conducted Nuttall’s scrub oak (<i>Quercus dumosa</i>) monitoring: mapped general distribution and assessed condition and degree of disturbance to habitat. ▪ Conducted Del Mar sand aster (<i>Corethrogyne filaginifolia</i> var. <i>linifolia</i>) monitoring: delineated population boundaries, counted/estimated population, and assessed condition and degree of disturbance to habitat. ▪ Performed general site monitoring: monitored and removed trash/debris, reported any human encroachment, and inspected signs/fencing. ▪ Removed non-native plants during four visits, primarily creeping myoporum (<i>Myoporum parviflorum</i>), crown daisy (<i>Glebionis coronaria</i>), crystalline ice plant (<i>Mesembryanthemum crystallinum</i>), and castor bean. ▪ Completed annual report.
La Costa Glen Preserve	Center for Natural Lands Management	<ul style="list-style-type: none"> ▪ Conducted seaside calandrinia (<i>Cistanthe maritima</i>) surveys – 2 plants discovered, none flowered. ▪ Conducted Orcutt’s spineflower (<i>Chorizanthe orcuttiana</i>) surveys – no plants discovered. ▪ Cancelled coastal California gnatcatcher (CAGN) (<i>Polioptila californica</i>) surveys due to COVID-19. ▪ Did not deploy wildlife camera this year. ▪ Observed general plant and animals – added 11 species to plant list and 1 species to wildlife list. ▪ Used various remote sensing image analysis methods to interpret vegetation vigor and composition. ▪ Removed thousands of non-native invasive plants, primarily perennial veldt grass (<i>Erhardta calycina</i>), as well as hundreds of Sahara mustard (<i>Brassica tournefortii</i>) plants. ▪ Performed patrols and observed limited issues other than an uptick of homeless activity. ▪ Removed trash from transient encampments as encountered.

Summary of HMP Management and Monitoring Activities, Nov 2019–Oct 2020
continued

Preserve Area	Management Entity	Management and Monitoring Activities
		<ul style="list-style-type: none"> ▪ Completed the annual stewardship plan and budget, annual report, and updated the habitat management plan.
<p align="center">Laurel Tree Lane Preserve</p>	<p align="center">San Diego Habitat Conservancy</p>	<ul style="list-style-type: none"> ▪ Performed quarterly patrols to assess/address shot-hole borer, changes in habitat composition, remove trash, map/remove non-native invasive plant species, look for signs of trespass. ▪ Coordinated with Tiarna Real Estate Services, Inc. to address the City request for BMPs for stormflow on the preserve. ▪ Removed onionweed (<i>Asphodelis fistulosus</i>), shortpod mustard (<i>Hirschfeldia incana</i>), tocalote, and fennel. ▪ Conducted photo-documentation of vegetation communities. ▪ Provided public outreach and education in the form of a newsletter. ▪ Collected shot-hole borer traps in January 2020 and were positively identified as shot-hole borer. Coordinated with CNLM, City, ESA, TRC Tree Service, and University of California Cooperative Extension to discuss treatment options. Plan to cut and chip host trees that have more than 150 entry holes. ▪ Attended quarterly preserve managers' meetings with the City for coordination with neighboring managers, as well as the annual workshop for the City's Habitat Management Plan.
<p align="center">Manzanita Partners Preserve</p>	<p align="center">Habitat Restoration Sciences</p>	<ul style="list-style-type: none"> ▪ Patrolled and conducted site enforcement. ▪ Inspected signs and fencing along the SDG&E road at eastern edge of preserve. ▪ Removed non-native plant species – conducted non-native plant removal twice during 2019/2020 FY. ▪ Removed trash – conducted during non-native species removal and other visits. ▪ Noted all animal species observed and mapped locations of any sensitive species. ▪ Conducted vernal pool inundation surveys. ▪ Reported and described data collected and management actions taken on the preserve to the City.
<p align="center">Morning Ridge Preserve</p>	<p align="center">Morning Ridge HOA (in transition)</p>	<ul style="list-style-type: none"> ▪ Treated and removed invasive species.
<p align="center">Muroya Preserve</p>	<p align="center">San Diego Habitat Conservancy</p>	<ul style="list-style-type: none"> ▪ Conducted quarterly patrols to document biodiversity of the site, changes in habitat composition, remove trash, remove/map non-native invasive plants, look for signs of trespass, and assess the need for remedial measures. ▪ HELIX conducted one invasive removal effort, primarily tree tobacco, poison hemlock (<i>Conium maculatum</i>), and Italian thistle (<i>Carduus pycnocephalus</i>). Performed hand weeding of castor bean, mustard, and tree tobacco within the recently eroded area. ▪ Conducted photo-documentation of vegetation communities. ▪ Observed CAGN during site visits. ▪ Coordinated with Vista del Mar HOA to plan a meeting, but meeting was not held due to COVID-19. Newsletter and meeting anticipated in 2021. ▪ Attended quarterly preserve managers' meetings with the City for coordination with neighboring managers, as well as the annual workshop for the City's Habitat Management Plan.
<p align="center">New Crest Preserve</p>	<p align="center">Urban Corps of San Diego County</p>	<ul style="list-style-type: none"> ▪ Conducted annual biological monitoring, including photo documentation. ▪ Removed non-native plant species, primarily tree tobacco, black mustard, and crown daisy. ▪ Performed bank erosion monitoring.

