Guidelines for Preserve Management

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1.0 Introduction

Purpose: To provide a user-friendly guide to clarify HMP-related biological monitoring and management obligations. This document will differ from the MHCP, HMP, Implementing Agreement (IA), and Open Space Management Plan (OSMP) by (a) pulling together all pertinent components into a single document; (b) streamlining the information into a simple easy-to-read format; (c) providing templates and checklists for monitoring, management, and annual reporting; and (d) revising components as necessary based on new information, and discussions with Preserve Managers and Wildlife Agencies (U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG)). *Note that this is intended to be a living document, and updates will be made on an ongoing basis.*

Intended Users: Preserve Managers, City Planning Department, Preserve Steward, Wildlife Agencies.

Contents:

- Overview discussion - overall vision and goals of preserve system.
- Review of coordination and communication structure, monitoring and management responsibilities (general) and reporting requirements (Preserve Management Plan (PMP), work plan, annual reports).
- Enforcement and legal authority – clarification of obligations for Preserve Managers, the City, and Wildlife Agencies.
- Species-specific monitoring and management requirements.
- Process for establishing preserve management priorities.
- Monitoring report checklist (includes monitoring schedule for each species).
- Preserve-specific annual report format.
- Preserve Management Plan guidelines, adapted to reflect agency comments and discussions with Preserve Managers, the Preserve Steward, and the City since originally presented in the OSMP, Appendix D.

2.0 Overview

2.1 Overall Vision

The overall vision for the HMP preserve system is to conserve an interconnected system of preserves that will maintain healthy ecological function, allow plant and wildlife movement, and conserve sensitive biological resources.

2.2 Conservation Goals

Below is a summary of HMP and MHCP goals.

- 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 gnatcatcher 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, and to coastal sage scrub and chaparral in the coastal zone.
- 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.

2.3 Responsibilities

Responsibilities for each group involved with the HMP are summarized below. See Section 1.1.1 of the OSMP for more details.

Wildlife Agencies

- Enforce compliance with the HMP and MHCP.
- Review annual reports, work plans, three-year status reports, preserve management plans, and other associated activities.

California Coastal Commission

- Oversees development and HMP implementation in the Coastal Zone.
- Approves the OSMP as a Local Coastal Plan Amendment.
- Reviews HMP Annual Reports.

City of Carlsbad

- Oversees HMP implementation and compliance.
- Tracks preserve gains and losses in Habitrak.
- Manages/maintains City owned properties.
- Provides annual reporting and public workshops for the preserve system.

Preserve Steward

- Assists the City by overseeing and coordinating City-wide preserve management, monitoring and reporting.
- Coordinates with the City, Preserve Managers, Wildlife Agencies, Non-Governmental Organizations (NGOs), biological consultants, the scientific community, and the public as necessary.
- Assists with compliance monitoring.

Preserve Managers

- Manages and monitor species and habitats according to individual PMPs.
- Updates PMPs on a 3-5 year basis.
- Annually provides biological data, work plans, and preserve-specific reports to the City and Preserve Steward for each preserve.
- Coordinates with the City, Preserve Steward, other Preserve Managers, and Wildlife Agencies as necessary.

Home Owners Associations (HOAs)

- Pre-existing (pre-HMP) HOAs: Manages open space lands on HOA property in accordance with previously negotiated agreements (usually Property Level management –OSMP Section 2.4.1).
- Post-HMP HOAs: Provides Preserve Manager access to HMP open space area. Management funds generally come from the developer for perpetual management and monitoring of the open space property.

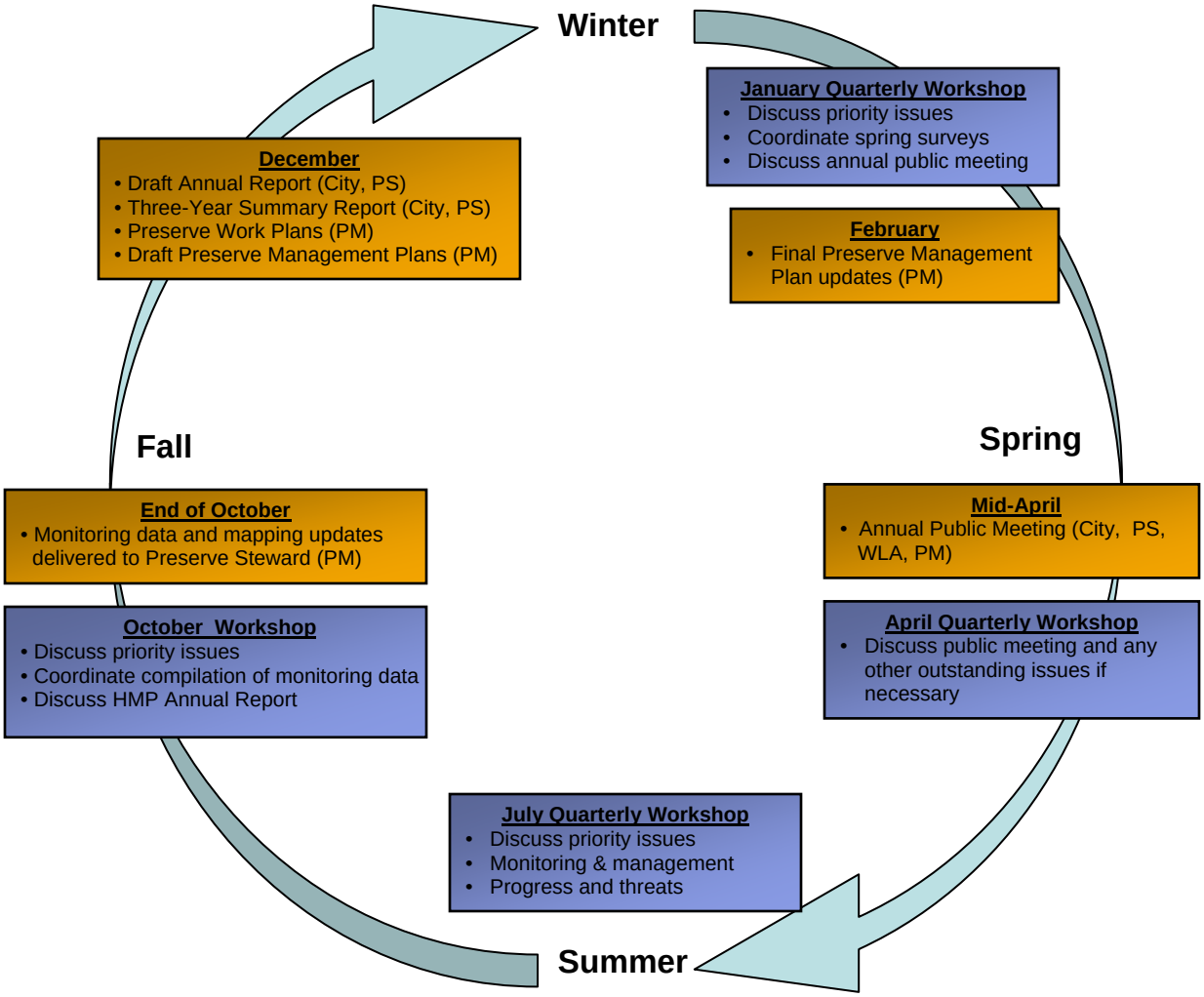
Scientific Community, Environmental NGOs and General Public

- Reviews HMP Annual Reports.

- Coordinates with the City, Preserve Steward, other Preserve Managers, and Wildlife Agencies as necessary.

2.4 Communication, Coordination, and Reporting Schedule

The graphic below summarizes the schedule of reporting and coordinating among all entities involved in HMP implementation. This schedule can be adjusted if approved by the City and Wildlife Agencies. During the preparation of the City's First Annual Report in late 2006, the City and Wildlife Agencies adjusted the reporting schedule contained in the OSMP for two major reasons: 1) Revisions to reporting deadlines were made to better fit the already established schedules of the Preserve Managers; and, 2) The annual public meeting was moved to April/May to take advantage of the spring (blooming plants and breeding birds) for public education purposes. The dates presented here replace those presented in the OSMP.



[1] Responsible parties indicated in parentheses: City = City Planning Department; WLA = Wildlife Agencies; PS = Preserve Steward; and PM = Preserve Manager.

