

FINAL (ADMINISTRATIVE RECORD COPY)

Natural Community Conservation Plan & Habitat Conservation Plan

*County of Orange
Central & Coastal Subregion
Parts I & II: NCCP/HCP*

July 17, 1996

**Prepared for:
County of Orange
Environmental Management Agency
300 North Flower
Santa Ana, CA 92702**



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Natural Community Conservation Plan/
Habitat Conservation Plan**



Parts I & II: NCCP/HCP

**Prepared for:
County of Orange
Environmental Management Agency
and United States Fish and Wildlife Service/
California Department of Fish and Game**

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- Figure 75 Coastal Subarea Final NCCP/HCP Boundaries Reflecting Changes from 12/95 Draft Documents
- Figure 76 Coyote Canyon Landfill Special Linkage

Acronyms

AMP	Allen McColloch Pipeline
AQMP	Air Quality Management Plan
CAA	federal Clean Air Act
CAAQS	California ambient air quality standards
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCC	California Coastal Commission
CDF	California Department of Forestry
CDFG	California Department of Fish and Game
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CHANDIS/SHERMAN	M.H. Sherman Company/Chandis Securities Company
CNF	Cleveland National Forest
CPA	Central Pool Augmentation and Water Quality Project
CSS	coastal sage scrub
CZMA	Coastal Zone Management Act
DOD	Department of Defense
DPR	California Department Parks and Recreation
EA	Environmental Assessment
EIR/EIS	Environmental Impact Report and Environmental Impact Statement
EMA	County of Orange Environmental Management Agency
EMA HBP	County of Orange Department of Harbors, Beaches, and Parks Department
EOGP	East Orange General Plan
ETC	Eastern Transportation Corridor
FESA	federal Endangered Species Act
FTCN	Foothill Transportation Corridor
GIS	Geographic Information System
GDP	General Development Plan
GDPs	County HBP General Development Plans
IA	Implementation Agreement
IRWD	Irvine Ranch Water District
IWMD	County Integrated Waste Management District
LCP	Local Coastal Program
MCAS	Marine Corp Air Station - Tustin
METROPOLITAN	Metropolitan Water District of Southern California
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPA	Metropolitan Planning Organization
MPAH	County of Orange Master Plan of Arterial Highways
NAAQS	national ambient air quality standards
NCCP Act	Natural Community Conservation Planning Act of 1991
NCCP/HCP	Natural Community Conservation Plan and Habitat Conservation Plan
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NOP	Notice of Preparation
NPDES	National Pollution Discharge Elimination System
OCFA	Orange County Fire Authority
OCTA	Orange County Transportation Agency
O/M	Operation and Maintenance
PA	Planning Area

Acronyms - Continued

PCH	Pacific Coast Highway
RMP	Resource Management Plan
RMPs	County HBP Resource Management Plans
RSAs	Regional Statistical Areas
RTIP	Regional Transportation Program
SCAG	Southern California Association of Governments
SCE	Southern California Edison Company
SCWD	Santiago County Water District
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SJHTC	San Joaquin Hills Transportation Corridor
SMARA	State Surface Mining and Reclamation Act
SR	State Route
SRP	Scientific Review Panel
TCA	Transportation Corridor Agencies
TIC	The Irvine Company
TNC	The Nature Conservancy (TNC)II-340
UAC	Urban Activity Center
UCI	Regents, University of California
USEPA	U.S. Environmental Protection Agency
USFWS	U. S. Fish and Wildlife Service

Appendices

- 1 Resource Agency Report to the Legislature: Innovation in Multi-Species Protection in the Coastal Sage Scrub Habitat of Southern California
- 2 State/Federal MOU Dated December 4, 1991
- 3 Special 4(d) Rule for the Coastal California Gnatcatcher and NCCP Conservation Guidelines
- 4 Department of Interior "No Surprises Policy"
- 5 Central and Coastal Subregion NCCP Planning Agreement MOU
- 6 Unabridged Biological Setting Description
- 7 Field survey Data
 - Jones and Stokes 1991/1992
 - Almanza and Atwood 1991/1992
 - Lilburn 1992
 - Sweetwater Environmental Services 1994
 - Dames and Moore Aerial Photo Interpretation 1994
- 8 USFWS Biological Opinions for the Toll Roads
 - San Joaquin Hills Transportation Corridor
 - Eastern Transportation Corridor
 - Foothill Transportation Corridor North
- 9 Scoping Report: Coastal and Central Subregion NCCP/HCP
- 10 Fire Management Studies and Reports
 - County of Orange Wildlands/Urban Task Force
 - Chino Hills State Park Fire Policies
 - Orange County Fire Authority Guidelines for Fuel Modification Plans and Maintenance
- 11 EMA HBP Management Overview
- 12 County Arterial Road Impact Summary
- 13 Reserve Management Cost Estimates
 - Management, Operations and Maintenance Costs of Habitat Reserves (CIC Consulting)
 - Habitat Management Cost Analysis (Center for Natural Lands Management)
- 14 Dana Point Headlands Site Biological Information
- 15 Monitoring Mitigation Plan: Target and Identified Species and CSS
- 16 The Irvine Company Open Space Reserve Stewardship Plan (TNC; 1992)
- 17 USFWS El Toro Land Exchange Assessment
- 18 Northern Orange County HCP Summaries
 - Shell/MWD
 - Unocal
- 19 Summary Pre-NCCP Phased Dedication Commitments
- 20 Sea and Sage Audubon Agreement Covering EOGP
- 21 Crystal Cove State Park General Plan
- 22 1981 AICUZ-MCAS El Toro Excerpts
- 23 Transportation/Air Quality EIR Excerpts
- 24 Cumulative Impacts: General Plan/Master Plan Summaries
- 25 Large Scale Maps
 - Reserve Boundaries
 - Existing Infrastructure
 - Proposed Infrastructure
- 26 CDFG Management Authorization - Central and Coastal Subregion
- 27 USFWS Biological Opinion - Central and Coastal Subregion
- 28 USFWS Record of Decision - Central and Coastal Subregion

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EXECUTIVE SUMMARY

The County of Orange Environmental Management Agency (EMA) has prepared a Natural Community Conservation Plan and Habitat Conservation Plan (NCCP/HCP) for the Central and Coastal Subregion of the County of Orange. This NCCP/HCP was prepared in cooperation with the California Department of Fish and Game (CDFG) and U. S. Fish and Wildlife Service (USFWS). A Joint Environmental Impact Report and Environmental Impact Statement (EIR/EIS) also was prepared for the project in cooperation with CDFG and USFWS. The County EMA is the lead agency responsible for preparing the NCCP/HCP and EIR, while the USFWS is the lead agency responsible for managing preparation of the EIS. Finally, an Implementation Agreement was prepared to provide for effective implementation of the NCCP/HCP.

The NCCP/HCP, Joint EIR/EIS and Implementation Agreement were distributed under a single cover by the County of Orange to facilitate public review of the project. The overall project documentation is presented in several parts:

- an Introduction (Part I) that provides planning and regulatory background information;
- the NCCP/HCP (Part II) that contains the substance of the adopted subregional conservation strategy;
- the Joint EIR/EIS (Part III) that evaluates environmental consequences of the alternatives;
- the Implementation Agreement (Part IV) that outlines the specific enforceable measures and mechanisms that are required to effectively implement the NCCP/HCP;
- a Map Section, separately bound, containing all figures referenced in the text of Parts I through IV; and
- appendices.

The NCCP/HCP, including Parts I and II are bound as a single volume. The Joint EIR/EIS and Implementation Agreement are contained in two attached, but separate volumes. This

Executive Summary discusses the NCCP/HCP. Please note that all figures referenced in this Executive Summary and in the NCCP/HCP and EIR/EIS are contained in the attached, separately bound, Map Section.

PURPOSES OF THE NCCP/HCP

When the California Legislature enacted the NCCP Act in 1991, it declared that "there is a need for broad-based planning to provide for effective protection and conservation of the state's wildlife heritage while continuing to allow appropriate development and growth." Accordingly, the purposes of the NCCP/HCP focus on creating a multiple-species, multiple-habitat subregional Reserve System and implementing a long-term "adaptive management" program that will protect coastal sage scrub (CSS) and other habitats and species located within the CSS habitat mosaic, while providing for economic uses that will meet the social and economic needs of the people of the subregion.

The primary goal of the NCCP/HCP is to protect and manage habitat supporting a broad range of plant and animal populations that now are found within the Central and Coastal Subregion. To accomplish this goal, the NCCP/HCP creates a subregional habitat Reserve System and implements a coordinated program to manage biological resources within the habitat reserve. Creating a defined Reserve System will provide certainty to the public and to affected landowners with respect to the location of future development and open space within the subregion. Specific project purposes of the NCCP/HCP are:

- planning for the protection of multiple-species and multiple-habitats within the coastal sage scrub habitat mosaic by creating a habitat Reserve System that contains substantial coastal sage scrub, chaparral, grasslands, riparian, oak woodlands, cliff and rock, forest and other habitats;
- developing a conservation program that shifts away from the current focus on 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;

- protecting the federally-listed coastal California gnatcatcher 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;
- protecting the other two "target species," the coastal cactus wren and orange-throated whiptail lizard, by treating them "as if they were listed" under Section 10(a) of FESA and allowing Incidental Take of these species;
- protecting non-CSS habitat within the CSS habitat mosaic at a level comparable to the protection provided for CSS, thereby contributing to the protection of a broader range of species than just the target species or CSS species;
- addressing the habitat needs of the non-target species within the subregion and the non-CSS habitats, including protecting six other federally-listed species consistent with FESA Section 10(a) and treating 30 other "identified" species "as if they were listed" under Section 10(a) of the FESA;
- addressing the conservation of sensitive species located on the Dana Point Headlands site, including the coastal California gnatcatcher, Pacific pocket mouse, other Identified Species and five designated plant species;
- building upon prior regional open space planning that has occurred in Orange County and integrating that open space planning into the creation of the habitat Reserve System and subregional conservation strategy; and
- addressing impacts to CSS and non-CSS habitats and related NCCP/HCP species addressed in the Joint EIR/EIS in a manner that will be used and relied upon in conjunction with future environmental reviews and documents.

SUBREGION DESCRIPTION

The Central and Coastal Subregion is a 208,000-acre area (about 325 square miles) that includes the central portion of the County of Orange, incorporating the area from the coastline inland to Riverside County (Figure 1). The subregion extends along the coast from the mouth of the Santa Ana River (Costa Mesa) to the mouth of San Juan Creek (Dana Point). The

inland boundaries of the subregion follow State Route 91 along the west and El Toro Road and Interstate 5 to San Juan Creek to the east. Existing natural habitat, including 13 major vegetation types, cover about one-half of the overall Central and Coastal Subregion. The remainder of the subregion is already urbanized or committed to agricultural uses.

NCCP PROGRAM OVERVIEW

The County's Central and Coastal Subregion is one of eleven NCCP subregions within the five-county southern California area identified by the State of California's Southern California Coastal Sage Scrub NCCP program (Figure 2). This NCCP pilot program focuses on the protection of coastal sage scrub habitat (CSS) and adjacent habitats. By formulating conservation strategies for entire habitat systems, the state's NCCP program attempts to address long-term biological protection and management of multiple species at a subregional level.

The habitat-based multiple-species conservation strategy envisioned by the state's NCCP program differs fundamentally from previous individual species protection strategies followed under the California Endangered Species Act (CESA) and the federal Endangered Species Act (FESA). The latter laws identify and protect *individual* species that already have declined in number to a point where intervention by state or federal agencies is needed.

Under the NCCP approach, the focus changes to *conserving* natural communities rather than individual species, while providing for the protection of species listed under CESA and FESA and *accommodating* compatible land uses. The NCCP program is designed to provide incentives that will attract landowners, government agencies, and public interests to become stakeholders in a collaborative partnership. Conservation principles are applied at the natural community level, rather than focusing on new listings and regulating individual species. This shift in focus toward protection of a mosaic of natural communities enhances the ability of local, state and federal agencies to provide long-term protection for a broad range of species that are dependent on the natural communities. Reducing the need for future listings also reduces public/private costs and land use conflicts related to the endangered species regulatory process. Protection of endangered species and habitats will be more attractive to affected agencies and the public because the NCCP/HCP will lead to increased local control and streamlining of regulatory processes, and because it will increase certainty for local governments and landowners involved in planning future infrastructure and other economic uses.

STATE/FEDERAL REGULATORY FRAMEWORK

The NCCP/HCP has been prepared in cooperation with the California Department of Fish and Game (CDFG) and the U. S. Fish and Wildlife Service (USFWS). These two agencies are responsible for implementing the state and federal Endangered Species Acts. The County of Orange EMA was the lead agency responsible for preparing the NCCP/HCP and the EIR. The USFWS was the lead agency responsible for managing preparation of the EIS.

Approval and implementation of the NCCP/HCP allows the conservation of large, diverse areas of natural habitat, including the habitat for the federally-threatened coastal California gnatcatcher and other federally-listed species. Satisfactory implementation of the NCCP/HCP and terms of the Implementation Agreement satisfies state and federal mitigation requirements for designated development and adequately provides for the conservation, protection and management of the coastal California gnatcatcher and thirty-eight "Identified Species" and their habitats. Development activities covered by the NCCP/HCP include identified public infrastructure facilities, such as roads, utilities and recreation facilities, and private residential, commercial and industrial development. The NCCP/HCP does not provide for entitlements for proposed new development, nor does it provide mitigation for impacts other than those involving the Identified Species and their habitats. However, the ability to mitigate appropriate and compatible development within the subregion consistent with the NCCP/HCP, and with the state and federal ESAs, means the NCCP/HCP provides both economic and endangered species protection benefits.

The regulatory framework within which the NCCP/HCP and Joint EIR/EIS were prepared includes:

- the NCCP Act of 1991, which is intended to facilitate long-term regional protection of natural vegetation and wildlife diversity while allowing compatible land uses and appropriate development and growth;
- the March 30, 1993, listing of the coastal California gnatcatcher as a "threatened" species and the September 29, 1994, listing of the Pacific pocket mouse and December 16, 1994, listing of the southwestern arroyo toad as "endangered" species under the provisions of the FESA; and

- the Special 4(d) Rule enacted by the Department of the Interior to encourage preparation of NCCPs by establishing the NCCP Act as a primary program for addressing the federal listing of the gnatcatcher.

PARTICIPANTS IN THE NCCP/HCP PROCESS

As noted above, the County was the lead agency responsible for preparing the NCCP/HCP and EIR while the USFWS was the lead agency responsible for managing the preparation of the EIS. The CDFG is a reviewing agency for all documents. Upon approval of the NCCP/HCP and Implementation Agreement, which constituted the Management Authorization under the NCCP Act and CESA, CDFG will issue CESA permits. It is important to note that preparation of the NCCP/HCP also involved local governments, landowners, and environmental interests.

Local Governments

In addition to the unincorporated County jurisdiction, the Central and Coastal Subregion contains all or portions of sixteen cities. The NCCP/HCP was prepared in accordance with the terms of a May 7, 1993, Planning Memorandum of Agreement (MOA) signed by the CDFG, USFWS, the County and “*participating landowners*”. Subsequently, eleven of the cities located within the subregion also signed this MOA.

The habitat Reserve System created by the NCCP/HCP includes lands located in seven of these cities in addition to the unincorporated County jurisdiction. Local government jurisdictions that contain lands included in the reserve are the:

- City of Anaheim;
- City of Costa Mesa;
- City of Irvine;
- City of Laguna Beach;
- City of Newport Beach;
- City of Orange;
- City of San Juan Capistrano; and
- Unincorporated County of Orange.

These local government jurisdictions, along with other local governments within the subregion that rely on the NCCP/HCP for mitigation for development activities affecting occupied gnatcatcher habitat, have been asked to become signatories to the Central and Coastal Subregion NCCP/HCP Implementation Agreement and participate in the implementation of the NCCP/HCP. The NCCP/HCP (Chapter 4) and the Implementation Agreement explain what participation in the NCCP/HCP would mean for local government signatories to the Implementation Agreement.

Landowners

Two categories of landowners are identified by the NCCP/HCP: *participating landowners* and *non-participating landowners*. Each of these landowner categories is offered different endangered species habitat mitigation opportunities.

Participating landowners are those public and private landowners contributing significant land and/or funding toward implementation of the Reserve System and adaptive management program. The “*participating landowners*” include:

- Southern California Edison;
- Metropolitan Water District of Southern California;
- Irvine Ranch Water District;
- Santiago County Water District;
- Transportation Corridor Agencies;
- M.H. Sherman Company/Chandis Securities Company/Sherman Foundation
- The Irvine Company;
- University of California-Irvine;
- California Department of Parks and Recreation;
- California Department of Fish and Game; and
- County of Orange.

For these landowners, development activities and uses that are addressed by the NCCP/HCP are considered fully mitigated under the NCCP Act and the state and federal ESAs for impacts to habitat occupied by listed and other species “identified” by the NCCP/HCP and Implementation Agreement. Satisfactory implementation of the NCCP/HCP under the terms of the Implementation Agreement means that no additional mitigation will be required of

“participating landowners” for impacts to “identified” species and their habitat, or for species residing in specified non-CSS habitats (referred to as “covered habitats”).