Summary of HMP Management and Monitoring Activities, Nov 2019–Oct 2020
continued

Preserve Area	Management Entity	Management and Monitoring Activities
		<ul style="list-style-type: none"> ▪ Completed annual report, annual work plan, and budget.
North Coast Calvary Chapel Preserve	Helix Environmental (interim management)	<ul style="list-style-type: none"> ▪ Conducted non-native plant species control and trash removal. Targeted black mustard, Russian thistle, tree tobacco, and non-native grasses. ▪ Maintained boundary fencing & signage. Checked for erosion issues in drainage areas, unauthorized access, documented entry, public use, or habitat damage. ▪ Conducted regular monitoring visits. ▪ Hand seeded a patch of disturbed habitat along the eastern boundary of the northern parcel on 11/26/19. Seed did not establish and supplemental seeding is recommended. ▪ Conducted an assessment of wart-stemmed ceanothus (<i>Ceanothus verrucosus</i>). All 14 individuals were observed in previously documented locations. ▪ Observed CAGN at three locations within the preserve.
Paseo del Norte Preserve	Urban Corps of San Diego County	<ul style="list-style-type: none"> ▪ Performed quarterly site visits. Conducted biological monitoring and photo documentation. ▪ Patrolled the preserve and removed trash. ▪ Removed non-native plant material, primarily ice plant (<i>Carpobrotus edulis</i>) in the northeast portion of the preserve. ▪ Completed annual report, annual work plan, and budget.
Poinsettia Place Preserve	Urban Corps of San Diego County	<ul style="list-style-type: none"> ▪ Performed annual biological monitoring and photo-documentation. ▪ Monitored sensitive plant populations (Nuttall's scrub oak, wart-stemmed ceanothus, and summer holly [<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>]). ▪ Conducted quarterly site visits. ▪ Conducted federal protocol surveys for CAGN. ▪ Removed non-native plant material, primarily crown daisy. ▪ Removed trash and inspected signage and fencing. ▪ Completed annual report, annual work plan, and budget.
Poinsettia/Aviara area	Aviara Master HOA	<ul style="list-style-type: none"> ▪ Property-level management
	Other HOAs	<ul style="list-style-type: none"> ▪ Property-level management
Poinsettia Station Vernal Pools	City of Carlsbad (Dudek/HRS)	<ul style="list-style-type: none"> ▪ Conducted invasive species removal: hand-weeded loosestrife within vernal pool basins; trimmed back coyotebrush; line-trimmed black mustard ▪ Performed baseline biological surveys, included mapping San Diego button celery (<i>Eryngium aristulatum</i>) and spreading navarretia (<i>Navarretia fossalis</i>) ▪ Monitored hydrology and inundation of vernal pools, ▪ Conducted vernal pool floral surveys, as well as a survey for fairy shrimp species ▪ Oversaw SANDAG pot-holing and subsequent restoration and weed removal