2.5 Enforcement Responsibilities

Primary enforcement responsibilities for the HMP will be shared among Preserve Managers, various City Departments, and the Wildlife Agencies, as appropriate. Depending upon the nature of a non-compliance, enforcement responsibilities within the HMP preserve could also extend to the California Coastal Commission, U.S. Army Corps of Engineers, and/or the Regional Water Quality Control Board. Enforcement may also be augmented by volunteers and/or NGOs. HMP enforcement includes project review, compliance monitoring, Mitigation Monitoring and Reporting Programs (MMRPs) for individual projects, and on-the-ground enforcement of unauthorized activities. Table 1 summarizes the general responsibilities of each group; however, everyone must work together to provide an integrated enforcement program.

Table 1. Enforcement Responsibilities

Issue	Preserve Manager	Wildlife Agencies	City Planning Dept	City Parks and Rec Dept	Preserve Steward	Police Dept	Code Enforcement
Project Review		x	x		x		
Compliance Monitoring		x	x		x		
MMRPs			x				
Disturbance to Habitat or Species	x	x	x				x
Unauthorized Trail Use	x			x		x	x
Personal Safety Issues						x	x
Vandalism	x					x	x

3.0 Biological Monitoring and Management

A complete list of MHCP species, listing status, HMP coverage, narrow endemic status, a notation of major populations or critical locations within Carlsbad, and habitat preferences is given in **Appendix A**.

3.1 A1 Species – Species with Site-specific Permit Conditions

A1 species in Carlsbad (listed below) have site-specific permit conditions, which require that individual populations be tracked using GIS (MHCP III, Appendix A). Some of the species may also have species-specific conditions for coverage, management recommendations, and monitoring recommendations. A1 species are the most rare or vulnerable species, including narrow endemics, vernal pool species or listed species. These will be referred to as "priority species" throughout the rest of the document. Critical locations and major populations are the top priority for monitoring and management.

Plants

San Diego thornmint[3]
Del Mar manzanita[3]
Encinitas baccharis[3]
Thread-leaved brodiaea[1, 3]
Orcutt's Spineflower [1, 2]
Del Mar mesa sand aster
Blochman's dudleya[1, 3]
San Diego button celery[3]
Orcutt's hazardia[1, 2]
Nuttall's lotus[3]
Little mousetail[3]
Spreading navarretia[3]
California Orcutt grass[3]

Animals

San Diego fairy shrimp[3]
Riverside fairy shrimp[3]
Light-footed clapper rail[1,3]
Western snowy plover[1,3]
California least tern[1, 3]
Southwestern willow flycatcher[1,2]
Least Bell's vireo[1]
California gnatcatcher[1]
Belding's savannah sparrow[1, 3]

[1] Covered by HMP
[2] Does not occur in Carlsbad
[3] Major population or critical location in Carlsbad

Appendix B includes the guidelines for monitoring and management of priority species. Note that MHCP Volume III was designed to be adaptable based on current scientific research. There are currently numerous efforts underway to streamline open space monitoring and management in San Diego County, and regional monitoring of certain species is currently underway. The City is in the early stages of reviewing and revising its own monitoring program, and will continue to coordinate with these other efforts. Examples of current activity include:

- Regional monitoring of California gnatcatcher is being conducted by USFWS.
- Post-fire monitoring of species and habitats is being conducted by U.S.Geological Service (USGS).

- Rare plant monitoring protocol revisions by City of San Diego (2005), USGS and San Diego Natural History Museum (SDNHM) (McEachern et al. 2007).
- Regional vegetation monitoring protocol revisions by San Diego State University (SDSU) (Deutschman et al. 2007).
- Wildlife monitoring protocol revisions by USFWS (Winchell et al 2008).
- Updated vegetation mapping of San Diego County, to include new classification system (Sawyer and Keeler-Wolf 2007) and some ground-truthing by Todd Keeler-Wolf and other CDFG staff.
- Wildlife corridor monitoring, to be funded by Regional Habitat Conservation Fund Grants, expected to begin in the next few years.

3.2 A2 Species – Species with Habitat-based Permit Conditions

A2 species in Carlsbad (listed below) have habitat-specific permit conditions, which require that species be tracked through habitat, using Habitrak (MHCP Vol. III, Appendix A). Habitrak accounts for gains and losses of vegetation communities (i.e., species' habitats). MHCP Vol. III also recommends monitoring these species on an annual basis through species surveys. However, current research conducted for the MSCP suggest that this may not be necessary or a good use of limited preserve management funds. Monitoring requirements for A2 species in Carlsbad is currently under review. For the present, monitoring will be conducted pursuant the preserve-specific management plans.

Plants

Wart-stemmed Ceanothus[3]
Summer holly[3]
Sticky Dudleya[3]
Cliff spurge[1]
San Diego barrel cactus
San Diego marsh elder
Torrey pine
Nuttall's scrub oak[1]
Engelmann oak

[1]Covered by HMP
[2]Does not occur in Carlsbad
[3]Major population/critical location in Carlsbad

Animals

Harbison's dun skipper[1]
Salt marsh skipper[1]
Western spadefoot toad
Southwestern pond turtle
Orange-throated whiptail[1]
California brown pelican[1]
White-faced ibis[1]
Elegant tern[1]
Cooper's hawk[1]
Osprey[1]
Golden eagle
Peregrine falcon[1]
Western bluebird
Yellow-breasted chat[1]
Rufous crowned sparrow[1]
Large-billed savannah sparrow[1]
Bell's sage sparrow
San Diego pocket mouse
Black-tailed jackrabbit
Mountain lion
Southern mule deer

3.3 Other Monitoring

In addition to monitoring A1 and A2 species, MHCP Vol. III also recommends monitoring vegetation communities, groups of species, movement corridors, and non-native species, as described below. Most of this is to be conducted on a regional basis once regional funding becomes available.

1. **Vegetation communities**
    a. Regional monitoring.
2. **Avian communities**
    a. Coastal sage scrub – regional monitoring.
    b. Riparian – regional monitoring.
    c. Estuarine – waterfowl and shorebirds.
        i. All lagoons
        ii. Twice/year (winter, late summer)
3. **Amphibians and reptiles**
    a. Regional monitoring.
4. **Mammalian and avian predators**
    a. All lagoons
    b. Twice/year (winter, late summer)
5. **Wildlife corridors**
    a. Regional monitoring.
6. **Non-native species**
    a. Invasive plants –annually
    b. Argentine ants – annually
    c. Other – cowbirds, cats, dogs, red fox, opossum, rats, bullfrogs, African clawed frogs, non-native turtles, non-native fish.

3.4 Prioritizing Management and Monitoring Activities

In the Short-Term:

1. **Identify biological resources.**
    - Identify locations of sensitive habitats and species; identify critical locations and major populations.
2. **Assess threats to habitat and species**
    - Erosion, trash, problems from unauthorized access, invasive species, etc.
3. **Assess level of sensitivity**
    - The most sensitive species are generally those that have a small distribution or narrow habitat preferences (e.g., narrow endemics and

listed species). The most sensitive habitat tends to be more scarce, fragmented, and reduced in comparison to its historical distribution (e.g., vernal pools, southern maritime chaparral, and southern maritime scrub).

4. **Assess level of risk**

   - Based on the above information, prioritize management and monitoring activities for species and habitats with the greatest risk, threats, and sensitivity.

5. **Identify and prioritize management and monitoring actions**

   - The annual work plan should include a summary of the analysis above and a list of management and monitoring activities that will address each problem that has been identified. Critical threats (those that cause harm to species or habitat unless there is immediate remediation) should be dealt with immediately.

In the Long-Term:

Re-evaluate the MHCP monitoring program and coordinate with MSCP monitoring program based on the principle of adaptive management, as summarized (Atkinson et al. 2004) and shown in the graphic (adapted from Hierl, et al. 2007) below.

Step 1: Define Goals and Objectives

Step 2: Define Scope

Step 3: Compile Information

Step 4: Set Priorities

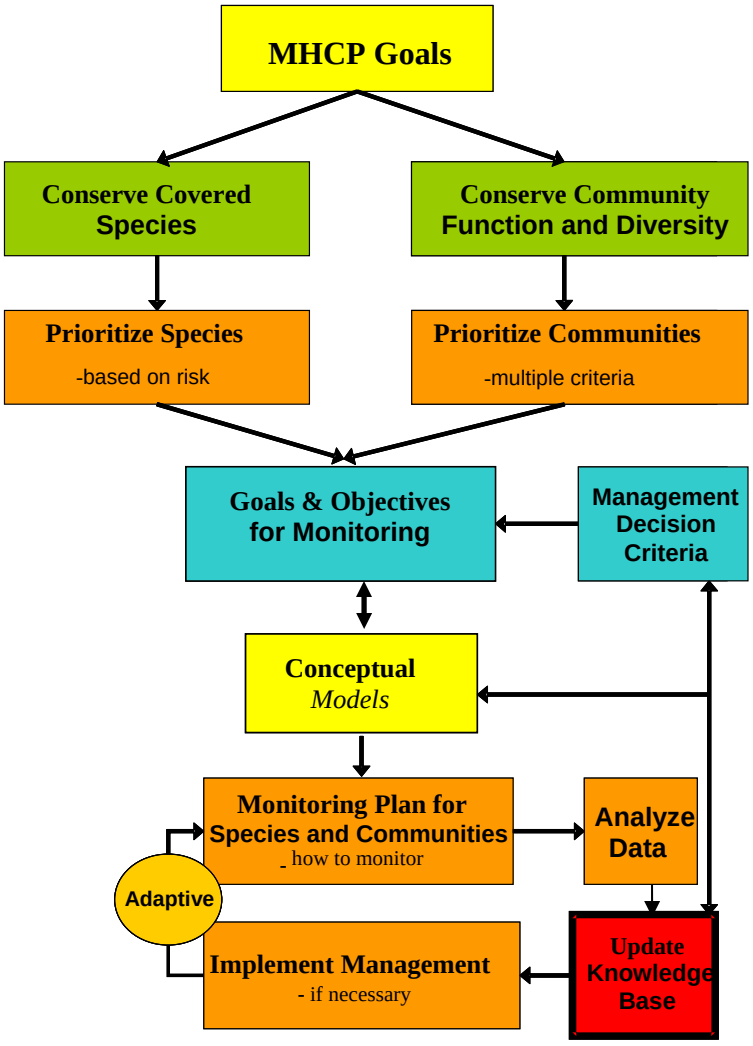
Step 5: Build Conceptual Models

Step 6: Monitoring Recommendations

Step 7: Implementation Strategy

Step 8: Data Management, Analysis, Reporting

Step 9: Feedback to Decision-Making



3.5 Reporting of Monitoring Results

To facilitate the compilation of monitoring data from all preserves into the HMP annual report, a checklist and data table have been prepared to ensure that Preserve Managers are collecting and providing the appropriate information to the Preserve Steward (**Appendix C**). This information (in the form of GIS files and area-specific annual reports) should be submitted at the end of October of each year.

3.6 Area-Specific Annual Reports

Area-specific annual reports should include a description of capital improvements, monitoring activities and results, management actions (including habitat management, enforcement, and fire management), adaptive management pilot studies, public service

activities (including public outreach and education), reporting, data management, and an accounting of the endowment. A template is included in **Appendix D**.

3.7 Preserve Management Plans

Appendix E is a revised version of the Preserve Management Plan template that was originally included in the OSMP. Preserve Management Plans must be updated every 3 to 5 years, depending on the terms agreed to by the City and Wildlife Agencies.

3.8 GIS Data Submission Standards

All species location data and vegetation mapping shall be provided to the City in a Geographic Information System (GIS) format (e.g., geodatabase, shapefile, coverage) and in a known coordinate system with the coordinate system defined (either as metadata or included in the package as text). In addition, all attribute fields that are entered as codes must have either a field that describes each code or a separate text document that describes the codes (e.g. 100 = Coastal Sage Scrub). **Appendix F** includes the City's standards for submitting Biological GIS data to the City and Preserve Steward. All submissions shall include metadata, as described.

4.0 References

Atkinson, A.J., P.C. Trenham, R.N. Fisher, S.A. Hathaway, B.S. Johnson, S.G. Torres, and Y.C. Moore. 2004. Designing monitoring programs in an adaptive management context for regional multiple species conservation plans. U.S. Geological Survey, Western Ecological Research Center.

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Hierl, L.A., J. Franklin, D.H. Deutschman, and H.M. Regan. 2007. Developing conceptual models to improve the biological monitoring plan for San Diego's Multiple Species Conservation Program. Prepared for California Department of Fish and Game. Department of Biology, San Diego State University.

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Sawyer, J. and T. Keeler-Wolf. 1997. A manual of California vegetation. California Native Plant Society, 471 pp.

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Appendix A
MHCP Species Overview

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MCHP Species Overview

Common Name	Scientific Name	Listing Status[1]	Covered by HMP[2]	NE[3]	C/M[3]	SSPC[3]	Habitat[4]	Comments
Plants								
Blochman's dudleya	*Dudleya blochmaniae* ssp. *blochmaniae*			X	C	X	Coastal bluff scrub and CSS, often in rocky or clay soils	Near municipal golf course
California orcutt grass	*Orcuttia californica*	FE/SE	List 3	X	C+M	X	VP	C/M population in Poinsettia Lane VP is the only one in the entire MHCP
Cliff spurge	*Euphorbia misera*		X		No		Coastal scrubs (including CSS and maritime succulent scrub), often on sandstone substrates	
Del Mar manzanita	*Arctostaphylos glandulosa* ssp. *crassifolia*	FE/ -	List 3	X	C+M?	X	Sandstone substrates in S Maritime CHP	Many plants previously identified as DM Manzanita are actually a more common subspecies. CNLM has re-identified many of these plants.
Del Mar Mesa sand aster	*Corethrogyne filaginifolia* var. *linifolia*		List 3	X	M	X	Sandstone substrates in CSS or CHP	
Encinitas baccharis	*Baccharis vanessae*	FT/SE	List 3	X	C+M?	X	S. mixed and S. maritime CHP	Known only from Encinitas and Carlsbad
Engelmann oak	*Quercus engelmannii*		List 2		No		OW	
Little mousetail	*Myosurus minimus* ssp. *apus*		List 3	X	C+M	X	VP and alkali marshes	Poinsettia Lane VP
Nuttall's lotus	*Lotus nuttallianus*			X	C+M	X	Coastal dunes and coastal bluff scrub	One of only 10 known populations in the County occurs in Batiquitos Lagoon
Nuttall's scrub oak	*Quercus dumosa*		X		C+M		CPH and CSS	
Orcutt's brodiaea	*Brodiaea orcuttii*			X	C+M		VP, G, and seasonal streams, often on clay soils.	
Orcutt's hazardia	*Hazardia orcuttii*	- / ST	X	X	No	X	CHP, CSS	Did not occur in Carlsbad; CNLM transplanted some into Carlsbad
Orcutt's spineflower	*Chorizanthe orcuttiana*	FE/SE	X	X	No	X	Sandstone substrates in S. maritime CHP	Does not occur in Carlsbad
San Diego ambrosia	*Ambrosia pumila*	FE/ -	List 2	X	No	X	CSS, G, disturbed habitat	Does not occur in Carlsbad
San Diego barrel cactus	*Ferocactus viridenscens*		List 2		No		CSS	
San Diego button-celery	*Eryngium aristulatum* var. *parishii*	FE/SE	List 3	X	C+M	X	Clay soils in G and VP	Poinsettia Lane VP
San Diego goldenstar	*Muilla clevelandii*			X	C+M		Clay soils in G and CSS	One major/critical population has been mapped in Villages of La Costa (E and W of Rcho SFe Rd)
San Diego marsh elder	*Iva hayesiana*		List 3		C+M		Alkali marsh	Aren't there plants at Poinsettia Lanes VP? San Marcos and Encinitas Ck populations outside of HMP?
San Diego thorn-mint	*Acanthomintha illicifolia*	FT/SE	List 2	X	C+M	X	Calcarious marine sediments, clays, gabbro-derived soils in CSS, CHP, and G.	Major populations: (1) El Camino Real/College Blvd., (2) S of Palomar Airport Rd, (3) N of Alga Rd. (4) "San Marcos West population" that is within City limits
Short-leaved dudleya	*Dudleya blochmaniae* ssp. *brevifolia*	- /SE		X	No	X	Sandstone substrates in S maritime CHP	Does not occur in Carlsbad
Spreading navarretia	*Navarretia fossalis*	FT/ -	List 3	X	C+M	X	VP	C/M population in Poinsettia Lane VP
Sticky dudleya	*Dudleya viscida*		List 2		C+M		CSS or CHP	San Marcos Ck population (outside of HMP but within protected OS); Box Canyon Preserve, thousands; doesn't need special management attention
Summer holly	*Comarostaphylis diversifolia* ssp. *diversifolia*		List 3		M		CHP	