Other landowners within the subregion are not contributing either significant land to the Reserve System or funding for the adaptive management program. These landowners are *“non-participating landowners.”* The NCCP/HCP provides these *“non-participating landowners”* with a different mitigation option recognizing that they are required under current law to assure that impacts to listed species resulting from activities on their lands are fully mitigated consistent with the CESA and FESA (Chapter 7). These *“non-participating landowners”* may satisfy the requirements of FESA and CESA with respect to listed CSS species covered under the NCCP/HCP in any of the following ways: (1) onsite avoidance of Take; (2) satisfaction of applicable FESA and CESA provisions under the consultation and permit provisions of these statutes; or (3) payment of a Mitigation Fee to the non-profit management corporation as provided for in the NCCP/HCP and Implementation Agreement.

Environmental Interests

During the preparation of the NCCP/HCP, representatives of various environmental interests were involved in the process through the creation of a “Working Group” that met to discuss NCCP planning issues. The purpose of this group was to provide an opportunity for an open dialogue on important NCCP planning issues concurrent with preparation of the NCCP/HCP. This working group was created shortly after the NCCP/HCP process was initiated and included representatives of environmental interests nominated by the following statewide environmental organizations: the National Audubon Society, Natural Resource Defense Council and The Nature Conservancy.

The working group also included the Consultant Team, *“participating landowners”*, CDFG and USFWS staff. As planning progressed, initial screencheck documents, such as chapters of the NCCP/HCP, maps and the preliminary reserve design, were submitted to the Working Group for review and discussion. The intent was to provide an opportunity for environmental interests to provide ongoing comments concerning the scope and content of the NCCP/HCP as it was being prepared.

PROJECT DESCRIPTION

The NCCP/HCP consists of several component parts designed to provide long-term protection for the CSS and non-CSS habitats within the subregion. These components are intended to meet three fundamental requirements:

- maintaining net habitat values on a long-term basis for target and Identified Species (per the NCCP Planning Guidelines);
- not appreciably reducing the likelihood of species survival and recovery in the wild and achieving other Incidental Take permit issuance standards (per Section 10(a)(1)(B) of FESA); and
- identifying areas where new economic uses would be allowable, consistent with the subregional conservation strategy.

The following key components combine to make up the NCCP/HCP.

1. Habitat Reserve System

A 37,378-acre habitat Reserve System will be created that will include significant areas of twelve of the thirteen major habitat types located within the subregion (Figure 12 and Table 1-ES).

The Reserve System will protect more than 18,500 acres of CSS habitat and is also designed to function as a multiple-habitat system. In addition to CSS habitat, it also contains about 6,950 acres of chaparral, 5,700 acres of grasslands, 1,750 acres of riparian, 950 acres of woodland, 200 acres of forest habitat and significant portions of six other habitat types now existing within the subregion. Only coastal dune habitat is not included within the Reserve System. In terms of target bird species, the reserve contains 370 coastal California gnatcatcher sites and 671 coastal cactus wren sites.

Table 1-ES
Central & Coastal Subregion NCCP
Habitat Reserve Vegetation and Target Species

Vegetation	Reserve	Special Linkage	Existing Use	Non Reserve Open Space	Policy Plan Area	National Forest OS	National Forest Private	Other Non Reserve	Total
Area in Acres									
Dunes	0	0	0	0	0	9	8	2	18
Scrub	18,527	449	1,103	283	3,006	1,733	1,835	7,456	34,392
Chaparral	6,950	23	735	79	5,251	13,114	6,510	2,556	35,218
Grassland	5,732	518	1,053	1,402	694	105	346	12,025	21,874
Vernal Pools	9	2	0	0	0	0	0	42	53
Marsh	343	0	29	234	0	0	0	52	657
Riparian	1,770	116	116	379	240	804	497	1,204	5,126
Woodlands	940	16	33	52	157	253	179	291	1,920
Forest	191	0	0	0	2	563	43	5	804
Cliff and Rock	74	7	1	1	14	29	12	35	173
Marine & Coastal	362	0	15	0	0	0	0	1,553	1,930
Lakes, Reservoirs, Basins	99	10	1	790	0	0	0	456	1,357
Water Courses	182	1	22	8	0	0	9	563	784
Agriculture	577	90	5	83	0	0	21	12,489	13,265
Developed	694	199	415	324	23	12	254	81,210	83,131
Disturbed	929	475	269	195	68	10	59	6,004	8,008
Total	37,378	1,906	3,796	3,831	9,456	16,632	9,772	125,942	208,713

Gnatcatcher Total Sightings	370	20	87	10	5	0	0	108	600
Cactus Wren Total Sightings	671	39	64	0	14	0	0	206	994
Total Sightings	1,041	59	151	10	19	0	0	314	1,594

CSS	Total Acres	18,527	449	1,103	283	3,006	1,733	1,835	7,456	34,392
OW	Total Acres	16,651	693	2,004	2,946	6,358	14,877	7,603	18,784	69,915
DDA	Total Acres	2,200	764	689	602	92	22	334	99,702	104,405

Notes:

CSS - Coastal Sage Scrub Habitat

OW - Other Wildland Habitat

DDA - Developed, Disturbed and Agriculture

1) *Target Species Sites in the National Forest are excluded from this analysis.

2) Target Species Sites impacted by Corridor Projects are excluded from this analysis.



When it is fully assembled, the habitat Reserve System will be owned and managed by public agencies and administered by a Non-Profit Management Corporation consisting of representatives of individual reserve owners, the CDFG, California Department of Forestry (CDF), USFWS and three “public” members appointed by the Board of Directors. The Non-Profit 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 habitat requirements for each of the species identified are addressed in the NCCP/HCP. Coverage for the ten “conditionally covered” species is conditioned on implementation of mitigation measures called out in the NCCP/HCP.

Within the Reserve System the NCCP/HCP restricts the kinds of permitted uses to protect long-term habitat values. Residential, commercial and industrial uses are prohibited, as are new active recreational uses outside already-disturbed areas. However, the NCCP/HCP recognizes that some new non-habitat uses will need to be sited in the Reserve System (*e.g.*, infrastructure facilities such as roads, flood control, sanitary landfills, utilities, water storage facilities) and that some existing uses will be maintained (*e.g.*, recreation facilities). New recreational facilities will be sited in locations compatible with habitat protection based on the understanding that recreational use is subordinate to habitat protection within the reserve.

2. *The Adaptive Management Program*

The NCCP/HCP proposes the creation of a comprehensive habitat management program designed to protect the biological resources within the reserve over the long term. Based on the principles set forth in the NCCP Planning Guidelines, this management regime is called “adaptive management.” It literally means that management actions within the reserve will be monitored closely and modified (adapted) over time to respond to new scientific information, and changing conditions and habitat needs.

The adaptive management program is described in Chapter 5. Key elements of the adaptive management program include the following:

- monitoring and associated management of the biological resources located within the Reserve System;

- consideration of species population enhancement, propagation and re-introduction within the reserve;
- restoration and enhancement actions within the reserve such as eradication of invasive/pest plant and animal species, grazing management and revegetation;
- short-term and long-term fire management measures within the reserve;
- management of public access and recreation use within the reserve;
- management of uses existing prior to creation of the Reserve System;
- assurances that permitted infrastructure uses proceed in a manner provided for in the NCCP/HCP;
- interim management of privately-owned lands prior to transfer of legal title to the public reserve manager or non-profit management corporation; and
- restoration and enhancement of CSS and non-CSS habitat within the Reserve System and, as funding is available, acquisition of existing CSS habitat outside the reserve to offset potential loss of net long-term habitat value due to development of CSS and non-CSS habitat owned by “*non-participating landowners*” outside the Reserve System.

It is anticipated that the adaptive management program would be fully operational one year following approval of the NCCP/HCP and creation of the non-profit management corporation.

3. *Non-Reserve Supplemental Habitat Areas*

Outside the Reserve System, areas are designated that add to the habitat values provided by the reserve by enhancing biological connectivity and/or maintaining existing populations of “target species.” Non-reserve supplemental habitat areas cover more than 5,702 acres within the subregion and consist of “Special Linkages” and “Existing Use Areas.” These areas are not included within the reserve because it has been determined that inclusion of these areas is not necessary for the reserve to function consistent with state and federal law (Figure 3 and Table 1). Accordingly, these areas are not subject to the reserve adaptive management policies

and use restrictions. However, these supplemental habitat areas currently provide benefits to Identified Species and they are expected to continue to do so in the future.

The designated "special linkage areas," including ten areas totaling 1,906 acres are located on lands owned by "*participating landowners*". A limited amount of Incidental Take (four gnatcatcher sites and about 106 acres of CSS) is authorized by and mitigated under the NCCP/HCP within identified "Incidental Take" for Take related to the construction of three proposed golf courses, a road extension and landfill activities. No additional mitigation will be required for this Take in addition to the mitigation provided by the NCCP/HCP.

"Existing Use Areas" designated in the NCCP/HCP include eight areas totaling 3,796 acres located on lands owned by "*non-participating landowners*". The term "Existing Use Areas" is applied to these areas because no additional restrictions on existing landowner uses or additional regulation/management by local governments would be required within these areas unless a change in existing land use is proposed. The NCCP/HCP does not authorize Incidental Take within these areas; therefore, if a change in land use is proposed by landowners they will need to obtain approval from the USFWS, just as currently required under the FESA.

4. *North Ranch Policy Plan Area*

Almost all of the lands located within the Central and Coastal Subregion and outside the Cleveland National Forest have been the subject of general plan amendments or specific planning by local government agencies and landowners. The notable exception is a 9,456-acre area located north of Irvine Lake and east of the cities of Anaheim and Orange that is owned by The Irvine Company. This area is called the North Ranch Area (Figure 12). The NCCP/HCP proposal to designate the North Ranch as a "Policy Plan Area" reflects the fact that it has not been master planned, CSS is not the dominant habitat within the area, there are few target species present, most of the area is not suitable habitat for the target species because elevations generally are higher than those tolerated by target species, and there is insufficient knowledge upon which to base site specific conservation and development decisions or to identify suitable "target" species within the North Ranch Area. The NCCP/HCP does not authorize future Incidental Take within this area.

The North Ranch Area is not treated as mitigation for habitat impacts related to the NCCP/HCP, nor is future development within the North Ranch Area mitigated by the NCCP/HCP. Decisions concerning future land uses within this area will carry out the specific North Ranch Area conservation and development planning policies contained in Chapter 4. Future planning actions will focus on protecting and enhancing the function of the NCCP/HCP habitat Reserve System by providing for biological linkages that will maintain viable connections between elements of the Reserve System, by identifying lands that will contribute to improved subregional biodiversity within the context of the NCCP/HCP Reserve System and by designation of lands appropriate for development.

5. *Interim Management Program*

About 15,000 acres of the Reserve System is currently publicly owned and is included in the reserve in compliance with the approved (July 17, 1996) NCCP/HCP Implementation Agreement. However, because more than 20,000 acres of the reserve are privately-owned, and because most of the private ownership is subject to phased dedication commitments that preceded the NCCP/HCP, it will take many years to complete these open space dedication programs. To address the need for managing these lands prior to dedication, "*participating landowners*" will allow the non-profit management entity to implement "interim" habitat management measures during the time following approval of the NCCP/HCP and the actual transfer of lands from private to public ownership. The purpose of this interim management will be to maintain and, potentially, to improve habitat values on lands designated for inclusion within the reserve.

The NCCP/HCP (Chapter 5) describes the interim protection measures that will be implemented on designated participating land ownerships under the direction of the non-profit management corporation. Interim management measures include:

- permitting access to lands designated for inclusion in the Reserve System for purposes of conducting annual species and habitat monitoring and inventories;
- permitting fire management planning and implementation activities under County/CDF authority;

- permitting measures designed to control invasive plant and predatory animal species as provided for under the adaptive management program;
- at the discretion of the landowner, allowing management, restoration and enhancement activities; and
- preparing and implementing a grazing management plan.

6. *Funding Reserve Creation and Habitat Management*

The NCCP/HCP identifies funding to pay for the creation and long-term management of the Reserve System. More than 20,000 acres of the private lands would be added to the reserve at no cost to the County or other public agencies. The NCCP/HCP also includes County proposals to acquire about 750 acres of private lands owned by "willing" sellers that were identified for acquisition by the County prior to commencement of the NCCP/HCP. While they would enhance the function of the reserve, only one of the parcels (the SCE property adjacent to Portola Ranch) is considered essential to reserve function. The total cost of the acquisition sites is estimated to be about \$9 million. If necessary, the NCCP/HCP would permit the use of any mitigation fees collected from "*non-participating landowners*" to accomplish the purchase of these identified lands.

In addition, the NCCP/HCP creates an endowment fund of more than \$10.665 million to pay for the ongoing adaptive management program within the reserve. The endowment will be operated on a non-wasting basis, meaning that the principal would be protected and management would be funded by interest earned by the account. Endowment funding will be provided by the following entities:

- the Transportation Corridor Agencies;
- Irvine Ranch Water District;
- Chandis-Sherman;
- Metropolitan Water District;
- Santiago County Water District;
- Southern California Edison; and
- County of Orange (using federal pass-through funds).

All necessary funding commitments to establish this habitat management endowment are in hand and described by the NCCP/HCP in Chapter 6.

Finally, major restoration and revegetation of lands within the reserve will be funded by any mitigation fees received by the non-profit managing entity from *“non-participating landowners”* (i.e. landowners other than the landowners identified in the NCCP/HCP that are contributing significant land and/or funding to the NCCP/HCP) who elect to use the NCCP/HCP mitigation fee program as a way to meet the requirements of FESA and CESA for activities impacting habitat occupied by listed species. These mitigation fees, which could total \$6.0 million over the first 20 years of the program, will be allocated to designated land acquisitions or restoration areas within the Reserve System.

SPECIES AND HABITATS COVERED UNDER THE NCCP/HCP

The subregional reserve design process for the Central and Coastal Subregion focused on protecting CSS habitat and three designated “target species:” the coastal California gnatcatcher, the coastal cactus wren and the orange-throated whiptail lizard. However, as envisioned by the NCCP Planning Guidelines, the Reserve System designed for the three “target species” actually provides significant levels of protection for a much broader range of habitats and species than just CSS and the three target species.

1. Species Receiving Coverage Under the NCCP/HCP

The NCCP/HCP provides regulatory coverage for a total of thirty-nine (39) individual species. The 39 species receiving regulatory coverage would include the three “target species,” six additional federally-listed species and 30 other “identified” species that currently are not listed under either the CESA or FESA but are found within the subregional CSS habitat mosaic (refer to Table 2-ES for a list of covered species and identification of federally-listed species). All of the “target and identified” species included in Table 2-ES would be treated “as if listed.” Under the NCCP/HCP, regulatory coverage means that future Incidental Take of “target and identified” species would be permitted for new development (planned activities) addressed by the NCCP/HCP, and that no additional habitat mitigation for such Incidental Take under CESA and FESA would be required by local, state or federal agencies over and above the mitigation provided for by the NCCP/HCP.

**Table 2-ES:
TARGET AND IDENTIFIED SPECIES RECEIVING
REGULATORY COVERAGE UNDER THE NCCP/HCP ‡**

Target Species (3)

- * Coastal California gnatcatcher
- coastal cactus wren
- orange-throated whiptail

Mammals (3)

- San Diego desert woodrat
- coyote
- gray fox

Birds (6)

- northern harrier
- sharp-shinned hawk
- * peregrine falcon
- red-shouldered hawk
- rough-legged hawk
- southern California rufous-sparrow

Reptiles (6)

- coastal western whiptail
- San Bernardino ringneck snake
- red diamondback rattlesnake
- San Diego horned lizard
- Coronado skink
- coastal rosy boa

Amphibians (3)

- arboreal salamander
- western spadefoot toad
- black-bellied slender salamander

Plants (8)

- Catalina mariposa lily
- Laguna beach Dudleya
- Santa Monica Mts Dudleya
- Nuttal's scrub oak
- small-flowered mountain mahogany
- heart-leaved pitcher sage
- Coulter's mantilija poppy
- Tecate cypress

Conditionally Covered Species (10)

- * least Bell's vireo
- * southwestern willow flycatcher
- * southwestern arroyo toad
- Quino (Wright's) checkerspot
- golden eagle
- prairie falcon
- * Riverside Fairy shrimp
- San Diego fairy shrimp
- * Pacific pocket mouse
- foothill mariposa lily

‡ *In addition to the 39 "Identified Species" regulatory coverage for Incidental Take is also provided on the Dana Point Headlands site only for: Blochman's Dudleya, Western Dichondra, Cliff Spurge, Coast Scrub Oak and Palmer's Grappling Hook, to the extent that they may occur on the Headlands site.*

* *Species that currently are on the federal list of "threatened or endangered" species.*

In addition, regulatory coverage also would be provided on the Dana Point Headlands site only, to five plant species to the extent that such species occur on the Headlands site.

2. *Assurances Provided to Participating Landowners Concerning Species Located in specified Non-CSS Habitats (Covered Habitats).*

In addition to the regulatory coverage for Incidental Take of CSS habitat and the 39 “target and Identified Species” cited above, the NCCP/HCP contains assurances to “*participating landowners*” relating to future impacts on other species located within specified habitats outside the habitat Reserve System. The USFWS and CDFG have determined that the programmatic elements of the NCCP/HCP further the protection of certain habitats in a manner comparable to the protection provided for CSS habitat. These habitat types are referred to as “covered habitats” and include (Figure 69):

- oak woodlands;
- Tecate cypress forest;
- cliff and rock; and,
- within the Coastal Subarea only, chaparral.