Summary of HMP Management and Monitoring Activities, Nov 2019–Oct 2020
continued

Preserve Area	Management Entity	Management and Monitoring Activities
Quarry Creek Preserve	San Diego Habitat Conservancy	<ul style="list-style-type: none"> ▪ Conducted monthly patrols to document biodiversity of the site, changes in habitat composition, remove trash, check signage, monitor invasive plant species, and assess the need for remedial measures. ▪ Performed and coordinated repairs to fencing along Buena Vista Creek. Installed iron rod fence and gate on the east end of the preserve along College Boulevard. Reached out to adjacent property manager to coordinate installation of additional barriers/fencing within parking lot along the southern perimeter of Buena Vista Creek. ▪ Performed general presence/absence surveys for brown-headed cowbird (<i>Molothrus ater</i>), and sensitive animal species including CAGN, least Bell’s vireo, white-tailed kite (<i>Elanus leucurus</i>), yellow warbler (<i>Setophaga petechial</i>), and yellow-breasted chat. ▪ Removed target invasive plant species such as pampas grass, poison hemlock, onionweed, fennel, castor bean, and black mustard. ▪ Conducted photo-documentation of vegetation communities. ▪ Observed CAGN during site visits. ▪ Presented at the Preserve at Carlsbad HOA annual meeting in November 2020 and provided a brochure for public outreach and education. ▪ Conducted a volunteer cleanup at the El Salto Falls area in August with coordination with the San Luis Rey Band of Luiseno Mission Indians. ▪ Checked and collected shot-hole borer trap stations – all traps were empty. ▪ Attended quarterly preserve managers’ meetings with the City for coordination with neighboring managers, as well as the annual workshop for the City’s Habitat Management Plan.
Rancho La Costa Preserve	Center for Natural Lands Management	<ul style="list-style-type: none"> ▪ Conducted bat assessments and observed eight species of bat including several Species of Special Concern. ▪ Cancelled coastal sage scrub monitoring due to COVID-19. ▪ Conducted San Diego thornmint monitoring – recorded 2,580 individuals in the extant occurrence. ▪ Conducted San Diego thornmint out-seeding. ▪ Conducted Orcutt’s brodiaea (<i>Brodiaea orcuttii</i>) monitoring – recorded 234 flowering individuals. ▪ Conducted Orcutt’s hazardia monitoring – no new individuals observed and population remained stable. ▪ Conducted wildlife movement monitoring using motion sensing wildlife cameras to detect southern mule deer (<i>Odocoileus hemionus fuliginatus</i>), coyote, bobcat, and other animals at key movement pinch points. ▪ Harmony Grove Partners Association observed and noted flora and fauna. ▪ Removed hundreds of non-native invasive species, including pampas grass, fountain grass, using chemical and mechanical methods. Encountered greater abundance and distribution of stinkwort and removed as found. ▪ Killed thousands of fountain grass in the Luchia parcel. ▪ Continued to treat the perennial veldt grass infestation at the Greens burn area. ▪ Continued treatment of hundreds of onionweed individuals at the Greens location and one hundred at the Wilern/Meadowlark site. ▪ Contracted ACS to cut and treat thousands of fennel plants around Greens. CNLM staff used hedgers to control hundreds of plants in flower around Greens and along trails.

Summary of HMP Management and Monitoring Activities, Nov 2019–Oct 2020
continued

Preserve Area	Management Entity	Management and Monitoring Activities
		<ul style="list-style-type: none"> ▪ Contracted ACS to treat hundreds of perennial pepperweed (<i>Lepidium latifolium</i>) plants in San Marcos Creek drainage along Alicante, as well as a new infestation found in the Quarry. Removed a few individuals from brownditch at south edge of burn area. ▪ Completed 11th year of program for Ward’s weed (<i>Carrichtera annua</i>) eradication, continuing to control the species using native shrub-tolerant pre-emergent herbicide Gallery. ▪ Maintained CSS demonstration garden, removed hundreds of fennel, and improved grassland adjacent to Gibraltar Street in collaboration with Preserve Calavera. ▪ Treated Sahara mustard using ACS crew days. Controlled onionweed by hand pulling when encountered. Fountain grass, natal grass, and tree tobacco were cut and/or treated with herbicide by CNLM staff. ▪ Conducted patrols multiple times a week – HCA is well protected and dog use in Copper Creek declined. ▪ Increased coordination and collaboration with law enforcement during COVID-19 trail closures and increase in overall and illegal HCA use. Completed trespass authorization with San Diego Sheriff (at San Marcos) to cite individuals at quarry. Worked with City of Carlsbad Rangers to issue warning citations at Box Canyon. ▪ Hosted two events at Meadowlark to maintain restoration plots and to prepare for planting/sowing of native seed. ▪ Eagle Scout installed signage highlighting species and history of mining, as well as fencing to protect habitat. ▪ Installed two new large, framed signs at main HCA entrance points (East Connector and Horned Lizard), highlighting habitats and species found on HCA. ▪ Implemented monthly Gibraltar Street CSS and grassland restoration project with Preserve Calavera, maintained demonstration garden, commenced sheet mulching soil improvement project, and removed hundreds of fennel plants. ▪ Hosted 5 volunteer trail work days in collaboration with SDMBA to improve trail sustainability and reduce erosion on Whiptail Trail. Signed MOU with SDMBA. Collaborated on public outreach on trail issues. ▪ Provided guidance for and worked with team of local trail stewards to maintain erosive areas of concern primarily on Switchbacks tails, as well as outreach to public. ▪ Completed the annual stewardship plan, budget, and report. Completed the necessary CE compliance monitoring and reporting. Worked on updating the HMP. ▪ Completed reporting for Harmony Grove Partners Association portion of Copper Creek.
<p>Sage Creek High School Preserve</p>	<p>San Diego Habitat Conservancy</p>	<ul style="list-style-type: none"> ▪ Conducted quarterly patrols to document biodiversity of the site, changes in habitat composition, remove trash, remove/map invasive plant species, look for signs of trespass, and assess the need for remedial measures. ▪ Treated/removed invasive plant species, primarily artichoke thistle, black mustard, castor bean, fennel, Russian thistle, and tree tobacco. ▪ Conducted photo-documentation of vegetation communities. ▪ Observed CAGN during site visits. ▪ Attended quarterly preserve managers’ meetings with the City for coordination with neighboring managers, as well as the annual workshop for the City’s Habitat Management Plan.
<p>Southern Preserve</p>	<p>Urban Corps of San Diego</p>	<ul style="list-style-type: none"> ▪ Performed biannual biological monitoring to assess condition of non-native grassland and Diegan coastal sage

Summary of HMP Management and Monitoring Activities, Nov 2019–Oct 2020
continued

Preserve Area	Management Entity	Management and Monitoring Activities
	County	<p>scrub habitats, identify non-native invasive species, and document sensitive species observations.</p> <ul style="list-style-type: none"> ▪ Conducted wildlife movement tracking. ▪ Conducted general site monitoring/patrolling and photo-documentation. ▪ Monitored sensitive plant populations (San Diego goldenstar [<i>Bloomeria clevelandii</i>] and California adolphia [<i>Adolphia californica</i>]). ▪ Conducted federal protocol surveys for CAGN. ▪ Removed non-native plant material, primarily artichoke thistle. ▪ Removed trash and inspected signage and fencing. ▪ Performed fuel modification activities along the southeastern preserve boundary. ▪ Completed annual report, annual work plan, and budget.
Multiple areas	Preserve Calavera	<ul style="list-style-type: none"> ▪ Contributed toward preserve management funding for new acquisition on Denk Mtn. ▪ Made four nominations of trees for Heritage Tree designation. ▪ Supported community education on native plants, wildlife, and preserve management issues at various fairs and outreach events. ▪ Completed third class of CA Naturalist. ▪ Continued several Citizen Scientist projects including roadkill monitoring, water quality testing, grunion reporting, King tides event. ▪ Supported improvements to preserve monitoring/enforcement.
Throughout the HMP Preserve system	City Parks and Recreation Department	<ul style="list-style-type: none"> ▪ Conducted trail clean up and maintenance biyearly via volunteers ▪ Hosted quarterly trail volunteer meetings ▪ Hosted public outreach events such as National Trails Day and National Public Lands Day