Common Name	Scientific Name	Listing Status[1]	Covered by HMP[2]	NE[3]	C/M[3]	SSPC[3]	Habitat[4]	Comments
Thread-leaved brodiaea	*Brodiaea filifolia*	FT/SE	X	X	C+M	X	Clay soils in G and VP	Major populations (1) Calavera Hts, (2) Cbad Highlands, (3) Rcho Carrillo, (4) Fox-Miller, (5) SRA 2. No. 5 is not mapped
Torrey pine	*Pinus torreyana ssp. torreyana*		List 3		No		Pine forest and S. maritime CHP	Natural populations do not occur in Carlsbad
Wart-stemmed ceanothus	*Ceanothus verrucosus*		List 2		M		S. mixed and S. maritime CHP	
Invertebrates								
Harbison's dun skipper	*Euphyes vestries harbisoni*		X	X	No		Riparian and OW	Not known in Carlsbad
Hermes copper butterfly	*Lycaena hermes*			X	No		CSS, CHP	May not occur in MHCP areas
Quino checkerspot butterfly	*Euphydryas editha quino*	FE/ -			No		G, open CSS	May not occur in MHCP areas
Riverside fairy shrimp	*Streptocephalus woottoni*	FE/ -	List 3	X	C+M	X	VP	C/M population in Poinsettia Lane VP
Salt marsh skipper	*Panoquina errans*		X		C+M		Salt marsh and salt pan vegetation communities	Found in all lagoons
San Diego fairy shrimp	*Branchinecta sandiegoensis*	FE/ -	List 3	X	C+M	X	VP	C/M population in Poinsettia Lane VP
Amphibians/Reptiles								
ArroyotToad	*Bufo californicus*	FE/ -		X	No	X	Riparian surrounded by OW, G, CSS, or Ag	May not occur in MHCP areas
Orange-throated whiptail	*Aspidoscelis hyperythra*		X		No		Coastal bluff scrub, CHP, CSS	
San Diego horned lizard	*Phrynosoma coronatum blainvellei*				No		CHP, CSS, G, OW	
Birds								
American peregrine falcon	*Falco peregrinus anatum*	FD/SE	X		No		Estuarine, marsh and riparian	
Bell's sage sparrow	*Amphispiza belli belli*				No		CSS, CSS/CHP	
Belding's savannah sparrow	*Passerculus sandwichensis beldingi*	- /SE	X		C+M	X	Coastal salt marsh and mudflats	
Burrowing owl	*Speotyto cunicularia hypugaea*				No		G	Historical locations in Palomar Airport, SE Carlsbad (golf course locations), and Batiquitos Lagoon; breeding populations likely don't occur within MHCP
California brown pelican	*Pelecanus occidentalis californicus*	FE/SE	X		No		Estuarine	Located in all lagoons
California gnatcatcher	*Polioptila californica californica*	FT/ -	X		C+M	X	CSS, CSS/CHP	Critical: Calavera /Carlsbad Highlands area, and La costa/University Commons area. Major: La Costa, Municipal golf course/Macario Canyon area, and Holly Springs/Calavera area. Critical regional stepping stone corridor through Carlsbad and Oceanside
CalifornialLeast tern	*Sterna antillarum browni*	FE/SE	X		C+M	X	Estuarine, beach, salt pan, mudflats	Lagoons
Cooper's hawk	*Accipiter cooperi*		X		No		RF, RW, OW	
Elegant tern	*Sterna elegans*		X		No		Estuarine, beach, salt pan, mudflats	Lagoons
Grasshopper sparrow	*Ammodramus savannarum*				No		G	
Lg-billed savannah sparrow	*Passerculus sandwichensis rostratus*		X		No		Coastal salt marsh and mudflats	
Least Bell's vireo	*Vireo bellii pusillus*	FE/SE	X		No	X	RS, RW, RS	
Light-footed clapper rail	*Rallus longirostris levipes*	FE/SE	X		C+M	X	Southern coastal salt marsh	Located in all lagoons
Northern harrier	*Circus cyaneus*				No		CSS, G, marsh	

Common Name	Scientific Name	Listing Status[1]	Covered by HMP[2]	NE[3]	C/M[3]	SSPC[3]	Habitat[4]	Comments
Osprey	*Pandion haliaetus*		X		No		Estuarine, freshwater	
Rufous-crowned sparrow	*Aimophila ruficeps canescens*		X		No		CSS, CSS/CHP	CDFG no longer considers this to be a Species of Special Concern
SW Willow flycatcher	*Empidonax traillii extimus*	FE/SE	X		No	X	RF, RW, RS	
Tricolored blackbird	*Agelaius tricolor*				No		RS, FWM, G	
Western snowy plover	*Charadrius alexandrinus nivosus*	FT/ -	X		C+M	X	Estuarine	Located in all lagoons
White-faced ibis	*Plegadis chihi*		X		C+M		Coastal salt marsh, FWM	Located in all lagoons
Yellow-breasted chat	*Icteria virens*		X		No		RF, RW, RS	
Mammals								
Black-tailed jackrabbit	*Lepus californicus bennettii*				No		CSS, CSS/CHP, G	
Mountain lion	*Felis concolor*				No		All habitats	
Pacific pocket mouse	*Perognathus longimembris pacificus*	FE/ -		X	No		G	Not known from Carlsbad
San Diego pocket mouse	*Chaetodipus fallax fallax*				No	X	CSS, CHP, OW, G	
Southern Mule deer	*Odocoileus hemionus fuliginata*				No		All habitats	
Stephen's kangaroo rat	*Dipodomys stephensi*	FE/ST			No	X	G	Not known from MHCP

[1] Key to Listing Status: FE - Federally Endangered, SE - State Endangered, FT - Federally Threatened, ST - State Threatened, FD – Federally Delisted, SSC – state Species of Special Concern
[2] List 2: Species coverage contingent on other MHCP Subarea plans being permitted; List 3: Species coverage contingent upon funding for management of conserved areas
[3] NE = narrow endemic species, C = critical population, M = major population, SSPC = site-specific permit conditions
[4] CSS = coastal sage scrub, CHP = chaparral, G = grassland, NG = non-native grassland, OW = oak woodland, RF = riparian forest, RW = riparian woodland, RS = riparian scrub, FWS = freshwater marsh, VP = vernal pools
[5] Many plants within Carlsbad that reported in the MHCP were misidentified; CNLM has re-identified individuals from the preserves they manage, and have had the identifications verified by the San Diego Natural History Museum. Wildlife Agencies have been notified (Markus Spiegelberg, pers. comm.).

Appendix B

Summary of Monitoring and Management Guidelines for Priority Species

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HMP MONITORING AND MANAGEMENT GUIDELINES

Sources of information: MCHP Vol II (Conservation Analysis), Vol III (MHCP Monitoring and Management Plan), HMP Table 9 and Appendix C (Conditions for Coverage), USFWS recovery plans and five year reviews.

Monitoring Requirements for Priority (A1) Species

General Monitoring Requirements

1. Monitor populations and habitats
    a. Delineate distribution (e.g., breeding habitat, population boundaries, or general distribution, as appropriate; see below).
    b. Measure abundance or density (e.g., plant counts or number of bird pairs, as appropriate, see below.).
    c. Assess condition and degree of disturbance to habitat.
    d. Survey suitable habitat for all priority species during at least 2 years with average to above-average rainfall to determine if there are undiscovered populations.
    e. For federally listed species, use the most current USFWS survey protocol. For all other species use MHCP Vol III, unless a more current protocol has been developed for the HMP.

2. Measure each variable above at regular intervals over time to determine changes in distribution, abundance, and habitat condition. Note that the monitoring schedule may change based on current research conducted for NCCP monitoring in San Diego County and discussions with the Wildlife Agencies.

Additional Species-Specific Monitoring Requirements

Priority Species	Monitoring Requirements	Schedule
Estuarine/Coastal Species		
California least tern Light-footed clapper rail Western snowy plover Belding's savannah sparrow	□ Delineate breeding habitat (plover and tern) □ Census no. of breeding pairs, or relative abundance (clapper rail)	Annually, currently being conducted by Wildlife Agencies
Riparian Species		
Least Bell's vireo SW willow flycatcher	□ Map nest sites □ Census no. of breeding pairs	Annually
Vernal Pool Species		
California orcutt grass Little mousetail San Diego button-celery Spreading navarretia	□ Delineate population boundaries □ Measure density (quadrats)	Annually
Riverside fairy shrimp San Diego fairy shrimp	□ Map general distribution	Annually
Upland Species		
Thread-leaved brodiaea Del Mar mesa sand aster San Diego thornmint	□ Delineate population boundaries □ Measure density (quadrats)	Annually
Del Mar manzanita Encinitas baccharis	□ Delineate population boundaries □ Measure relative abundance	Every 5 years
California gnatcatcher	□ Map general distribution (location) □ Measure abundance (no. indv/pairs, age, sex)	Annually

Management Recommendations for Priority (A1) Species

General Management Recommendations

- Major and Critical Populations
  - Protect all major and critical populations.
  - Establish a protective buffer to protect population from edge effects and to support appropriate pollinators.
  - Monitor condition of habitat in and around critical/major populations (erosion, unauthorized public access, trash, exotics, etc.) and manage threat from edge effects.
  - Enhance declining populations and restore damaged habitat.

- Narrow Endemic Species
  - Implement fire management plan for all conserved narrow endemic plant populations to protect them from frequent or high-intensity fires and fire suppression activities. Plan should include guidelines for fuel reduction within conserved areas.
  - Implement an exotic species removal program that focuses on narrow endemic plant population areas.
  - Introduced narrow endemic plant materials must be from parental or nearby population unless it is determined that there is no significant variation between populations.

- Lagoon Management
  - Monitor the water quality of the lagoons, which may be affected by runoff from upland areas. Determine the cause of and manage nonpoint source (NPS) pollution.
    - Educate property owners upstream about NPS.
    - Stabilize erosion-prone areas to reduce erosion and sedimentation.
    - Enhance, restore, and revegetate degraded habitat within a 100-ft buffer of the lagoon, concentrating on areas where runoff enters the lagoon. (current budget to include trash pick up, invasive species removal, access control, and passive restoration; additional funds can be acquired to do active restoration).
    - Devise and implement oil and sewage spill containment strategies.

- Nesting Estuarine/Coastal Bird Species
  - Restrict access during the breeding season.
  - Protect nesting areas from inundation by high tides and changes in vegetation structure.
  - Protect nests from predators (e.g., dogs, cats, foxes, gulls, raccoons, and skunks).
  - Prohibit off-road vehicles in nesting areas.
  - Support activities to promote tidal flushing. Continue dredging activities at Batiquitos Lagoon.

Additional Species-Specific Management Recommendations (Priority spp)

Species	Management Recommendations and Special Considerations
Estuarine/Coastal Species	
Light-footed clapper rail[1]	■ Habitat enhancement should include revegetation of cordgrass and pickleweed, and providing nesting platforms in potential nesting habitat ■ Continue dredging activities at Batiquitos Lagoon so that tidal flushing can occur ■ Agua Hedionda Lagoon: [2] - Develop fringing FWM, high marsh, nest hummocks, and low marsh - Control human disturbance, predators, and sedimentation ■ Buena Vista and Batiquitos Lagoons: [2] - Assess potential for rails; If good potential , restore rails - Develop high marsh (BVL), fringing FWM (BL), and low marsh (BL)
CA least tern[1]	■ Restrict access during the breeding season (April 1 – Sept 15)
Western snowy plover[1]	■ Use signage, fencing, and public outreach to avoid trampling of nests and chicks[3] ■ Control native and nonnative predators through frequent monitoring, fencing, and lethal or non-lethal methods (e.g. trapping).[3] ■ Develop site-specific management plan for long-term protection[3] ■ Create or expand new nest sites and foraging habitat if feasible[3] ■ Pre-breeding season management (February 1 – April 15) may include vegetation removal, deposition of sand or other substrate, leveling substrate, placement of shelters to provide shade for chicks, decoys to attract adults, etc. [3] ■ Develop pollutant (oil, chemical, sewage) spill emergency response plan[3]
Belding's savannah sparrow[1]	■ Provide protective upland buffers of 50 to 100 feet ■ Continue dredging activities at Batiquitos Lagoon so that tidal flushing can occur
Riparian Species	
SW willow flycatcher Least Bell's vireo	■ Provide protective upland buffers of 50 to 100 feet ■ Conduct cowbird trapping ■ Manage habitat for successional structure
Vernal Pool	
California Orcutt grass Little mousetail San Diego button-celery Spreading navarretia Riverside fairy shrimp San Diego fairy shrimp	■ Manage to protect hydrology of vernal pool watershed hydrology. ■ Do not allow the use of herbicides, pesticides, or fertilizers within the watershed of the vernal pool ■ California Orcutt grass and the Riverside fairy shrimp occur in only one location within the entire MHCP (Pointsettia Lane vernal pool).
Upland Species	
Thread-leaved brodiaea	■ Manage the habitat to maintain appropriate hydrological conditions ■ Transplantation/reintroduction of corms may be an effective means of population enhancement

[1] Active management and monitoring is currently being conducted by state and federal Wildlife Agencies
[2] Management recommendations from USFWS Recovery Plan. All other recommendations from the MHCP or HMP.
[3] USFWS Five Year Review

Appendix C
Monitoring Checklist

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MONITORING REPORT CHECKLIST

To assist with the HMP annual reporting, please review this checklist to ensure that requirements have been met, and submit the required information to the Preserve Steward. The second page provides an expanded list that explains each of these items in more detail.

Vegetation Communities/Habitats

- ☐ Date/location of latest vegetation mapping
- ☐ GIS files provided to the City
- ☐ Habitat condition reporting
    - o Description of current conditions
    - o Data/photo-documentation
    - o Threat assessment and ASMDs
- ☐ Potential future projects
- ☐ Results from last year's ASMDs

Sensitive Species

- ☐ Date/location of latest surveys
- ☐ GIS files provided to the City
- ☐ Species status report (see table at the end of this document)
    - o Critical populations mapped
    - o Current status of each species
    - o Threat assessment and ASMDs
    - o Potential future projects
- ☐ Results from last year's ASMDs

Management, Public Service, Reporting, and General Discussion

- ☐ Provide a summary of management and public outreach highlights for each preserve.
- ☐ Summarize the top threats (up to three) for each preserve. Be specific (e.g., "arundo moving in and choking out native plants on east side of xx creek" rather than "exotic species"). Discuss threats to the preserve as a whole, to specific habitats, or specific species populations.
- ☐ Describe adaptive management studies.
- ☐ Provide an accounting of the starting endowment total, projected expenditures, actual expenditures, interest earned, and ending endowment total.

Expanded Monitoring Report Outline for Preserve Managers

This outline expands on the checklist above to provide additional guidance.

Vegetation Communities/Habitats

1. Mapping
    a. Date of last vegetation mapping for each preserve. If only a portion of the preserve was mapped, identify the area that was mapped.
    b. Provide GIS files for each vegetation mapping effort using the appropriate attributes.
2. Monitoring Reports
    a. Condition of sensitive habitats.
        i. If there is a quantitative monitoring program, provide data. Otherwise provide qualitative description.
        ii. Provide photos from photo-documentation efforts.
        iii. Provide information about habitats that are of poor quality.
            - Identify location.
            - Describe level of disturbance and current threats: degree of recruitment, condition of vegetation, abundance of exotics, trash/encampment, unauthorized access, etc.
        iv. Provide ASMDs that will remedy the situation and general timeframe (monthly trash removal; install fencing within the next year; passive restoration over the next five years; etc.). These can be provided in the annual work plan.
        v. Identify areas for potential restoration or research studies that could be conducted with additional funds. (The City and Preserve Steward may choose to pursue grant funding for some of these projects.)
    b. Key management actions that have taken place over the last year in response to previously identified threats. Current status of these threats and results of management efforts.

Sensitive Species

1. Mapping
    a. Date of last survey for Priority 1 and 2 species for each preserve. If only a portion of the preserve was surveyed, identify the area on a map.
    b. Provide GIS files of survey results using the appropriate attributes.
2. Monitoring Reports
    a. Condition of Priority 1 and 2 species: fill out form.
        i. Identify critical populations (polygons for plants) as well as other locations.
        ii. Describe current status of the populations.
        iii. Describe the current threats.
        iv. Provide ASMDs that will remedy the situation and general timeframe. These can be provided in the annual work plan.
        v. Identify areas for potential restoration or research studies that could be conducted with additional funds.
    b. Key management actions that have taken place over the last year in response to previously identified threats. Current status of these threats and results of management efforts.

HMP Species Status Report

Common Name	Scientific Name	Critical Pop?	Preserve	Population Status	Last Survey (Date)	Survey Schedule	Survey Type	Condition and Threats [1]	Management Actions[2]
Plants – Vernal Pool Species									
California orcutt grass	*Orcuttia californica*								
Little mousetail	*Myosurus minimus* ssp. *apus*								
San Diego button-celery	*Eryngium aristulatum* var. *parishii*								
San Diego thorn-mint	*Acanthomintha illicifolia*								
Spreading navarretia	*Navarretia fossalis*								
Plants – Upland Species									
Thread-leaved brodiaea	*Brodiaea filifolia*								
Del Mar manzanita	*Arctostaphylos glandulosa* ssp. *crassifolia*								
Del Mar mesa sand aster	*Corethrogyne filaginifolia* var. *linifolia*								
Encinitas baccharis	*Baccharis vanessae*								
Invertebrates – Vernal Pool Species									
Riverside fairy shrimp	*Streptocephalus woottoni*								
San Diego fairy shrimp	*Branchinecta sandiegoensis*								
Birds – Riparian Species									
Least Bell's vireo	*Vireo bellii pusillus*								
SW Willow flycatcher	*Empidonax traillii extimus*								
Birds – Lagoon/Coastal Species									
Belding's savannah sparrow	*Passerculus sandwichensis beldingi*								
California least tern	*Sterna antillarum browni*								
Light-footed clapper rail	*Rallus longirostris levipes*								
Western snowy plover	*Charadrius alexandrinus nivosus*								
Birds – Upland Species									
California gnatcatcher	*Polioptila californica californica*								

[1] Describe overall condition of population and habitat, level of disturbance, degree of recruitment, abundance of exotics, soil disturbances, illegal human activities, dumping, runoff, erosion, etc. Describe critical populations separately; other populations can be described in general.

[2] Describe management actions that have been or are being done to offset the threats described.

Appendix D

Format for Area-Specific Annual Reports

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I. Introduction

1. Describe the site, location, history of acquisition (at least in the first annual report), and time period covered by the report.
2. Include graphics showing (1) Preserve Vicinity and (2) Preserve Location Map.
3. Summarize the work plan for the given year (what did you want to accomplish?) or at least cite. Did you accomplish work plan goals?
4. Provide bulleted summary of all activities conducted.

II. Capital Improvements

Capital improvements include fencing (linear feet, fencing type, purpose), gates, signs, kiosks or other access control or educational devices.

III. Biological Monitoring

A biological inventory (i.e., complete surveys of plants and animals throughout the preserve) should be completed within the first three years of preserve management. Survey methods for the inventory should be consistent with the ongoing monitoring effort, as described below. This section should also include a summary of project-level surveys that were conducted for the project's environmental review (i.e., Biological Resources Technical Report) if applicable. GIS files should be submitted to the City as part of the annual report submittal.

Ongoing biological monitoring should:

1. Include (in text and in a summary table) the following information for all surveys, patrols, and vegetation mapping conducted: date, type (incidental observation, general survey, or focused species survey), methods or protocols used, name of species, and results. See Reporting Checklist for more information.
2. Discuss habitat condition and status of target species. Make special note of any critical or major populations within the preserve.
3. Discuss the main threats to specific populations or habitats that need to be addressed.
4. Maps showing species locations, plant polygons, and revised vegetation communities boundaries should be included.
5. Discuss the importance of the habitats and species within a broad (MHCP) context.
6. When possible, include a discussion about observations of wildlife behavior (breeding, nesting, movement, prey/predator, etc.), distribution, major threats, etc.
7. GIS files (and appropriate attributes and metadata) should be submitted to the City as part of the annual report submittal.

IV. Habitat Management and Restoration

Describe general ongoing management activities as well as specific ASMDs that were outlined in the Preserve Management Plan and previous annual work plan. Describe remediation activities such as invasive species control, revegetation, and repair of preserve facilities (fences, signs, gates, trail, kiosks, etc.). This section should describe activities in terms of passive or active adaptive management, including hypotheses tested or questions asked (cite MHCP Vol III if applicable), conceptual models, methods, results, and discussion (e.g., lessons learned). If trials are ongoing, all information known through the end of the reporting period should be included.

V. Adaptive Management Pilot Studies

Discuss current adaptive management pilot studies and results so far. Describe the questions that are being asked and/or hypotheses being tested. Include future studies and lessons learned so far.

VI. Public Service

Include all public service activities and materials developed.

VII. Reporting

Reporting includes a description of GIS and field data management, data analysis, and regional coordination, and financial status. This section should include an accounting of the starting endowment total, projected expenditures, actual expenditures, interest earned, and ending endowment total. In addition, an analysis should be conducted to illustrate that projected revenue is adequate to implement management activities in the coming year's annual work plan without drawing on the principal.

In addition, all species location data and vegetation mapping shall be provided to the City in the appropriate Geographic Information System (GIS) format (e.g., mxd shapefiles).

VIII. Summary and Discussion

Highlight the most important aspects of preserve condition, species population status, threats, remediation, lessons learned from adaptive management, public outreach, etc.

IX. References

Cite all references used in the report.

Appendices

As needed.

Appendix E

A Guide and Annotated Outline for Writing Preserve Management Plans for Preserve Areas within the City of Carlsbad's HMP

(Adapted from the CDFG Guide and Outline for Writing Land Management Plans, February 2003. Revised October 2008.)

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USING THIS OUTLINE

This outline has been adapted from the California Department of Fish and Game's Guide to the Preparation of Land Management Plans (CDFG 2003, revised 2008) to help you write a preserve management plan that is useful and easily read by those who want information about preserve areas within the Carlsbad HMP preserve system. It is important to use a standardized format for the preserve management plan so that the City of Carlsbad and the Wildlife Agencies may easily review and confirm that the preserve management plan includes the necessary goals, objectives, actions, priorities, and area-specific management directives (ASMDs) to manage and monitor species and habitats within the context of the Carlsbad HMP and overall MHCP. Appropriately designed and developed preserve management plans will greatly facilitate the ability of the City of Carlsbad to maintain compliance with the permit conditions of its Implementing Agreement for the HMP. The CDFG land management plan format is being used for the CDFG lands within the City and provides a consistent template for the non-CDFG preserve areas.

This outline provides instructions and examples for writing each chapter. It also serves as an example for the required format. Each chapter heading (identified by a Roman numeral) should be addressed within the plan. The amount of information provided within each chapter will be determined by the intensity of management necessary to maintain the preserve area as viable wildlife habitat. In some cases, it may not be necessary to use certain subheadings; these are listed as optional in the outline.

Periodically, the CDFG Land Management Plan outline will be revised to reflect additional information, style improvements, and streamlining efforts. The preserve steward for the City of Carlsbad will update this outline to maintain consistency with updates in the CDFG outline and to serve the needs of the HMP as needed.

SOME TIPS AND NECESSARY FORMAT INFORMATION:

All final versions of preserve management plans shall be provided to the City in electronic format (pdf with graphics properly embedded). The City may also request a MS Word or compatible version.

A Table of Contents containing page numbers for chapters and sections must be provided (see example below). A list of figures and list of tables should be included as well. A page number and document title should appear in the footer of every page of your plan. Chapter I, Introduction, is page one. All pages preceding page one should be numbered with lower case Roman numerals, starting with -i- on the Table of Contents page.

Tables and figures should be placed immediately following the page where they are first mentioned in the text. All figures should be prepared on 8-1/2 x 11-inch paper so that reproduction remains a simple task. To prepare professional-looking figures, maintain a minimum ½-inch border. Each figure and table should be numbered and titled. The title should reflect what the figure depicts, such as a location map or habitat types on the property. A north arrow (pointing up) and mileage scale should be included on all figures that illustrate geographical features.

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E X A M P L E

Preserve Management Plan

for

(Name of Area)

Month, Year

Prepared by:
Organization
Address

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TABLE OF CONTENTS

If appropriate, a list of figures (which includes all maps, drawings, or charts) and tables may be provided here along with their page numbers.

LIST OF FIGURES

LIST OF TABLES

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I. INTRODUCTION

The following information does not have to be presented in three separate subsections, but can be included in a few short paragraphs.

A. Purpose for Inclusion of the Preserve Area in the HMP

Describe the primary purpose for which this was included in the HMP. Additional purposes should also be stated. Be brief, but provide summary information about the management objectives presented later within the plan. Describe the resources protected by this preserve area in very general terms.

B. Preserve Area History

Describe the circumstances leading to dedication of this preserve area which might include set-aside for mitigation, acquisition in response to local or regional development pressure, environmental concerns, inholding consolidation, or other issues, and list any local or regional groups which had influence in promoting this dedication. Describe whether this preserve was part of a Standards Area or Proposed Hardline. If relevant, give the acquisition transaction date(s) and the total number of acres acquired.

C. Purpose of This Management Plan

The following language should be stated in the plan to clearly delineate the City's purposes in preparing such plans:

1. The plan guides management of habitats, species, and programs described herein to achieve the City's obligation to protect and enhance wildlife values under the MHCP, HMP, and Implementing Agreement.

2. The plan serves as a guide for appropriate public uses of the preserve area.

3. The plan serves as a descriptive inventory of native plant and wildlife species and habitats, which occur on or use this preserve area.

   Include Preserve Manager contact information.

II. PRESERVE AREA DESCRIPTION

This chapter should provide the most current information available to describe the geographical and physical site characteristics to promote good management of the area. Some of the following subsections may be combined if the subjects below are addressed and information is presented in a logical sequence.

A. Geographical Setting

Describe preserve area location clearly and provide a regional location map that identifies this property's location with respect to the City-wide preserve system. Local crossroads should be shown. This is an overview map which gives the unfamiliar reader a regional perspective for locating the property. The map should be generated using GIS data.

B. Geology, Soils, Climate and Hydrology

These subjects may be combined into one subheading or separated for individual discussion, depending upon how much information is provided. Give the reader an overall assessment of geological, climatic and hydrologic factors which *will influence management objectives*. You only need to provide information which is pertinent to management of the area.

Geological information which describes how the area evolved or how it relates to the surrounding geological formations can be useful in describing the overall area (eg., alluvial valleys, volcanic outcrops, floodplains).

Soil survey information, obtained from the City of Carlsbad in GIS format, may influence species distributions, water regimes and agricultural activities. Soil types which have significant impacts on management should be discussed here. A soils map may be helpful in making management decisions if soil types are important or complex. A detailed description is not necessary unless it relates to management.

A discussion of local climate should include useful information such as seasonal norms for high and low temperatures, seasonal average precipitation, growing season, and any other climatic factors, which influence the area, or should be considered in managing the preserve area.

On some preserve areas, such as areas with wetlands or vernal pools, hydrological information will be extremely important. Describe all known surface and subsurface water sources and their seasonal influences on management of the area. If there are wells on the area, the depth to groundwater and pumping rate should be provided, if known.

C. Preserve Area Boundaries and Historic/Adjacent Land Use

Provide a property map with boundaries distinctly outlined to place it in perspective with adjacent lands. The map should contain sufficient detail to provide information on publicly accessible trails within the site.

Give a brief description of adjacent land use and prior land use on the preserve area, if known. Provide documentation of any easements issued to others within or across the preserve area. List the habitat types and management issues in common with adjacent or nearby preserves and opportunities for coordinated management between preserve areas within a given management unit.

D. Ownership and Legal Description

Include Assessor Parcel Number(s), current landowner(s) and contact information for landowner(s) and preserve manager.

E. Conservation Easement Compliance

State that the Conservation Easement (CE) or Restrictive Covenant (RC) provides a list of permitted and prohibited uses of the land. The preserve manager must monitor the preserve to ensure that the landowner is not violating the conditions of the CE/RC. Describe the process for compliance monitoring (frequency of visits, reporting, etc.)

III. HABITAT AND SPECIES DESCRIPTION

This chapter provides a descriptive inventory of habitats and species which are located on or use the preserve area. General ecological information necessary for proper management of habitats should be presented in this section.

A. Vegetation Communities

Describe each major native plant community or habitat which occurs on the preserve area and provide the acreage of each. Include a vegetation or habitat map. General habitat descriptions should follow Oberbauer's revision to the Holland vegetation community classification system (Oberbauer 2005, Holland 1986).

B. Plant Species

Provide an inventory (list), if available, of native and non-native plant species which are known or likely to occur on the preserve area. The inventory should include both common and scientific names, and can be included as an appendix. If

not available, include a statement that at the earliest feasible opportunity, and before natural habitats are manipulated, complete inventories will be conducted.

B. Wildlife Species

Provide an inventory (list), if available, of animals (including invertebrates, amphibians, reptiles, birds, and mammals) which are known to inhabit or seasonally use this property. The inventory should include both common and scientific names, and can be included as an appendix. If not available, include a statement that at the earliest feasible opportunity, and before natural habitats are manipulated, complete inventories will be conducted.

C. HMP Covered Species and Other Sensitive Species

Identify all covered, listed, and narrow endemic plant and animal species that use the preserve area and briefly describe their ecological requirements. Identify the location of these species as well as critical and major populations (provide maps as necessary). Identify species that will be affected by or targeted for management and monitoring. An overview of their habitat preferences, major onsite threats, and management requirements should be presented here.

D. Fire History

Describe the fire history of the site, including where and when fires have burned on the property.

E. Threats

Describe the major threats to sensitive species or habitats, and to the preserve as a whole. Be specific (e.g., "the xx creek is dominated by arundo throughout its length") rather than general (e.g. "exotic species"). Add tables showing the status of zero tolerance nonnative plants and moderate tolerance nonnative plants.

IV. MANAGEMENT AND MONITORING GOALS

Chapter IV includes goals and tasks (ASMDs) for each management element to direct management and monitoring actions in this preserve area. The goals and ASMDs (management and monitoring tasks) stated here should guide all management decisions until the plan is revised and updated. Because management and monitoring are interdependent, they should be discussed together. (Note that this is a different approach than the previous version of the Preserve Management Plan Guidelines, which discussed management and monitoring as separate elements.)

A. Biological Goals

A biological goal is the statement of intended long-range results of management and monitoring based upon the feasibility of maintaining, enhancing or restoring species populations and/or habitat. The site-specific biological goals should be based on HMP and MHCP requirements, as well as a site-specific threats assessment. Conservation goals, management recommendations, and monitoring requirements outlined in the MHCP or HMP and relevant permit conditions should be reference in this section. If you wish to discuss the goals in a narrative format to provide more detail or to clarify certain management issues, be as succinct as possible.

Biological goals may be discussed in terms of management and monitoring. Management-related goals will focus on the protection and recovery of vegetation communities, sensitive habitats (including restoration and maintenance), covered species, and wildlife movement corridors. Monitoring may be included as specific monitoring-related goals (e.g., monitor xx species to determine population trends over time) or as ASMDs that will implement a particular management goal (e.g., conduct habitat monitoring in xx location to determine if the invasive species control program has improved the status of xx narrow endemic plant population). If feasible, discuss the role of this preserve area in subregional and regional monitoring efforts.

Constraints

After the management and monitoring goals are characterized, briefly describe any internal or external constraints, which may affect meeting those goals. Some examples are:

- Environmental factors such as the influence of local water availability (either surface or subsurface waters), the introduction or spread of non-native species, seasonal observability of certain plant or animal species, presence of T&E species, fire, drought, erosion, etc.

- Legal, political or social factors including federal or state laws, policies, or regulations which influence or mandate certain types of management; special permitting requirements (eg., ACOE 404, T&E species, archeological sites); City ordinances (eg., nuisance abatement); MOUs or other special agreements with private or public entities.

- Financial factors such as the source of funding to be used for task implementation (fund source may dictate management direction).

Potential Impacts

Discuss potential environmental impacts from management or monitoring actions and the avoidance or mitigation measures that will be employed, if necessary, to avoid or significantly reduce such impacts. Demonstrate that potential impacts are temporary or that the overall effect of the action is a net improvement/enhancement in habitat value in

the preserve area. It is the intent of the Carlsbad HMP not to undertake projects that adversely impact a covered species or sensitive habitat. Therefore, no impacts will be allowed that reduce overall habitat quality in the preserve area and thus reduce the ability of the City to meet the permit conditions of the HMP and Implementing Agreement.

Area Specific Management Directives (ASMDs)

ASMDs are the individual projects or tasks that implement a particular goal. A fairly complete list of ASMDs should be provided in the Preserve Management Plan. The ASMDs should then be prioritized and presented in the annual work plans for each preserve area. The annual work plans should provide a much more detailed description of the ASMDs for a given year to provide information about how restoration, maintenance, enhancement, or monitoring of a particular element will be accomplished. For each ASMD, describe how the action will be implemented, what the desired result will be (quantitatively if possible), and how the response will be monitored, recorded, and analyzed within the adaptive management context. Describe the adaptive management adjustments that may be anticipated if the ASMD does not achieve the desired result.

Examples of ASMDs are:

a. Install fencing to protect a critical narrow endemic plant population.

b. Implement a revegetation program to restore a former riparian community.

c. Build ponds and/or levees to provide wintering waterfowl areas.

d. Develop a vernal pool habitat enhancement plan.

e. Conduct focused species surveys for the California gnatcatcher using the most current USFWS survey protocol.

B. Public Use Goals

A public use goal is the statement of the desired type and level of public use compatible with the biological goals previously specified within the plan, as well as public education and community outreach. Public use goals may also include providing opportunities for recreation or scientific research, if appropriate. Maintenance of facilities to support public use (e.g., trails, kiosks, fencing, gates, signs) should also be included. Public use goals should be developed in conjunction with a threats assessment (e.g., threats to habitats and species from human activity).

As described above, this section should include goals, ASMDs, constraints, potential impacts, and mitigation measures (if needed). Discuss proposed public use and how it relates to HMP policies. If reasonable public use is justified, it may also be tempered with limits on actual number of public involved.

Criteria used to characterize public use elements include, but are not limited to:

1. Use is authorized or considered an allowable use by the MHCP and/or HMP (e.g., uses such as hiking, bird watching, or interpretive programs; facilities such as trails, viewing platforms, interpretive centers, or educational kiosks);

2. Use is compatible with open space conservation if properly conducted (e.g., scientific research programs);

3. Historical uses may be restricted seasonally or year-round under this plan due to incompatibility with biological element needs (e.g., restricting public access during bird breeding season in some areas); and

4. Larger preserves should include an active community outreach program to engage and educate neighboring residents.

C. Fire Management Goals

Fire management goals should focus on (1) achievement of biological goals, and (2) hazard reduction for humans and their property, and may include coordination with local and regional fire departments on wildfire suppression.

As required by the MHCP, ASMDs should include developing a site-specific fire management plan, which will include a resource-specific management strategy to coordinate and protect sensitive resources (e.g., narrow endemic plant species) during and after a burn event. The plan should discuss locations for staging firefighting equipment and access routes that will avoid sensitive biological resources; identify safety hazard areas for firefighting personnel; and discuss fire prevention methods and post-fire activities such as restoration. In addition, a statement should be included to address the City's vegetation clearance ordinances and appropriate clearing methods. A map should be created to show the location of fuel modification zones adjacent to or within a preserve area. (Fuel modification zones are not currently allowed within preserve areas; however, some pre-existing preserves may have fuel modification zones within the property boundary).

V. ADAPTIVE MANAGEMENT

Define adaptive management and describe how the adaptive management approach will be used on this preserve. What questions are being asked or what hypotheses will be tested? Describe methods for data collection and analysis. Describe how this analysis will be used to inform management, and how the information will be shared with others.

VI. ADMINISTRATION AND REPORTING

This section should address issues related to the operation and maintenance of the

Preserve Management Plan, including funding and staffing, and reporting.

A. Annual Reports, Work Plans, and Preserve Management Plan

Annual site-specific reports and annual work plans will be submitted to the City and Preserve Steward. The Preserve Management Plan will be updated every three years (including all of the maps and graphics necessary to support the reports).

B. Data management

Describe how you will record and manage data collected on the preserve. These data include spatial data (GIS) for vegetation mapping, species surveys, study sites, trails, and restoration sites; habitat and species condition reports; site assessment reports from regular patrols; qualitative and quantitative data collected for adaptive management trials; photo-documentation; etc.

C. Communication and Coordination

Describe anticipated communication and coordination activities, including meetings and discussions with the City, Preserve Steward, other Preserve Managers, Wildlife Agencies, and the general public, as well as participation in the annual public workshop.

D. Budget/Endowment Management

Discuss the management of the annual budget and costs associated with one-time and ongoing management tasks. Describe projected versus actual costs. An accounting of the endowment should include the original endowment amount, current status of the endowment, interest earned, projected and actual annual costs. This information must be included in the annual report submitted to the City and Preserve Steward.

E. Operations and Staffing

Describe the operations and staffing for your organization that are required to carry out the management of this preserve.

VI. REFERENCES

Use standard scientific reference nomenclature to cite authors and their published research. Be sure to add references when using information from other sources.

Example:

Department of Fish and Game (CDFG). 1999. List of California Terrestrial Natural

Communities Recognized by the California Natural Diversity Database. Sacramento.

Meyers, K.E. and W.F. Laudenslayer, Jr., Eds. 1988. A Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection. Sacramento.

APPENDICES

A title page that uniquely identifies it (e.g., Appendix A - Legal Description of Property) should precede all appendices. All pages within this appendix should be numbered consecutively: A-1, A-2, A-3...

Use Appendices as necessary to list items:

Animal and Plant Species Inventories
Monitoring Study Results
Photodocumentation
Climatic Information
Itemized Budget ……
Staff Qualifications (resumes)
Etc.

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Appendix F

Metadata Guidelines for GIS Data Submission

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Metadata Guidelines (based on guidelines for BIOS)

Metadata is information about data, describing the "who, what, where, when, why, and how." It is a very important component of the data contributed to BIOS as it describes the purpose, intended uses, limitations, assumptions, data collection methods and results, as well as data definitions and contact information.

In general, the metadata should include:

1. a brief description of the data (Abstract and Purpose)
2. definitions of the attributes and the attribute values
3. time period covered by the data
4. restrictions to access and/or use of the data (as determined by the contributor)
5. contact information for the organization(s) or individual(s) that developed the data
6. keywords that will enable users to search/find the data

Contributors using ArcGIS and who are comfortable creating metadata in that software can certainly do so.

Sections in the Description of the metadata (i.e., Abstract, Purpose) should be comparable in style and format to an abstract in a scientific journal article. The contributor is responsible for providing complete and accurate biological metadata, including definitions for each attribute in the data table. Attribute definitions should describe the contents in each field and, if appropriate, the codes used to abbreviate the data entry.

Metadata must be provided with each contributed dataset. If you have questions about metadata, please contact the City's GIS Department.

Minimal Required Metadata

Please provide these items for each dataset.

Abstract: Briefly describe what the data set is about (who, what, where, when). Include any limitations of the dataset, assumptions made, and if there is anything special that the user of these data should be aware of.

Purpose: Briefly describe why the data set was created.

Date: The date or range of dates when the data were gathered, or the date the photos, maps or other items at the core of the data set, were created.

Point of Contact: Contact information for an individual or organization that is knowledgeable about the data set. Include:

Person's Name: Complete first and last name
Organization's Name: Program, administrative unit, agency, company, or group name
Telephone Number: Including Area Code
E-Mail address:

Field Definitions: List and define each field used in your shapefile, database, or spreadsheet.

Abbreviation Definitions: For any field that contains numeric or alphabetic codes (e.g., SAC = Sacramento County), list each code/abbreviation and provide an unabbreviated definition.

Access Constraints: Is there a need to limit who has access to see or read this dataset? If so, specify. If not, put "**None**".

Use Constraints: Is there a need to limit the use of this dataset to certain people or to specific tasks? If so, specify. If not, put "**None**". Also include how the data should be cited, if you want something specific.

Data Distribution: Can your data be distributed? If yes, to who?

Progress: **Complete** or **Incomplete**.

Update Frequency: Possible values are: **Continually, Daily, Weekly, Monthly, Annually, Unknown, As Needed, Irregular, None Planned**, or …..

If you are providing a GIS file (shapefile, etc.), these next 2 items are often defined as part of that file, but you'll need to make sure.

Projection: What is the Projected Coordinate System name?

California Teale Albers *(preferred)*
Latitude/Longitude
State Plane
UTM

Datum (or Geographic Coordinate System): Which Datum is the projection in?

NAD83	**(GCS_North_American_1983)**	***(preferred)***
NAD27	**(GCS_North_American_1927)**	
WGS84	**(WGS_1984)**	

Keywords (optional): Words or short phrases summarizing an aspect of the data set, used to allow people to find your dataset with quick keyword searches.

Theme Subjects covered by the data set.
Place Geographic locations characterized by the data set.