For these habitats, CDFG and USFWS will assume, subject to the terms of the Implementation Agreement, the responsibility for assuring that all statutory and regulatory requirements necessary to issue Section 10(a)(1)(B) and/or Section 2081 permits and authorizations to “*participating landowners*” for listed species found in these habitats that are affected by planned activities. USFWS and CDFG have issued or will issue Section 10/2081 permits and authorizations to “*participating landowners*” concurrent with the listing. The rationale for these assurances are set forth in chapters 4 and 8 of the NCCP/HCP.

IMPACTS AND MITIGATION UNDER THE NCCP/HCP

The NCCP/HCP establishes a Reserve System that contains 37,378 acres, including more than 18,500 acres of CSS. In addition, more than 3,831 acres of non-reserve public open space is located within the subregion adjacent to the Reserve System, and 5,702 acres are included within the “supplemental non-reserve habitat areas.” In all, almost 47,000 acres are included

within the Reserve System, other permanent public open space, and the "supplemental" non-reserve habitat areas. These areas contain 487 of the gnatcatcher sites (81 percent), and 774 of the cactus wren sites (78 percent) identified during the NCCP field surveys. Also included within these areas are more than 20,350 acres of CSS, 7,700 acres of chaparral and 8,700 acres of grassland habitat. The multiple habitat protection provided by the NCCP/HCP's habitat reserve is demonstrated by the fact that the reserve contains the following percentages of existing habitat types within the subregion:

- 60 percent of CSS
- 45 percent of chaparral
- 27 percent of grasslands
- 18 percent of vernal pools
- 56 percent of cliff and rock
- 52 percent of marsh
- 46 percent of riparian
- 64 percent of woodlands
- 97 percent of forests

1. Incidental Take on Lands Located Inside the Habitat Reserve System or Within Special Linkage Areas

The NCCP/HCP, in conjunction with its associated Section 10(a)(1)(B) permits, authorizes the Incidental Take of 618 acres of CSS habitat, including 135 acres of occupied CSS habitat within the reserve and special linkage areas. The impacted CSS in these areas currently support an estimated 13 gnatcatcher sites located within the reserve (nine sites, 95 acres) and Special Linkage Areas (four sites, 40 acres). This Incidental Take is related to future activities proposed by "*participating landowners*" and permitted and mitigated for purposes of impacts to listed and Identified Species under the NCCP/HCP.

2. Impacts on Lands Located Outside the Habitat Reserve System

Target and Identified Species are protected by the two large reserves in the Central Subarea and the Coastal Subarea. Impacts on occupied "target and identified" species habitat located outside the Reserve System would be permitted subject to the terms of the NCCP/HCP, Implementation Agreement and applicable local, state and federal laws (e.g. the federal Clean Water Act). These non-reserve areas contain about 6,826 acres of CSS habitat, including 1,082 acres of occupied CSS habitat containing 108 gnatcatcher sites and 206 cactus wren sites. The NCCP/HCP proposes to authorize Incidental Take within these lands for the coastal

California gnatcatcher, and for Identified Species listed in the future under the terms of the NCCP/HCP. Of the 108 gnatcatcher sites that could be impacted by future development, 97 sites are located on lands owned by "*participating landowners*," and 11 sites are on lands owned by "*non-participating landowners*."

The North Ranch Policy Plan Area contains about 3,000 acres of CSS habitat, five gnatcatcher sites and fourteen cactus wren sites. The NCCP/HCP is not mitigated by, nor does it mitigate future potential development impacts within the North Ranch Policy Plan Area. No Incidental Take of the gnatcatcher or other Identified Species is authorized by the NCCP/HCP for the Policy Plan Area. Future development will be reviewed, approved and mitigated in accordance with the conservation and development policies contained in Chapter 4 of the NCCP/HCP.

In addition to the CSS/gnatcatcher impacts discussed above, the NCCP/HCP creates a temporary 22-acre preserve on the Dana Point Headlands site for the federally-endangered Pacific pocket mouse. This temporary preserve is not a part of the subregional habitat Reserve System. It is created and funding is provided (\$700,000 over and above the NCCP Endowment fund) to study the pocket mouse, determine the feasibility of alternative population conservation/enhancement techniques, and fund recovery efforts for this species.

3. Subregional Summary of Authorized Take

The potential conversion of CSS permitted under the NCCP/HCP, without regard to whether it is occupied by gnatcatchers or other listed species, would be 7,444 acres. The 7,444 acres amounts to 24 percent of the remaining 30,833 acres of CSS habitat within the subregion and outside the Cleveland National Forest.

The authorized Incidental Take includes an estimated 1,217 acres of occupied CSS habitat containing 121 gnatcatcher sites. An estimated 600 acres of occupied CSS habitat containing 87 gnatcatcher sites located within "Existing Use Areas" is not authorized for Incidental Take. The NCCP/HCP does not authorize Incidental Take within the North Ranch Area. The habitat in these areas would, as currently is the case, continue to be regulated by the USFWS.

NCCP/HCP ALTERNATIVES AND CONSISTENCY WITH STATE AND FEDERAL LAWS

Chapters 8 and 9 of the NCCP/HCP evaluate the consistency of this NCCP/HCP with applicable state and federal laws and regulations (Chapter 8) and discuss alternative conservation strategies that were considered, including the approved project (Chapter 9). Specific reserve design alternatives also are addressed in Chapter 3 of the NCCP/HCP and in chapters 5 and 7 of the Joint EIR/EIS. These discussions indicate that the NCCP/HCP is consistent with the NCCP Act, the NCCP Planning Guidelines, CESA and FESA. The alternatives assessment concludes that the NCCP/HCP is the "preferred alternative" for purposes of more detailed environmental assessment in the Joint EIR/EIS.

PUBLIC REVIEW PROCESS

The NCCP/HCP and related documents were reviewed by the public and appropriate state and federal agencies. The public review process for the Draft NCCP/HCP and related documents (Joint EIR/EIS and Implementation Agreement) commenced in December, 1995 with the 45-day public review period. The County of Orange conducted public hearings on the draft documents during the months of February, March and April, 1996, following completion of the public review and comment period. The Planning Commission conducted hearings first and, following action by the Planning Commission, the project was forwarded to the Board of Supervisors for hearings and action. During these public hearings interested members of the public, public agencies, landowners and other interested parties were offered opportunities to comment on the draft versions of the NCCP/HCP, Joint EIR/EIS and Implementation Agreement. The Board of Supervisors approved the NCCP/HCP, Joint EIR/EIS and Implementation Agreement on April 16, 1996.

Local government jurisdiction staff participated in the preparation of the NCCP/HCP and Implementation Agreement through periodic meetings during the planning process. Concurrent with the County of Orange public hearings, the Draft NCCP/HCP and related documents were reviewed by local jurisdictions within the subregion that were considering participation in the NCCP/HCP program. As appropriate, these local jurisdictions commented on the NCCP/HCP and related documents in writing and/or as a part of the County's public hearing process.

After final action by the Board of Supervisors on the NCCP/HCP, Joint EIR/EIS and Implementation Agreement, the CDFG issued its Management Authorization for the NCCP/HCP (refer to Appendix 26) and signed the Implementation Agreement on July 17, 1996. The USFWS issued its Biological Opinion (Appendix 27) and signed a Record of Decision on the EIS (Appendix 28) and the Implementation Agreement on July 17, 1996. These actions by the CDFG and USFWS constituted final approval of the NCCP/HCP and related documents. Additional local governments and other potential participants in the NCCP/HCP process have been invited to sign the Implementation Agreement.

The "effective date" of the NCCP/HCP is July 17, 1996, the date that the Implementation Agreement was signed by the County of Orange, CDFG, USFWS, and TIC. Other "*participating landowners*" /jurisdictions signed the Agreement concurrently, including the State DPR, TCA, IRWD, METROPOLITAN, SCE, SCWD, Chandis-Sherman and OCEA. The USFWS has issued the appropriate Section 10(a) Permit to these "*participating landowners*" /jurisdictions for Take and/or associated activities of the coastal California gnatcatcher and six other federally-listed Identified Species concurrent with execution of the Implementation Agreement by the respective participants. For any *participating landowner* or local government which becomes a signatory to the Implementation Agreement subsequent to the NCCP/HCP's effective date and submits a federal permit application, USFWS shall issue a Section 10(a) Permit providing the same Take authorization as for parties who signed on the effective date.

Tab placeholder.

PART I: INTRODUCTION

The County of Orange Environmental Management Agency (EMA) has prepared a Coastal Sage Scrub (CSS) Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) and Joint Environmental Impact Report and Environmental Impact Statement (EIR/EIS) for the Central and Coastal NCCP Subregion (refer to Figure 1). The Subregional NCCP/HCP and Joint EIR/EIS were prepared in cooperation with the California Department of Fish and Game (CDFG) and the U. S. Fish and Wildlife Service (USFWS), and in accordance with the provisions of the state Natural Community Conservation Planning Act of 1991 (NCCP Act), California Environmental Quality Act (CEQA), Federal Endangered Species Act (FESA) and National Environmental Policy Act (NEPA). The County EMA was the lead agency responsible for preparation of the NCCP/HCP and the EIR while the USFWS was the lead agency responsible for managing preparation of the EIS.

The NCCP/HCP, Joint Programmatic EIR/EIS, and Implementation Agreement are combined and presented under a single cover by the County of Orange to facilitate public understanding of the project and to expedite approval of an effective NCCP/HCP. Expediting completion of the NCCP/HCP is intended to maximize prospects for long-term protection for habitat associated with the three CSS "target species" and thirty-~~six~~ additional "identified" species and minimize economic disruption caused by state/federal species listings by accomplishing early implementation of a subregional NCCP/HCP.

The overall document is presented in four major parts. The Introduction (Part I) provides planning and regulatory background information and perspective for participants and interested parties that will be important during review of the NCCP/HCP and Joint EIR/EIS.

The NCCP/HCP (Part II) contains the Central and Coastal Subregional NCCP/HCP. The NCCP/HCP sets forth the project need and purposes, describes the subregional biological setting, and outlines the NCCP/HCP planning process. The NCCP/HCP also provides a detailed discussion of the approved subregional conservation strategy, including descriptions of:

- the multiple-habitat, multiple-species habitat Reserve System;

- habitat and species management measures that are part of an “adaptive management” program;
- land uses and activities within the subregional Reserve System that are permitted in addition to adaptive management activities;
- the extent to which the "target species," and other “identified” species, and associated habitat are protected or impacted; and
- ongoing implementation mechanisms (e.g., covering land acquisition, funding and phasing) required to assure the long-term protection and adaptive management of target and Identified Species and related habitat.

After describing the conservation strategy, the NCCP/HCP assesses the approved conservation strategy's consistency with NCCP Planning and Conservation Guidelines and Section 10 of the FESA and addresses the relative impacts of alternative conservation strategies, including "no project," "no take," and "programmatic" alternatives.

Part III of this document consists of the Joint Programmatic EIR/EIS. This component has been prepared and formatted consistent with existing agency guidelines and the requirements of CEQA and NEPA. In addition to describing the proposed action covered by the EIR/EIS, and project purpose and need, the EIR/EIS component evaluates impacts to CSS "target and Identified Species" and to CSS and non-CSS covered habitats resulting from the approved project, describes the affected environment, and evaluates the environmental consequences related to both the proposed action and action alternatives. The EIR/EIS addresses the full range of issues relating to the project consistent with the requirements of CEQA and NEPA. Relevant supporting documents and technical materials are attached as Appendices to the NCCP/HCP and Joint EIR/EIS.

Finally, a Implementation Agreement (Part IV) is provided that specifies the enforceable measures/mechanisms that will bring about the coordinated, orderly implementation of an effective NCCP/HCP. A separate Map Section contained maps/figures cited in Parts I through IV. Binding the maps in a single volume was intended to facilitate use of the maps and to reduce costs associated with color graphics.

A. The NCCP Act Of 1991 And The Pilot CSS NCCP

1. The NCCP Act of 1991

The NCCP program was established by the California Legislature when it enacted the NCCP Act (Fish and Game Code Section 2800 et. seq.). The purpose of the NCCP Program is to provide long-term, regional protection of natural vegetation and wildlife diversity while allowing compatible land uses and appropriate development and growth. The NCCP process was initiated to provide an alternative to "single species" conservation efforts that were relied on under existing state and federal ESAs prior to the NCCP Act. The shift in focus from single species, project by project conservation efforts to conservation planning at the natural community level was intended to facilitate regional protection of a range of species that inhabit a designated natural community while being more "friendly" to the economy than previous approaches.

The NCCP program was designed to be a voluntary, collaborative planning program involving landowners, local governments, state and federal agencies, environmental organizations and interested members of the public in the formulation and approval of the NCCPs. The evolution and focus of the NCCP program was described by the Resources Agency as follows (excerpted from the Resources Bulletin, "Natural Communities Conservation Planning: Questions and Answers").

Experience over the 20-year life of the federal ESA has shown that the results of listing species individually as threatened or endangered under the ESA often does not achieve its objectives. Such listings - despite extensive regulatory powers available under the law - do not necessarily assure the long-term survival of the species and can have serious economic consequences in affected regions. This is because the listing of a single species in a multi-species habitat makes it difficult for land management agencies and developers to determine how best to plan for all the species that may someday be in danger in that area. Bureaucratic indecision encouraged by this uncertainty can thwart not only needed private development, but also sound habitat management efforts crucial to species survival.

The NCCP program is an innovative State effort to protect critical habitat . . . before it becomes so fragmented or degraded by development and other use that a listing of individual species as threatened or endangered is required under the State or Federal Endangered Species Acts. The program is designed to save critical habitat and, at the same time, allow for reasonable economic activity and development on affected land, much of which is privately-owned.

The first application of NCCP is a pilot program in an ecosystem called Coastal Sage Scrub in southern California. . . . The ecosystem . . . is the home of the federally listed California gnatcatcher and more than 50 other potentially threatened or endangered species. The habitat is more prevalent in Orange, Riverside, and San Diego Counties, but is also found in Los Angeles and San Bernardino Counties.

For additional background on the evolution and status of the NCCP program refer to Appendix 1 (Innovation in Multi-Species Protection in the Coastal Sage Habitat of Southern California).

2. Relationship of the Southern California CSS NCCP Program to the Requirements of the FESA

The Southern California CSS NCCP Program is the pilot program under the state's NCCP Act. It is being undertaken by the CDFG and the USFWS pursuant to a December 4, 1991, Memorandum of Understanding (MOU), (refer to Appendix 2). Under the 1991 MOU, CDFG was responsible for developing the NCCP process and for preparing planning guidelines. The USFWS assisted by coordinating review and preparation of the process guidelines. The two agencies also agreed to work together to ensure that NCCPs are prepared by local governments and landowners in a manner that will facilitate compliance with Section 10(a) of the FESA, with the NCCP Act, and with sections 2081 and 2084 of the CESA.

Subsequent to the execution of the Memorandum of Understanding summarized above, the USFWS finalized on March 30, 1993, a rule listing the coastal California gnatcatcher as "threatened" under the provisions of FESA. Concurrent with the publication of its listing

decision for the gnatcatcher, the USFWS published a proposed rule under the provisions of Section 4(d) of FESA that allows the USFWS to fashion special provisions for addressing threatened species. This "special rule" signaled the USFWS' support for the state's CSS NCCP Program as a primary planning and implementation vehicle by which entities proposing Incidental Take of the gnatcatcher could address and satisfy the conservation requirements of Section 10(a)(1)(B) of the FESA (Appendix 3).

On December 10, 1993, the USFWS published the "special rule" for the coastal California gnatcatcher. The special rule stated:

... Incidental Take of the coastal California gnatcatcher will not be considered a violation of Section 9 of the Endangered Species Act of 1973, as amended (Act), if it results from activities conducted pursuant to the State of California's NCCP, and in accordance with a NCCP plan for the protection of CSS habitat, prepared consistent with the state's NCCP Conservation and Process Guidelines, provided that:

- (i) The NCCP plan has been prepared, approved, and implemented pursuant to the California Fish and Game Code sections 2800-2840; and*
- (ii) The USFWS has issued written concurrence that the NCCP plan meets the standards set forth in CFR 17.32(b)(2). The USFWS shall issue its concurrence pursuant to the provisions of the Memorandum of Understanding (MOU), dated December 4, 1991 between the CDFG and the USFWS regarding CSS natural community conservation planning in southern California (Fed. Reg./Vol. 58, No. 236/December 10, 1993, emphasis added).*

The above excerpts from the special rule clearly require that: (a) the NCCP planning process serve as a means of comprehensively addressing CSS habitat conservation concerns; (b) the standard of review for such plans by the USFWS will be Section 10(a)(1)(B) of FESA (the Habitat Conservation Plan provisions of the FESA), and the CDFG NCCP Guidelines; and the 1991 USFWS/CDFG MOU is to serve as the guiding document for USFWS involvement in the review and approval of NCCP plans. Thus, the special rule under Section 4(d) of FESA

provides the regulatory bridge for integrating the state's NCCP program into the HCP/Incidental Take requirements of Section 10(a) of FESA.

3. Summary of Important Elements of the CSS NCCP Program

a. Overview of the Five-County Planning Region and Subregional Planning

The designated five-County regional planning area that comprises the southern California CSS NCCP study area covers approximately 6,000 square miles (refer to Figure 2). The regional planning area includes the County of Orange and portions of the counties of San Diego, Riverside, San Bernardino and Los Angeles. The CSS NCCP process is designed to coordinate regional conservation planning within the entire five-county study area; however, because of the size of the regional planning area and the complexity and range of biological conditions and land planning considerations, the CSS NCCP program is intended to be conducted on a subregional scale.

The state has provided technical guidance for defining subregional planning areas within the five-county CSS NCCP regional planning area (Brussard and Murphy, 1992). In accordance with the NCCP Process Guidelines (November 1993), conservation planning will be conducted within ten to fifteen NCCP subregions. Designation of subregions and commencement of NCCP/HCP planning will occur over a period of time based on the ability of local governments and landowners to initiate the NCCP process. The NCCP process provides flexibility to each subregional planning effort to reflect local conditions while adhering to fundamental regional conservation principles established in the NCCP Process Guidelines and Conservation Guidelines.

b. The CSS NCCP Process Guidelines and Conservation Guidelines

The CDFG and Resources Agency formulated guidelines that are designed to inform interested and involved parties (including landowners and local governments). These guidelines were prepared by CDFG in cooperation with the USFWS and based on extensive public review and comment during 1992 and 1993.

The Process Guidelines (November 1993) were intended to provide guidance concerning the required content of NCCPs and the steps that should be followed during preparation of

subregional NCCPs. The Process Guidelines explain the need to conduct NCCP preparation on a subregional scale within a coordinated framework of fundamental regional conservation planning principles. These guidelines also addressed the need to provide for "interim" permitting of Incidental Take of the coastal California gnatcatcher and related CSS habitat consistent with the Section 4(d) Rule prepared by the USFWS, and the need for ongoing monitoring and evaluation of the NCCP process by the CDFG and USFWS.

To expedite preparation and approval of subregional NCCPs, the NCCP Process Guidelines encourage:

- maximum cooperation between landowners, local governments and conservation interests during NCCP preparation; and
- local government participation . . . adapting the NCCP process to their existing local administrative processes relating to plan preparation, public participation, public hearings and environmental review.

With these goals in mind, the Process Guidelines declare that the process leading to preparation and approval of this subregional NCCP should involve the following steps:

- designation by local governments and landowners of NCCP subregions of sufficient size and diversity to comply with the NCCP Conservation Guidelines;
- preparation of a Planning Agreement between local NCCP participants and CDFG and the USFWS to establish a coordinated NCCP preparation and decision making process;
- formulation of a subregional NCCP by landowners and local governments in consultation with conservation interests, the Resources Agency, CDFG and the USFWS; and
- public and agency review, including public hearings and approval by the local lead jurisdiction or agency.

Concurrent with preparation of the subregional NCCP/HCP and Joint EIR/EIS by the local lead agency, an Implementation Agreement has been or will be prepared for signing by *participating landowners*, local governments, and CDFG and the USFWS for each NCCP

subregion. The Implementation Agreement was circulated for public review as a part of this overall document (NCCP/HCP, Joint EIR/EIS, and Implementation Agreement). The Implementation Agreement specifies all terms and conditions of activities permitted under the NCCP/HCP plan, including the legal, administrative and funding mechanisms necessary to assure effective long-term implementation of the approved NCCP/HCP. By signing this agreement, CDFG and the USFWS formally acknowledged approval of the subregional NCCP/HCP and determined that it: (1) meets the requirements of a state NCCP/CESA Management Agreement and a federal Habitat Conservation Plan; and (2) is adequate to allow issuance of appropriate state and federal permits for target or other designated species, for any such species presently listed or listed in the future under CESA and/or FESA.

Whereas the NCCP Process Guidelines explain the steps to be followed during preparation of NCCPs, the NCCP Conservation Guidelines outline the substantive biological principles and standards that are to be applied during preparation, review and approval of subregional NCCPs. These guidelines include the biological conservation planning principles and policies upon which the NCCP process is based, and the standards for implementing the "interim Incidental Take" permit strategy during preparation of the subregional NCCPs. The initial draft of the Conservation Guidelines was prepared by the state's Scientific Review Panel (SRP) and revised by CDFG, working with the USFWS. Following public review and comment, the Conservation Guidelines were finalized in November, 1993. Subsequently, the Process and Conservation guidelines were incorporated into the Section 4(d) Rule prepared by the USFWS. As noted previously, the Section 4(d) Rule requires that subregional NCCPs be prepared consistent with these guidelines.

The NCCP Conservation Guidelines set forth three fundamental conservation planning principles that, in effect, provide the subregional and regional planning framework for the CSS NCCP program. These principles involve the following.

- **Creation of a CSS Habitat Reserve** - In contrast with single species HCPs under Section 10 of FESA, the subregional NCCPs for Orange County will create large scale "habitat reserves" capable of maintaining and protecting populations of target species over the long term.

- **Focusing on Reserves Designed to Provide "Connectivity"** - In order to allow for necessary dispersal of target species and the ability to maintain genetic flow within and between "reserve" areas, the subregional NCCPs will place major emphasis on assuring that "connectivity" needs for the target species are addressed as a part of reserve design. To the extent feasible, the reserve design also will address dispersal needs of other species integral to CSS ecosystem diversity.

- **Implementation of Adaptive Management Within Reserves** - The NCCP Conservation Guidelines declare that ". . . a status quo strategy of 'benign neglect' management likely will result in substantial further losses of CSS biodiversity . . ." The Guidelines concluded that habitat reserves ". . . should be actively managed in ways responsive to new information as it accrues." Much of the NCCP planning effort has been devoted to identifying reserve management programs and to fashioning an ongoing institutional capability to assure that NCCPs continue to implement adaptive management techniques over time.

c. Designation of Three "Target Species" for Conservation Planning Purposes

The CSS NCCP program originally identified specific actions necessary to protect habitat for three specified "target species" residing in CSS: the coastal California gnatcatcher (*Polioptila californica californica*), coastal cactus wren (*Campylorhynchus brunneicapillus*), and orange-throated whiptail lizard (*Cnemidophorus hyperythrus beldingi*) (Murphy 1992). The "target species" were selected by a Scientific Review Panel (SRP) appointed by the state. The SRP designated the three vertebrate species to serve as "surrogate" species for a broader range of species that reside in and/or are dependent on CSS habitat. Conservation planning for these three NCCP species was intended to provide the basis for maintaining the viability of the remaining CSS ecosystem (Murphy 1992).

By providing long-term protection for the habitat required by the three target species, the SRP reasoned that sufficient CSS and other habitat would be protected to benefit a much broader range of CSS-related species through the NCCP approach to conservation planning. Part II of this document (NCCP/HCP) describes how the recommended CSS conservation strategy will benefit other CSS species within the subregion.

The NCCP/HCP is designed to provide the basis for authorizing future Incidental Take of the federally-listed coastal California gnatcatcher by formulating an effective subregional strategy consistent with state and federal requirements (CESA, NCCP Act, FESA and the section 4(d) Rule), and providing for creation of a permanent habitat reserve. If the coastal cactus wren or orange-throated whiptail lizard are subsequently listed by the USFWS, the NCCP/HCP also provides the basis for authorizing Incidental Take of either of these species consistent with the provisions of the approved conservation plan. The NCCP/HCP also provides the basis for authorizing future Incidental Take for the coastal California gnatcatcher, coastal cactus wren, and orange-throated whiptail lizard under the CESA (sections 2081 and 2084) if any of the target species is subsequently classified as a "candidate" species and/or listed by the state.

d. Other Identified Protected Species

The three target species selected by the SRP were used as indicators, or umbrella species, to guide the design of the permanent habitat Reserve System. The multiple-habitat Reserve System that is established by this NCCP/HCP provides a diverse habitat mosaic within its boundaries. Habitat representative of twelve of the existing major habitat types located within the NCCP subregion are protected by the Reserve System. Because of the range of habitat types included within the Reserve System, the NCCP/HCP protects far more than just the three "target" species associated only with a single habitat type. Such broad species protection is not found in most existing HCPs.

By applying an "adaptive management" approach within this Reserve System, the NCCP/HCP recommends that it is appropriate to provide the same regulatory coverage for a broader range of species as that being provided for the three "target species" (*i.e.*, Section 10 of FESA, and sections 2081 and 2084 of CESA and Section 2835 of the NCCP Act). Therefore, the subregional NCCP/HCP plan provides for regulatory coverage under the Special 4(d) Rule for the coastal California gnatcatcher, two other target species and thirty-~~six~~ (36) additional "Identified Species." The "Identified Species" receiving coverage, if listed as threatened or endangered, including the six federally-listed species receiving Incidental Take authorization are addressed in Section 4.5 of Part II (NCCP/HCP). The NCCP/HCP also provides the basis for regulatory coverage for five (5) plant species that are, or could be, found on the Dana Point Headlands. Although these plant species may be found elsewhere in the subregion, regulatory coverage is limited to the Headlands site for these species.

e. Assurances Provided Concerning Species Located in Specified Non-CSS Habitats

In addition to the regulatory coverage for CSS and covered non-CSS habitats and the thirty nine (39) “target and Identified Species” cited above, the NCCP/HCP contains assurances to *participating landowners* and local governments relating to future impacts on other species located within specified habitats outside the habitat Reserve System. The USFWS and CDFG have determined that the programmatic elements of the NCCP/HCP further the protection of certain habitats in a manner comparable to the protection provided for CSS habitat. These habitat types are:

- oak woodlands;
- Tecate cypress;
- cliff and rock; and,
- within the Coastal Subarea only, chaparral.

For these “covered habitats,” CDFG and USFWS will assume the responsibility for assuring all statutory and regulatory requirements necessary to issue Section 10(a)(1)(B) and/or Section 2081 permits and authorizations to *participating landowners* for listed species found in these habitats that area affected by planned activities. USFWS and CDFG have issued or will issue Section 10/2081 permits and authorizations to *participating landowners* concurrent with the listing. The rationale for these assurances are set forth in chapters 4 and 8 of the NCCP/HCP.

f. Use of the NCCP/HCP for Regulatory and Conservation Planning Purposes

As noted earlier, the NCCP/HCP potentially affects a number of local government jurisdictions, public agencies and landowners within the subregion. The NCCP/HCP (Chapter 4) identifies the roles and commitments of local governments, public agencies, operating agencies (*e.g.*, water districts, utilities and park departments) and landowners that agree to participate in the NCCP/HCP by signing the NCCP/HCP Implementation Agreement. The NCCP/HCP analyzes those planned activities where existing and future plans of public agencies, operating agencies and landowners would affect “target and Identified Species” and

their habitat. The Joint EIR/EIS analyzes the environmental effects of activities addressed by the NCCP/HCP on the thirty- nine (39) “target and Identified Species” receiving regulatory coverage, CSS and non-CSS “covered habitats” and the five (5) plant species on the Dana Point Headlands site. Environmental impacts on habitat supporting other non-CSS species and non-specified habitats located outside the Reserve System were not addressed by the Joint EIR/EIS at a level of detail necessary to provide future regulatory protection under the CESA or FESA.

An Implementation Agreement has been prepared and is included as a part of this overall document. Under the terms of the Implementation Agreement, the NCCP/HCP and the Joint EIR/EIS, the CDFG and USFWS have agreed that satisfactory implementation of the NCCP/HCP and the Implementation Agreement will adequately provide for the conservation, protection, restoration, enhancement and management of thirty-nine (39) “Identified Species,” CSS habitat and four designated non-CSS habitats within the subregion. As discussed below, CDFG and USFWS have determined that, subject to the terms of the Implementation Agreement, no additional mitigation for “Identified Species” will be required from “participating landowners” and participating local jurisdictions.

1. Identified Species

The NCCP/HCP is intended to provide the basis for authorizing future Incidental Take of the federally-listed coastal California gnatcatcher by formulating an effective subregional strategy consistent with state and federal requirements (CESA, NCCP Act, FESA and the section 4(d) Rule), and providing for creation of a permanent habitat Reserve System. If the coastal cactus wren or orange-throated whiptail lizard are subsequently listed by USFWS, the NCCP/HCP also would provide the basis for authorizing Incidental Take of either of these species consistent with the provisions of the approved conservation plan. The NCCP/HCP further provides the basis for authorizing future Incidental Take for the coastal California gnatcatcher, coastal cactus wren and orange-throated whiptail lizard pursuant to the NCCP Act and under the CESA (sections 2081

and 2084) if any of the target species is subsequently classified as a “candidate” species and/or listed by the state.

As reviewed above, by providing long-term protection for the habitat required by the three target species, the SRP reasoned that sufficient CSS and other habitat would be protected to benefit a much broader range of CSS-related species through the NCCP approach to conservation planning. The three target species selected by the SRP were used as indicators, or umbrella species, to guide the design of the permanent habitat Reserve System. The multiple-habitat Reserve System created by the NCCP/HCP (see Figure 4) provides a diverse habitat mosaic within its boundaries. By applying an “adaptive management” approach within this Reserve System, the NCCP/HCP provides the basis for the same regulatory coverage for a broader range of species as that being provided for the three “target species” (i.e., Section 10 of FESA, NCCP Act Section 2825, 2830 and 2835 and Sections 2081 and 2084 of CESA). Therefore, the subregional NCCP/HCP plan provides for regulatory coverage under the Section 4(d) Rule for the coastal California gnatcatcher and for 38 additional “Identified Species.” The thirty-nine (39) “Identified Species” receiving coverage are discussed in Chapters 2 and 4. It should be noted that ten (10) of the Identified Species are provided regulatory coverage subject to specified “conditions” relating to the extent of habitat impacts covered and minimization/mitigation conditions for the particular species. Accordingly, these species are referred to as “conditionally covered species” in the NCCP/HCP and Implementation Agreement (see discussion in Chapter 4).

Pursuant to the Identified Species provisions of the NCCP/HCP, satisfactory Implementation of the NCCP/HCP and the terms of the Implementation Agreement would adequately provide for the conservation, protection and management of the coastal California gnatcatcher and the additional thirty eight “Identified Species” and their habitats and thus would fulfill state and federal habitat mitigation requirements for development impacting the habitat of the

Identified Species (except to the extent that Corps 404 jurisdiction is involved). Development activities covered by the NCCP/HCP and authorized for Incidental Take pursuant to the Implementation Agreement and Section 10(a)(1)(B) permits would include public infrastructure facilities, such as roads, utilities and recreation facilities, and private residential, commercial and industrial development in accordance with impacts specified in the NCCP/HCP Implementation Agreement.

The NCCP/HCP does not provide for entitlements for new development. It does, however, specify and provide for mitigation for impacts involving the Identified Species and their habitats and those involving species dependent upon or associated with CSS and “covered habitats” pursuant to the Implementation Agreement.

2. Covered Habitats

In addition to the regulatory coverage for loss of CSS habitat and Incidental Take of the 39 “target and Identified Species” cited above, the NCCP/HCP contains assurances to *participating landowners* relating to future development impacts on other species dependent upon or associated with specified habitats outside the NCCP/HCP Reserve System. The USFWS and CDFG have determined that the programmatic elements of the NCCP/HCP further the protection of certain habitats in a manner comparable to the protection provided for CSS habitat. These habitat types are referred to as “covered habitats” and include (Figure 69):

- oak woodlands;
- Tecate cypress forest;
- cliff and rock; and,
- within the Coastal Subarea only, chaparral.

For these habitats, and for CSS, CDFG and USFWS will assume the responsibility for assuring compliance with statutory and regulatory requirements necessary to issue Section 10(a)(1)(B) and/or Section 2081 permits and authorizations, to the extent and in the manner provided for in Section 8.3.4(d) of the Implementation Agreement, to *participating landowners* for listed species dependent upon or associated with these habitats that are affected by planned activities. However, impacts on any of the "Identified Species" dependent upon or associated with CSS and/or covered habitats would be governed by the Identified Species provisions of the NCCP/HCP rather than the "covered habitats" provisions. Subject to the provisions of Section 8.3.4(d) of the Implementation Agreement, USFWS and CDFG will issue Section 10/2081 permits and authorizations to *participating landowners* concurrent with the listing of species dependent upon or associated with CSS and "covered habitats." The biological rationale for these assurances is set forth in Chapters 4 and is analyzed in Chapter 8 of the EIR/EIS. With regard to CDFG, approval of the Implementation Agreement constitutes a present Management Authorization for the Take of Identified Species. The Implementation Agreement also constitutes a commitment to the issuance of future Section 2081 permits and authorizations for Take of species (other than those species addressed through the Identified Species provisions) dependent upon or associated with covered habitats.

The Implementation Agreement for the Central and Coastal Subregion NCCP/HCP conforms to and implements the recent federal policy (August 11, 1994, "Assuring Certainty for Private Landowners in Endangered Species Act Habitat Conservation Planning") promulgated by Secretary of the Interior Bruce Babbitt. The purpose of the new policy is to provide assurances to non-federal landowners participating in Habitat Conservation Planning that no additional land restrictions or financial compensation will be required from an HCP permittee for species adequately covered by a properly functioning HCP in light of unforeseen or extraordinary circumstances. A complete text of the Interior policy, called the "No Surprises" policy in Interior press releases, is included in Appendix 4.

B. County of Orange Process

1. County NCCP Planning: Events Leading to Preparation of this NCCP/HCP

The County of Orange was one of the early participants in the southern California NCCP process. The County formally enrolled its unincorporated area in the NCCP program on a jurisdictional basis early in 1992 and it took the lead in preparing the first Memorandum of Agreement (Planning Agreement) covering a NCCP subregional planning area. The subregional Planning Agreement was signed on May 7, 1993, by the County, the USFWS, CDFG, the Resources Agency and *participating landowners* in the Central and Coastal Subregion (Appendix 5). It also was signed by eleven of the cities within the subregion. The Planning Agreement established the County as the lead agency for purposes of preparing the NCCP/HCP and the EIR.

Two NCCP subregions were proposed by the County: the Central and Coastal Subregion and the South Subregion. Both of the County's subregional planning units have been reviewed and approved by the CDFG and the USFWS. Together, the two NCCP subregions contain about two-thirds of the total County land area and more than 90 percent of the existing CSS habitat.

Much of that portion of the County not included within the approved NCCP subregions (referred to as the Matrix area) already is urbanized. Most of the CSS located outside the two NCCP subregions is concentrated in and around the Chino Hills, adjacent to the Los Angeles and San Bernardino county boundaries. The USFWS recently approved a Section 10(a) permit in this area which, together with existing CSS resources within Chino Hills State Park, assures the protection and management of 80 percent of the existing CSS included in the Matrix Area.

2. Description of the Central and Coastal Subregion

a. Subregional Study Area Boundaries

As shown in Figure 1, the Central and Coastal Subregional CSS NCCP/HCP includes the central portion of Orange County from the coast inland to the boundary with the counties of Riverside and San Bernardino. Along the coast, the subregion extends from the mouth of the Santa Ana River in the City of Costa Mesa to the mouth of the San Juan Creek, in the City of

Dana Point. The subregion is bounded on the east and southeast by the South NCCP subregion, where a separate NCCP/HCP is being prepared by the County.

Central and Coastal Subregion boundaries are as follows: 1) on the west, the boundary extends from the mouth of the Santa Ana River along the river inland to State Route (SR) 55, then north along SR 55 to State Route 91, and north along SR 91 to the Riverside County boundary; and 2) on the east, along San Juan Creek inland to the Interstate 5 (I-5) over crossing, then northwest along I-5 to El Toro Road, and north along El Toro Road to the intersection of Live Oak Canyon Road, and northeasterly on a straight line from that intersection to the northern apex of the boundary with Riverside County (refer to Figure 1).

b. Description of the Subregion

The Central and Coastal subregion covers approximately 208,000 acres of developed, agricultural and undeveloped natural lands, an area comprising about two-fifths of the County of Orange (Figure 1). The subregion includes the coastal San Joaquin Hills, the expansive central plain separating the San Joaquin Hills from the Santa Ana Mountains, and those portions of the Santa Ana Mountains located within the County of Orange. Elevations within the subregion range from sea level to more than 5,600 feet. A significant portion of the subregion already has been urbanized or used for agricultural purposes for decades. Natural habitats subject to potential development pressure include, but are not limited to, coastal sage and other sage scrub communities, chaparral, woodland and forest, riparian, wetlands, and native and annual grasslands. Undeveloped natural areas located within the subregional study area were evaluated during preparation and approval of the NCCP/HCP.

CSS habitat constitutes about one-third of the existing natural lands remaining within the Central and Coastal Subregion. A total of 34,392 acres of CSS is embedded within about 104,000 acres of natural biotic communities. CSS is a naturally fragmented and dispersed community embedded within a mosaic of non-CSS vegetation communities, including chaparral, grasslands, and so forth. Significant portions of these non-CSS habitats and their resident species are included within the Reserve System, increasing its biodiversity value and resulting in a multiple-species, multiple-habitat reserve.

Existing CSS within the subregion is concentrated in the San Joaquin Hills (Coastal Subarea) and in the foothills of the Santa Ana Mountains (Central Subarea, refer to Figure 4). From

a biological perspective, each of the two geographic subareas could function as separate, effective long-term planning and management units. Field surveys conducted during 1991/1992 and 1994, demonstrated that each subarea contained significant populations of coastal California gnatcatchers, coastal cactus wrens, and orange-throated whiptail lizards.

c. Designation of the Combined Central and Coastal Subareas as a Single NCCP Subregion

The County originally considered designating the Central and Coastal subareas as individual NCCP subregions. Initially, these areas also were identified as potential subregional focus areas by the SRP (Murphy and Brussard, 1992). However, after carefully considering NCCP Act goals and the encouragement of the CDFG and USFWS to undertake conservation planning at the largest feasible scale, the County recommended combining the two large subareas into a single NCCP subregion. The resulting County subregional designation has been approved by the CDFG and the USFWS under the terms of the May 7, 1993 subregional Planning Agreement signed by both agencies.

d. Local Governments and Public Agencies Affected by the Federal Listing of the Coastal California Gnatcatcher and the Central and Coastal Subregion NCCP/HCP

The listing of the gnatcatcher under FESA and the preparation of the NCCP/HCP potentially affect a number of local government jurisdictions and public agencies, in addition to the unincorporated area under the jurisdiction of the County of Orange. The Central and Coastal Subregion includes all or portions of fourteen cities: Newport Beach, Costa Mesa, Irvine, Santa Ana, Laguna Beach, Laguna Niguel, Laguna Hills, Dana Point, Orange, Anaheim, Villa Park, Tustin, Lake Forest, and San Juan Capistrano. Public and operating agencies affected by the NCCP/HCP include, but are not limited to, the Irvine Ranch Water District, Metropolitan Water District of Southern California, Southern California Edison Company, University of California and Santiago County Water District.

The subregion also includes varied and extensive natural lands owned and managed by public agencies. These public lands include eighteen County regional parks, plus state and federal ownerships that contain CSS habitat. Examples of publicly owned and managed lands within the subregional study area that could be affected are the Peters Canyon Regional Park, Laguna Coast Wilderness Park, Aliso and Wood Canyons Regional Park, Whiting Ranch Wilderness

Park, the Marine Corps Air Station El Toro, Crystal Cove State Park, and the Cleveland National Forest. Each of the local jurisdictions and a variety of local, state, regional and federal public agencies operating within the subregional study area are expected to use the NCCP/HCP during future planning and regulatory decision-making processes. The NCCP/HCP and Joint EIR/EIS identify the affected jurisdictions, and potential impacts related to this project.

Within the subregion, habitat occupied by the coastal California gnatcatcher is known to exist on lands owned or managed by all of the operating and public agencies cited above (except the Cleveland National Forest), ten of the local governments and the County of Orange. Therefore, each of these agencies/jurisdictions are directly impacted by the 1993 federal listing under FESA of the coastal California gnatcatcher as a “threatened” species because each jurisdiction/agency is relying on currently adopted plans or proposing future projects that would impact occupied gnatcatcher habitat.

Under current federal law and without the NCCP/HCP, each of the local governments/agencies proposing to impact occupied gnatcatcher habitat would need to obtain either a FESA Section 7 consultation or a Section 10 permit in order to proceed with projects within their respective jurisdictions or ownerships. The NCCP/HCP provides an alternative to the project-by-project, single species review currently practiced under existing federal law. Under the NCCP/HCP, participating local governments, public and operating agencies and landowners receive regulatory coverage for projects addressed by the NCCP/HCP for all of the “target and Identified Species” identified in the NCCP/HCP. Thus, a desired effect of the NCCP/HCP would be to protect the gnatcatcher and a broader suite of species while reducing the regulatory uncertainty, time delays, and economic impacts on adopted and proposed projects resulting from the gnatcatcher listing and other state or federal listings.

e. *Participating Landowners*

A variety of landowners within the subregion, including both private and public agency owners, would be affected by the NCCP/HCP. Several of the major landowners, in recognition of the potential impact of the NCCP/HCP process on their properties, participated during preparation of the NCCP/HCP by contributing funding and services to support completion of the NCCP/HCP, Joint EIR/EIS, and Implementation Agreement. Landowners participating in the NCCP/HCP process include:

- the Irvine Ranch Water District (IRWD);
- the Metropolitan Water District of Southern California (METROPOLITAN);
- the Southern California Edison Company (SCE);
- The Irvine Company (TIC);
- M.H. Sherman Company/Chandis Securities Company/Sherman Foundation (CHANDIS/SHERMAN);
- the Transportation Corridor Agencies (TCA);
- Regents, University of California (UCI);
- Santiago County Water District (SCWD);
- California Department of Fish and Game;
- California Department Parks and Recreation (DPR); and
- County of Orange.

3. Two Key Elements of the NCCP/HCP Process: The Wildlife Geographic Information System (GIS) and Public Participation Program

The County's subregional NCCP/HCP process was formulated in a manner designed to improve future land use decisions within the subregional planning area and to enhance the efficacy of the overall process. The County moved to achieve these goals by developing a computerized geographic information system and a pro-active public participation program.

a. County Wildlife Geographic Information System

Prior to initiating the CSS NCCP/HCP, the County EMA had already begun developing a Wildlife Geographic Information System (GIS). The GIS was designed to cover the entire County and to provide a habitat-based resource management system to assist the County in addressing questions related to potential development impacts on wildlife and natural habitats. The GIS maps cover a broad range of environmental characteristics influencing wildlife protection and management, including: natural vegetation communities; "target," "identified," and other sensitive species; soils; topography; physiographic features; and general plan land use designations.

The GIS is a key component of the County's NCCP program. During preparation of the subregional NCCP/HCP, the GIS was used to: (1) accurately map CSS habitat existing within the subregional planning area and the County of Orange as a whole; (2) for "interim take" purposes, identify the relative quality of CSS habitat based on a "high, intermediate, and low" value hierarchy established by the NCCP Conservation Guidelines and the Special 4(d) Rule; and (3) provide a tool to formulate the most effective design for a permanent CSS habitat reserve. The GIS enabled NCCP participants to systematically and graphically analyze the

variety of habitat communities and species characteristics within the subregional study area. It allowed the EMA and other NCCP participants to evaluate CSS conservation planning alternatives and to formulate the "approved" project alternative set forth in the NCCP/HCP (Parts I and II) and evaluated in the Joint Programmatic EIR/EIS (Part III).

b. Public Participation Process

A second feature of the NCCP/HCP process involves ensuring public consultation during the formulation and review of the subregional NCCP/HCP. Following CDFG and USFWS approval of the subregional planning study area boundaries and signing of the Planning Agreement for the Central and Coastal Subregion, the County prepared and published a Notice of Preparation (NOP) for both the South Subregion and Central and Coastal Subregion NCCP EIRs on June 30, 1993. The USFWS published a Notice of Intent (NOI) for the EIS component of the Joint EIR/EIS (Federal Register, June 24, 1993).

On July 7, 1993, the County conducted a Joint Scoping Meeting covering both subregional NCCPs. The purpose of the Joint Scoping Meeting was to introduce the NCCP/HCP planning process to the public and to solicit comments from interested persons, organizations and public agencies. Testimony received during the Scoping Meeting and written comments submitted during the public scoping period (60 days) were evaluated and addressed as a part of the NCCP/HCP and EIR/EIS. A copy of the Scoping Report for the Central and Coastal Subregion NCCP/HCP and Joint EIR/EIS is attached (refer to the Appendices in the Joint EIR/EIS).

Following the Scoping Meeting, the public participation component of the planning process has focused on the inclusion of representatives of local governments and environmental organizations in an ongoing consultative process prior to and during preparation of the NCCP/HCP. Environmental group representatives were included in a regular series of working group meetings involving the NCCP consultant team, landowners, CDFG, and USFWS staff. In addition, local government staff were involved in periodic meetings with the County, *participating landowners*, and the consultant team. Participants in these meetings provided ongoing comment to the County throughout the process leading to the preparation of the NCCP/HCP.

The purpose of these meetings was to provide a collaborative, consultative forum to identify key planning issues that needed to be addressed and to add public interest group perspective

to the NCCP/HCP document preparation process. The goal was to assure that, prior to distribution of "draft" documents for formal public review and comment, representative public interests would have an opportunity to: understand how the NCCP/HCP was being formulated; offer specific recommendations and comments prior to completion of documents; and help assure that the NCCP/HCP addressed the full range of public policy and planning issues.

C. Environmental Review Process

The approved NCCP/HCP involved the need to obtain environmental clearances under both California (CEQA) and federal (NEPA) laws and regulations. To expedite obtaining these clearances a joint, programmatic EIR/EIS was prepared to address the potential impacts to CSS "target and Identified Species," the five plants on the Dana Point Headlands only and associated habitat and non-CSS covered habitats within the NCCP/HCP study area.

1. Preparation of a Programmatic EIR/EIS

To evaluate the environmental impacts related to alternative conservation strategies, the County EMA has prepared a program EIR/EIS in accordance with Section 15168 of the CEQA Guidelines. In furtherance of the broad-scale geographic and programmatic perspective of the NCCP subregional planning program, the use of a Program EIR/EIS offers an environmental document framework with several advantages. The CEQA Guidelines identify the following advantages:

- providing for a more exhaustive consideration of effects and alternatives than would be possible in individual project EIRs;
- ensuring consideration of cumulative impacts that might be slighted in a case by-case analysis;
- avoiding duplicative reconsideration of basic policy considerations; and
- allowing the lead agency to consider broad policy alternatives and program-wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts.

Although the NCCP/HCP does not involve approval of new development entitlements within the study area, the Program EIR/EIS serves as the programmatic document for future development project impacts on CSS and specified non-CSS habitats and for implementation measures designed to carry out the NCCP/HCP.

Under the CEQA Guidelines, "activities" subsequent to the Program EIR will be examined pursuant to Section 15168(c)(1). For subsequent "projects" requiring CEQA review, the Program EIR will be used to assess project-level impacts, mitigation, alternatives and cumulative impacts in the manner indicated in Section 15168 (d). Regarding approval for Incidental Take of "target and Identified Species" and loss of associated CSS and non-CSS habitat permitted under the CESA and FESA, the program EIR/EIS will be used and relied upon in conjunction with a subsequent project environmental document that addresses project level habitat impacts and planning. Under the terms of the Implementation Agreement, projects complying with the provisions of the NCCP/HCP will not be subject to additional mitigation requirements or restrictions with regard to impacts on CSS and designated "covered habitats," "target and Identified Species" and the five plant species on the Dana Point Headlands. However, it should be emphasized again that the NCCP/HCP and associated EIR/EIS address planning and associated land use impact issues only on specified habitats and Identified Species and do not address general entitlements for any specific development project.

2. Formulation of the Subregional Conservation Strategy as the Vehicle for Addressing State and Federal Mitigation and Conservation Requirements

For purposes of addressing future mitigation requirements related to the NCCP/HCP, the subregional conservation strategy for the designated "target and Identified Species" and CSS and designated non-CSS habitat focus on the long-term values and function of the overall NCCP/HCP that has been formulated consistent with the seven reserve design tenets set forth in the NCCP Process Guidelines. Thus, instead of attempting to address mitigation on an "acre for acre" basis, NCCP/HCP mitigation for impacts on "target and other Identified Species" and associated habitat, is being provided by the total package of NCCP/HCP components, including:

- an effectively functioning habitat Reserve System;

- required management measures, including habitat enhancement and restoration, fire management, and so forth;
- funding for habitat acquisition, research, monitoring, and day to day operation of the Reserve System; and
- other actions approved by CDFG and the USFWS that would contribute to the long term protection and recovery of the designated species and their habitat.

Taken as a whole, these NCCP/HCP components address the overarching standard of review for the recommended conservation strategy: consistency with the FESA Section 4(d) Rule and Section 10(a), and California Fish and Game Code sections 2825(c), 2830, and 2835 (NCCP Act), and sections 2081 and 2084 (CESA) requirements that:

- taking will be incidental to otherwise legally authorized activity;
- the NCCP/HCP will, to the maximum extent practicable, minimize and mitigate the impacts of such taking;
- the applicant will assure adequate funding for the plan;
- taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild; and
- the applicant will assure that other measures the Secretary may require as being necessary or appropriate will be provided.

Incidental Take of "target and other Identified Species" requiring mitigation has been addressed in a manner complying with the definition of "harm" under Section 9 of the FESA as applied to the three target species. Section 9 defines "harm" to include killing or injuring a species, or activities resulting in ". . . significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."

Thus, for purposes of the NCCP/HCP, "harm" covers those impacts that result in a loss of habitat that would significantly impair essential behavioral patterns of the "target and

Identified Species.” The NCCP Act does not contain substantive standards similar to those in the FESA that could be used to demonstrate compliance by a subregional NCCP. Rather, the substantive standards for the NCCP Act are set forth in the NCCP Process Guidelines and Conservation Guidelines. Accordingly, the subregional NCCP/HCP was formulated in a manner designed to implement the NCCP Act and mitigate overall CSS impacts consistent with the NCCP Process Guidelines and Conservation Guidelines.

3. Alternatives Evaluated by the NCCP/HCP and Joint EIR/EIS

The conservation strategy set forth in the NCCP/HCP and analyzed in the Joint EIR/EIS was formulated following a careful evaluation of: biological, soils, topographic, land use and other data contained in the GIS database; comments provided during the project "Scoping Process" by the public, reviewing agencies, the County, and participating cities, agencies and landowners; additional agency, environmental group and public comments provided at working group meetings and public workshops; and evaluation of existing local general plan land uses and other significant known project proposals. Alternatives to the approved conservation strategy (the "proposed project") included "no project," "no take," and "programmatic" alternatives. The adopted conservation strategy for this NCCP/HCP, including specific reserve design alternatives, and other alternatives were evaluated to determine the degree to which they met project purposes and goals, and the relative CSS "target and other Identified Species" impacts associated with each alternative. Based on these evaluations the adopted conservation strategy has been determined by the County, CDFG and USFWS to be consistent with the NCCP Act, the Special 4(d) Rule for the California gnatcatcher, Section 10 of the FESA, and California Fish and Game Code sections 2825(c), 2830, 2835, 2081, and 2084.

4. Relation To Other Regional and State Planning Programs

The Central and Coastal Subregion NCCP/HCP was formulated in a manner that considered how it would relate to other regional planning efforts, including regional open space, air quality, housing and transportation plans. The NCCP/HCP also addresses its relationship to state regulatory laws and related programs, such as the California Coastal Act of 1976. The NCCP/HCP identifies and attempts to minimize conflicts with or potential duplication of existing resource protection/management programs. Recommendations aimed at resolving potential program redundancies or conflicts are presented and evaluated in the NCCP/HCP and Joint EIR/EIS.

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CHAPTER 1: PROJECT NEED AND PURPOSES

Pursuant to the listing of the coastal California gnatcatcher under the FESA and preparation of the special section 4(d) Rule, federal agency efforts to protect the coastal California gnatcatcher have been integrated with the state's southern California Coastal Sage Scrub NCCP program. As reviewed in Part I, the FESA section 4(d) Rule for the coastal California gnatcatcher now requires preparation of a conservation plan, called a Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP), that would meet the goals of the state's NCCP Act and CESA, and the FESA.

This chapter discusses the need for the Central and Coastal Subregion Coastal Sage Scrub NCCP/HCP. It also outlines the specific project purposes and related objectives that need to be addressed by the approved CSS conservation strategy. The NCCP/HCP purposes and objectives set forth in this chapter are consistent with the requirements of the NCCP Act, CESA, FESA and the Section 4(d) Rule. The project purposes and objectives are important because they have served as the standard that enabled the County, state/federal agencies and other NCCP participants to evaluate specific conservation strategy alternatives that were identified during formulation of the CSS conservation strategy set forth in this subregional NCCP/HCP. The subregional conservation strategy presented in this document was selected because it best addressed the full range of identified NCCP/HCP purposes and objectives.

SECTION 1.1 PROJECT NEED

The need for the subregional NCCP/HCP was established over recent years by a combination of legislative and regulatory actions, and by the findings compiled by the Scientific Review Panel that was created by the State of California to provide state/federal agencies with scientific expertise on issues relating to the protection and management of CSS and associated habitats and species. This section outlines a chronology of events and actions that demonstrated the need for the project.

In 1991 the California Legislature enacted the NCCP Act. The Legislature found and declared as part of the Act that "there is a need for broad-based planning to provide for effective protection and conservation of the state's wildlife heritage while continuing to allow appropriate development and growth." Included in Section 1 of the legislative findings for the NCCP Act of 1991 were the following declarations.

- a) The continuing population growth in California will result in increasing demands for dwindling natural resources and result in the continuing decline of the state's wildlife.
- b) There is a need for broad-based planning to provide for effective protection and conservation of the state's wildlife heritage while continuing to allow appropriate development and growth.
- c) Natural community conservation planning is an effective tool in protecting California's natural diversity while reducing conflicts between protection of the state's wildlife heritage and reasonable use of natural resources for economic development.
- d) Natural community conservation planning is a mechanism that can provide an early planning framework for proposed development projects within the planning area in order to avoid, minimize, and compensate for project impacts to wildlife.
- e) The purpose of natural community conservation planning is to sustain and restore those species and their habitat identified by the Department of Fish and Game which are necessary to maintain the continued viability of those biological communities impacted by growth and development.

SECTION 1.2 PROJECT PURPOSES

The Central and Coastal Subregion CSS NCCP/HCP, Joint EIR/EIS, and Implementation Agreement are designed to address several key project purposes and related objectives. These purposes and objectives focused on the need to:

- 1. Undertake multiple-species, natural community-based planning for the coastal sage scrub habitat located in Central and Coastal NCCP Subregion in a manner that would further the statutory purposes of the NCCP Act, CESA, FESA and the Section 4(d) Rule, CEQA and NEPA.**

As reviewed in the Introduction, (Part I), in conjunction with the threatened listing of the coastal California gnatcatcher, the USFWS has adopted a Section 4(d) Rule under the FESA which allows Incidental Take of the coastal California gnatcatcher and its habitat under certain conditions specified in the Rule (refer to the excerpt from the 4(d) Rule immediately preceding this section). The Section 4(d) Rule permits Incidental Take of the coastal

California gnatcatcher during the preparation of a NCCP and after final approvals of a subregional NCCP in accordance with specific requirements and standards set forth above. Accordingly, one purpose of the project is to carry out a planning program at the natural community level consistent with the multi-species, habitat-oriented statutory purpose statements of both the FESA (sections 10(a) and 4(d)), the California CESA and NCCP Act, and with the conservation goals of CEQA and NEPA.

- 2. Develop a CSS habitat conservation strategy and management program (the NCCP/HCP) in a manner that would provide an alternative to current single species conservation efforts by formulating a subregional NCCP/HCP that provides for a multiple-species, natural community-based conservation and management program within the regional NCCP planning framework.**

In contrast with previous single species habitat conservation planning efforts under the CESA and FESA, the region-wide CSS NCCP program for southern California and this subregional NCCP/HCP are intended to provide a habitat-based focus for conservation planning undertaken within the geographically defined subregion. Accordingly, in carrying out the statutory purpose statements of the NCCP Act and the FESA, one purpose of this subregional planning program is to carry out a conservation planning effort on a large-scale, subregional level with sufficient geographic scope and habitat/species diversity to enable cumulative impacts on CSS habitat and related species, reserve design and connectivity needs to be addressed and satisfied in a manner consistent with the NCCP Conservation Guidelines.

- 3. To provide for economic uses meeting the social and economic needs of the people of the region, designate specific areas where loss of CSS habitat for target and "Identified Species" would not conflict with the NCCP/HCP conservation strategy and would be permitted consistent with Section 10(a) of the FESA and the Section 4(d) Rule.**

The NCCP Act declares that "there is a need for broad-based planning to provide for effective protection and conservation of the state's wildlife heritage while continuing to allow appropriate development and growth." The Act also declares that NCCP planning is "a mechanism that can provide an early planning framework for proposed development . . . to avoid, minimize and compensate for project impacts to wildlife." With these legislative declarations in mind, a key purpose of the NCCP/HCP is to evaluate proposed and alternative land uses and activities in order to identify specific areas where loss of CSS habitat and take of target species is permitted consistent with the recommended CSS conservation strategy, the

FESA and the NCCP Act. Identification of permitted land uses/activities and their potential impacts on CSS habitat and target species is essential to formulating effective mitigation and management measures, and to assuring implementation of a balanced CSS conservation strategy in compliance with the provisions of the NCCP Act, CESA and FESA. By allowing identified public and private development to proceed without undue interruption, the NCCP/HCP enables necessary economic uses to continue.

- 4. Complete a subregional conservation plan that addresses the FESA Section 10 criteria for the federally-listed coastal California gnatcatcher under the Section 4(d) Rule, thereby providing the basis for future Incidental Take of the gnatcatcher.**

With respect to the federally-listed coastal California gnatcatcher, one purpose of the Central and Coastal Subregion NCCP/HCP is to satisfy the FESA Section 10 requirements referenced in the special 4(d) Rule for the coastal California gnatcatcher by showing that:

- any permitted take is incidental to otherwise authorized activities;
 - the NCCP/HCP provides for minimizing and mitigating the impacts of any identified take to the maximum extent practicable;
 - the NCCP/HCP, through an implementation agreement, assures that adequate funding will be provided and that procedures for dealing with unforeseen circumstances will be established; and
 - any identified take will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.
- 5. Prepare a subregional conservation plan that provides the basis for future Incidental Take of the two candidate species that, in addition to the coastal California gnatcatcher, were designated "target species" (the coastal cactus wren and orange-throated whiptail lizard), by treating the coastal cactus wren and orange-throated whiptail lizard as if they were listed species under CESA and FESA.**

The Central and Coastal NCCP/HCP provides the basis for authorizing future "Incidental Take" of the coastal cactus wren and the orange-throated whiptail lizard should either or both be listed under the CESA and FESA. This authorization for future Incidental Take of unlisted

species responds to the Congressional statement of intent regarding the treatment of unlisted species in HCPs under the FESA (as declared in the 1982 FESA re-authorization findings) and to the USFWS's HCP Guidelines recommendation to address candidate species in HCPs. The subregional NCCP/HCP addresses the Section 10 substantive requirements for the coastal cactus wren and orange-throated whiptail lizard in the same manner as identified in Project Purpose 3, immediately preceding. The Implementation Agreement defines the manner in which these future determinations will be made. The terms of the Implementation Agreement may be reviewed and amended by mutual agreement.

With regard to any future CESA listing determinations of the coastal California gnatcatcher, the coastal cactus wren and/or the orange-throated whiptail lizard under the CESA, the subregional NCCP/HCP will:

- implement California Fish and Game Code Section 2825(c), as appropriate, pursuant to CESA Section 2081;
 - provide the basis for the taking of such species determined subsequently to be candidate species, pursuant to California Fish and Game Code Section 2830; and
 - provide the basis for allowing take identified in the NCCP/HCP pursuant to California Fish and Game Code Section 2835 (also see The Planning Agreement, Section 4).
6. **Complete a subregional conservation plan that, by addressing the habitat needs of the “target species” through protection and management of substantial CSS habitat, effectively mitigates future potential impacts on a broader range of species residing in CSS habitat and other habitats included in the reserve.**

As indicated in Project Purposes 4 and 5 above, this subregional NCCP/HCP directly addresses the conservation requirements of the coastal California gnatcatcher, coastal cactus wren, and the orange-throated whiptail lizard. However, another purpose of the NCCP/HCP is to use these species as “surrogates” such that a broad range of species dependent upon or significantly requiring the use of CSS habitat may also be conserved in a manner consistent with the goals of the NCCP Act and in ways that may reduce or eliminate the need for future listings within the subregion under the CESA and FESA. Additional listed species and unlisted species treated by the NCCP/HCP “as if listed” and covered for regulatory purposes as described in Project Purposes 1 and 2 above are termed “Identified Species” in the

NCCP/HCP. Due to the role of the target species in defining the Reserve System, the nomenclature distinction has been maintained in the NCCP/HCP through the use of the term “target/identified” species even though regulatory coverage is intended to be the same for both.

Thus, one purpose of the subregional NCCP/HCP is to provide a substantive basis for mitigating potential impacts on other CSS-related “Identified Species” and, in so doing, reducing or minimizing the need for future listing actions involving other CSS-related species. Since CSS is interspersed with other habitats, this purpose also applies to species that rely on the adjacent habitats. The degree of regulatory coverage for individual species and corresponding landowner credit provided by the NCCP/HCP is set forth in Chapter 4 and Chapter 5 of the NCCP/HCP.

7. Formulate a conservation strategy that addresses the protection of non-CSS habitats within the overall CSS habitat mosaic.

In addition to providing for the regulatory protection of CSS habitat and a broad range of individual species within the subregion, another purpose of the NCCP/HCP is to protect non-CSS habitats located within the subregional CSS mosaic in a manner comparable to the regulatory protection provided for CSS habitat. The NCCP/HCP will specify non-CSS habitats that are protected to a level comparable to CSS within the subregion. For these specified non-CSS habitats, the NCCP/HCP provides commitments to “*participating landowners*” that CDFG and USFWS will assume the responsibility for assuring that all statutory and regulatory requirements necessary to issue Section 10(a)(1)(B) and/or Section 2081 permits to “*participating landowners*” for future impacts to listed species found in these habitats that are affected by planned activities. Within these habitats, regulatory coverage will be provided for all “Identified Species” except the “Special Interest Species” included in Table 4-10 of the NCCP/HCP. The justification for such state/federal assurances are set forth in Chapters 4 and 8 of the NCCP/HCP.

8. Within the context of the subregional conservation strategy, address the protection of federally-listed, identified and sensitive species located on the Dana Point Headlands property in the City of Dana Point.

The Dana Point Headlands site is a relatively small site (121 acres) that contains a variety of sensitive plant and animal species, including two federally-listed species, other “identified” species and several sensitive plant species that are neither state/federal listed species nor on

the NCCP/HCP list of "identified" species. Because the Headlands site is isolated from other natural open space within the subregion by two miles or more of already-urbanized areas, and because of problems related to attempting to manage a small and isolated island of habitat as part of the subregional adaptive management program, this site was not included in the habitat Reserve System or incorporated into the adaptive management program. Therefore, one purpose of the NCCP/HCP is to address the conservation needs of the sensitive species located on the Headlands site without including the site in the habitat reserve/adaptive management program. This purpose recognizes that it is necessary to implement conservation approaches in addition to those provided for under FESA Section 10(a)(1) (B) permits. Accordingly, the NCCP/HCP includes amending the existing Section 10(a)(1)(A) permit held by the USFWS Carlsbad Field Office for the purpose of scientific study, and other recovery efforts for the Pacific pocket mouse on the Headlands site, where it is currently in danger of extirpation without the proactive measures contained in the NCCP/HCP. The site's biological resources are addressed comprehensively in order to provide certainty regarding biological mitigation and to enable proactive management measures to benefit the Pacific pocket mouse to begin as soon as it is prudent.

- 9. Carry out a subregional conservation strategy that, to the maximum extent practicable, builds upon and integrates the extensive regional open space planning which already has been undertaken in the subregional study area.**

During the past twenty years within the subregional study area local governments, the County, cities, The Irvine Company, the Transportation Corridor Agencies, IRWD, METROPOLITAN, SCE, DPR and others have participated in long-term regional planning efforts for the purpose of conserving large-scale contiguous open space, recreation and wildlife habitat areas. These open space/recreation/wildlife planning efforts were conducted pursuant to California planning law, CEQA, the California Coastal Act of 1976 and the Federal Coastal Zone Management Act. As a result, the subregion currently includes 40,000 acres of CSS and other wildland habitat in public ownership, irrevocable open space dedications, general plan committed open space, or project-committed open space sale agreements between private landowners and public agencies. These regional planning efforts have been conducted to:

- mitigate the impacts of development by protecting large-scale habitat/open space areas in blocks of contiguous habitat, as contrasted with smaller, project-by-project mitigation efforts,
- further broad-scale public policies under the state and federal Coastal Acts,
- further state law requirements regarding the provision of housing,
- address state and federal law requirements relating to transportation facilities and air quality planning, and
- address requirements for infrastructure facilities.

One purpose of the NCCP/HCP plan is to assure that, to the maximum extent practicable and consistent with the requirements of the FESA and NCCP Act, the approved NCCP/HCP will be integrated with the regional open space planning that already has taken place within the subregion. During the NCCP/HCP public review process, the minimization and mitigation measures adopted as part of prior open space planning efforts were integrated into the NCCP/HCP in the context of CESA, FESA and NCCP Act requirements, and the CSS conservation planning requirements contained in the Section 4(d) Rule and NCCP Conservation Guidelines. These requirements and guidelines were applied in a manner that builds upon and incorporates previous regional open space and land use planning efforts. In addition, prior open space planning and commitments were reviewed to assure that these are capable of being managed consistent with the provisions of the recommended NCCP/HCP conservation strategy.

- 10. Consistent with NEPA tiering and CEQA programmatic environmental review provisions and the take provisions of the state and federal ESAs and NCCP Act, address target and “Identified Species”, CSS and covered habitats impacts for development identified in the subregional NCCP/HCP in a manner that will be used and relied upon in conjunction with subsequent environmental reviews consistent with applicable law.**

State and federal environmental laws contain both policy statements and specific provisions encouraging broad-scale, early review of potential direct and cumulative development impacts

on a programmatic basis. In turn, the Legislative findings of intent regarding the NCCP Act indicate that:

- there is a need for broad-based planning to provide for effective protection and conservation of the state's wildlife heritage while continuing to allow appropriate development and growth;
- natural community conservation planning is an effective planning process which can facilitate early coordination to protect agencies, landowners and other private parties; and
- natural community conservation planning is a mechanism that can provide an early planning framework for proposed development projects within the planning area in order to avoid, minimize, and compensate for project impacts to wildlife.

In furtherance of the strong mandate of the NCCP Act to encourage broad-based planning, and consistent with the tiering and programmatic review provisions of CEQA and NEPA, this NCCP/HCP has, as one purpose, an intent to address potential site specific "target and Identified Species", CSS and covered habitats impacts/take related to land uses and activities identified in the NCCP/HCP to the maximum extent practicable. To the extent that CSS impacts related to future land uses and development or other types of take are addressed by the EIR/EIS for this NCCP/HCP and have met the requirements of the FESA, CESA, and NCCP Act, such future activities will rely on the analysis in this EIR/EIS and NCCP/HCP as provided in applicable law.

- 11. Consistent with the provisions of 50 CFR 424.12, 424.16 and 424.19, the NCCP/HCP subregional plan shall, to the extent feasible and practicable, identify and analyze areas which would meet the definition of "critical habitat" under the FESA for the "CSS species."**

This project purpose recognizes that only the USFWS has the authority to designate "critical habitat" under FESA. The intent of this purpose is to assure coordination to the maximum extent practicable between reserve design planning for the "CSS species" and "critical habitat" designation under the FESA. The intent also is to maximize to the extent feasible both the efficiency of the planning process and assurances of certainty for future land uses and development activities, including Incidental Take resulting from activities identified through

the NCCP/HCP planning process. Therefore, the NCCP/HCP provides the analysis of habitat and species conservation factors that serve as the substantive basis for the "critical habitat" assurances set forth in the Implementation Agreement.

Because the NCCP/HCP planning effort focuses on natural community reserve design and connectivity considerations in relation to the "target and identified species," it is appropriate as an integral component of the planning program for the NCCP/HCP to identify areas that the USFWS should designate "critical habitat" (as defined in the FESA and regulations). In particular, the NCCP Conservation Guidelines and the SRP guidelines for reserve design outline criteria for identifying ultimate reserve areas capable of sustaining "target species" on a long-term basis. The factors to be considered in recommending "critical habitat" (as presented in 50 CFR 424.12 (b) to (g)), were addressed in relation to the Resources Agency NCCP Process Guidelines and in response to the present conditions within this subregion.

SECTION 1.3 NCCP/HCP OBJECTIVES

To carry out the identified project purposes, the NCCP/HCP has been prepared in a manner designed to achieve the following specific objectives.

- Comprehensive and coordinated mitigation for "Identified Species" and habitat impacts as a substitute for project-by-project evaluation and mitigation.
- Provision for long-term protection of CSS habitat and target species on a subregional basis with a focus on source populations of target species and maintaining and enhancing connectivity between habitat areas.
- Protection of long-term CSS habitat carrying capacity for target species by, to the maximum extent practicable, avoiding, minimizing and mitigating impacts, and by assuring that taking will not appreciably reduce the likelihood of CSS and target species survival and recovery.
- Consideration of opportunities for protection and management of "CSS species" other than target species and opportunities for protecting other habitats within the study area that are embedded within the CSS mosaic.
- Creation of a multiple-habitat Reserve System.

- Identification and evaluation of the effectiveness of alternative habitat management techniques.
- Based on the review of management alternatives, incorporation of a specific, implementable long-term management program into the NCCP/HCP for designated species and associated habitat included within the permanent reserve.
- Identification and evaluation of CSS habitat and adjacent habitat areas with significant potential for enhancement and restoration.
- Provision for appropriate development and economic growth within the subregion, compatible with the Reserve System design and consistent with the goals/purposes of the NCCP Act.
- Formulation of mitigation measures that provide adequate mitigation for "target and Identified Species" habitat impacts related to development actions addressed by the NCCP/HCP that may constitute "harm" and "take" under the FESA.
- Within the permanent habitat reserve, identification of compatible and incompatible activities/uses in relation to species protection and survival, and the ability to effectively implement specified habitat management, restoration and enhancement measures.
- Identification of equitable and effective funding and implementing mechanisms adequate to carry out recommended actions and achieve objectives set forth in the NCCP/HCP.
- Comparative evaluation of the technical, social and economic implications of potential mitigation measures and conservation alternatives prior to incorporation into the NCCP/HCP.
- Early involvement of interested agencies, landowners and public interests in advance of proposals for a specific conservation strategy in an effort to minimize conflicts and delays and facilitate appropriate public and private development.

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CHAPTER 2: EXISTING BIOLOGICAL SETTING

The NCCP/HCP's overall biological goal is "to conserve healthy functioning ecosystems and the species that are supported by them" (Murphy 1993, p. 1). Through the development of the NCCP/HCP process, the program has evolved a focus on three "target species" that are correlated with healthy, well-connected coastal sage scrub ecosystems. These "target species" include two birds, the coastal California gnatcatcher (*Polioptila californica californica*) and coastal populations of coastal cactus wren (*Campylorhynchus brunneicapillus*), and one lizard, the orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*). To describe the biological setting of the coastal scrub natural ecosystem, the chapter focuses first on the coastal scrub plant community, then briefly describes other plant communities making up the remainder of the ecosystem mosaic as well as wildlife generally associated with the ecosystem mosaic. Following these descriptions, the three target wildlife species are discussed in more depth. Additional "Identified Species" which are treated "as if listed" and receive regulatory coverage under the NCCP/HCP and other federally-listed species are also discussed. Finally, a number of other wildlife and plant species of interest found in the project area are identified.

This chapter is a summary of a more in-depth biological setting description found in Appendix 6.

SECTION 2.1 DATABASE DEVELOPMENT METHODS

The information used to prepare this biological setting discussion is derived from a database prepared specifically for the subregion in addition to the general literature. The subregion database has been compiled onto a Geographic Information System (GIS) by the County. The methods used to prepare the subregion database are briefly described below, and are described in more depth in appropriate sections of the chapter.

2.1.1 Habitat/Plant Communities

The habitat/plant communities data were obtained from two primary sources. The County-wide habitat mapping (excluding The Irvine Company properties) was conducted from 500-scale color serial photographs by Dames and Moore (flown in late 1990-91 and interpretation completed in 1991-93) using the Orange County Land Cover/Habitat Classification system (Dames and Moore and Bramlett, 1992).

In 1992, the County of Orange contracted with Jones and Stokes Associates, Inc. to conduct field-level surveys over selected County-owned regional parks and open space, landfills, and the National Audubon Starr Ranch Sanctuary, Crystal Cove State Park and the City of Laguna Beach open space. Field-level habitat surveys were conducted using both the Orange County Land Cover/Habitat Classification System and the vegetation field survey methods developed by Jones and Stokes Associates, Inc. (Methods Used to Survey Vegetation of Orange County Parks and Open Space Areas and The Irvine Company Property, December 11, 1992). These data, together with the field survey data collected in 1992 by Jones and Stokes Associates, Inc. for the Irvine Company properties, provide the preliminary GIS vegetation (habitat) data set or database used for the analyses and creation of the County's NCCP program (see Figure 4, NCCP Vegetation Survey).

2.1.2 NCCP Target Species

The NCCP "target species" were selected by the state-sanctioned Scientific Review Panel (SRP) and included the California gnatcatcher (*Poliophtila californica californica*), the coastal cactus wren or cactus wren (*Campylorhynchus brunneicapillus*) and the Orange-throated whiptail lizard (*Cnemidophorus hyperythrus beldingi*). The SRP also established specific survey protocols for surveying these "target species" including survey timing (*i.e.*, February through July), intervals (*i.e.*, three-pass surveys at a week to ten-day intervals) and reporting procedures (add SRP Survey Protocols to Appendixes and reference). The NCCP target bird survey locations and dates are graphically portrayed in Figure 3 (NCCP "target species" Surveys) and are described as follows:

Survey data for the NCCP "target species" were provided by the Orange County Wildlife GIS and obtained from the following four (4) primary sources (Appendix 7 contains the cited field survey reports/data):

- 1) California gnatcatcher and cactus wren surveys were conducted and a report prepared by Jones and Stokes Associates within The Irvine Company properties in 1992 entitled Field Study Methods for Conducting Surveys of California Gnatcatchers (*Poliophtila californica*) Cactus Wrens (*Campylorhynchus brunneicapillus*) and Other Special Status Species at the Irvine Ranch, Orange County, California, August 1993;
- 2) California gnatcatcher and cactus wren surveys were conducted in 1991-92 by a team of biologists assembled by Ed Almanza and Associates over state and County park and

open space areas located outside The Irvine Company properties. Sweetwater Environmental Biologists, Inc. prepared a report from these data entitled Orange County Parks Coastal California Gnatcatcher and San Diego Cactus Wren Survey Report, April 13, 1994;

- 3) California gnatcatcher and cactus wren surveys were also conducted by Sweetwater Environmental Biologists, Inc. in the Spring of 1994 on private lands and the El Toro Marine Corps Air Station areas located outside previously-surveyed areas to address identified data gaps and prepared a report entitled 1994 Surveys for Coastal California Gnatcatchers and San Diego Cactus Wren, Orange County Central and Coastal NCCP Subregions, July 14, 1994; and
- 4) Orange-Throated whiptail surveys were performed in 1991 by Lilburn Corporation covering portions of The Irvine Company properties and portions of state and County park lands in the Coastal NCCP Subregion (Orange-Throated Whiptail Survey of The Irvine Company Lands, Orange County, California, February 1993). These data were determined to have limited utility in the creation of the County's NCCP program in light of the fact that these species were found not only in great abundance in CSS, oak woodlands and grassland but were also in lesser numbers in chaparral and riparian habitats. Also, this species is not found above 2,000 feet above sea level. Lastly, the orange-throated whiptail survey methodologies were adapted from those established by Dr. Bayard H. Brattstrom of the California State University at Fullerton and were not necessarily consistent with the SRP survey protocols for this species.

Because of the time elapsed between the 1991-92 NCCP target bird surveys and the 1994 surveys, the data cannot simply be added together to form an accurate or representative population estimate. The target bird sites identified by the three (3) project area surveys for the target bird species only provide an overall picture of the species general distribution and abundance, but should not be used to compare bird population numbers either from year to year or from place to place.

SECTION 2.2 COASTAL SAGE SCRUB COMMUNITY CHARACTERISTICS

"Coastal sage scrub" describes a wide variety of low, scrubby native plant associations that occur on lowland bluffs and hillsides from southern Oregon to northwestern Baja California,

including offshore islands from the Channel Islands to Cedros Island (Axelrod 1978, Westman 1981).

"Scrub" as defined for this subregion, roughly corresponds to Holland's (1986) descriptions of Diegan/Venturan coastal sage scrub (a transitional community containing elements of two major types described by Holland), southern coastal bluff scrub, and Riversidean coastal sage scrub. In the subregion, scrub is a more or less open community composed of low, drought deciduous shrubs, with a sparse understory of annual and perennial grasses and forbs.

Venturan/Diegan Sage Scrub

This variable scrub community occurs on rocky, well drained slopes away from the immediate coast (where it is replaced by the "coastal bluff scrub" community). Jones and Stokes (1993) identified numerous Venturan/Diegan sage scrub subassociations. This community is defined by the presence of one or more shrub species characteristic of coastal sage scrub, such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), buff monkeyflower (*Mimulus longiflorus*), goldenbush (*Isocoma* spp.) and coastal prickly-pear (*Opuntia littoralis*). The understory is variable, and frequently includes annual and perennial grasses; in spring, annual wildflowers may occupy open ground in relatively undisturbed scrub.

"Target species" are not evenly distributed throughout the 18 subassociations of Venturan/Diegan Sage scrub. Two subassociations, black sage scrub and coyote brush scrub, apparently do not support high concentrations of "target species". These do, however, contribute to biodiversity and are represented in the reserve.

Southern Cactus Scrub

Southern cactus scrub contains greater than 20 percent cactus (*Opuntia* spp.); the remainder of the community consists of other typical Venturan/Diegan sage scrub species. This community occurs primarily on south facing slopes on low foothills away from the immediate coast. This community generally provides high quality habitat for the three "target species", and is of particular value to the coastal cactus wren.

Coastal Bluff Scrub

Coastal bluff scrub consists of low scrub vegetation on exposed bluffs and cliffs, usually immediately adjacent to the ocean.

Brittlebush/Buckwheat Scrub (Riversidean Scrub)

Brittlebush/buckwheat scrub fits within Holland's (1986) description of Riversidean Sage Scrub. It is typically found on shallow, rocky soils (Kirkpatrick and Hutchinson 1980).

Other Scrub Types and Ecotones

Scalebroom scrub is associated primarily with broad flood plains and alluvial fans of interior Orange County. Saltbush scrub is defined by the presence of Brewer's saltbush (*Atriplex lentiformis* ssp. *breweri*) as a dominant. In Orange County, this community typically occurs in low, saline places near the coast. California gnatcatchers have been known to nest in nearly pure stands of saltbush scrub, at least in coastal areas where gnatcatcher density is relatively high. Scrub/grassland ecotones are defined as an open scrub/grassland with shrub cover of 5-20 percent. Jones and Stokes identified four subassociations based on the presence of a single main shrub species, plus a "mixed" sage scrub/grassland association. Scrub/eucalyptus is an ecotone occurring where eucalyptus trees have been planted within extant scrub. Until the eucalyptus trees become dominant to the point that the scrub is excluded from this community, scrub/eucalyptus may provide valuable wildlife habitat, including the "target species".

SECTION 2.3 OTHER ASSOCIATED PLANT COMMUNITIES

A number of other plant communities form portions of the coastal sage scrub ecosystem mosaic in the subregion. These communities are briefly described in Table 2-1.

SECTION 2.4 FACTORS AFFECTING COASTAL SAGE SCRUB COMPOSITION AND GROWTH

Fleishman and Murphy (1993) compiled data on a wide range of variables affecting coastal scrub distribution and growth habit. Important variables include climatic factors, elevation, soils, slope, aspect, and human-related disturbances.

2.4.1 Climatic, Elevational, Slope and Aspect Factors

Coastal sage scrub species generally tolerate less rainfall and occupy more climatically stable environments than chaparral species. The influence of cool, moist air off the ocean affects the distribution of many coastal sage scrub species (Kirkpatrick and Hutchinson 1977 and 1980). In Orange County, coastal sage scrub occurs primarily below 915 m (3,000 feet) (Jones and Stokes 1993); although in portions of its range, coastal sage scrub occurs up to approximately 1,300 m (4,265 feet) (Moony 1988, Anderson 1991). Coastal sage scrub may occupy gently sloping ground (*e.g.*, the nearly flat coastal terrace at Crystal Cove State Park), but is more common on moderate to steep slopes. Scrub is more common on hotter and drier south and west facing slopes than cooler and wetter north and east facing slopes, although it can occur on slopes with any aspect.

2.4.2 Soils

Coastal sage scrub occurs on a variety of well drained soils, and is unknown on saline or poorly drained soils (Kirkpatrick and Hutchinson 1980). Westman (1981b) determined that 21 shrub and herb species that are dominant within the coastal sage scrub community demonstrate "highly significant substrate preferences" (*in* Fleishman and Murphy 1993, p. 2).

2.4.3 Human-Related Disturbance

Human-related disturbances have affected and continue to affect coastal sage scrub associations throughout the region. Of all human related effects, livestock grazing and potentially increased fire frequency from fires intentionally set or otherwise caused by human activities have had the greatest and most pervasive effects on extant scrub in the region (Hobbs 1983, Hobbs 1986, Monroe *et al.* 1992, Keeley and Keeley 1984, Westman 1976). Grazing by livestock has affected coastal sage scrub ecosystems for about 500 years. Humans have potentially ignited wildfires in coastal scrub for several thousand years, and naturally-ignited fires have occurred both before and during that period.

Table 2-1

PLANT COMMUNITIES ASSOCIATED WITH COASTAL SAGE SCRUB

Community	Description
Dunes	Sparse to dense vegetation growing in wind-blown sand deposits, primarily along the coast. Dune scrub potentially provides habitat for the California gnatcatcher.
Chaparral	Tall, evergreen, sclerophyllous shrubs requiring more moisture than coastal scrub, and usually at higher elevations than scrub associations. Higher elevation chaparral is dominated by species such as chamise (<i>Adenostema fasciculatum</i>), ceanothus (<i>Ceanothus</i> spp.), California scrub oak (<i>Quercus berberidifolia</i>), manzanita (<i>Arctostaphylos</i> spp.) and interior live oak (<i>Quercus wislizenii</i>). Maritime chaparral is dominated by species such as bushrue (<i>Cneoridium dumosum</i>) and coastal scrub oak (<i>Quercus dumosa</i>). Nolina chaparral is defined by the presence of Parry's beargrass (<i>Nolina parryi</i>). Toyon (<i>Heteromeles arbutifolia</i>)/sumac (<i>Malosma laurina</i>) chaparral is the most common form of chaparral in the Coastal subarea. Forms ecotones with scrub and grassland.
Grasslands	Grasses, herbs and subshrubs growing in deep, well developed soils. Annual grassland, dominated by European grass species, is the most common grassland type in Orange County due to historically intensive grazing. Ruderal grassland is a similar early successional association. Four perennial grassland types occur: needlegrass (<i>Stipa</i> [= <i>Nasella</i>]) grassland, wild rye (<i>Leymus triticoides</i>) grassland, deergrass (<i>Muhlenbergia rigens</i>) grassland, and mixed perennial grassland. Savanna types include oak savanna, with widely scattered coast live oaks (<i>Quercus agrifolia</i>), and sumac savanna, with widely scattered laurel sumac.
Seasonal Wetlands	Depressions and swales that retain water during the rainy season and a short period thereafter. Meadows, seeps, and swales are typically vegetated with facultative wetland species. Vernal pools are not generally associated with the project area, but are known to occur in the Aliso and Wood Canyons portion of the reserve.
Marsh	Permanently or seasonally flooded/saturated wetlands, with herbaceous plants. Salt marsh and brackish marshes occur in bays and estuaries, and alkali and freshwater marshes occur in inland locations.
Riparian	Trees, shrubs and herbs growing along watercourses and water bodies. Seral stages include herbaceous riparian, riparian scrub, and riparian forest. Mulefat (<i>Baccharis salicifolia</i>) scrub, can be regularly used by gnatcatchers, particularly during the non-breeding season. Bramble thickets are a minor riparian type.

Community	Description
Woodland	Multilayered, non-riparian communities with canopies that are 20 to 80 percent tree cover. Oak (<i>Quercus</i> spp.) and walnut (<i>Juglans californica</i> var. <i>californica</i>) woodlands occur on mesic, protected, often north facing slopes. Oak woodlands are relatively widespread in contrast to walnut woodland. Mexican elderberry (<i>Sambucus mexicana</i>) woodland is found on upper benches of streams.
Forest	Multilayered, non-riparian communities with closed, dense tree canopies. Forests include oak and coniferous forests as well as Tecate cypress (<i>Cupressus guadalupensis</i> ssp. <i>forbesii</i>) forest.
Cliff and rock	Characterized by a minimal assortment of vascular plants and wide variety of lichens; some such areas provide habitat for sensitive plant species.
Other mapped areas	Other mapped areas include: agriculture; developed; lakes, reservoirs, and basins; marine and coastal; and watercourses (watercourses having significant natural vegetation are included in riparian categories above).

Grazing

On Santa Cruz Island, 130 years of grazing by feral sheep reduced the coastal sage scrub cover to only six percent of the island (Brumbaugh and Leishman 1982), and Westman (1987) observed that heavy sheep grazing has extensively impacted the under story of some stands of coastal sage scrub in Riverside County. Similar effects occur as a result of cattle grazing. Conversely, many researchers have found that removing intense grazing pressure from grasslands may encourage establishment of coastal sage scrub (Vogl 1976, Burcham 1957, McBride and Heady 1968, Elliot and Wehausen 1974, Davidson and Barbour 1977, Hobbs 1983, Kirkpatrick and Hutchinson 1980).

Fire

CSS is a fire tolerant and fire-adapted community (Zedler 1977, Michael Brandman Associates and Dudek and Associates, Inc. 1992). The leading natural cause of fire is lightning, and the natural fire frequency in coastal sage scrub has been estimated at approximately 20 years (Westman 1982, O'Leary 1990).

The common shrub species recolonize burned areas by sprouting from intact root crowns (Keeley 1987) or regenerate from seed (Westman and O'Leary 1986, O'Leary 1990). The resilience of a particular site of coastal sage scrub largely depends on the re-sprouting vigor of

dominant shrub species (Westman and O'Leary 1986). Westman *et al.* (1981) determined that fire intensity has a greater influence on post-fire vegetative recovery than aspect or substrate.

Several researchers observed that a pulse of herbaceous species which arise from dormant pools of seed causes a temporary increase in species diversity after a fire (Keeley 1984, Keeley *et al.* 1985, O'Leary 1988, *in* Fleishman and Murphy 1993, p. 16, Troeger 1982). Benson (1969) considered fire to be the chief limiting factor in the distribution of cactus in southern California.

Fires at high frequency and/or intensity can result in type conversions. Freudenberger (1987) determined that coastal sage scrub is "intermediate between grassland and chaparral in its resilience to disturbance" (*in* Fleishman and Murphy 1993, p. 12). Because coastal sage scrub shrubs establish by seed and re-sprout continually in the absence of fire a typical stand of scrub may be mixed-aged, indicating a different and possibly longer optimum fire interval for scrub than chaparral (Malanson and Westman 1984, Malanson 1985). Fires at five to ten year intervals may result in type conversion from chaparral to coastal sage scrub (Keeley and Keeley 1988, O'Leary, Murphy, Brussard 1992). Type conversion from coastal sage scrub or chaparral to grassland may be accomplished by repeated burning, especially in successive or alternate years (Sampson 1944, Arnold *et al.* 1951, Freudenberger, Fish, Keeley, 1987, Zedler *et al.* 1983). Ryegrass seeding and other post-fire erosion control measures can deter recovery of coastal sage scrub (Keeley *et al.* 1981, Zedler *et al.* 1983, ERC Environmental and Energy Services Co. 1991, O'Leary 1988). Figure 5 illustrates the fire history of Orange County.

SECTION 2.5 CSS DISTRIBUTION

2.5.1 Regional Distribution

Historically, coastal sage scrub in southern California covered a substantially larger area than at present. Prior to rapid human population growth in the region in recent decades, large areas of coastal sage scrub were lost to lowland agricultural development (O'Leary *et al.* 1992). Estimates of the magnitude of loss range from no more than 66 percent in San Diego, Riverside and Orange counties (Michael Brandman Associates 1991) to Westman's (1981a) estimate of regional losses at 90 percent. Currently, approximately 143,264 hectares (ha) (354,000 acres) of coastal sage scrub exists below 610 m (2,000 feet) elevation in San Diego,

Riverside and Orange counties (RECON 1989-90 [Orange County analysis], Michael Brandman Associates 1990-92 [San Diego and Riverside analyses]).

2.5.2 Central and Coastal Orange County Distribution

A total of 11,982 acres of scrub has been mapped within the Coastal Subarea, while 22,410 acres has been mapped within the Central Subarea. The relative distribution of coastal sage scrub and associated communities are displayed on Table 2-2. Figure 4 shows the distribution of coastal scrub and other habitat types in the ecosystem within the two subregions.

On October 27, 1993, the Laguna Beach fire burned 13,402 acres within the Coastal subarea (Table 2-3 and Figure 6). Most of this area was wildland. Table 2-3 quantifies the areas burned by habitat type, as well as the percentages of habitat types burned. Slightly over half of the burn area is coastal scrub, however, about 470 acres of coastal scrub within the perimeter was burned lightly or not at all (Bontrager *et al.* 1994). The woodland and cliff/rock habitats were burned at a disproportionately high percentage, while chaparral and grassland were burned at a disproportionately low percentage. Because fire is a natural and regularly occurring event in this ecosystem, the subregion can be expected to return to conditions generally similar to pre-fire conditions within several years. In its Biological Opinion for the SJHTC, the USFWS offered the following comments relating to the effect of the 1993 fire:

Although it might be assumed that most birds perished in the blaze, the results of surveys immediately following the fire area suggest otherwise. Surveys conducted immediately after the fire demonstrated that birds were widespread and relatively abundant within the fire "footprint," primarily in remnant patches of scrub and cactus where some cover remained, but also in more devastated areas (LSA, unpublished data).

... In subsequent weeks, however, the number of birds within the fire footprint decreased substantially, presumably due to the reduced capacity of the remaining habitat to support the numbers of birds that survived the fire (LSA, unpublished data). Nevertheless, relatively small refugia of unburned and lightly burned scrub within the limits of the fire are still occupied by small numbers of

gnatcatchers and coastal wrens. (USFWS Biological Opinion, SJHTC, January 28, 1994, at page 11)

The exact post-fire distribution and areas of habitat types cannot be known at this time, as it is influenced by local fire intensity, local seed banks, erosion control activities, events which may or may not occur as the vegetation regrows (e.g., additional fires), and other factors.

Table 2-2

AREAS OF COASTAL SAGE SCRUB AND ASSOCIATED COMMUNITIES

Habitat Type	Central Subarea¹		Coastal Subarea¹	
	acres	percent	acres	percent
Dune	17	(<1)	2	(<1)
Scrub	22,410	(33)	11,982	(34)
Chaparral	30,281	(44)	4,937	(14)
Grassland	8,581	(12)	13,294	(37)
Pools, Seeps, Meadows	14	(<1)	39	(<1)
Marsh	14	(<1)	644	(2)
Riparian	3,515	(5)	1,611	(4)
Woodland	1,685	(2)	235	(1)
Forest	804	(1)	0	(0)
Cliff and Rock	120	(<1)	53	(<1)
Marine and Coastal	0	(0)	1,930	(5)
Lakes, Reservoirs and Basins	922	(1)	434	(1)
Watercourses	305	(<1)	479	(1)
Total Wildland	68,669		35,640	
Total Non-wildland (urban, agriculture, etc.)	43,962		60,420	
Total Area	112,631		96,060	

SECTION 2.6 WILDLIFE

The wildlife species inhabiting the mosaic of habitats in the NCCP/HCP subregion associate in many ways with the plant communities (Table 2-4). Some wildlife species are rather nondiscriminating in their use of habitats. Snakes and lizards are common in coastal sage scrub, and the shrub layer provides excellent cover for a variety of bird species. Various raptors

¹ Figures in acres and (percent of wildland area) within each subarea. Percentages may not total 100 because of rounding.

use grassland as foraging areas, where the abundant seeds and herbaceous shoots support many small mammals. Many brush-dwelling species inhabit both coastal sage scrub and chaparral. Oak woodland under story vegetation provides habitat for birds, small mammals and insects, and protective cover for large mammals. Many animal groups are most abundant in riparian areas, due to the moisture available, excellent protective cover, and high availability of food.

Table 2-3

LAGUNA BEACH FIRE EFFECTS ON COASTAL SUBAREA

Habitat Type	Pre-Fire ¹		Area Burned ²	
	acres	percent	acres	percent
Dune	4	(<1)	0	(0)
Scrub	11,951	(34)	6,757	(56)
Chaparral	4,933	(14)	2,621	(53)
Grassland	13,147	(37)	3,082	(23)
Pools, Seeps, Meadows	50	(<1)	2	(4)
Marsh	644	(2)	0	(0)
Riparian	1,609	(4)	235	(15)
Woodland	238	(<1)	143	(60)
Forest	0	(0)	0	(0)
Cliff and Rock	52	(<1)	29	(56)
Marine and Coastal	1,930	(5)	0	(0)
Lakes, Reservoirs and Basins	436	(1)	0	(0)
Watercourses	478	(1)	11	(2)
Total Wildland	35,472		13,035	(37)
Total Non-wildland (urban, agriculture, etc.)	60,291		522	
Total Area	95,763		13,402	

2.6.1 Selected Target Species

Orange-Throated Whiptail

This lizard is one of the three “target species” for the NCCP/HCP, and is discussed in depth below. In addition to those specifically cited, the following general references were also used

¹ Figures in acres and percent of wildland area within the subarea. Percentages may not total 100 because of rounding.

² Figures in acres and percent of pre-fire habitat type. Percentages may not total 100 because of rounding.

in preparing this section: Behler and King 1979, Brattstrom 1992, Hogue 1993, McGurty 1980, Smith 1946, and Stebbins 1954, 1972, 1985.

Data on orange-throated whiptails within the subregion have been developed from surveys performed by Lilburn in 1991 (Lilburn 1994, Appendix 7) on lands owned by TIC, EMA/HBP, and state Parks. Because of the density of vegetation within much of the subregion and the relatively small occupied home ranges of the whiptails, it was not practical to census whiptails, so biologists examined transects. Lilburn examined a total of 324 transects within the Central and Coastal subareas (213 in the Central and 111 in the Coastal subareas). Transect examinations involved a total of 400 miles walked and 293 person hours of field work.

Locations of transects were selected to provide broad-based coverage of the study area. Transects were placed in all major habitat types and were not limited to CSS, and included an elevation gradient from sea level to 2,000 feet. Coastal Subarea transects were walked during a less favorable time of year for whiptail detection, but tests comparing these transects to favorable season Central Subarea transects showed that whiptails were detectable at the time the Coastal transects were walked. The tests also provide a basis to normalize results from the two subareas. The density of vegetation and transect hour, per mile and per acre of transect in various habitat types and/or elevational zones all provide abundance indices for this lizard.

-- Taxonomy

The orange-throated whiptail is one of about 50 species in the New World genus *Cnemidophorus*. The entire California population of *C. hyperythrus* has almost universally been considered representative of the northernmost race, *C.h. beldingi* (Grinnell and Camp 1917, Smith 1946, Smith and Taylor 1950, Behler and King 1979, Stebbins 1985).

-- Life History

Whiptails are active, diurnal carnivores. They are also wary and secretive, often taking refuge in rodent burrows or bushes. Individuals cover rather large areas in search of their staple food, the western subterranean termite (*Reticulitermes hesperus*) and spiders and other insects (Bostic 1966a). Orange-throated whiptails generally do not defend territories, but there is apparently little overlap of male and female home ranges, there is some overlap of male home ranges, and there is extensive overlap of female home ranges (Rowland 1992). Home ranges have been found to average 300-400 square meters (3,200-4,300 square feet), and range from

Table 2-4
WILDLIFE/HABITAT ASSOCIATIONS

Habitat Type	Taxon	Typically Associated Species
Multiple	Invertebrates (butterflies)	cabbage white (<i>Pieris rapae</i> , non-native), Sara orangetip (<i>Anthocharis sara</i>), painted lady (<i>Vanessa cardui</i>), west coast lady (<i>V. carye</i>), common hairstreak (<i>Strymon melinus</i>), marine blue (<i>Leptotes marina</i>)
	Reptiles and amphibians	Pacific slender salamander (<i>Batrachoseps pacificus</i>), Pacific treefrog (<i>Hyla regila</i>), western fence lizard (<i>Sceloporus occidentalis</i>), side-blotched lizard (<i>Uta stansburiana</i>)
	Birds	turkey vulture (<i>Cathartes aura</i>), red-tailed hawk (<i>Buteo jamaicensis</i>), mourning dove (<i>Zenaida macroura</i>), cliff swallow (<i>Hirundo pyrrhonota</i>) (summer), common raven (<i>Corvus corax</i>), house finch (<i>Carpodacus mexicanus</i>), lesser goldfinch (<i>Carduelis psaltria</i>)
	Mammals	southern pocket gopher (<i>Thomomys umbrinus</i>), deer mouse (<i>Peromyscus maniculatus</i>), coyote (<i>Canis latrans</i>), striped skunk (<i>Mephitis mephitis</i>), bobcat (<i>Lynx rufus</i>), and mule deer (<i>Odocoileus hemionus</i>)
Coastal Sage Scrub	Invertebrates (butterflies)	chalcedony checkerspot (<i>Euphydryas chalcedona</i>), Mormon metalmark (<i>Apodemia mormo</i>), acmon blue (<i>Plebejus acmon</i>)
	Reptiles and amphibians	San Diego horned lizard (<i>Phrynosoma coronatum blainvillei</i>), coastal western whiptail (<i>Cnemidophorus tigris multiscutatus</i>), orange-throated whiptail (<i>C. hyperythrus</i>), California whipsnake (<i>Masticophis lateralis</i>), northern red diamond rattlesnake (<i>Crotalis ruber ruber</i>)
	Birds	greater roadrunner (<i>Geococcyx californianus</i>), wrentit (<i>Chamaea fasciata</i>), and Southern California rufous-crowned sparrow (<i>Aimophila ruficeps canescens</i>)
	Mammals	northwestern San Diego pocket mouse (<i>Chaetodipus fallax fallax</i>), Pacific kangaroo rat (<i>Dipodomys agilis</i>), and San Diego desert woodrat (<i>Neotoma lepida intermedia</i>)
Grassland	Invertebrates (butterflies)	California ringlet (<i>Coenonympha tullia</i>)
	Reptiles and amphibians	gopher snake (<i>Pituophis melanoleucus</i>) and western rattlesnake (<i>Crotalis viridis</i>)

Habitat Type	Taxon	Typically Associated Species
Chaparral	Birds	American kestrel (<i>Falco sparverius</i>), western kingbird (<i>Tyrannus verticalis</i>), California horned lark (<i>Eremophila alpestris actia</i>), savannah sparrow (<i>Passerculus sandwichensis</i>), grasshopper sparrow (<i>Ammodramus savannarum</i>), western meadowlark (<i>Sturnella neglecta</i>)
	Mammals	San Diego black-tailed jackrabbit (<i>Lepus californicus bennettii</i>), California ground squirrel (<i>Spermophilus beecheyi</i>)
	Invertebrates (butterflies)	chalcedony checkerspot
	Reptiles and amphibians	coastal western whiptail, California whipsnake
	Birds	wrentit, rufous-crowned sparrow, scrub jay (<i>Aphelocoma coerulescens</i>), California thrasher (<i>Toxostoma redivivum</i>), rufous-sided towhee (<i>Pipilo erythrophthalmus</i>), Bell's sage sparrow (<i>Amphispiza belli belli</i>)
Oak woodland	Mammals	California mouse (<i>Peromyscus californicus</i>), brush mouse (<i>Peromyscus boylii</i>), and gray fox (<i>Urocyon cinereoargenteus</i>)
	Invertebrates (butterflies)	California sister (<i>Adelpha bredowii</i>)
	Reptiles and amphibians	arboreal salamander (<i>Aneides lugubris</i>)
Riparian	Birds	western screech-owl (<i>Otus asio</i>), acorn woodpecker (<i>Melanerpes formicivorus</i>), Nuttall's woodpecker (<i>Picoides nuttallii</i>), and Hutton's vireo (<i>Vireo huttoni</i>)
	Invertebrates (butterflies)	western tiger swallowtail (<i>Papilio rutulus</i>), mourning cloak (<i>Nymphalis antiopa</i>), Lorquin's admiral (<i>Liminitis lorquini</i>)
	Reptiles and amphibians	western toad (<i>Bufo boreas</i>)
	Birds	house wren (<i>Troglodytes aedon</i>), common yellowthroat (<i>Geothlypis trichas</i>), black-headed grosbeak (<i>Pheucticus melanocephalus</i> , summer), rufous-sided towhee (<i>Pipilo erythrophthalmus</i>), song sparrow (<i>Melospiza melodia</i>)

13-4,047 square meters (140-43,560 square feet) (Brattstrom 1991 Rowland, 1992, Fleishman and Murphy 1993). Adults, hatchlings, and juveniles were found to disperse "widely," often over more than 30 m (100 feet) (Rowland 1992). Adults have a short season of activity, generally entering hibernation in late summer and reappearing in the spring; but young remain active later (Bostic 1965, Stebbins 1972). Some individuals may appear on warm days throughout the year (Lilburn 1994).

Orange-throated whiptails reproduce in the conventional bi-sexual mode (as opposed to parthenogenic mode of some other whiptail species). Adults mate from April through July, and one or two clutches of one to four eggs are laid in June and July. Young hatch in 50-55 days and reach sexual maturity in the spring, following hatching in the previous summer (Bostic 1966b).

-- Habitat Requirements

Orange-throated whiptails typically occupy open, sparsely covered land. Well-drained sandy or loose soils are usually present, often with rocks. Dry, sandy washes are especially favored. The Lilburn (1994) surveys produced 99 whiptail sightings, with sightings per mile of transect distributed among habitat types as follows: 1.11 in coastal sage scrub; 0.33 in oak woodland; 0.15 in chaparral; 0.07 in grassland; and 0.05 in riparian. These figures indicate that the whiptail is most strongly associated with coastal scrub, but also indicate that the oak woodland and chaparral components of the ecosystem mosaic also have significant value to this species.

-- Distribution and Abundance

Orange-throated whiptails range from San Bernardino and Orange counties south to the southern tip of Baja California (Smith 1946, