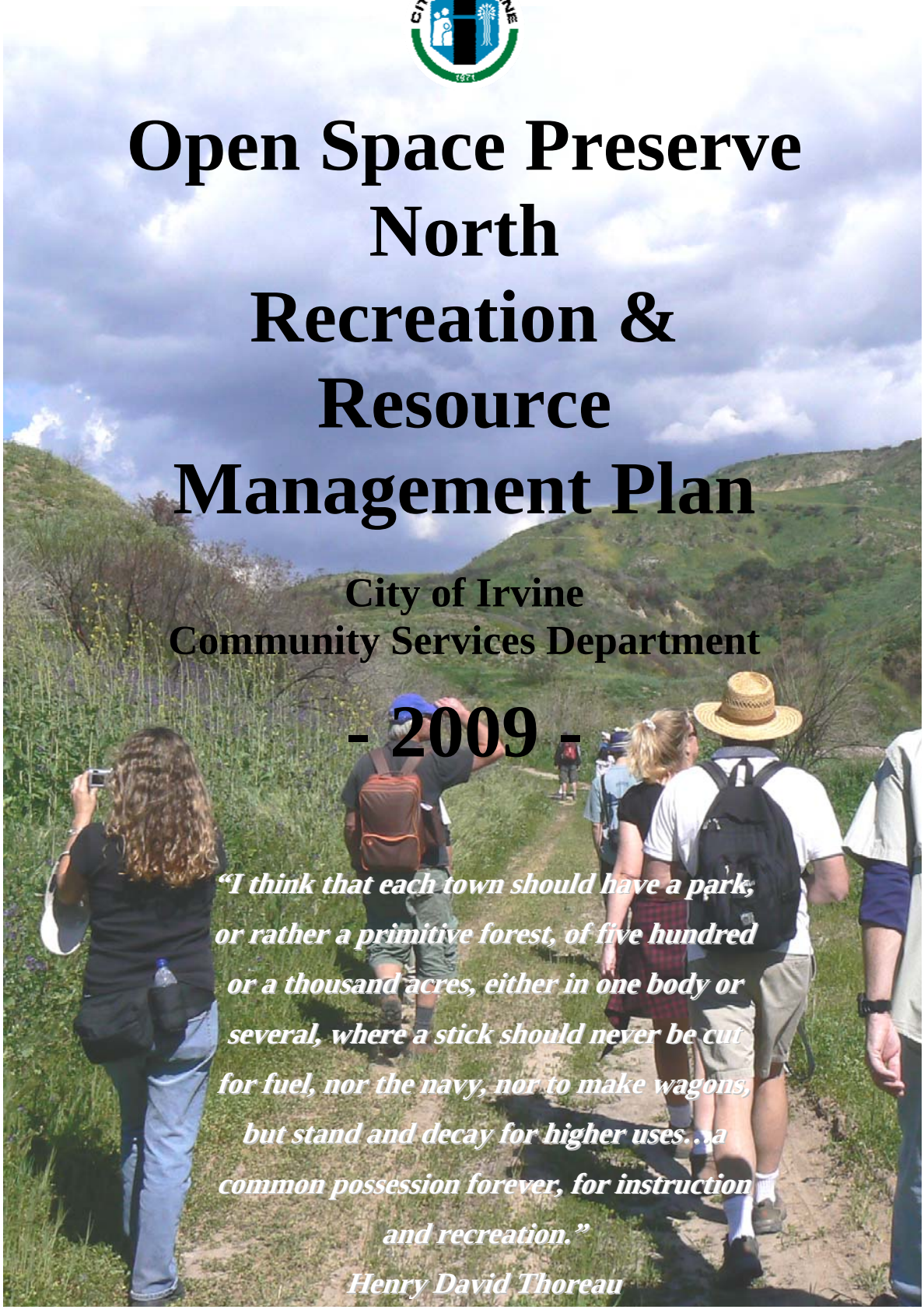
# Open Space Preserve North Recreation & Resource Management Plan

**City of Irvine**
**Community Services Department**

## - 2009 -



*"I think that each town should have a park, or rather a primitive forest, of five hundred or a thousand acres, either in one body or several, where a stick should never be cut for fuel, nor the navy, nor to make wagons, but stand and decay for higher uses…a common possession forever, for instruction and recreation."*

*Henry David Thoreau*


# 2009

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## Special Thanks

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This document includes information compiled from the following sources:

- California Parks and Recreation: Laura Westrup, Winter 2003, Educating Trail Users: Advice for Planning Interpretive Trail Signs and Exhibits (Westrup 2003)
- Conejo Open Space Conservation Agency Management Policies and Guidelines
- Laguna Laurel Stewardship Plan, Orange County, California: Prepared by The Nature Conservancy, The Irvine Company Open Space Reserve
- Natural Community Conservation Plan and Implementation Agreement (County of Orange 1996)
- Nature Reserve of Orange County – Central/Coastal Subregion-Habitat Restoration and Enhancement Plan (LSA 2003)
- Photographs provided by the Irvine Ranch Conservancy and LSA Associates, Inc.

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OPEN SPACE PRESERVE
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# Recreation & Resource Management Plan

# INTRODUCTION

# INTRODUCTION

## IRVINE OPEN SPACE MISSION STATEMENT

The City of Irvine is dedicated to creating and promoting an awareness of our natural community, while encouraging behaviors that will ensure the preservation of our open space wilderness for generations to come. By engaging members of the community in positive outdoor recreational and educational experiences, we will manage and maintain Irvine's open space as a welcoming and valued part of our City.

## STATEMENT OF PURPOSE

The City of Irvine (City) will ultimately own over 6,600 acres of open space lands (over 2,600 acres located in the northern portion of the City and over 4,000 acres located in the southern portion). The City accepted the first 1,764 acres of northern open space prior to the preparation of this document. The remaining acres of the northern open space are expected to be accepted after 2012. The City will have responsibility for the management and operation of these lands.

As a signatory to the Central and Coastal Subregion Natural Community Conservation Plan (NCCP) and Habitat Conservation Plan (HCP), the City has certain obligations under that plan and its Implementation Agreement. One of those obligations is the preparation of a Recreation and Resource Management Plan (RRMP) prior to the establishment of permanent access, uses, or facilities. This RRMP is prepared to address the future access uses and facilities for the City's Open Space Preserve – North (OSPN). An RRMP has already been approved and established for the City's Open Space Preserve – South (OSPS).

## EXECUTIVE SUMMARY

The City has a long-established history of protecting and preserving large areas of valuable open space. In 1976, the City identified the need to establish and implement a mechanism to acquire and/or preserve natural open space land as an important component of the successful implementation of the City's General Plan with the inclusion of a Conservation and Open Space Element.

A landmark City ballot initiative overwhelmingly passed in 1988 that guaranteed important habitat areas would be consolidated and preserved through a phased land dedication program with the Irvine Company. To implement this initiative, the City and the Irvine Company signed a Memorandum of Understanding (MOU) designed to protect and maintain the City's natural resources. The MOU identified specific areas of land to be preserved and dedicated to the City and stated the allowable land uses (preservation, passive recreation, and other activities compatible with the protection of the habitat).

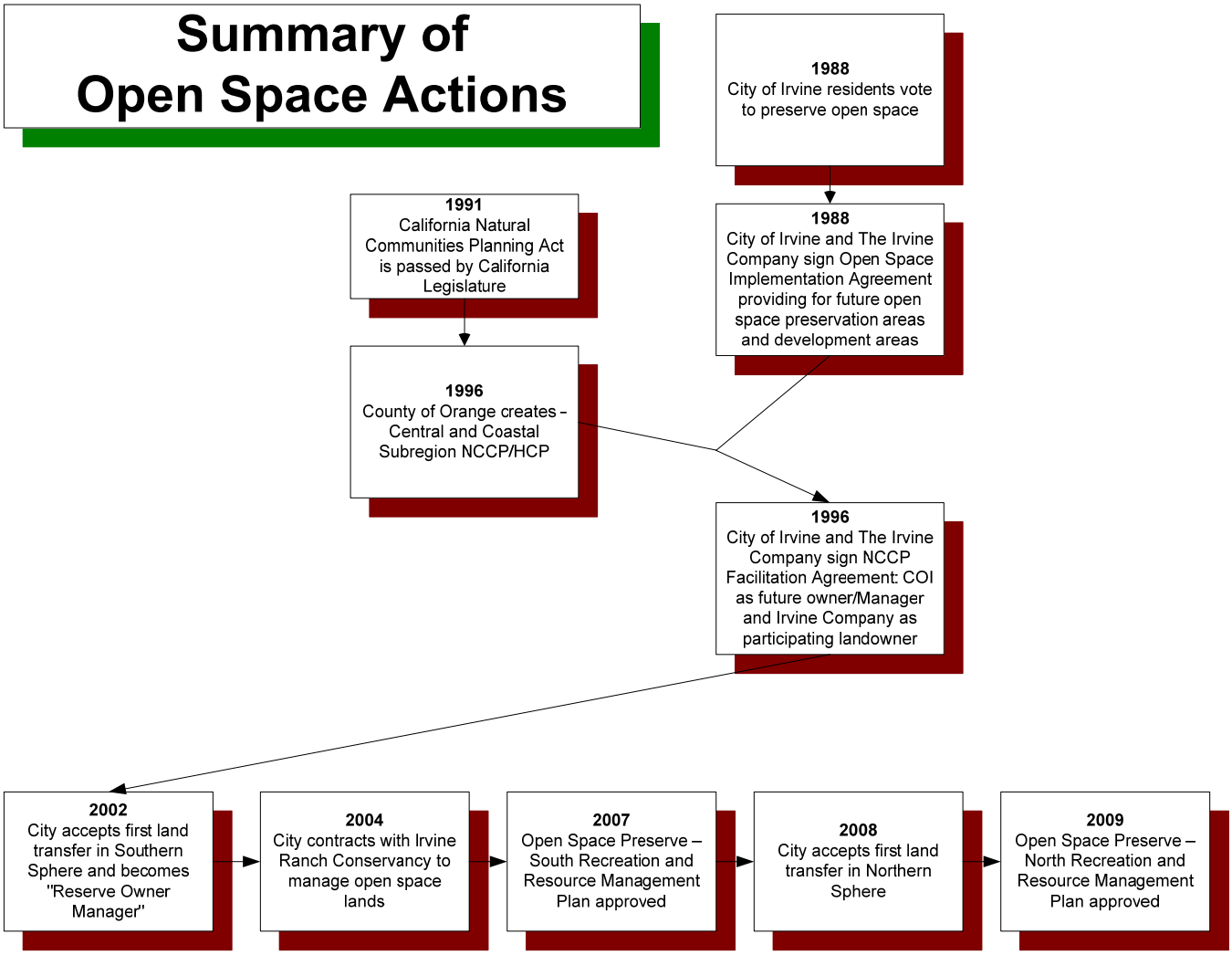
In 1991, the California Legislature enacted the NCCP, which was prepared in response to "a need for broad-based planning to provide for the effective protection and conservation of the State's wildlife heritage while continuing to allow appropriate development and growth." The purpose of the NCCP/HCP was to create a multiple-species, multiple-habitat subregional Reserve System and to implement a long-term "adaptive management" program that would protect coastal sage scrub (CSS) and other habitats and species located within the CSS habitat mosaic. The program was also designed to provide for economic uses to meet the social and economic needs of the people of the subregion.

The City became a signatory to the NCCP and Implementation Agreement in 1996 along with 20 other participants, including State, regional, local agencies and jurisdictions, affected landowners, utility companies, and the University of California, Irvine. The Nature Reserve of Orange County (NROC) was created as a nonprofit entity to manage the NCCP Reserve System.

The City is a member of the NROC Board of Directors, participates in the quarterly Board meetings, and may participate in monthly Executive Board meetings. As a signatory to the NCCP, the City is obligated to perform certain tasks related to the management of its open space land.

The City is required by the NCCP to prepare a RRMP. This RRMP describes future access plans, permitted uses, planned trails and trailheads, and visitor facilities located within the habitat Reserve System. This RRMP is submitted for review and recommendation to the City's Community Services Commission, the City Council, the California Department of Fish and Game (CDFG), and the United States Fish and Wildlife Service (USFWS).

# Summary of Open Space Actions



## PROJECT LOCATION

The City's OSPN is a "belt" of open space lands that stretches from the east side of State Route 261 (SR-261) near Peter's Canyon southeast to the Foothill Ranch community. The OSPN is not one contiguous body but is more or less trisected by State Route 241 (SR-241), the Frank R. Bowerman Landfill (FRB Landfill), and Limestone Canyon Open Space (LCOS).

The southeastern portion of the OSPN is bounded by SR-241 to the south and west, by the Foothill Ranch community at the southeastern/eastern limit of the OSPN, and by LCOS and the FRB Landfill to the north and east. The northeastern portion of OSPN is bounded by SR-241 to the west, undesignated open space lands at Loma Ridge to the north and east, and by LCOS to the south. The northwestern portion of the OSPN is bounded by SR-241 to the east, by open space lands around Siphon Reservoir that are owned by the Transportation Corridor Agencies (TCA) to the south, by Planning Area (PA) 1 (Orchard Hills) to the west, by SR-261 to the northwest, and by undesignated open space lands to the north at Loma Ridge.

The Irvine OSPN is part of a larger open space system, as shown on the Regional Context Map (Exhibit A). Open space lands that lie in close proximity to the OSPN are LCOS to the northeast, El Toro National Wildlife Refuge to the south, Peter's Canyon Regional Park to the west, and undesignated open space lands to the north. Other open space lands that are of relatively large size in the region include Whiting Ranch Regional Park, Cleveland National Forest, Irvine Regional Park, the Orange County Great Park, and Irvine Company conservation easements encompassing areas of Gypsum Canyon, SilMod (Silverado and Modjeska Canyons), Fremont Canyon, East Orange, and Weir Canyon.

## HISTORICAL OVERVIEW

Examination of Orange County's land use and population growth patterns from 1950 to the present indicates an increase in urban land uses and a corresponding decrease in conservation and open space areas. The early stages of urbanization focused on flat land areas such as agricultural lands, flood plains, and wetlands, while later stages of development have focused on more rugged terrain such as hillsides. During this time, regional land use policies resulted in the conversion of approximately 100 acres of conservation and open space areas to urban land uses per every 1,000 people added to Orange County's (County) population.

Initially, due to the conversion of undeveloped land to urban land uses, the effects on the environmental systems (biotic processes, geophysical forces, and human intervention) were incremental and localized since there were thousands of acres of undeveloped land throughout the County.

As development continued, the cumulative effects of urbanization on the environmental systems resulted in loss of diversity and disruption of linkages between the environmental systems.

The resulting loss of open space to urban land uses increased public awareness of these shrinking resources. Consequently, the need to properly manage and preserve undeveloped land as designated conservation and open space areas and increase conservation and open space planning became a high public priority. In response to the changing priorities, especially during the late 1970s and 1980s,

Exhibit A: Regional Context Map

significant parcels of land were set aside throughout the County for preservation purposes. In 1976, the City identified the need to establish and implement a mechanism to acquire and/or preserve natural open space land as an important component of the successful implementation of the City's General Plan with the inclusion of the Conservation and Open Space Element.

## Open Space Initiative

On June 7, 1988, City residents approved a landmark ballot initiative to preserve open space within the City. The objectives of the Open Space Initiative were to:

- Consolidate important conservation and open space areas into large contiguous areas that may be integrated into local and regional open space areas.
- Establish a network of open space spines linking the consolidated conservation and open space areas.
- Ensure the preservation and conservation of open space areas through a "phased dedication and compensating development opportunities program," which transfers development opportunities from conservation and open space areas and consolidates them in appropriate development areas.

This initiative linked the dedication and conservation of open space areas to the development entitlement process. The purpose of the program is to provide for permanent protection of open space by means of public ownership. All major open space preservation areas will be secured with the completion of the phased land dedication program.

## The Memorandum of Understanding and the Phased Land Dedication Process

Following passage of the Open Space Initiative, a MOU was crafted to implement the terms of the initiative. The MOU between the City and the Irvine Company was entered into on September 26, 1988. This MOU established the "phased dedication and compensating development opportunities program," also known as the "Implementation Action Plan." This Plan specified that the dedication of open space will occur in stages related to the surrounding development. The Plan links specific development areas to specific open space districts and requires the dedication of the open space district when a certain entitlement threshold has been reached.

According to the MOU, there are two stages for the dedication of the City's open space:

1. The first stage is the recording of the tract map for the corresponding development. The preservation area in each of the lettered districts will be offered to the City upon recordation of the first subdivision map within the district.
2. The second stage is the issuance of building permits for 75 percent of allowed development in the district. Table A shows the list of lettered parcels with the approximate amount of open space acreage. The City may accept the land 90 days following the issuance of building permits for 75 percent of the development (residential units and nonresidential square footage, as shown on Exhibit 2 of the MOU), or upon completion of development in the district, whichever occurs first. The last phase of the MOU ensures that the City still receives the open space if the Irvine Company were to decide to build less than the allowed development in the district.

**Table A: City Land Ownership: Open Space Preserve – North (acres*)**

| Location | 2002–2007 | 2008 | Future | Cumulative Acreage |
|---|---|---|---|---|
| **Parcel P** | 744 | | | 744 |
| **Parcel A+B** | | 1,020 | | 1,764 |
| **Parcel Q** | | | 273 | 2,037 |
| **Parcel R** | | | 584 | 2,621 |

* All acreages are approximate

This program provides for permanent protection of significant, large-scale conservation and open space areas by public ownership. Presented in Table A is the schedule for the City's acquisition of the land parcels that will comprise the OSPN. Through this program, visually significant ridgelines and hillsides, significant biotic communities (e.g., riparian, marsh, and oak woodland), recreational lands, archeological and paleontological resources, and areas subjected to geophysical and societal hazards are permanently preserved.

### Natural Community Conservation Plan (NCCP)

The NCCP was enacted by the California Legislature in 1991. The purpose of the NCCP is to preserve entire biotic communities while allowing compatible development and growth. This focus of the NCCP represents a dramatic shift from protecting "individual species" to protecting "habitat."

This program was designed as an alternative to the individual species protection under the California Endangered Species Act (CESA) and the Federal Endangered Species Act (FESA). Both of these protective programs were costly and historically ineffective as a mechanism for preventing plant and animal extinctions. The NCCP recognizes that habitat-based, multi-species, or ecosystem-driven preservation programs have a greater potential for long-term environmental success.

Areas identified for their valuable biotic resources are also recognized under the NCCP/HCP. The successful implementation of the NCCP/HCP allows for the conservation of large diverse areas of natural habitat for the California gnatcatcher and 41 other "identified species" and their associated habitats.

In May 1996, the City, the County, various other cities, and landowners entered into an agreement to place certain lands within the NCCP Reserve (Exhibit B) and to commit to specific responsibilities under the NCCP/HCP. Some of the City's responsibilities include the following: consider adding General Plan amendments and ordinances to implement the NCCP/HCP, review project proposals to ensure consistency with the NCCP, make efforts to acquire conservation easements from landowners not participating in the NCCP, and formally commit certain City-owned open space lands to the Reserve system.

Exhibit B: NCCP Overlay Map

### Southern California Coastal Sage Scrub (CSS) Program

The Southern California CSS NCCP Program is the first effort to be undertaken pursuant to the NCCP Act. It is a pilot project and may serve as a model for other efforts elsewhere in the State. The Southern California CSS NCCP is made up of 11 subregions covering 6,000 square miles in a five-county area. The Central and Coastal Subregion is one of the 11 subregions and encompasses 208,000 acres of developed, agricultural, and undeveloped lands (an area encompassing approximately 40 percent of the County). Within the Central and Coastal Subregion are approximately 104,000 acres of existing natural habitat, including 34,392 acres of CSS. The City's OSPN comprises approximately 2,621 acres of this program.

### Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP)

The NCCP/HCP for the Central/Coastal Subregion was prepared by the County and was approved on July 10, 1996, by the County, participating local jurisdictions, the USFWS, and the CDFG. As a signatory to the NCCP/HCP, the City is required to adhere to the management guidelines outlined in the Implementation Agreement.

This program is intended to ensure the long-term survival of the plant and animal species in accordance with State-sanctioned NCCP program guidelines. Specific project purposes for the HCP are:

- Planning for the protection of multiple-species and multiple-habitats within the CSS habitat mosaic by creating a habitat Reserve system that contains substantial CSS, chaparral, grassland, riparian, oak woodland, cliff and rock, forest, and other habitats;
- Developing a conservation program that shifts away from the current focus on the project-by-project, single-species protection to conservation and management of many species and multiple habitats on a subregional level;
- Allowing social and economic uses within the subregion that are compatible with the protection of identified species and habitats; and
- Protecting the federally listed coastal California gnatcatcher (all scientific names are presented in Appendix B) in a manner consistent with Section 10(a) of the FESA and the Special 4(d) Rule for the gnatcatcher while providing for future incidental take of the species

The NCCP/HCP guidelines designated three "target" species to be used as surrogates for planning purposes in the CSS habitat. Long-term protection of the habitat for these three target species is intended to also protect sufficient CSS habitat to benefit a much broader range of CSS-related species. The three species are:

- Coastal California Gnatcatcher
- San Diego Cactus Wren
- Orange-throated Whiptail Lizard

A number of other habitat types and species were included in the NCCP/HCP planning process as "Covered Habitats" or "Identified Species." Covered Habitats refers to those habitat types protected by the NCCP/HCP in a manner comparable to CSS (oak woodland, Tecate cypress forest, cliff and

rock, and chaparral within the Coastal Subarea). Identified Species include those species, including all life stages thereof, identified in the NCCP/HCP that are addressed as if they were listed as endangered species under the FESA and the CESA and whose conservation and management is provided for in the NCCP/HCP.

Land management actions within the Reserve will be monitored closely and modified (adapted) over time to respond to new scientific information, changing conditions, and habitat needs.


Coastal California Gnatcatcher


San Diego Cactus Wren


Orange-throated Whiptail Lizard

## The Nature Reserve of Orange County (NROC)

The first application of the NCCP/HCP in the central/coastal subregion of Orange County was the establishment of NROC, a 37,000-acre area designed to protect the habitat of CSS communities and the three target species found predominantly in this habitat. The Reserve will protect more than 18,800 acres of CSS.

The Reserve also includes 7,300 acres of chaparral; 6,100 acres of grassland; 1,800 acres of riparian; 950 acres of woodland; 200 acres of forest habitat; and significant portions of six other habitats that currently exist in the subregion. Inclusion of these non-CSS habitats and their resident species will increase its biodiversity value and result in a multiple-species, multiple-habitat Reserve.

The Reserve will be owned and managed by public agencies and administered by a Nonprofit Management Corporation, NROC, consisting of representatives from each of the following:

- Each local government owning land in the Reserve (to date includes County of Orange, City of Irvine, City of Laguna Woods, and City of Laguna Beach)
- Southern California Water District
- Irvine Ranch Water District
- Southern California Edison
- Metropolitan Water District
- Transportation Corridor Agencies
- Irvine Company
- California Department of Parks and Recreation

- California Department of Fish and Game
- United States Fish and Wildlife Service
- Regents of the University of California
- Each nonprofit entity owning land within the Reserve
- Three public representatives appointed by the Board of Directors
- Nonvoting ex-officio member representing the California Department of Forestry
- Nonvoting ex-officio member representing the Orange County Fire Authority

The Nonprofit Corporation will coordinate activities within the Reserve system, receive and disburse funds to Reserve owners/managers, hire staff and biologists to conduct adaptive management activities, and prepare annual reports for public review.

The City's OSPN is enrolled in the Central and Coastal Subregion NCCP Program and is within NROC.

## REVIEW AND APPROVAL PROCESS

The City's OSPN RRMP was submitted for review and comment to the City's Community Services Commission, then forwarded to the Irvine City Council.

The document will be submitted for final approval by the CDFG and USFWS and accepted by the City Council.

## UPDATES AND AMENDMENTS

City Staff will review the City's OSPN RRMP annually to determine whether updates/amendments are warranted.

CITY OF IRVINE
OPEN SPACE PRESERVE
North

# Recreation & Resource Management Plan

# EXISTING CONDITIONS

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As a consequence of development, grazing activities in the past, and agriculture in this area, some native habitats have been modified, while others, in the steeper hills and canyon bottoms, remain undisturbed. In addition, the foothills of the Santa Ana Mountains provide an important link to larger regional habitat areas, including Cleveland National Forest, Chino Hills State Park, O'Neill Regional Park, and the Audubon California Starr Ranch Sanctuary.

Key societal features include the FRB Landfill; archaeological, historical, and paleontological resources; orchard crops; and residential and industrial development.

## TOPOGRAPHY

The OSPN is located within the Lomas de Santiago in the northwest portion of the Peninsular Range Geomorphic Province. The Lomas de Santiago are considered foothills to the Santa Ana Mountains and are located from the Tustin Plain to the south to Santiago Canyon in the north. The area consists of rolling terrain with moderately steep slopes, canyons, and narrow ridges. A prominent cliff face known as Loma Ridge lies in the northwestern portion of the OSPN. Other significant geological features are spectacular rock outcroppings, many of which contain eroded sandstone caves. The highest geographical point of the OSPN is located at the northern end of the OSPN, along Loma Ridge, where the elevations rise to just above 1,300 feet (ft) above sea level at several locations. The lowest geographical point is located near the mouth of East Hicks Canyon, where the elevation is 440 ft above sea level.

## GEOLOGY AND SOILS

The OSPN is located within the Lomas de Santiago, which are in the extreme northwestern end of the Peninsular Range Geomorphic Province. The area includes sedimentary rocks with both marine and nonmarine origins, representing oscillations in an ancient sea level as well as tectonic uplift.

The OSPN area is a series of northeast-trending hills and canyons along a larger northwest-trending ridge. Exposed within the canyons and ridges are Cetaceous through late Miocene sedimentary rocks that are occasionally capped by Pleistocene and Holocene surficial deposits. Major features of the present topography and geomorphology are the result of late Miocene faulting and regional uplift of the Santa Ana Mountains and subsequent erosion.

The sedimentary formations (from youngest to oldest) are as follows:

- Capistrano Formation, Oso Member–late Miocene
- Puente Formation, La Vida Member–late Miocene
- Puente Formation, Soquel Member–late Miocene

- Topanga Formation–early-middle Miocene
- Sespe Formation (nonmarine)/Vaqueros Formation (marine)–Late Oligocene (Arikareean) to early Miocene
- Santiago Formation–Middle Eocene
- Silverado Formation–Paleocene age
- Williams Formation, Pleasants Sandstone Member–late Cretaceous (Campanian)

Surfacial units that cap the formations in several locations include nonmarine terrace deposits, alluvium, colluvium, and landslide deposits. Several landslide areas occur within the OSPN, occurring primarily within the Sespe, the Vaqueros, and the Puente Formations.

Fossils of marine and nonmarine animals and plants have been found throughout the region within the same geologic formations and units within the OSPN. It is very likely that similar resources exist in the OSPN. These resources will be preserved and protected within the OSPN for future scientific and educational studies. Looting and vandalism are a concern with any existing resource. Methods to reduce these risks will include the inventory and periodic monitoring of all known resources, screening vegetation to reduce the likelihood of trespass and damage, and master planning of facilities to reduce conflicts with known resources. Additional programs may be developed to increase the understanding of the value of paleontological sites through educational programs and/or active monitoring and stewardship.

Over 50 percent of the OSPN is covered by three soil types. These include: the Calleguas Clay Loam series (37 percent), the Cienebra Sandy Loam series (16 percent), and the Anaheim Clay Loam series (10 percent). The Calleguas and the Cienebra series consist of very shallow to shallow, well-drained soils that form on weathered bedrock on slopes ranging from 9 to 80 percent. The Anaheim series are well-drained, moderately deep soils that form on foothills containing weathered fine-grained sandstone or shale.

Several unnamed inactive faults are located within the immediate region of the OSPN. Most of these were created during uplift of the hills over the last several million years. The faults are generally northwest-trending right-lateral and parallel the Newport/Inglewood Fault Zone to the southwest and the Chino Fault Zone to the northeast. The nearest major active fault is the Chino Fault, located approximately 10 miles to the north. The Newport-Inglewood Fault lies approximately 13 miles to the south. Other active faults that have generated the strongest historical earthquakes nearest to the OSPN include the San Andreas, San Jacinto, and Elsinore Faults and the Elysian Park thrust. Recent geological work suggests that there may be an active fault running roughly parallel to and between the OSPN and Irvine Boulevard, 1 mile to the southwest (Morton and Miller, 2007).

## HYDROLOGY

Primary sources of water for the OSPN are rainfall and runoff from surrounding lands. Runoff is not consistent because of low rainfall. Plants and animals in the OSPN have adapted to the xeric conditions. Annual grasslands have a short lifespan, mainly during the winter months. Oak woodlands occur in moist canyons and cool microclimates, where they develop deep roots to access moisture.

Several named canyons cross the OSPN as their creeks flow toward the Tustin Plain. Most trend in a southwesterly direction. They include: Agua Chinon Wash, Round Canyon, Bee Canyon, East Hicks Canyon, Hicks Canyon, and Rattlesnake Canyon. Except where channelized, most creeks do not flow very far from the canyon mouths before going underground, except during periods of rain.

One large reservoir (**Rattlesnake Reservoir**) is located in the vicinity of the OSPN and receives some runoff from the OSPN**.** Rattlesnake Reservoir is formed by an approximate 70 ft high earth-filled embankment with a concrete lined spillway. It is owned by the Irvine Ranch Water District and is being used to store reclaimed water. It has a capacity of approximately 1,102 acre-feet, or 359 million gallons.

Several retention basins have been constructed within watersheds of the central to southern canyons that cross through the OSPN. They are mainly designed to control the flow of water during rain events and are generally dry during most of the year. They include: Agua Chinon Wash, Round Canyon, Bee Canyon, East Hicks Canyon, and Hicks Canyon.

## BIOLOGICAL RESOURCES

This section documents the general biological character of the OSPN in terms of plant communities, wildlife habitats, wildlife movement corridors, and special-interest biological resources, either present or potentially present within the OSPN. The information contained in this section is based on the habitat survey performed by Jones & Stokes Associates, Inc. in 1992 (Jones & Stokes Associates, Inc. 1993), NCCP/HCP target species, identified, conditionally covered species, searches of the California Natural Diversity Data Base (CNDDB) list of plant communities and species of special interest published by CDFG (2008), and California Native Plant Society (CNPS) inventory of rare and endangered plants 2007.

In 2007, the Santiago Fire burned at least 95 percent of the nonagricultural vegetation communities within the OSPN. Prior to the fire, the OSPN was dominated by CSS, agricultural, and grassland habitats. Riparian, chaparral, and oak woodland habitats were present, but not extensive. It is not known exactly how the vegetation communities of the OSPN will rebound from the fire; however, previous studies of the vegetation communities within the Open Space Preserve–South following the 1993 Laguna Beach Fire (Harmsworth Associates 1996, 1997) indicated that the current vegetation communities dominate approximately the same locales they dominated prior to the fire. Grassland and woodland habitats appear to have returned to pre-fire levels in terms of both distribution and density. CSS and chaparral habitats, although occupying the same general area as prior to the fire, currently have lower shrub densities and lower shrub cover than mature communities. These habitats are currently more open than before the fire.

### Existing Vegetation Types

The distribution of the plant communities and their sub-types present within the OSPN were obtained from the results of a habitat survey performed by Jones & Stokes Associates, Inc. in 1992 (Table B). There are 9 major classifications of plant communities within the OSPN:

1) CSS
2) Chaparral
3) Grassland
4) Seasonal Wetlands
5) Riparian
6) Woodland
7) Agriculture
8) Developed
9) Disturbed

Descriptions of the plant communities and their subtypes present within the OSPN are listed below using the Orange County Habitat Classification System (HCS) articulated by Jones & Stokes Associates, Inc.

## Table B: Acreage of Habitat Types within the OSPN

| Habitat Type | Acreage |
|---|---|
| **Scrub (2.0 of the HCS)**[1] | **1,724** |
| Sagebrush and Sage Scrub (2.3 of the HCS) | 1,564 |
| *Undifferentiated Sagebrush and Sage Scrub (2.3.? of the HCS)* | *6* |
| *Sagebrush-Buckwheat Scrub (2.3.1 of the HCS)* | *52* |
| *Black Sage Scrub (2.3.4 of the HCS)* | *211* |
| *Sagebrush Scrub (2.3.6 of the HCS)* | *3* |
| *Buckwheat Scrub (2.3.7 of the HCS)* | *1* |
| *Sagebrush-Black Sage Scrub (2.3.8 of the HCS)* | *224* |
| *Mixed Sage Scrub (2.3.10 of the HCS)* | *1,061* |
| *Bush Mallow Scrub (2.3.11 of the HCS)* | *6* |
| Southern Cactus Scrub (2.4 of the HCS) | 122 |
| Brittlebush-Buckwheat Scrub (2.5 of the HCS) | 1 |
| Scalebroom Scrub (2.6 of the HCS) | 3 |
| Sage Scrub-Grassland Ecotone (2.8 of the HCS) | 34 |
| *Undifferentiated Scrub-Grassland Ecotone (2.8.? of the HCS)* | *6* |
| *Sagebrush-Grassland Ecotone (2.8.1 of the HCS)* | *23* |
| *Mixed Sage Scrub-Grassland Ecotone (2.8.5 of the HCS)* | *5* |
| **Chaparral (3.0 of the HCS)** | **17** |
| Scrub-Chaparral Ecotone (3.1 of the HCS) | 1 |
| Toyon-Sumac Chaparral (3.12 of the HCS) | 16 |
| **Grassland (4.0 of the HCS)** | **370** |
| Annual Grassland (4.1 of the HCS) | 332 |
| Needlegrass Grassland (4.3 of the HCS) | 1 |
| Ruderal Grassland (4.6 of the HCS) | 27 |
| Sumac Savanna (4.8 of the HCS) | 10 |
| **Seasonal Wetlands (5.0 of the HCS)** | **1** |
| **Riparian (7.0 of the HCS)** | **51** |
| Herbaceous Riparian (7.1 of the HCS) | 23 |
| Willow Riparian Scrub (7.2 of the HCS) | 4 |
| Mulefat Scrub (7.3 of the HCS) | 21 |
| Coast Live Oak Riparian Forest (7.5 of the HCS) | 1 |
| Black Willow Riparian Forest (7.7 of the HCS) | 2 |
| **Woodland (8.0 of the HCS)** | **1** |
| Coast Live Oak Woodland (8.1 of the HCS) | 1 |
| **Agriculture (14.0 of the HCS)** | **426** |
| Orchard and Vineyard (14.3 of the HCS) | 426 |
| **Developed (15.0 of the HCS)** | **28** |
| Nonurban Commercial/Industrial/Institutional (15.3 of the HCS) | 19 |
| Transportation (15.4 of the HCS) | 8 |
| Ornamental Landscaping (15.5 of the HCS) | 1 |
| **Disturbed (16.0 of the HCS)** | **4** |
| Disturbed or Barren (16.1 of the HCS) | 4 |
| **Total** | **2,621** |

[1] HCS = Orange County Habitat Classification System (Gray and Bramlet 1992)

**Scrub (2.0 of the HCS).** Scrub vegetation consists of drought-deciduous, low-growing, soft-leaved shrubs and herbs, and is often gray-green. It occupies gentle to steep slopes with shallow soils and occurs most often in shallow or heavy soils at elevations below 3,000 ft. CSS is considered a special-status vegetation type because of its high potential to support Threatened and Endangered wildlife species. There are five "types" of scrub present within the OSPN. Scrub habitats make up 66 percent of the area within the OSPN and are the dominant habitat type. The shrubs that make up scrub are rather short-lived and are adapted to a natural fire regime, possibly with an interval of 40 to 60 years (J. Keeley, pers. comm.), readily sprouting from seed or from the base of the parent plant following such an event. Following a fire, short-lived grasses and forbs are stimulated to grow by a combination of conditions, including fire stimulation, lack of overstory (increasing amount of sunlight reaching the soil), and enriched soil conditions. These short-lived plants provide valuable habitat for animals and enrich the biotic diversity of the OSPN.

**Sagebrush and Sage Scrub (2.3 of the HCS).** Sagebrush and Sage Scrub is equivalent to the Venturan-Diegan transitional CSS category used by others, although these classifications are not entirely appropriate for the OSPN, as it is a transition zone with a mosaic of types. Within the OSPN it comprises 60 percent of the habitat and is the dominant plant community. It is considered a transitional association that contains elements of two recognized geographical associations of sage scrub, Venturan and Diegan. The OSPN contains seven subassociations of CSS, and most of the scrub falls within this group of subassociations. The CSS subassociations are distinguished by species dominance and physical factors, including aspect, direction, and steepness of slope as well as soil type. A portion of the habitat within the OSPN (less than 1 percent) was surveyed as CSS (2.3 of the HCS) with no subassociation given.

- **Sagebrush-Buckwheat Scrub (2.3.1 of the HCS).** This highly variable subassociation is found on both mesic and drier slopes of the OSPN and makes up 2 percent of the OSPN habitat. It is characterized by a codominance of coastal sagebrush and California buckwheat. Other shrub species in this habitat include white sage, black sage, bush monkey flower, California encelia, coastal deerweed, coastal goldenbush, lemonade berry, giant wild-rye, coyote bush, and lax-flowered bushmallow; and an understory of foothill needlegrass, Pacific fescue, California brome grass, bicolored cudweed, and blue dicks. The understory is often grassy on the more mesic slopes, but may be more open and have less herbaceous cover on the drier slopes.
- **Black Sage Scrub (2.3.4 of the HCS).** This subassociation is dominated by black sage and makes up 8 percent of the OSPN habitat. It is usually found on drier east-facing slopes below 1,000 ft, but may also be located in more mesic situations. Other shrubs associated with this habitat include California buckwheat, coastal sagebrush, lax-flowered bushmallow, coastal prickly pear, chaparral bedstraw, white sage, and our Lord's candle. The understory is often very open, with mostly litter and duff beneath these shrubs.
- **Sagebrush Scrub (2.3.6 of the HCS).** Sagebrush scrub makes up less than 1 percent of the OSPN habitat, is almost exclusively dominated by coastal sagebrush, and is usually found on mesic slopes. It usually occurs as small patches within grasslands or with other CSS subassociations that support coastal sagebrush as a codominant.
- **Buckwheat Scrub (2.3.7 of the HCS).** Buckwheat scrub makes up less than 1 percent of the OSPN habitat. It is characterized by nearly pure stands of California buckwheat with coastal

sagebrush not present. Other CSS species may occur but in low densities. It occurs throughout the foothills and mountains of Orange County and is most often found on slopes that have been disturbed within the last 10 years.

- **Sagebrush-Black Sage Scrub (2.3.8 of the HCS).** Sagebrush-black sage scrub is dominated by coastal sagebrush and black sage and is usually found on mesic slopes below 1,000 ft. Other shrubs associated with this habitat include California buckwheat, coastal sagebrush, lax-flowered bushmallow, coastal prickly pear, chaparral bedstraw, white sage, and our Lord's candle. Sagebrush-black sage scrub constitutes 9 percent of the OSPN.
- **Mixed Sage Scrub (2.3.10 of the HCS).** Mixed sage scrub makes up 40 percent of the OSPN habitat and is dominated by an even mix of each of four or more CSS species. CSS species that may comprise mixed scrub are California buckwheat, black sage, purple sage, white sage, California encelia, laurel sumac, bush monkey flower, and coastal prickly pear. Coastal sagebrush can occur but is not an important species in this community.
- **Bush Mallow Scrub (2.3.11 of the HCS).** Bush mallow scrub makes up less than 1 percent of the OSPN habitat and occurs on steep to moderate slopes in heavy soils. It is dominated by lax-flowered bushmallow or other mallow species. Black sage often occurs as a codominant; however, other CSS species may be codominants or subdominants.

**Southern Cactus Scrub (2.4 of the HCS).** Southern cactus scrub contains large stands of coastal prickly pear with at least 20 percent relative cover. Other codominants or subdominants include California encelia, coastal sagebrush, California buckwheat, black sage, and Mexican elderberry. It occurs primarily on south-facing slopes of low foothills. This community differs little in vegetative composition from, and integrates with, sagebrush and sage scrub habitat types. Southern cactus scrub makes up 5 percent of the OSPN habitat and generally exists as small pockets scattered throughout the OSPN; however, there are large concentrations of southern cactus scrub bordering the agricultural lands in the extreme southern portion of the OSPN. This is the preferred habitat type of the San Diego cactus wren.

**Brittlebush-Buckwheat Scrub (2.5 of the HCS).** Brittlebush-buckwheat scrub (Riversidian CSS) makes up less than 1 percent of the OSPN habitat. It is an inland, high-elevation scrub dominated by brittlebush with California buckwheat, bush monkey flower, and fourwing saltbush as subdominants. Most of this habitat type in the County occurs on south-facing slopes of the Santa Ana River Canyon. In some areas, brittlebush stands may be artifacts of previous revegetation efforts.

**Scalebroom Scrub (2.6 of the HCS).** Scalebroom scrub (floodplain sage scrub) consists of deep-rooted and upland shrubs that occupy infrequently flooded and scoured habitats such as floodplains and alluvial fans. Scalebroom scrub is dominated by scalebroom. Other species that occupy this habitat are California buckwheat, California brickellbush, mulefat, coastal sagebrush, and laurel sumac. Within the OSPN, scalebroom scrub is primarily found in association with Hicks Canyon Wash and makes up less than 1 percent of the OSPN habitat.

**Sage Scrub-Grassland Ecotone (2.8 of the HCS).** Sage scrub-grassland ecotone makes up 1 percent of the OSPN habitat and is an open shrub/grassland with 5–20 percent relative shrub cover. A portion of the habitat within the OSPN (less than 1 percent) was surveyed as sage scrub-grassland ecotone (2.8 of the HCS) with no subassociation given. Common shrubs include coastal goldenbush, coastal sagebrush, and California buckwheat. Subshrubs and forbs are a very important component of this habitat type, but nonnative annual grasses often dominate the cover. It occurs in many areas of the County below 1,000 ft. The OSPN contains two subassociations of sage scrub-grassland ecotone.

- **Sagebrush-Grassland Ecotone (2.8.1 of the HCS).** Sagebrush-grassland ecotone makes up 1 percent of the OSPN habitat and is dominated by grass species with coastal sagebrush as the dominant shrub component.
- **Mixed Sage Scrub-Grassland Ecotone (2.8.5 of the HCS).** Mixed sage scrub-grassland ecotone makes up less than 1 percent of the OSPN habitat. It is dominated by grass species, with no one species as the dominant shrub component.

**Chaparral (3.0 of the HCS).** Chaparral consists of evergreen, dark-green-leaved, medium height to tall shrubs that are adapted to a fire regime of roughly 40 to 60 years (J. Keeley, pers. comm.). As the community grows, it becomes woody and senescent, producing fuel loads which, combined with the oily resins exuded from the plants, create a highly flammable environment. Fires remove aboveground biomass and allow forbs and grasses to regenerate in the fertile ash. Chaparral plants respond to fire by crown sprouting and seed germination. There are two types of chaparral in the OSPN, and they make up 1 percent of the OSPN habitat.

**Scrub-Chaparral Ecotone (3.1 of the HCS).** Scrub-chaparral ecotone (coastal sage-chaparral scrub) makes up less than 1 percent of the OSPN habitat and represents a gradation and intermingling of CSS types and chaparral types. These represent ecotonal areas between chaparral and scrub communities with component species of both and are usually patches of scrub with a strong component of chaparral species within a chaparral matrix. There are six scrub-chaparral ecotone subassociations described within the HCS. There was no subassociation given for the small amount of area within the OSPN (less than 1 percent) that was mapped as scrub-chaparral.

**Toyon-Sumac Chaparral (3.12 of the HCS).** Toyon-sumac chaparral makes up 1 percent of the OSPN habitat, is typically found on mesic north-facing slopes, and is dominated by stands of laurel sumac, toyon, and lemonade berry. Other species present include holly-leaved redberry and fuchsia-flowered gooseberry. A sparse understory of CSS species may be present, but it is nearly or completely excluded by the shade of the taller evergreen shrubs.

**Grassland (4.0 of the HCS).** Historically (pre-European settlement), needlegrass grassland covered as much as 17 percent of California (Keeley 1989), but has been greatly reduced by the invasion of nonnative annual grasses and forbs of Mediterranean origin, changes in the kinds of animals and their grazing patterns, cultivation, and fire (Heady 1977). These nonnative plants, often considered weeds, include grasses such as bromes, wild oats, barley, and herbs such as mustard and thistles. Several animal species, including grasshopper sparrow, white-tailed kite, and American badger utilize grassland habitats. Only 0.1 percent of historic perennial native grasslands in California are extant (Barry 1981). Due to its reduction in range, native grasslands are considered a special-status vegetation type. Four types of grasslands make up 14 percent of the habitat within the OSPN.

**Annual Grassland (4.1 of the HCS).** Annual grasslands are dominated by annual grasses that are primarily Mediterranean in origin. Dominant species include bromes, wild oats, fescues, and barleys. Many species of native forbs and bulbs, as well as naturalized annual forbs, are found in annual grasslands. Native forbs in these grasslands may include common fiddleneck, miniature lupine, California popcorn flower, California milkweed, common cryptantha, and fascicled tarweed. Annual grasslands occur on gradual slopes with deep soils below 3,000 ft in elevation. Annual grasslands are the predominant grassland within the OSPN and make up 13 percent of the habitat.

**Needlegrass Grassland (4.3 of the HCS).** As mapped in 1992, needlegrass grassland was identified as making up less than 1 percent of the habitat within the OSPN and is grassland with 10 percent or more cover by purple needlegrass or another needlegrass species. It is associated with San Diego bentgrass, junegrass, fescues, bromes, California blue-eyed grass, blue dicks, mariposa lily, and common golden stars.

**Ruderal Grassland (4.6 of the HCS).** Ruderal grassland makes up 1 percent of the habitat within the OSPN and consists of early successional grassland dominated by pioneering herbaceous plants that readily colonize disturbed ground. Ruderal grassland is dominated by many grassland species and species of the genera *Centaurea, Brassica, Malva, Salsola, Eremocarpus, Amaranthus,* and *Atriplex*. Ruderal grassland occurs scattered throughout the County at any site that has been disturbed by either natural or human causes.

**Sumac Savanna (4.8 of the HCS).** Sumac savanna makes up less than 1 percent of the habitat within the OSPN and consists of annual or needlegrass grassland with widely scattered laurel sumac (5–15 percent canopy cover).

**Seasonal Wetlands (5.0 of the HCS).** Seasonal wetlands (vernal pools, seeps, and wet meadows) consist of seasonally flooded or saturated sites dominated by nonpersistent and persistent annual and perennial herbs. There are four types of seasonal wetlands listed within the HCS (vernal pool, alkali meadow, freshwater seep, and freshwater swale). The type of seasonal wetland mapped within the OSPN was not specified by the person that mapped the area. Seasonal wetlands make up less than 1 percent of the OSPN habitat.

**Riparian (7.0 of the HCS).** Riparian habitats consist of trees, shrubs, or herbs that occur along watercourses and bodies of water. The vegetation is adapted to flooding and soil saturation during at least a portion of its growing season. Riparian communities are considered sensitive by CDFG (Holland 1986). In the OSPN there are five types of riparian habitat, which make up 2 percent of the total habitat within the OSPN.

**Herbaceous Riparian (7.1 of the HCS).** Herbaceous riparian habitat makes up 1 percent of the OSPN habitat and is an early successional stage of riparian scrub and forest. Flooding (or other disturbances) often scours woody riparian vegetation away, and the site is rapidly colonized by pioneer wetland herbaceous plants such as western verbena, California mugwort, sweet clover, cat-tails, sedges, rabbitfoot grass, Bermuda grass, beardless wild-rye, giant wild-rye, coastal salt grass, common plantain, cocklebur, and prickly sow-thistle. Flooding in these areas is frequent.

**Willow Riparian Scrub (7.2 of the HCS).** Willow riparian scrub makes up less than 1 percent of the OSPN habitat and is dominated by willow species and saplings of riparian forest. Common willow scrub dominants include arroyo willow and narrow-leaved willow with lesser amounts of mulefat and black willow. Weedy species found in this scrub included castor bean, giant reed, tree tobacco, and pampas grass.

**Mulefat Scrub (7.3 of the HCS).** Mulefat scrub consists of dense stands of mulefat with lesser amounts of willow. It usually occupies intermittent streambeds, seeps, and the toe of landslides (where local seeps develop). Other associated species include Bermuda grass, California mugwort, lamb's quarters, western ragweed, Douglas' nightshade, castor bean, and cocklebur. Mulefat scrub makes up 1 percent of the OSPN habitat.

**Coast Live Oak Riparian Forest (7.5 of the HCS).** Coast live oak riparian forest is dominated by coast live oaks with western sycamores, Mexican elderberry, and Southern California black walnut present as subdominants. This forest is found in large intermittent drainages and creeks. In narrow drainages it often integrates with oak woodland. Understory shrubs present include laurel sumac, holly-leaved redberry, mulefat, poison oak, fuchsia-flowered gooseberry, lemonade berry, toyon, California scrub oak, and Mexican elderberry. Coast live oak riparian forest makes up less than 1 percent of the habitat within the OSPN.

**Black Willow Riparian Forest (7.7 of the HCS).** Black willow riparian forest is a multilayered forest with a canopy dominated by black willow with some red willow and arroyo willow. The subcanopy layer contains arroyo willow and mulefat. Coast live oak and western sycamore are occasionally present on the outer margins of this forest. The understory is composed of different associations of species such as hoary nettle, poison oak, California mugwort, and Douglas' nightshade. The habitat develops on floodplains along major rivers and streams. Examples of this community are found along the Santa Ana River, Santiago Creek, and San Juan Creek. Black willow riparian forest makes up less than 1 percent of the OSPN habitat.

**Woodland (8.0 of the HCS).** Woodland consists of multilayered vegetation with a canopy that is 20–80 percent tree cover.

**Coast Live Oak Woodland (8.1 of the HCS).** Coast live oak woodland makes up less than 1 percent of the OSPN habitat and is the only woodland habitat found within the OSPN. Coast live oak woodland is dominated by coast live oak with associated shrubs such as California scrub oak, holly-leaved redberry, California coffee berry, toyon, fuchsia-flowered gooseberry, Mexican elderberry, and poison oak. Coast live oak woodland is considered a significant plant community whose canopy forms important habitat for a number of bird species, especially raptors. The oak tree acorns are an important food source for a number of animal species. Among the animal species supported by the oak woodland/forest are mule deer, mountain lion, white-tailed kite, and red-shouldered hawk. Oak woodland is found in the foothills throughout Orange County.

**Agriculture (14.0 of the HCS).** Agriculture consists of annual crops, vineyards, orchards, dairies, and stockyards. Within the OSPN the only type of agriculture present is orchard and vineyard.

**Orchard and Vineyard (14.3 of the HCS).** Orchards (primarily avocado) make up 16 percent of the OSPN habitat. In general, orchards and vineyards are scattered throughout bottomland portions of the County and include a variety of fruit and nut trees and vines.

**Developed (15.0 of the HCS).** Developed sites include urban areas, roads, parks, and cleared or graded sites. There are three types of developed land within the OSPN. Developed land makes up 1 percent of the habitat within the OSPN.

**Nonurban Commercial/Industrial/Institutional (15.3 of the HCS).** This classification includes scattered commercial/industrial buildings or such institutional facilities as sewage treatment plants outside any existing urban zone. These make up 1 percent of the OSPN.

**Transportation (15.4 of the HCS).** Transportation consists of freeways and the arterial highway system. It makes up less than 1 percent of the OSPN.

**Ornamental Landscaping (15.5 of the HCS).** Ornamental landscaping (parks and ornamental plantings) consists of introduced trees, shrubs, flowers, and turf grass. Ornamental landscaping occurs in greenbelts, parks, and horticultural plantings throughout the County. Ornamental landscaping makes up less than 1 percent of the OSPN.

**Disturbed (16.0 of the HCS).** The only type of disturbed land within the OSPN is disturbed or barren.

**Disturbed or Barren (16.1 of the HCS).** Disturbed or barren (cleared or graded) areas either lack vegetation or are dominated by a sparse cover of ruderal vegetation, such as tocalote, wild oats, black mustard, prickly sow-thistle, and prickly lettuce. Disturbed or barren land makes up less than 1 percent of the OSPN.

## Existing Wildlife Species

The OSPN supports a wide diversity of wildlife species. This diversity is expected, given the relatively large size of the OSPN and its location within a substantial block of natural open space in the foothills of the Santa Ana Mountains. This section describes the wildlife species that may potentially be found within the OSPN.

**Amphibians.** Amphibians require moisture for at least a portion of their life cycle, and many require standing or flowing water for reproduction. Although the drainages within the OSPN are dry for much of the year, a number of amphibian species occur or potentially occur even in the more xeric (i.e., dry) habitats. These species are able to survive in dry areas by remaining beneath the soil in burrows or under logs or leaf litter, emerging only when temperatures are low and humidity is high. Many of these species occur in habitat associated with water, and they emerge to breed once the rainy season begins. Soil moisture conditions can remain high throughout the year within some habitat types, depending on factors such as amount of vegetation cover, elevation, and the slope aspect.

Some of the native amphibians that may potentially be found within the OSPN include the arboreal salamander, black-bellied slender salamander, Baja California treefrog, western toad, and western spadefoot. The riparian vegetation types present are especially expected to support populations of common amphibian species such as the Baja California treefrog and western toad. Nonnative amphibian species that may potentially be found within the OSPN include the African clawed frog and American bullfrog. Both species are harmful to native amphibian species.


Western spadefoot


Baja California treefrog

**Reptiles.** Reptilian diversity and abundance typically varies with vegetation type and character. Many species prefer only one or two vegetation types; however, most will forage in a variety of habitats. Most species occurring in open areas use rodent burrows for cover and protection from predators and extreme weather conditions.

Some of the native reptiles that may potentially be found within the OSPN include the western pond turtle, western fence lizard, common side-blotched lizard, coastal western whiptail, orange-throated whiptail, southern alligator lizard, western skink, Blainville's horned lizard, granite spiny lizard, coachwhip, California whipsnake, gopher snake, northern red-diamond rattlesnake, western

rattlesnake, San Bernardino ring-necked snake, common kingsnake, rosy boa, and coast patch-nosed snake.


Blainville's horned lizard


Northern red-diamond rattlesnake

**Birds.** Birds are the most commonly observed vertebrates within the OSPN, occurring commonly in all of the plant communities. Although many species can be observed in multiple habitat types, the vegetation types present within the OSPN have been organized in the following manner in order to discuss the more common bird species. Some of the bird species potentially present within the OSPN are discussed below according to general habitat preferences. Raptors (birds of prey) use a wide variety of habitats for nesting and foraging and are of particular interest; therefore, these birds are discussed separately here.

**Birds of Prey.** Raptors (birds of prey) are common in the area. Many forage primarily in grasslands. Some of the raptor species that may potentially occur within the OSPN include red-tailed hawk, American kestrel, Cooper's hawk, sharp-shinned hawk, white-tailed kite, northern harrier, barn owl, great horned owl, and red-shouldered hawk.


Costa's hummingbird


White-tailed kite

**Mammals.** Some of the small mammal species that potentially occur within the OSPN include the desert cottontail, California ground squirrel, Botta's pocket gopher, San Diego pocket mouse, western harvest mouse, California mouse, cactus mouse, deer mouse, San Diego desert woodrat, big-eared woodrat, California vole, and introduced house mouse.

Bats occur throughout most of Southern California and may use any portion of the OSPN as foraging habitat. Riparian and woodland vegetation provides potential roosting opportunities for several bat species. Most of the bats that potentially occur within the OSPN are inactive during the winter months and either hibernate or migrate, depending on the species. Some of the potential inhabitants in the OSPN include the big brown bat, pallid bat, California mastiff bat, Brazilian free-tailed bat, Yuma myotis, western pipistrelle, and hoary bat.

Some of the medium- and large-sized mammals that may occur within the OSPN include the Virginia opossum (nonnative), striped skunk, raccoon, coyote, bobcat, mule deer, mountain lion, and gray fox.


Bobcat


Gray fox

## Existing Plants Species

**Coastal Sage Scrub.** CSS vegetation within the OSPN supports an avifauna that is comprised of species adapted to the dense, low vegetation that typifies these areas. Although a large number of individuals may be found within the OSPN, species diversity is low to moderate, depending on the season. A relatively high number of birds breeding in CSS habitat are permanent residents. Some of the bird species that are typically found in CSS habitat and may potentially be found within the OSPN include the California quail, coastal California gnatcatcher, greater roadrunner, Bewick's wren, wrentit, California towhee, spotted towhee, San Diego cactus wren, Southern California rufous-crowned sparrow, white-crowned sparrow, Lincoln's sparrow, hermit thrush, and Costa's hummingbird.

**Agricultural Habitats.** Agricultural habitats often support large numbers of a few species and provide excellent foraging habitat for a variety of raptors. Some of the bird species that may occupy this habitat within the OSPN include the rock pigeon (nonnative), California horned lark, European starling (nonnative), western meadowlark, Brewer's blackbird, mourning dove, American pipit, red-winged blackbird, white-crowned sparrow, and house finch.

**Chaparral.** Chaparral provides habitat for many resident and wintering species. Some of the bird species that may potentially occur within the chaparral habitats of the OSPN include Anna's hummingbird, western scrub-jay, Bewick's wren, wrentit, California thrasher, orange-crowned warbler, spotted towhee, ruby-crowned kinglet, hermit thrush, yellow-rumped warbler , and fox sparrow.

**Grasslands.** Some of the bird species that potentially occur within the grasslands of the OSPN include the killdeer, Say's phoebe, western kingbird, California horned lark, loggerhead shrike, lark sparrow, grasshopper sparrow, western meadowlark, American pipit, savannah sparrow, and European starling (nonnative).

**Riparian Woodland.** The riparian woodland communities within the OSPN provide important habitat for a wide variety of birds, including nesting trees for species that forage in a variety of habitats. Some of the bird species that may potentially occur within the OSPN include the common yellowthroat, blue grosbeak, California towhee, song sparrow, house finch, lesser goldfinch, Anna's hummingbird, Bullock's oriole, brown-headed cowbird, black-chinned hummingbird, Nuttall's woodpecker, ash-throated flycatcher, common raven, house wren, black-headed grosbeak, western wood-pewee, and California yellow warbler.

### Wildlife Movement/Habitat Connectivity

Wildlife movement activities usually fall into one of three categories: (1) dispersal; (2) seasonal migration; and (3) movements related to home range activities. A number of terms have been used in various wildlife movement studies, such as "wildlife corridor," "travel route," "habitat linkage," and "wildlife crossing" to refer to an area in which wildlife move from one area to another. The following terms are therefore defined below:

- **Travel route:** A landscape feature (such as a ridgeline, drainage, canyon, or riparian strip) within a larger natural habitat area that is used frequently by animals to facilitate movement and provide access to necessary resources (e.g., water, food, cover, den sites). The travel route is generally preferred because it provides the least amount of topographic resistance in moving from one area to another; it contains adequate food, water, and/or cover while moving between habitat areas and provides a relatively direct link between target habitat areas.
- **Wildlife corridor:** A piece of habitat, usually linear in nature, that connects two or more habitat patches that would otherwise be fragmented or isolated from one another. Wildlife corridors are usually bounded by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and facilitate movement while in the corridor. Larger landscape-level corridors (often referred to as "habitat or landscape linkages") can provide both transitory and resident habitat for a variety of species.
- **Wildlife crossing:** A small, narrow area, relatively short in length and generally constricted in nature, that allows wildlife to pass under or through an obstacle or barrier that otherwise hinders or prevents movement. Crossings typically are manmade and include culverts, underpasses,

drainage pipes, and tunnels to provide access across or under roads, highways, pipelines, or other physical obstacles. These often represent "choke points" along a movement corridor. The Hicks Canyon Haul Road undercrossing at SR-241 provides a valuable connection for large mammals (e.g., mountain lion, mule deer, and coyote) between the open space areas to the east of SR-241 (i.e., Limestone Canyon, Whiting Ranch, and beyond) and portions of the OSPN to the west of SR-241 (United States Geological Survey [USGS] 2006).

Wildlife corridors link together areas of suitable wildlife habitat that are otherwise separated by physical barriers, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, will not likely persist over time in fragmented or isolated habitat areas because barriers prohibit the infusion of new individuals and genetic information (MacArthur and Wilson 1967; Soule 1987; Harris and Gallagher 1989; Bennett 1990). Corridors mitigate the effects of this fragmentation by:

- Allowing animals to move between remaining habitats, which allows depleted populations to be replenished and promotes genetic exchange;
- Providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fire or disease) will result in population or local species extinction; and
- Serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs (Moss 1983; Farhig and Merriam 1985; Simberloff and Cox 1987; Harris and Gallagher 1989).

Within large areas of open space in which there are few or no manmade or naturally occurring physical constraints to wildlife movement, natural wildlife corridors may not exist. Given an open space area that is both large enough to maintain viable populations of species and provide a variety of travel routes, wildlife will use "local" routes while searching for food, water, shelter, and mates and will not need to cross over into larger open space areas.

Based on size, location, vegetative composition, and availability of food, some of the wildlife movement areas (e.g., large drainages and canyons) are used for longer periods of time and serve as source areas for food, water, and cover, particularly for small and medium-sized animals. This is especially true if the travel route is within a larger open space area.

Open space areas may become constrained and/or fragmented as a result of urban development or construction of physical obstacles such as roads and highways. The remaining landscape features or travel routes that connect the larger open space areas can "become" corridors as long as they provide adequate space, cover, food, and water and do not contain obstacles or distractions (manmade noise, lighting) that would hinder wildlife movement.

Wildlife movement corridors are another aspect of wildlife habitation. Wildlife corridors can serve as a useful habitat in their own right or can serve as conduits for seasonal or daily movement of wildlife. These corridors are important for the free movement of animals between populations, for access to food and water sources during drought, as escape routes from brush fires, and eventually for dispersal

of genetic traits between populations. The value of these corridors depends upon their width, habitat type and structure, nature of surrounding habitat, human use patterns, and other factors.

There is one wildlife corridor associated with the OSPN (City of Irvine 2003) located in the southeastern portion of the OSPN. The Orange County Great Park wildlife corridor is intended to provide connection between LCOS to open space areas in the south (i.e., the OSPS, Laguna Coast Wilderness Park) for medium-sized mammals (i.e., coyote and bobcat). A small portion of the OSPN (located in Parcel R near Portola Parkway) will be a part of this corridor. When completed, the wildlife corridor will run southwest from Agua Chinon Creek in LCOS and the OSPN, under SR-241, through the El Toro National Wildlife Refuge, through the Orange County Great Park, under Interstate 5, and into the open space areas in the south (i.e., the OSPS and Laguna Coast Wilderness Park).

### Special-Status and Special-Interest Biological Resources

The following section addresses special-status and special-interest biological resources observed, reported, or having the potential to occur within the OSPN. These resources include plant and wildlife species that have been afforded special status and/or recognition by federal and State resource agencies, as well as species that are of special interest to federal and State resource agencies as well as private conservation organizations. In general, the principal reason an individual taxon (species, subspecies, or variety) is given such recognition is the documented or perceived decline or limitations of its population size or geographical extent and/or distribution resulting in most cases from habitat loss.

**Definition of Special-Status and Special-Interest Biological Resources.** Special-status wildlife and plant species are those that are listed as or proposed for listing as threatened or endangered by either federal or State resource agencies as well as State fully protected species. Special-interest species are those species that are designated by either federal or State agencies as something other than endangered, threatened, or fully protected (e.g., species of special concern, special animal), or by private conservation organizations (e.g., CNPS). Special-status habitats are vegetation types, associations, or subassociations that support concentrations of special-status plant or wildlife species that are of relatively limited distribution, or are of particular value to wildlife (CDFG 1998). Although special-status habitats are not afforded legal protection unless they support protected species, potential impacts on them may increase concerns and mitigation suggestions by resource agencies.

A **federal Endangered species** is a special-status species and one facing extinction throughout all or a significant portion of its geographic range. A **federal Threatened species** is one likely to become endangered within the foreseeable future throughout all or a significant portion of its range. The presence of any federally listed Threatened or Endangered species on a project site generally imposes severe constraints on development, particularly if development would result in "take" of the species or its habitat. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct. Harm in this sense can include any disturbance to habitats used by the species during any portion of its life history.

**Proposed species** are special-status species that are officially proposed by the USFWS for addition to the federal Threatened and Endangered species list. Because proposed species may soon be listed as Threatened or Endangered, these species could become listed prior to or during implementation of a proposed project.

**Federal species of concern** are special-interest species with an informal designation by the USFWS for some declining species that are not federal candidates for listing at this time. This designation does not provide legal protection but signifies that these species are recognized as special interest by the USFWS.

The State of California considers an **Endangered species** as one whose prospects of survival and reproduction are in immediate jeopardy, a **Threatened species** is one present in such small numbers throughout its range that it is likely to become an Endangered species in the near future in the absence of special protection or management, and a **Rare species** as one present in such small numbers throughout its range that it may become Endangered if its present environment worsens. The Rare species status applies to California native plants. State Threatened and Endangered species are special-status species and are protected against take.

**California Species of Special Concern** is an informal designation used by the CDFG for some declining wildlife species that are not State candidates. This designation does not provide legal protection but signifies that these species are recognized as special interest by the CDFG.

Species that are **California Fully Protected** are special-status species and include those protected by special legislation for various reasons, such as the mountain lion and white-tailed kite.

The **CNPS** is a local resource conservation organization that has developed an inventory of California's special-status and special-interest plant species (CNPS 1999). Species presented within the inventory may be special-status or special-interest species depending on their State or federal designation. This inventory is the summary of information on the distribution, rarity, and endangerment of California's vascular plants. This rare plant inventory is comprised of four lists. CNPS presumes that **List 1A** plant species are extinct in California because they have not been seen in the wild for many years. CNPS considers **List 1B** plants as Rare, Threatened, or Endangered throughout their range. **List 2** plant species are considered Rare, Threatened, or Endangered in California but more common in other states. Plant species for which CNPS needs additional information are included on **List 3**. **List 4** plant species are those of limited distribution in California whose susceptibility to threat appears low at this time. **List 4** plant species are not discussed within this document.

**Special-status Vegetation Types.** The CNDDB provides an inventory of vegetation types that are considered special-status by the State and federal resource agencies, academic institutions, and various conservation groups. Determination of the level of sensitivity is based on the Nature Conservancy Heritage Program Status Ranks that rank both species and plant communities on a global and statewide basis according to the number and size of remaining occurrences as well as recognized threats (e.g., proposed developments, habitat degradation, and invasion by nonnative species). Special-status plant communities on site are described in more detail below.

- **Riparian Vegetation.** The riparian vegetation within the OSPN generally occurs near Rattlesnake Reservoir or along drainages that are typically subject to seasonal flooding. In the coastal floodplain of Southern California, 95 to 97 percent of riparian habitat has been lost due to channelization for flood control and sand and gravel mining (Faber et al. 1989). The United States Army Corps of Engineers (Corps) and CDFG may take jurisdiction over these areas. Due to the reduction of riparian habitat throughout Southern California, this is considered a special-status vegetation type.
- **Streambeds.** The OSPN contains seasonal streambed areas with defined beds and banks, and small areas that may meet the criteria of jurisdictional wetlands. These drainage areas support native plant communities and are considered sensitive resources by State and federal resource agencies. Several sensitive animal species potentially occur along the drainage courses of the OSPN, including western spadefoot toads and Cooper's hawks. San Diego cactus wrens and coastal California gnatcatchers use streambeds that contain upland scrub, with gnatcatchers also occurring in some of the mulefat scrub and willow scrub communities.

  Both State and federal policies emphasize avoidance of streambeds to the maximum practicable extent. As an initial step toward obtaining the required permits and agreement, a jurisdictional delineation acceptable to the Corps and CDFG is required to determine the acreage of any affected jurisdictional areas.
- **Coastal Sage Scrub.** CSS is located throughout the undeveloped portions of the foothills of Southern California. This vegetation type occurs within the OSPN in the form of sagebrush and sage scrub, southern cactus scrub, brittlebush-buckwheat scrub, scalebroom scrub, sage scrub grassland ecotone, and scrub-chaparral ecotone.

  CSS is considered a special-status vegetation type because of its high potential to support Threatened and Endangered wildlife species. All three of the "target species" of the NCCP program (coastal California gnatcatcher, orange-throated whiptail, and San Diego cactus wren) are known to occur in CSS within the OSPN.
- **Native Grassland.** In its pristine condition in Southern California, native grassland was dominated by purple needlegrass (a perennial bunchgrass), as well as wild-rye and alkali grasslands. Historically (pre-European settlement), valley needlegrass grassland covered as much as 17 percent of California (Keeley 1989), but has been greatly reduced by the invasion of nonnative annual grasses and forbs of Mediterranean origin, changes in the kinds of animals and their grazing patterns, cultivation, and fire (Heady 1977). Only 0.1 percent of historic perennial native grasslands in California are extant (Barry 1981). Due to its reduction in range, native grassland is considered a special-status vegetation type.
- **Oak Resources.** Oak trees are biologically productive and of limited distribution in Orange County and statewide. As a result, the County of Orange General Plan Resource Element considers oak resources to be a significant natural resource, and this RRMP requires mitigation for habitat removal. State and federal resource agencies also consider oaks to be sensitive resources, and may regulate losses of trees along drainage courses under the CDFG Code Section and United States Clean Water Act Section 404, respectively.

The 2007 Santiago Fire likely affected the distribution and abundance of special-interest plant and wildlife species within the OSPN. Many special-interest plant species, including several mariposa lily species, bloom more profusely after fires. Fires offer a good opportunity to determine the extent of special-interest plant populations in the burn area. In addition, the Santiago Fire, which burned thousands of acres of wildlife habitat within the OSPN and within surrounding open space lands, likely displaced many of the wildlife species that were known to occur within the burn area. As the vegetation communities recover from the fire, it is likely that wildlife species, including special-interest wildlife species, will repopulate the burn areas.

**Special-Status and Special-Interest Plants.** Two special-interest plant species have been documented within the OSPN (Table C). A number of additional special-status and special-interest plant species have the potential to occur within the OSPN but have not been detected to date (Table D). Tables C and D provide a brief description of the known habitat associated with each species, distribution of each species within California, activity period for each species, and known location within the OSPN (Table C) or the probability that the species may occur within the OSPN (Table D).


Many-stemmed dudleya


Intermediate mariposa lily

**Special-Status and Special-Interest Wildlife.** Special-interest wildlife species are those animals occurring or potentially occurring within the OSPN that are rare or endangered; are of current local, regional, or State concern; or those target, identified, or conditionally covered species listed in Chapter 2 of the Central and Coastal NCCP/HCP.

Due to its size and diverse physical structures and plant communities, the OSPN supports a diverse fauna. Four special-status and four special-interest wildlife species are known to occur within the OSPN are presented in Table E. In addition, a number of other special-status and special-interest wildlife species may occur within the OSPN (presented in Table F).

**Table C: Special Interest Plant Species Known to Occur within the OSPN**

| Species/ Common Name | Designation | Habitat and Distribution in California | Activity Period | Occurrence Location |
|---|---|---|---|---|
| Intermediate mariposa lily *(Calochortus weedii* var. *intermedius)* | CNPS: 1B NCCP: Conditionally Covered Species | Rocky areas in hills with annual grassland and CSS, 600–2,800 ft elevation; Los Angeles, Orange, and Riverside Counties | Blooms in June through July, with foliage April through July | Known to occur throughout the OSPN along ridgelines in CSS and chaparral |
| Many-stemmed dudleya *(Dudleya multicaulis)* | CNPS: 1B | In heavy, clayey soils within chaparral, CSS, and grasslands, 0–2,600 ft elevation; Los Angeles, Orange, Riverside, San Diego, and San Bernardino Counties | Blooms in May through June, with foliage April through July | Known to occur within the OSPN within grasslands and CSS |

**Table D: Special-Status and Special-Interest Plant Species That May Occur within the OSPN**

| Species/ Common Name | Designation | Habitat and Distribution in California | Activity Period | Occurrence Probability |
|---|---|---|---|---|
| Chaparral sand-verbena *Abronia villosa* var. *aurita* | CNPS: 1B | Annual herb associated with sandy soils; found in chaparral, CSS, and desert dune habitats from 200 to 5,000 ft in elevation; known from Los Angeles, Orange, Riverside, San Bernardino, San Diego, Imperial, and Ventura Counties; Arizona, and Baja California | Blooms January through September | **Low.** Considered extirpated in Orange County |
| Braunton's milk-vetch *(Astragalus brauntonii)* | US: FE<br>CNPS: 1B | Perennial herb considered a limestone endemic and dependent on fire; typically associated with the fire-dependent chaparral habitat on limestone and on down-wash sites; elevation is below 3,000 ft; Los Angeles, Orange, and Ventura Counties | Blooms March through July | **Low.** Marginally suitable substrate or growing conditions; known from Coal Canyon area |
| Coulter's saltbush *(Atriplex coulteri)* | CNPS: 1B | Perennial herb of alkaline or clay soils in ocean bluffs and ridgetops and alkaline low places in coastal bluff scrub, coastal dunes, CSS, and valley and foothill grasslands below 1,500 ft elevation; known only from Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, and San Diego Counties | March through October | **Low.** Marginally suitable substrate or growing conditions |
| Malibu baccharis *(Baccharis malibuensis)* | CNPS: 1B | Perennial subshrub in Conejo volcanic substrates, often on exposed road cuts within CSS, chaparral, and cismontane woodland; known from Santa Monica Mountains and Simi Hills | Late summer to fall | **Low.** In 2000 there was a reported sighting in Fremont Canyon; only known occurrence in Orange County |
| Thread-leaved brodiaea *(Brodiaea filifolia)* | US: FT<br>CA: SE<br>CNPS: 1B | Clay, loamy sand, or alkaline soils; open grasslands at edges of vernal pools or floodplains; below 4,000 ft elevation; Los Angeles, Orange, Riverside, and San Diego Counties; known from about 20 locations | April through June | **Low.** Marginally suitable substrate or growing conditions |

**Table D: Special-Status and Special-Interest Plant Species That May Occur within the OSPN**

| Species/ Common Name | Designation | Habitat and Distribution in California | Activity Period | Occurrence Probability |
|---|---|---|---|---|
| Tecate cypress *(Callitropsis forbesii)* | CNPS: 1B NCCP: Identified Species | Evergreen tree found in closed-cone coniferous forest and chaparral at elevations from 800–4,900 ft; known from Orange and San Diego Counties; fewer than five occurrences; trees known from Riverside County are planted | With foliage year-round | **Low.** Suitable substrate or growing conditions marginally present; known to occur to the northeast in Coal, Gypsum, and Fremont Canyons |
| Southern tarplant *(Centromadia parryi* ssp. *australis)* | CNPS: 1B | Margins of marshes and swamps, vernal pools; often in disturbed sites near the coast, also in alkaline soils with saltgrass; below 1,500 ft elevation | May through November | **Moderately Low.** Marginal substrate or growing conditions |
| Long-spined spineflower *(Chorizanthe polygonoides* var. *longispina)* | CNPS: 1B | Annual herb of clay soils in chaparral, CSS, meadows and seeps, valley and foothill grassland at 100–4,800 ft elevation; occurs in Orange, Riverside, and San Diego Counties | April through July | **Low.** Suitable substrate or growing conditions limited; closest known population from Coal Canyon |
| Santa Monica Mountains dudleya *(Dudleya cymosa* ssp. *ovatifolia)* | US: FT CNPS: 1B NCCP: Identified Species | Perennial herb of cracks and crevices of rock outcrops and cliff faces in canyons (primarily on north-facing slopes) in chaparral and CSS at 500–5500 ft elevation; known only from Los Angeles and Orange Counties | March through June | **Low.** Suitable substrate or growing conditions not present |
| Vernal barley *(Hordeum intercedens)* | CNPS: 3 | Annual herb found in coastal dunes, CSS, valley and foothill grassland (saline flats and depressions) and vernal pools in Los Angeles, Orange, Riverside, Santa Barbara, San Diego, and Ventura Counties; found at elevations of 20–3,300 ft. | March through June | **Low-Moderate.** Suitable substrate or growing conditions generally not present |

**Table D: Special-Status and Special-Interest Plant Species That May Occur within the OSPN**

| Species/ Common Name | Designation | Habitat and Distribution in California | Activity Period | Occurrence Probability |
|---|---|---|---|---|
| Heart-leaved pitcher sage *(Lepechinia cardiophylla)* | CNPS: 1B NCCP: Identified Species | Closed cone coniferous forest, chaparral, cismontane woodland; 1,800–4,500 ft elevation; Santa Ana Mountains in Riverside and Orange Counties; also reported from San Diego County and Baja California | April through July | **Low.** Suitable substrate or growing conditions not present |
| Robinson's peppergrass *Lepidium virginicum* var. *robinsonii* | CNPS: 1B | Annual herb found in chaparral and CSS habitats from sea level to 2,500 ft in elevation; known from Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, and San Diego Counties; Santa Cruz Island, and Baja California | Blooms January through July | **Moderate.** Suitable growing conditions present within the OSPN |
| Mud nama *(Nama stenocarpum)* | CNPS: 2 | Annual or perennial herb of lake shores, riverbanks, and similar intermittently wet areas at 20–1,600 ft elevation; known in California from San Diego, Imperial, Los Angeles, Orange, and Riverside Counties; and San Clemente Island | January through July | **Moderate.** Known from Lambert Reserve; could occur along muddy margins or reservoirs/retention basins and streams in the OSPN |
| Chaparral bear-grass *(Nolina cismontana)* | CNPS: 1B | Evergreen shrub found in chaparral, CSS, sandstone or gabbro; 500–4,200 ft elevation; Los Angeles, Orange, San Diego, and Ventura Counties | Blooms in May through July, with foliage year-round | **Moderately High.** Suitable substrate or growing conditions marginally present; known to occur within Limestone Canyon; may be previously indentified individuals in Loma Ridge area |

**Table D: Special-Status and Special-Interest Plant Species That May Occur within the OSPN**

| Species/ Common Name | Designation | Habitat and Distribution in California | Activity Period | Occurrence Probability |
|---|---|---|---|---|
| Rayless ragwort *(Senecio aphanactis)* | CNPS: 2 | Annual herb of drying alkaline flats in cismontane woodland, CSS, and chaparral at 50–1,900 (2,600?) ft elevation; known in California from Alameda, Contra Costa, Fresno, Los Angeles, Merced, Orange, Riverside, Santa Barbara, Santa Clara, San Diego, San Luis Obispo, Solano, and Ventura Counties | Blooms January through April | **Low.** Suitable substrate or growing conditions in the OSPN not present |
| San Bernardino aster *(Symphyotrichum defoliatum)* | CNPS: 1B | Perennial herb of vernally mesic sites (such as ditches, streams, and springs) in many plant communities below 6,700 ft elevation; in California, known from Ventura, Kern, San Bernardino, Los Angeles, Orange, Riverside, and San Diego Counties | Blooms July through November | **Low.** Thought to be extirpated, but was probably known from Anaheim Marsh in early 1930s (CNDDB) |

**Table E: Special-Status and Special-Interest Wildlife Species Known to Occur within the OSPN**

| Scientific Name | Common Name | Designation | Associated Habitat | Known Location within the OSPN |
|---|---|---|---|---|
| **Amphibians** | | | | |
| *Spea hammondii* | Western spadefoot | State: Special Concern<br>NCCP: Identified Species | Primarily found in grassland habitats; requires pools for breeding | Reported east of Rattlesnake Reservoir and within Hicks Canyon |
| **Reptiles** | | | | |
| *Aspidoscelis hyperythra* | Orange-throated whiptail | State: Special Concern<br>NCCP: Target Species | Low-elevation CSS, chaparral and woodlands; sandy areas with rocks and perennial brush | Reported east of Rattlesnake Reservoir and east of SR-241 in the south |
| *Crotalus ruber ruber* | Northern red-diamond rattlesnake | State: Special Concern<br>NCCP: Identified Species | In rocky or densely vegetated areas of CSS, chaparral, woodland, and grasslands | Reported east of Rattlesnake Reservoir |
| *Diadophis punctatus modestus* | San Bernardino ring-necked snake | State: Special Animal<br>NCCP: Identified Species | Woodland, grassland, chaparral, or scrub habitats; prefer moist habitats; seldom seen in open; often found under rocks, logs, and other debris | Reported east of Rattlesnake Reservoir |
| **Birds** | | | | |
| *Campylorhynchus brunneicapillus sandiegensis* | San Diego cactus wren | State: Special Concern<br>NCCP: Target Species | Coastal Southern California CSS; requires tall stands of *Opuntia* cactus for nesting and roosting | Reported throughout much of the OSPN |
| *Polioptila californica californica* | Coastal California gnatcatcher | US: Threatened<br>State: Special Concern<br>NCCP: Target Species | CSS below 2,500 ft in Southern California | Reported throughout much of the OSPN |
| *Vireo bellii pusilus* | Least Bell's vireo (nesting) | US: Endangered<br>State: Endangered<br>NCCP: Conditionally Covered Species | Utilizes large patches of willow scrub and mulefat scrub habitat for nesting | Reported east of Rattlesnake Reservoir |
| **Mammals** | | | | |
| *Puma concolor* | Mountain lion | None | Found in many habitats; requires large contiguous areas of native habitat | Reported throughout much of the OSPN |

**Table F: Special-Status and Special-Interest Wildlife Species That May Occur within the OSPN**

| Scientific Name | Common Name | Designation | Habitat and Comments |
|---|---|---|---|
| **Invertebrates** | | | |
| *Branchinecta lynchi* | Vernal pool fairy shrimp | US: Threatened | Grasslands and ponded areas such as vernal pools, cattle watering holes, basins, etc; in southern California, found primarily in the interior of western Riverside County, central Santa Barbara County, and eastern Orange County; also, more recently discovered in Los Angeles County; habitat is generally lacking in OSPN; the likelihood of this species occurring within the OSPN is **low** |
| *Branchinecta sandiegoensis* | San Diego fairy shrimp | US: Endangered<br>NCCP: Conditionally Covered Species | Vernal pools having a restricted permeability subsurface claypan; mesas of San Diego and Orange Counties; closest known population found in the southeastern portion of Weir Canyon; the likelihood of this species occurring within the OSPN is **low** |
| *Euphydryas editha quino* | Quino checkerspot butterfly | US: Endangered<br>NCCP: Conditionally Covered Species | Grasslands and open scrub; requires California plantain or purple owl's clover as food sources; believed to be extinct in Orange County, and the potential for satellite populations to colonize the OSPN is **low** |
| *Streptocephalus woottoni* | Riverside fairy shrimp | US: Endangered<br>NCCP: Conditionally Covered Species | Vernal pools having a restricted permeability subsurface hardpan, claypan or rock; known from San Diego, Orange, and Riverside Counties; likelihood of this species occurring within the OSPN is **moderately low** |
| **Amphibians** | | | |
| *Anaxyrus californica* | Arroyo toad | US: Endangered<br>State: Special Concern<br>NCCP: Conditionally Covered Species | Associated with semiarid regions near washes or intermittent streams; require gravel and/or sand-bottomed overflow pools adjacent to the inflow channel of third order or greater level streams for breeding; last reported in 1974 in Santiago Creek; the likelihood of this species occurring within the OSPN is **low** |
| *Taricha torosa* | California newt | State: Special Concern | Lives in terrestrial habitats and will migrate over 1 kilometer (km) to breed in ponds, reservoirs, and slow-moving streams; the likelihood of this species occurring within the OSPN is **low** |

**Table F: Special-Status and Special-Interest Wildlife Species That May Occur within the OSPN**

| Scientific Name | Common Name | Designation | Habitat and Comments |
|---|---|---|---|
| **Reptiles** | | | |
| *Actinemys mamorata* | Western pond turtle | State: Special Concern | Inhabits permanent or nearly permanent bodies of water in many habitat types and requires basking sites such as partially submerged logs, vegetation mats, or open mud banks; wanders well away from water sources; the likelihood of this species occurring within the OSPN is **moderate** |
| *Anniella pulchra pulchra* | Silvery legless lizard | State: Special Concern | Central California to northern Baja California; frequents loose soil and humus of relatively open habitats; susceptible to drying and live only where they can reach damp soil; the likelihood of this species occurring within the OSPN is **moderately low** |
| *Aspidoscelis tigris stejnegeri* | Coastal western whiptail | State: Special Animal NCCP: Identified Species | Semiarid areas with sparse vegetation on sandy or rocky soil; the likelihood of this species occurring within the OSPN is **high** |
| *Plestiodon skiltonianus interparietalis* | Coronado skink | State: Special Concern NCCP: Identified Species | Mesic areas of grasslands, CSS, chaparral, and woodlands; utilizes rocks, rotting logs, and leaf litter for cover; the distribution of this subspecies is under dispute; the likelihood of this species occurring within the OSPN is **very low** |
| *Lichanura trivirgata* | Rosy boa | State: Special Animal NCCP: Identified Species | Inhabits desert and chaparral from the coast to the Mojave and Colorado deserts; the likelihood of this species occurring within the OSPN is **moderately low** |
| *Phrynosoma blainvillii* | Blainville's horned lizard | State: Special Concern NCCP: Identified Species | Friable rocky or shallow sandy soils of CSS and chaparral; the likelihood of this species occurring within the OSPN is **moderately high** |
| *Salvadora hexalepis virgultea* | Coast patch-nosed snake | State: Special Concern | Brushy or shrubby vegetation with small mammal burrows for refuge; this species was last reported at the FRB Landfill in 2006; the likelihood of this species occurring within the OSPN is **moderately high** |

**Table F: Special-Status and Special-Interest Wildlife Species That May Occur within the OSPN**

| Scientific Name | Common Name | Designation | Habitat and Comments |
|---|---|---|---|
| *Thamnophis hammondii* | Two-striped garter snake | State: Special Concern | Highly aquatic and only occurs in or near permanent sources of water; the likelihood of this species occurring within the OSPN is **low**, but Rattlesnake Reservoir does provide potential adjacent habitat |
| **Birds** | | | |
| *Accipiter cooperii* | Cooper's hawk (nesting) | State: Special Animal | Uses wooded habitat for nesting; foraging occurs over a much wider range of habitats; the likelihood of this species utilizing the OSPN as foraging habitat is **high** and for nesting habitat **moderately high** |
| *Aimophila ruficeps canescens* | Southern California rufous-crowned sparrow | State: Special Animal NCCP: Identified Species | Grass covered hillsides within CSS and chaparral habitats; nests on the ground; the likelihood of this species occurring within the OSPN is **high** |
| *Amphispiza belli belli* | Bell's sage sparrow (nesting) | State: Special Animal | Chaparral and CSS from west-central California to northwestern Baja California; sui**t**able habitat is fragmented and patchy in the project area; the likelihood of this species occurring within the OSPN is **moderately high** |
| *Asio otus* | Long-eared owl (nesting) | State: Special Concern | Nests primarily in riparian woodlands and requires adjacent habitat with mice and old nests of American crows or hawks for breeding; last reported in Weir Canyon in 1974; likelihood of this species occurring within the OSPN is **moderate** |
| *Aquila chrysaetos* | Golden eagle (nesting and wintering) | State: Fully Protected NCCP: Conditionally Covered Species | Inhabits rolling foothills and mountains areas; nests in cliff-walled canyons; the likelihood of this species occurring within OSPN is **moderately low** |
| *Athene cunicularia* | Burrowing owl (burrows) | State: Special Concern | Inhabits grassland or other open areas that have an abundance of ground squirrel holes, its preferred nesting site; although there is habitat to support the burrowing owl, the likelihood of this species occurring within the OSPN is **low** |
| *Baeolophus inornatus* | Oak titmouse (nesting) | State: Special Animal | Inhabits oak woodland habitat; low amount of suitable habitat present within the OSPN, the likelihood of this species nesting within the OSPN is **moderately low** |

**Table F: Special-Status and Special-Interest Wildlife Species That May Occur within the OSPN**

| Scientific Name | Common Name | Designation | Habitat and Comments |
|---|---|---|---|
| *Buteo regalis* | Ferruginous hawk (wintering) | State: Special Animal | Grasslands provide foraging habitat; formerly known to occur at the El Toro Marine Corps Air Station (MCAS); although there is suitable habitat within the OSPN, the likelihood of this species occurring is **moderately low** |
| *Calypte costae* | Costa's hummingbird (nesting) | State: Special Animal | Forages within CSS habitat; nests within shrubs; the likelihood of this species nesting within the OSPN is **moderately high** |
| *Carduelis lawrencei* | Lawrence's goldfinch (nesting) | State: Special Animal | Occupies oak woodland, chaparral, riparian woodland, and other habitats in arid regions, but usually neat water; marginal habitat within the OSPN; the likelihood of this species occurring is **low** |
| *Chondestes grammacus* | Lark sparrow (nesting) | State: Special Animal | Open habitats with scattered brush or trees; the likelihood of this species occurring is **moderate** |
| *Circus cyaneus* | Northern harrier (nesting) | State: Special Concern<br>NCCP: Identified Species | Forages over a wide range of open habitats; nests on the ground or within shrubs; the likelihood of this species utilizing the OSPN as foraging habitat is **moderately high** and for nesting habitat **moderately low** |
| *Dendroica petechia brewsteri* | Yellow warbler (nesting) | State: Special Concern | Inhabits riparian woodland habitat dominated by cottonwoods, alders, and willows; small amount of suitable habitat within the OSPN; the likelihood of this species nesting within the OSPN is **moderately low** |
| *Elanus leucurus* | White-tailed kite (nesting) | State: Fully Protected | Forages primarily in and around grassy fields and nests in well-developed riparian woodlands located near suitable hunting grounds; the likelihood of this species utilizing the OSPN as foraging habitat is **moderately high** and for nesting habitat **moderately low** |
| *Empidonax traillii extimus* | Southwestern willow flycatcher (nesting) | US: Endangered<br>State: Endangered<br>NCCP: Conditionally Covered Species | Nests in dense growths of willows and mulefat within riparian habitats, usually with surface water present nearby; the likelihood of this species utilizing the OSPN as foraging habitat or for nesting habitat is **very low** |

**Table F: Special-Status and Special-Interest Wildlife Species That May Occur within the OSPN**

| Scientific Name | Common Name | Designation | Habitat and Comments |
|---|---|---|---|
| *Eremophila alpestris actia* | California horned lark | State: Special Animal | Resides and nests in grasslands; the likelihood of this species occurring within the OSPN is **high** |
| *Falco columbarius* | Merlin (wintering) | State: Special Animal | Open country; breeds in the Holarctic and winters south to the Tropics; the likelihood of this species occurring within the OSPN is **high** |
| *Falco peregrinus anatum* | American peregrine falcon (nesting) | State: Endangered, Fully Protected | Widespread, but scarce and local throughout North America; nests on buildings and bridges in the Los Angeles Basin; the likelihood of this species occurring within the OSPN is **moderately low** |
| *Icteria virens* | Yellow-breasted chat (nesting) | State: Special Concern | Summer resident that inhabits riparian thickets of willow and other brushy tangles near watercourses; potential habitat does exist for this species near Rattlesnake Reservoir and in Hicks Canyon, and the likelihood of this species occurring within the OSPN is **moderate** |
| *Lanius ludovicianus* | Loggerhead shrike (nesting) | State: Special Concern | Open country in much of North America; habitat is suitable but the species is now very rare in the region; the likelihood of this species occurring within the OSPN is **moderately low** |
| *Pandion haliaetus* | Osprey (nesting) | State: Special Animal | Few nesting pairs known to occur in Orange County; habitat adjacent to Rattlesnake Reservoir may be suitable; the likelihood of this species nesting within the OSPN is **low** |
| *Picoides nuttallii* | Nuttall's woodpecker (nesting) | State: Special Animal | Permanent resident of woodland habitat; small amount of suitable habitat present within the OSPN; the likelihood of this species nesting within the OSPN is **moderate** |
| *Selasphorus sasin* | Allen's hummingbird (nesting) | State: Special Animal | Inhabits chaparral and riparian woodland habitats; suitable nesting habitat occurs within the OSPN; the likelihood of this species nesting within the OSPN is **moderate** |

**Table F: Special-Status and Special-Interest Wildlife Species That May Occur within the OSPN**

| Scientific Name | Common Name | Designation | Habitat and Comments |
|---|---|---|---|
| **Mammals** | | | |
| *Antrozous pallidus* | Pallid bat | State: Special Concern | Found in many habitats; roosts in rocky areas and trees that protect them from high temperatures and disturbances; the likelihood of this species utilizing the OSPN as foraging habitat is **moderately high** and for roosting habitat **moderately low** |
| *Bassariscus astutus* | Ringtail | State: Fully Protected | Occupies woody and rocky areas; marginal habitat present; the likelihood of this species occurring within the OSPN is **low** |
| *Chaetodipus fallax fallax* | Northwestern San Diego pocket mouse | State: Special Concern | CSS, sage scrub-grassland ecotone, and chaparral habitats; sandy, gravelly, or rocky soils; the likelihood of this species occurring within the OSPN is **moderately high** |
| *Corynorhinus townsendii* | Townsend's big-eared bat | State: Special Concern | Varied habitats; ranges from southwestern Canada through the western United States to southern Mexico; the likelihood of this species occurring within the OSPN is **low** |
| *Eumops perotis californicus* | California mastiff bat | State: Special Concern | Found in many habitats; roosts in crevices of cliff faces, high buildings, trees, and tunnels; the likelihood of this species utilizing the OSPN as foraging habitat is **high** and for roosting habitat **moderately low** |
| *Lasiurus blossevillii* | Western red bat | State: Special Animal | Forages over a wide range of habitats, but generally roosts in woodlands and forests; may forage in the general area; the likelihood of this species occurring within the OSPN is **moderate** |
| *Lasiurus cinereus* | Hoary bat | State: Special Animal | Forages over a wide range of habitats, but generally roosts in woodlands and forests; may forage in the general area; the likelihood of this species occurring within the OSPN is **moderate** |
| *Lasiurus xanthinus* | Western yellow bat | State: Special Animal | Occupies varied habitats, but usually near water; often associated with palm trees; marginal habitat present; the likelihood of this species occurring within the OSPN is **low** |
| *Lepus californicus bennettii* | San Diego black-tailed jackrabbit | State: Special Concern | Open country of coastal Southern California and northern Baja California; the likelihood of this species occurring within the OSPN is **moderate** |

**Table F: Special-Status and Special-Interest Wildlife Species That May Occur within the OSPN**

| Scientific Name | Common Name | Designation | Habitat and Comments |
|---|---|---|---|
| *Myotis ciliolabrum* | Western small-footed myotis | State: Special Animal | Roosts in cliffs and forages nearby; marginal habitat present; the likelihood of this species occurring within the OSPN is **low** |
| *Myotis yumanensis* | Yuma myotis | State: Special Animal | Occupies varied habitats in western North America; may forage in the general area; the likelihood of this species occurring within the OSPN is **moderate** |
| *Neotoma lepida intermedia* | San Diego desert woodrat | State: Special Concern NCCP: Identified Species | Frequently found in poorly vegetated arid lands and especially associated with cactus patches; the likelihood of this species occurring within the OSPN is **high** |
| *Nyctinomops femerosaccus* | Pocketed free-tailed bat | State: Special Concern | Occupies varied habitats, but usually associated with high cliffs or rocky areas; marginal habitat present; the likelihood of this species occurring within the OSPN is **low** |
| *Taxidea taxus* | American badger | State: Special Concern | Inhabits open areas with friable soils and uncultivated land; although there is sufficient habitat present to support it, the likelihood of this species occurring within OSPN is **moderately low** |

## WILDLIFE HABITAT MANAGEMENT

General wildlife management objectives and techniques recommended to be implemented within the OSPN include the following:

### Protection of Breeding Territories and Nest Sites

Breeding or nesting sites for sensitive species that are located during spring surveys will be protected by redirecting pedestrian traffic away from these areas and by posting signage that prohibits entrance into these areas.

### Protection of Sensitive Plant Populations

The health and disposition of sensitive plant populations will be updated as part of population surveys. Recommendations for management or enhancement of sensitive plant populations will be developed as needed, and may include recommendations for protective fencing, removal of nonnative species, and the addition of plant barriers.

### Deadwood/Leaf Litter Removal

Deadwood shall not be removed from natural habitat areas. Logs and branches provide valuable microhabitats for invertebrates, reptiles, small mammals, and birds. In addition, the decomposition of deadwood and leaf litter is essential for the replacement of the soil's nutrients and minerals. Vegetation removal for trail maintenance shall be minimized to the extent feasible and shall be overseen by a qualified professional. Any vegetation removed for trail maintenance should be chipped and used as mulch for on-site habitat creation activities or for covering unauthorized trails.

### Snags

Native tree snags (dead tree limbs) and dying native trees shall not be removed from natural habitat areas, but shall be preserved for wildlife nesting and breeding habitat unless they affect public safety, in which case they will be removed.

## CULTURAL RESOURCES

The City's OSPN contains a rich historic past. Its resources include information of prehistoric and historic occupation. A diverse human occupation of this land extends as far back as 10,000–12,000 years. Within the OSPN are a number of known sites. Many of the sites are documented as part of California Environmental Quality Act (CEQA) requirements for adjacent development and have been fully mitigated. Other known sites exist that have not been closely examined and could provide important new information. Finally, there are likely sites that have yet to be discovered that also could provide important information on the history and prehistory of the area.

Cultural resources will be preserved and protected within the OSPN. Looting and vandalism is a concern with any existing resource. Methods to reduce these risks will include the inventory and periodic monitoring of all known resources, screening vegetation to reduce the likelihood of trespass and damage, and master planning of facilities to reduce conflicts with known resources. Additional programs may be developed to increase the understanding of the value of cultural sites through educational programs and/or active monitoring and stewardship.

CITY OF IRVINE
OPEN SPACE PRESERVE
North

# Recreation & Resource Management Plan

# RECREATION AND RESOURCE MANAGEMENT

# RECREATION AND RESOURCE MANAGEMENT

## REQUIREMENTS OF THE NATURAL COMMUNITY CONSERVATION PLAN (NCCP)

The NCCP/HCP requires the City to prepare and submit an RRMP for review and approval to the CDFG and USFWS. These documents contained herein detail the policies and procedures for managing and monitoring the City's OSPN.

Although NROC is charged with the coordination and oversight of the creation of the Reserve and implementation of the adaptive management research and monitoring activities, the City is charged with the actual management of the lands owned by the City. Following are the items identified in the NCCP *Implementation Agreement* as Reserve Owner/Manager activities:

- Coordinate management activities with NROC and ensure that such activities are consistent with the annually approved Work Plan.
- Prepare an annual Work Plan for activities for the upcoming year in consultation with NROC.
- Provide an annual Progress Report to NROC on the current year's Work Plan for inclusion in the NROC overall Annual Report submitted to CDFG. The Annual Report shall include, at a minimum, the results of recreational use monitoring (e.g., trail conditions, adverse habitat impacts), specific recommendations involving modification to existing management practices aimed at minimizing adverse impacts on biologic resources resulting from recreational use, and recommendations to initiate new management programs in response to changing circumstances/conditions (e.g., educational programs, trail patrols).
- Accept ownership and management responsibility for City system lands in the Reserve upon transfer by private owners.
- Conduct or allow NROC or other appropriate public or nonprofit agencies to conduct specific adaptive management measures required under the current NROC Work Plan, including:
    - Restoration
    - Enhancement
    - Habitat management
    - Public access/recreational management
    - Reserve system and public access facility maintenance
    - Cooperation in fire management, including controlled burns
    - Cooperation in invasive plant and animal species control

Additionally, with regard to Public Access, the NCCP has established Section 5.8, Public Access and Recreation Policies. The Public Access and Recreation Policy of the NCCP states that effective management shall demonstrate ability to:

- Effectively monitor and manage trails and facilities;
- Enforce user compliance with NCCP/HCP policies and GDP/RRMP (General Development Plan/Recreation/Recreation and Resource Management Plan) policies;
- Provide technical Reserve management expertise; and,
- Provide funding for the above adequate to assure that proposed access/recreation use can be accommodated consistent with the NCCP/HCP policies and the GDPs and Resource Management Plans

At the time the NCCP/HCP Plan was prepared, the County was in a master-planning process for several areas of wilderness lands. At that time, the areas that are now City lands were part of the planning process. As a result, the NCCP/HCP Plan anticipated the County of Orange Environmental Management Agency and Harbors Beaches and Parks, (EMA, HBP [now OC Parks]) as the entity managing these lands. As such, Section 5.8.6 of the recreation policy specifies that County EMA, HBP prepare a Recreational Management Plan prior to the establishment of permanent access, uses, or facilities. These plans are required for the facilities shown in the NCCP/HCP plan on Figure 28. The facilities depicted on Figure 28 (Limestone Activity Nodes) are both located in the southern portion of the OSPN. One is the Portola Trailhead, and the other is the Round Canyon staging area (described below under "Portola Trailhead").

Now that the City is the managing entity, and the facilities within the Reserve the City would like to implement are those shown on Figure 28 of the NCCP/HCP plan, the USFWS has determined that as a "Reserve owner manager," under the definition in the Implementation Agreement, the City shall have the same requirement to prepare an RRMP. This RRMP will address future access uses and facilities of parks located within the Reserve System. The Plan shall be submitted to the CDFG and USFWS for review and approval. Approval of the RRMP by these agencies will provide NROC authorization for the City to move forward with general park operations, phased public access programs, trail development and maintenance, and land management projects.

The City's OSPN RRMP is based on the adaptive management approach described in the NCCP.

The NCCP Planning Guidelines adopted by CDFG for the coastal California gnatcatcher recommend that an "adaptive management" regime should be implemented to manage biological resources within the subregion.

## ADAPTIVE MANAGEMENT

Adaptive management, as defined by the NCCP, "shall mean the flexible, interactive approach to long-term management of biotic resources that is directed over time by the results of ongoing monitoring activities and other information. Under this approach, biological management techniques and specific objectives are regularly evaluated in light of monitoring results and other new

information. These periodic evaluations are used over time to adapt both the management objectives and techniques to better achieve overall management goals."

The following elements are intended to ensure the maintenance of the long-term habitat and recreational value of the OSPN. Many of these activities will be conducted by others, including NROC and developers; however, the City will approve and coordinate these activities on City lands in coordination with NROC:

- Management of public access and recreation;
- Monitoring and associated adaptive management of the biological resources located within the OSPN in coordination with NROC;
- Restoration and enhancement actions (other than creation of new CSS habitat) such as eradication of invasive, nonnative plant species, predator control, grazing management plans, and construction of additional spadefoot toad breeding sites;
- Management carried out by means of short-term and long-term fire management programs approved by NROC;
- Management designed to minimize the impacts of ongoing operations/maintenance of uses that existed prior to approval of the NCCP/HCP;
- Assurance that permitted infrastructure uses proceed in the manner provided for in the NCCP/HCP in order to minimize impacts of new uses to be allowed within the OSPN;
- Restoration and enhancement measures through the creation of new CSS habitat to offset potential loss of net long-term habitat value due to development of CSS habitat located outside the Reserve System by "nonparticipating landowners;"
- Field research and studies designed to contribute to the long-term protection of habitats and species and other basic research of habitats and species included within the OSPN;
- Fire management activities consistent with the NCCP/HCP and fire management plans;
- Recreation and public access consistent with the policies contained in the adaptive management program, including:
    - Passive recreation and activities such as hiking, nature interpretation, and picnicking;
    - Mountain biking and equestrian activities on designated trails;
    - Continued operation of preexisting OSPN facilities, including active recreation facilities or agricultural activities within disturbed areas, provided that existing active facility expansions or conversion of passive use facilities to active use must be consistent with the NCCP/HCP;
    - OSPN administrative and interpretive facilities; and
    - Construction, operation, and maintenance of new facilities necessary to support permitted recreation uses, including concessions that support permitted uses/activities within the Reserve.
- Activities related to the provision and operation of necessary public and quasi-public infrastructure facilities; and

- Existing uses consistent with Section 5.11 of the NCCP/HCP.

## CITY OF IRVINE MANAGEMENT GOALS

The City has a long-established history of protecting and preserving large areas of valuable open space. The 1988 Open Space Ballot Initiative anticipated the preservation of the land and included recreational amenities to the residents. The following are broad goals that encompass this purpose:

- Ensure the preservation and conservation of City open space lands. The City will adhere to the monitoring criteria established by NROC in the Monitoring Plan and will monitor the OSPN through patrols;
- Protect and maintain existing natural resources;
- Provide valuable "wilderness type" passive recreational and educational activities; and
- Restore and/or enhance degraded habitats to improve biological productivity and diversity within the OSPN.

The City is committed to providing a quality public park system that will meet the anticipated needs and demands of the residents. On April 20, 2005, the Community Services Commission approved Park and Public Facility Standards that included Open Space Design Standards. An Open Space Design Standards section of the Park and Public Facility Standards was originally approved by the Community Services Commission on May 7, 2003. The purpose of the City's Park/Public Facility Standards is to establish park development standards for guidance in acceptance of park land; collection of park fees, or provision of in-lieu improvements; and criteria for design of public and private parks. These Standards are administratively updated and revised periodically as needed. The Standards incorporate information on gates, signage, trail widths, American with Disabilities Act accessible trails, trail and trailhead design, etc.

## OPEN SPACE PRESERVE – NORTH FACILITIES AND OPERATIONS

The following section outlines the various facilities and amenities necessary for the operation of these lands as an Open Space Preserve. The facilities will be sited and designed consistent with the NCCP Public Access and Recreational Policies (Section 5.8). The NCCP habitat Reserve design was, "*formulated with the understanding that public access, passive recreation uses and development of future recreation facilities would be compatible with and permitted within the habitat Reserve System … and policies reflect a determination that there is not an inherent conflict between the recreation uses permitted …and protection of sensitive biotic resources.*" (NCCP Plan Section 5.8)

### Trails

The Trails Master Plan Map (Exhibit C) depicts the trail system for the City's OSPN. Recreational trails are primarily limited to existing trails and truck roads in order to minimize damage to open

Exhibit C: Trails Master Plan Map

space resources. In addition, limited development of new trails will be needed in order to connect open space areas. Connections to Limestone Canyon Open Space and the Orange County Great Park are an essential part of the open space circulation concept. New trail linkages will be provided to:

- Complete trail linkages for trail system
- Connect to new trailhead locations
- Connect to Planning Areas 1 and 6

The City's OSPN contains both existing truck trails and some double-track trails that were once ranch roads. Some of the truck trails are in good locations and can facilitate recreational use; others will need to be relocated or abandoned, as depicted in the Trails Implementation Plan Map (Exhibit D). Some of the truck trails were not designed for recreational use and are fairly eroded. These trails will require costly maintenance, reconstruction, relocation, and/or abandonment. Abandoned trails may require regrading and/or revegetation to restore them to natural condition.

The trails are designated as "multi-use." Multi-use trails accommodate hikers, mountain cyclists, and equestrians. On an interim basis, until the City's Gateway Ridge Community Park is built, the Hicks Canyon trail will be a "hiking-only" trail. The trail at Hicks Canyon is too short to offer fulfilling recreation opportunities for equestrians or cyclists, until an additional trail segment is implemented to form a complete loop. Following development of the Gateway Ridge Community Park Trailhead (see "Trailheads" section below), recreational opportunities for equestrians and cyclists, in Limestone Canyon (via Hicks Haul Road), may also develop.

Trail users will be restricted to well-defined areas, with off-trail encroachment into heavily vegetated and sensitive resources prohibited. Along the trails are several overlook areas offering panoramic views of the City's OSPN as well as distant foothills and mountains.

As a primary mandate of NCCP/HCP, protection of sensitive resources will be a paramount concern. Well-managed and controlled OSPN access and trail use will afford recreational opportunities compatible with protected natural resources.

OSPN operations and public use may be restricted when necessary to minimize impacts to sensitive habitat, to prevent user conflicts with wildlife (i.e., nesting season), and where degraded site conditions impact user safety. Trail use shall be prohibited on red flag warning days and for appropriate periods following rains to avoid trail damage and impacts on adjacent habitat. A "red flag warning" is issued by the United States National Weather Service to inform firefighting and land management agencies that conditions are ideal for wildland fire ignition and propagation. Trail use will be accessible only during operational hours as determined by the Community Services Department.

Exhibit D: Trails Implementation Plan Map

Any unauthorized trails will be eliminated, and impacted habitat will be restored. Trail use will be monitored through patrols to minimize off-trail use. The intensity of trail and facility use will be monitored by the land manager and modified as appropriate based on observed conditions to ensure that overuse does not occur and impact target species or sensitive habitats, consistent with NROC-established guidelines or procedures.

## Trailheads

**Orchard Hills Trailhead.** This public trailhead (Exhibit E) will be located within the PA1 (Orchard Hills) development northeast of the 'D' Street and 'J' Street intersection (this trailhead will not be located within the NCCP). The trailhead will serve as a public gateway to the northern portion of the OSPN.

The trail at the Orchard Hills Trailhead leads northeast out of the trailhead. It is a "figure 8" shaped, multi-use (hiking, cycling, and equestrian), one-way (counterclockwise), 4-ft wide loop trail. The lower portion of the "figure 8" skirts the outside of the existing avocado orchard. The upper portion of the "figure 8" is within the existing orchard, along the perimeter service road. The trail skirts the orchard and consists of a 4-8 ft wide path that largely travels adjacent to existing eucalyptus wind rows. A cable fence will be placed on the orchard side of the path in order to deter participants from venturing into the avocado orchard. This will minimize vandalism, avocado poaching, and general disruption of orchard operations. Both portions of the "figure 8" will be both docent-led and self-guided trails.

Docent-led tours starting from the trailhead will follow the trail to the upper limit of the upper portion of the "figure 8." From there the participants will be led northeast through a control gate, out of the OSPN, under SR-241, up to Loma Ridge, and to open space lands adjacent to the OSPN (primarily Limestone Canyon Open Space).

Trailhead amenities include:

- Trail access for mountain bike and pedestrian use
- Parking lot with 3 equestrian stalls, 2 handicap spaces, and 9 vehicle spaces
- Restroom building
- Kiosk/signage
- Drinking fountain
- Picnic tables
- Bike racks
- Trash receptacle
- Benches

Exhibit E: Conceptual Site Plan of Orchard Hills Trailhead

**Portola Trailhead.** The Portola Trailhead (Exhibit F) is currently located and will continue to be located just to the northeast of SR-241 at the end of Portola Parkway. Docent-led hiking, cycling, and equestrian tours are currently offered from this trailhead. Self-guided tours are not expected to be offered from this trailhead in the future.

There are currently two areas served from the Portola Trailhead. The first is a program leading into Limestone Canyon Open Space. This program utilizes a truck trail that partially lies within the Agua Chinon streambed and leads to Loma Ridge. In the future the portion of this truck trail that lies within the Agua Chinon streambed (outside of the OSPN) may be redesigned if feasible in favor of a new more sustainable 4 ft wide trail that will run along the ridge to the north. It is difficult to maintain the current truck trail within the drainage. The second program currently offered from the Portola Trailhead goes into Round Canyon to the north. The trailhead located at the mouth of Round Canyon serves as a staging area for this tour. The Portola Trailhead and the Round Canyon staging area are both within the NCCP. This double-track trail currently offers an out and back tour that dead ends at the FRB Landfill and does not offer any connection to other trails. In the distant future (after the closure of the landfill), this trail may be extended in order to connect to Loma Ridge. One potential future trail is the proposed route from the Portola Trailhead to the Orange County Great Park. The properties of this trail (trail width, type of use, etc.), if it is developed, will be determined at a later date.

The Portola Trailhead improvements include:

- Docent-led tours
- Parking for 20 plus vehicles
- Restroom building
- Informational kiosk/regulatory, interpretive, and identity signage
- Equestrian water trough
- Picnic tables
- Benches

The Round Canyon staging area improvements include:

- Docent-led tours
- Parking for 10 vehicles on an existing paved area
- Portable toilets (only on site during tours)
- Picnic tables
- Information kiosk/regulatory, interpretive, and directional signage

Exhibit F: Conceptual Site Plan of Portola Trailhead

**Gateway Ridge Community Park Trailhead.** This Hicks Canyon staging area is currently substituting for the future Gateway Ridge Community Park Trailhead. The Hicks Canyon staging area and the future Gateway Ridge Community Park Trailhead are both outside of the NCCP Reserve. The Hicks Canyon staging area is located on Jeffrey Road approximately 0.33 mile east of Portola Parkway. There is limited parking available at the staging area. The only amenity currently offered at the trailhead is a portable toilet that is only on site during a scheduled tour. Currently the only tour offered from the staging area is an out and back, hiking-only, self-guided tour along a truck trail. Ultimately, this existing staging area will be replaced by the future Gateway Ridge Community Park Trailhead. A multi-use, self-guided loop trail will stage from the future Gateway Ridge Community Park Trailhead. The trail will closely follow the current out and back tour. Another potential tour is a docent-led tour (hiking and cycling) that leads up Hicks Canyon Haul Road to Loma Ridge and into Limestone Canyon Open Space. The Gateway Ridge Community Park Trailhead is planned to be located at the northern end of the proposed 71-acre Gateway Ridge Community Park. The trailhead design will be prepared at a future date. The improvements to this trailhead may include:

- Managed trail access for mountain bike and pedestrian use
- Parking for vehicles
- Restroom building
- Kiosk/signage
- Drinking fountain
- Picnic tables
- Bike racks
- Trash receptacle
- Benches

Note: Due to other uses at this community park, an equestrian staging area will not be located here but will be at the Orchard Hills and Portola Trailheads.

## Fencing and Signage

**Fencing.** Trail fencing should be provided where needed to control trespass, confine users within the trail width, and for safety (such as at steep slope areas, bridges, adjacent orchards, high traffic, and other potentially hazardous areas).

Fences shall be made of sustainable, recycled plastic or concrete wood look products and wire cable. Barbed wire is not permitted. Plantings such as trees hedges or large rocks can also serve as trail fencing or barriers. Other fencing may be acceptable as trail fencing with the approval of the Director of Community Services.

See Design Standards and Guidelines for City's Open Space Trails and Facilities (Appendix H) for fencing types.

**Signage.** A minimum of signs shall be installed in order to control and direct visitor uses along with trail maps, route descriptions, brochures, etc. Signs should only be provided for visitor information, safety, and resource protection. They should range in size and complexity from small simple arrow directional posts at trail junctions to regulatory signs posting OSPN rules as well as signs denoting resource features and points of interest. To protect the natural scenic quality of the OSPN, visitor information kiosks and signs will utilize natural earth-tone colors and natural sustainable or recycled materials. The preferred location of signage shall be at trailheads or the main entrances to the OSPN. A signage program will be developed separately.

The OSPN will include several types of signs, typical examples are described below:

**Entry Monument Signs.** Entry monument signs will be located at gateways to the OSPN. These points of access shall include the Orchard Hills, Portola, and future Gateway Ridge Community Park Trailheads as well as the Hicks Canyon (temporary) and Round Canyon staging areas. These signs should designate the entrance to the OSPN in a manner compatible with the natural resources. Use of natural materials is preferred.

**Kiosk/Bulletin Board Signs.** Kiosk/Bulletin Board signs should be provided at each Trailhead and staging area. Kiosk/bulletin board signs should include, at the minimum:

- Information advising trail users of rules and regulations, prohibited activities, trail etiquette, potential hazards including wilderness warning signage and fire danger signage, permitted trail uses, emergency information, and emergency phone numbers
- Explanation of accessibility levels in practical, clear wording
- A map(s) of the trail and/or trail system, showing
    - Each trail, including trail name, allowed users, length to the nearest 0.25 mile, and lowest and highest elevation points of the trail
    - Location of rest areas and/or trailheads
    - Trail highlights, such as view points
    - Any hazards and seasonal conditions, if applicable
    - Creek beds and wetland areas
    - Common plants (e.g., poison oak) and animals
    - Hours of operation
    - Phone number or internet address to obtain trail maps and other trail information

**Trail Signs.** Trail signs should be located at the entrance to the trails and at major trail intersections. These signs should contain the following information:

- Trail name
- Trail direction
- Mileage or approximate length
- Allowed users
- Trail user yielding signs, as needed

**Other Signs.** Other signs may include, but are not limited to:

- **Trail name signs** may be placed at entry points, halfway points, and other points where trail identification is needed.
- **Destination signs** may be placed at appropriate locations to inform trail users of the distance and destination on various routes. These signs should be accompanied by directional arrows where confusion with other routes is possible.
- **Directional signs** may be placed at intersections with roads or other trails where paths could be confused. Directional signs should be placed, as appropriate, to clarify trail destination and direction to trail users.
- **Informational signs** may be used to provide miscellaneous information about the trail, including restroom locations**,** mileage markers, water, etc.
- **Intersection signs** may be placed at intersections to warn both the trail user and oncoming traffic.
- **Warning signs** may be placed on the trail to warn trail users of hazardous conditions on the trail. Signs should identify hazard points, clearance requirements, or safety precautions, as warranted, or to identify trail closures.
- **Trail user yielding signs** should be placed at all trailheads and posted periodically, especially at trail crossings and along trails that accommodate a variety of users.

## PUBLIC ACCESS

Public access shall be accommodated through trails and limited facilities that are intended to protect the public's health and safety as well as provide a valuable "wilderness type" recreation experience. In order to avoid the degradation of sensitive or unique resources and as a means to implement effective adaptive management strategies to offset or minimize other potentially adverse impacts, the carrying capacity of OSPN areas shall be determined. The carrying capacity will be determined over time, depending on the anticipated type and intensity of use.

If visitor use threatens to adversely impact an area's natural characteristics or habitat value, appropriate actions shall be taken to prevent any further decline and allow natural regeneration or other processes to occur. In most cases, indirect methods of reducing impacts such as limiting parking capacity, access points, trail design, and public education efforts shall be preferred over initiating direct regulatory procedures; however, where these methods prove to be unsuccessful or considered inadequate, further restrictions may be necessary. Depending on the situations, these may include either partial or complete closure, restricting periods of use, and number of visitors permitted access.

It must also be recognized that visitor use of the OSPN involves certain risks as a consequence of the rugged terrain, the unpredictability of the natural environment, and the potential isolation from urban services.

### Permitted Uses

The City's OSPN shall be managed to provide for passive recreation use and enjoyment by the public in ways consistent with the preservation of its natural resources and characteristics. The following uses are permitted:

- Passive recreation activities such as hiking, interpretive walks, mountain biking, equestrian use, picnicking, photography/filming, painting, etc.
- Conservation and mitigation projects, student research or other educational programs involving the study of nature, ecology, earth sciences, or other appropriate subjects.
- Existing agricultural uses.

### Accessibility

Accessibility will be determined by the natural contours of the land. Due to the nature of the existing topography, much of the OSPN may not be fully accessible. The City will endeavor to provide as wide a range of accessibility as possible and may include staffed van tours and some trails that may accommodate powered wheelchairs and four-wheel-drive wheelchairs.

All certified service animals will be permitted on all of the wilderness trails and in all OSPN facilities and trailheads.

### Prohibited Uses

Except where necessary for the management of the OSPN resources, or as specifically approved by the Director of Community Services, the following uses shall be strictly prohibited:

- Operation of motorized vehicles beyond the limits of established public access roads and designated parking areas is not permitted except for those vehicles authorized to access the OSPN for purposes of management, maintenance, accessibility programming, and police and fire services by easement or special permit
- Fires, campfires, camp stoves, and smoking
- Release of domestic or nonnative animals
- Overnight camping
- All forms of fishing, hunting, trapping, falconry, or use of poisonous baits within any open space area
- Any action on the behalf of a person or persons that creates a nuisance, poses a real or immediate threat, or results in damage to or destruction of OSPN resources or public property
- Removal or the intentional destruction of existing vegetation for any reason including arson or the illegal harvesting or collection of native plant materials for personal use or sale
- The creation of nonapproved trails
- Littering or dumping of trash and debris or disposal of hazardous waste materials with the OSPN
- Swimming and wading
- Artifact, plant and animal collecting except for approved research and study (access into the OSPN for research and study will be coordinated and monitored through the OSPN staff; access guidelines will be established and a special access permit will be issued)
- Domestic animals, including dogs and/or exotic animals, except as listed below:
    - Certified service animals will be permitted. Owners will be required to follow cleanup procedures.
    - Horses will be permitted on all of the multi-use trails, and at the Orchard Hills and Portola trailhead areas and facilities.
    - Dogs on a leash are not permitted on OSPN trails within NCCP boundaries.

Grazing of livestock, including utilization of natural forage for commercial purposes, shall be prohibited unless utilized in conjunction with habitat management practices (e.g., habitat restoration, habitat enhancement, and invasive species removal).

### Phased Operation and Access Strategies

The acquisition of open space by the City is dependent upon the phasing of development. The City will identify appropriate public access as part of its budget process. Operational models and access strategies are dependent upon availability of funds and habitat sensitivity. This RRMP is designed to

function at various levels of public access from "Docent Only Access" to occasional supervised "Open Access Days" to managed "Open OSPN Hours," which could occur from sunrise to sunset, seven days per week.

The phased operational plan consists of the following three elements:

- Land Management and Administration
- Land Maintenance and Safety
- Program Management

**Land Management and Administration.** As a signatory to the NCCP, the City is required to meet specific mandates for management of the OSPN as a Nature Reserve. This entails coordinating the activities conducted by NROC, including mitigation projects, biological monitoring, census data collection, and annual reporting. The administration of this function will be coordinated through the City's Community Services Department using appropriate resources such as providing the service by contracting specialists.

**Land Maintenance and Safety.** The City will conduct land maintenance to ensure public safety and welfare and to meet the NCCP maintenance requirements. This maintenance may consist of fencing, gates, signage for control of public access and liability issues, removal of litter, trail maintenance, grading for emergency access, repair and maintenance due to erosion and flooding, and regular patrols to monitor visitor use. The administration of this function will be coordinated through the City's Community Services Department. The services will be provided by City staff or contracted out. The City's Public Safety Department will provide assistance with OSPN patrols.

**Program Management.** The City will provide public access to the OSPN through a multi-mode access program. The access strategies are dependent upon availability of funds and habitat sensitivity. The services will be provided by City staff or contracted out. The three strategies of the access program may consist of the following:

1. Docent-led/staff-led tours
2. Docent-led/staff-led tours and managed open access on weekends (self-guided tours)
3. Docent-led/staff-led tours and managed open access year-round (self-guided tours)

**Docent-led/Staff-led Only Access.** Under this scenario, the public has access to the OSPN only via tours guided by a trained docent or staff. Access will require advance reservation and is limited to certain times. This scenario requires heavy docent use and minimal OSPN maintenance staff.

**Docent-led/Staff-led Tours and Open Access on Weekends.** Under this scenario, the OSPN has more typical open hours on Saturdays and Sundays, when the public can use the OSPN without a

docent. Docent-led and staff-led tours are still available. This scenario requires heavy docent use to lead the docent tours and moderate park staff to provide supervision and maintenance for the weekend self-guided tours.

**Docent-led/Staff-led Tours and Open Access Year Round.** Under this scenario, the OSPN has typical open hours most of the week when the public can use the OSPN. Some docent-led tours are also available. This scenario requires more staff to provide supervision and maintenance, and less docent use.

## Recreational Uses

Recreational activities will be monitored to ensure appropriate visitor safety and habitat protection. All uses within the OSPN will meet NCCP guidelines. Recreational uses will include the following:

**Hiking.** Hiking will be permitted on the approved hiking and multi-use trails. Hiking opportunities will be available, by reservation, through the City's Community Services Department's or City-designated contractor's scheduled programs, or through the open access days as the OSPN is scheduled for regular operating hours.

**Mountain Biking.** Mountain biking will be permitted on the approved mountain biking and multi-use trails. Mountain biking opportunities will be available, by reservation, through the City's Community Services Department's or City-designated contractor's scheduled programs, or through the open access days as the OSPN is scheduled for regular operating hours.

**Horseback Riding.** Equestrian opportunities will be permitted on the approved multi-use trails. Horseback riding opportunities will be available, by reservation, through the City's Community Services Department's or City-designated contractor's scheduled programs, or through the open access days as the OSPN is scheduled for regular operating hours. The Orchard Hills, Portola, and Gateway Ridge Community Park (when completed) Trailheads will serve as equestrian staging areas.

**Picnicking.** Picnicking opportunities will exist at the following areas:

- Orchard Hills Trailhead

- Gateway Ridge Community Park Trailhead
- Portola Gateway Trailhead

Informal picnicking will be allowed throughout the OSPN. Signage, visitor guidelines, and educational efforts will emphasize the need for visitors to pack out all trash and picnic items and to refrain from feeding wildlife.

**Camping.** Camping will not be permitted within the OSPN.

### Infrastructure

Within the OSPN infrastructure, facilities exist and were intended as part of the NCCP plan. These facilities are necessary for public health and safety and may include: orchards, waterlines, reservoirs and associated facilities (pump stations, pressure control facilities, access roads), sewer lines, electric, telephone, cable television, natural gas facilities, storm drain and flood control facilities, landfill gas recovery facilities, borrow sits, monitoring wells, and maintenance facilities.

Access to the OSPN will be needed routinely for the maintenance of and/or construction of new facilities. Each utility shall coordinate work with the City's designee. All work shall be consistent with the Infrastructure Policies of the NCCP (Section 5.9) and City standards.

### Special Access Permits

Special access permits will be issued by the City's designee for research, special activities, or other events deemed appropriate for authorized groups and individuals. Permit guidelines will be established and monitored by City staff.

### Enforcement Procedures

Applicable local, State, and federal laws and/or ordinances pertaining to the protection and use of the OSPN, whether originating at the local, regional, State, or federal level, will be in effect and enforced. Trail user groups shall be encouraged to participate in "self-monitoring and policing" programs to minimize instances of off-trail activities and other abuses to habitat resources within the OSPN.

Signage shall be used to clearly indicate appropriate behavior in the OSPN. Staff, docents, volunteers, signage, and educational programs shall be used to communicate to trail users and other public users the importance of restricting recreational use to the designated trails.

## Safety and Security Measures

The OSPN is a wilderness area and therefore subject to some inherent public dangers. The public will be informed of these dangers by posting standard "Wilderness Warning" and/or other public safety signs where appropriate.

## Emergency Procedures

Emergency procedures (police, fire, paramedic response) will be established and coordinated by the appropriate agencies. Evacuation plans in case of fire or floods will be developed and reviewed on an annual basis with the appropriate agencies.

# COMMUNITY OUTREACH AND EDUCATION

## Outreach and Education Plan

Public outreach and education programs are vital elements of the City's Open Space Management Goals. Programs emphasizing environmental education may be offered through the Community Services Department at the Gateway Ridge Community Park Trailhead and the Orange County Great Park and other open space facilities, trails, and trailheads by the City or the City-designated contractor. Educational efforts will focus on fostering stewardship and teaching visitors how to recreate responsibly. Programs will be conducted by staff, docents, volunteers, and specialized contracted professionals. The goal is to provide focused educational presentations and programs for all ages and user groups.

Programs may consist of guided hikes, summer day camps, nature walks, adult classes, community presentations, exhibits, signage, educational brochures, trail guides, after-school classes, classroom in the field programs, Kids and Nature program, speaker's bureau, and regularly published newsletters and articles. Special events, restoration projects, and cleanup days will be developed and incorporated into the programming efforts.

Additional outreach efforts may focus on presentations and newsletter articles for members of City homeowner's associations. These programs could focus on teaching residents how they can become an open space land steward. The Good Neighbor Program is an established community outreach program currently being implemented throughout the County. The program provides information to local residents about the implications of living in close proximity to a wilderness park.

**Collaborative Programs.** Programs may be offered that combine the expertise and resources of local and nonprofit agencies, volunteer groups, and individuals. For example, collaborative programs may be developed and implemented with representatives from the following:

- The Nature Conservancy
- The Nature Reserve of Orange County
- Irvine Unified School District
- Irvine Valley College
- The Irvine Ranch Conservancy
- Irvine Ranch Water District
- Sea and Sage Audubon
- The Irvine Museum
- Orange County Wild
- University of California, Irvine
- Homeowner's Associations
- Limestone Canyon Wilderness Park
- Whiting Ranch Wilderness Park
- Equestrian Groups
- Walking and Hiking Groups
- Mountain Bike Groups

### Docent and Volunteer Programs

Docent and volunteer programs will provide the essential support necessary for the Outreach and Education Plan. Qualified participants will conduct hikes and programs, monitor visitor use, help with trail maintenance, and assist with revegetation and restoration projects. Other volunteer assignments may include special projects, administrative support, and research studies. All docents and volunteers will be processed through the City, or the City-designated contractor's agreements, or volunteer procedures, and will complete a comprehensive training program. Categories for the volunteer program are listed below.

**Docents.** To become interpretative docents, individuals must pass an intensive course in environmental studies focusing on interpretation of Orange County's flora and fauna, geology, and cultural history. Docent students are also given an overview of the Central Coastal NCCP/HCP and

sensitive natural resources. Field trips conducted by local experts (i.e., geologists, botanists, birders, etc.) are important components of the docent course.

The docent program's primary goal is to give the public an understanding of the importance and sensitivity of the OSPN's natural resources. By installing an appreciation for the OSPN's ecosystem, it is more likely that future visitors will respect and protect its natural resources. This is the only category of volunteer that may lead guided public access trail programs.

- **Trail Guides** will have opportunities to volunteer in a number of different areas. They could provide staff with program support, assist with program sign-in, and serve as sweeps on hikes and guided tours. Trail guides could also provide visitors with information about trail safety and etiquette and monitor trail use and conditions as they tour the OSPN as well as assist with setup and cleanup.
- **Land Stewards/Trail Bosses** will assist staff with trail maintenance and management, native plantings, cleanup projects, restoration and revegetation projects, and other resource management projects.
- **Collaborative Volunteer Programs.** The City, or City-designated contractor, will work with local volunteer groups and other agencies to develop and implement appropriate collaborative programs and projects. Collaborative volunteer programs could include the following agencies:
    - Orange County Conservation Corp
    - California Conservation Corp
    - Equestrian Groups
    - Share Mountain Biking Group
    - Trails4All
    - The AmeriCorps

## RESTORATION, ENHANCEMENT, AND MITIGATION

Much of the OSPN has been used over the past 100 years for cattle grazing and farming. As a result, the habitat is presently in a very mixed condition. Although the majority of the habitat is in good, sometimes pristine condition, a number of grassland areas are degraded, and areas that had been recently used for agriculture now support predominantly nonnative vegetation.

A significant amount of the OSPN is in need of restoration or enhancement. Habitat restoration areas will include agricultural and disturbed (non-wildland) areas. Much of the landscape in these areas is currently occupied by annual grassland, but shows potential for restoration to CSS and native grasslands. Restoration, enhancement, and mitigation will enhance key linkages and combine currently fragmented segments into larger habitat blocks.

For purposes of this document and the operations of the OSPN, restoration shall mean the transition of habitats containing nonnative plant materials to habitats containing nearly all native materials. These can be small or large-scale projects, completed as maintenance by volunteer forces or by contracted forces. These projects can include removal of nonnative materials as well as planting of new materials. Any project other than maintenance will be coordinated with NROC. Enhancement projects are generally small-scale projects that increase the amount or type of existing plant material within a habitat area. These will generally be accomplished as maintenance or as volunteer projects. Mitigation refers to those projects by others required by CEQA and the Resource Agencies to mitigate impacts to other areas. These projects are completed by others and require coordination with the City's Community Services Department. These projects generally require a performance criterion that is the responsibility of others. These projects can vary in scale.

As part of the City's Open Space Agreement, the Irvine Company has retained rights to provide habitat mitigation within the OSPN. Most of Parcels A and B, P, and R have been analyzed for potential mitigation opportunities. These existing areas are shown in Exhibit G. Parcel Q has not been analyzed. Areas have been identified for various habitat types. Within the areas identified on the exhibits, the Irvine Company may mitigate by notifying and coordinating with the City. Other areas require additional coordination and approval for mitigation.

All habitat restoration, enhancement, and mitigation shall meet the requirements of the NCCP Policy, Section 5.6. Restoration and enhancement projects will be identified and reviewed as part of the Annual Work Plan submitted to NROC.

Exhibit G: Potential Mitigation Sites Maps

Exhibit G – Page 2

Exhibit G – Page 3

## FEE STRUCTURES AND FUNDING OPPORTUNITIES

Fees for all OSPN activities operated by the City must be reviewed and approved by City Council. Fees may be charged for the following activities: parking, special events, group tours, school tours, guided hikes, and scout hikes.

### Donation and Sponsorship Programs

Structured donation programs may be developed and could include some of the following themes:

- Adopt an Animal
- Adopt a Trail
- Adopt an Acre
- Corporate Sponsors

## ANNUAL WORK PLAN

The NCCP/HCP Implementation Agreement (IA) requires that an Annual Work Plan be submitted to the NROC Board of Directors. The City will prepare and submit an Annual Work Plan for the OSPN that ensures that management activities are coordinated with the NCCP Nonprofit Corporation and consistent with the NCCP/HCP.

## ANNUAL PROGRESS REPORT

The NCCP/HCP requires (in Section 5.8.3.) that an Annual Report be submitted to the NROC Board of Directors. The City will prepare and submit an Annual Progress Report for the OSPN that meets all of the criteria established by NROC as stated in the IA: "Prepare Annual Reports regarding management activities with the City's portion of the Reserve System for submittal to the NCCP Nonprofit Corporation for inclusion in the Annual Report to CDFG and USFWS." The annual report will include:

- The results of recreational use monitoring, including trail conditions, adverse habitat impacts, etc.
- Specific recommendations involving modifications to existing management practices to minimize adverse impacts on biological resources resulting from recreational use.
- Recommendations to initiate new management programs, such as educational programs or trail patrols in response to changing circumstances and conditions.

## COORDINATION WITH NROC PLANS

As part of the NCCP, several management programs are to be undertaken. NROC is charged with the preparation of the following plans:

- Fire Management Plan
- Habitat Restoration and Enhancement Plan
- Recreation Monitoring Plan
- Exotic Plant Control Plan
- Invasive and Pest Species Control Plan

Per Chapter 5 of the NCCP plan, the City will comply with the above management plans that are included by reference only herein.

# APPENDIX A

# LIST OF ACRONYMS

# APPENDIX A

# LIST OF ACRONYMS

| | |
|---|---|
| **CDFG** | California Department of Fish and Game |
| **CESA** | California Endangered Species Act |
| **City** | City of Irvine |
| **CMP** | Conceptual Master Plan |
| **CNDDB** | California Natural Diversity Data Base |
| **CNPS** | California Native Plant Society |
| **Corps** | United States Army Corp of Engineers |
| **County** | County of Orange |
| **CSS** | Coastal Sage Scrub |
| **EMA** | Environmental Management Agency |
| **FESA** | Federal Endangered Species Act |
| **FRB Landfill** | Frank R. Bowerman Landfill |
| **ft** | feet/foot |
| **GDP** | General Development Plan |
| **HBP** | Harbors Beaches and Parks (now OC Parks) |
| **HCP** | Habitat Conservation Plan |
| **HCS** | Habitat Classification System |
| **km** | kilometer(s) |
| **LCOS** | Limestone Canyon Open Space |
| **mi** | mile(s) |
| **MOU** | Memorandum of Understanding |
| **NCCP** | Natural Community Conservation Plan |
| **NCCP/HCP** | Natural Community Conservation Plan and Habitat Conservation Plan |
| **NROC** | Nature Reserve of Orange County |
| **OSPN** | Open Space Preserve - North |
| **PA** | Planning Area |
| **RRMP** | Recreation and Resource Management Plan |
| **SilMod** | Silverado and Modjeska Canyons |
| **SR-241** | State Route 241 |
| **SR-261** | State Route 261 |
| **TCA** | Transportation Corridor Agencies |
| **USFWS** | United States Fish and Wildlife Service |
| **USGS** | United States Geological Survey |

# APPENDIX B

# ANIMAL AND PLANT SPECIES

# APPENDIX C

# FIRE MANAGEMENT PLAN
# (TO BE PREPARED BY
# THE NATURE RESERVE OF ORANGE COUNTY)

# APPENDIX D

# EXOTIC PLANT CONTROL PLAN
# (TO BE PREPARED BY
# THE NATURE RESERVE OF ORANGE COUNTY)

# APPENDIX E

# INVASIVE AND PEST SPECIES CONTROL PLAN (TO BE PREPARED BY THE NATURE RESERVE OF ORANGE COUNTY)

# APPENDIX F

# RECREATION MONITORING PLAN
# (TO BE PREPARED BY
# THE NATURE RESERVE OF ORANGE COUNTY)

# APPENDIX G

# HABITAT RESTORATION AND ENHANCEMENT PLAN (PREPARED AND COMPLETED BY LSA 2003)

# APPENDIX H

# DESIGN STANDARDS AND GUIDELINES FOR CITY OF IRVINE'S OPEN SPACE TRAILS AND FACILITIES

# APPENDIX I

# REFERENCES

# REFERENCES

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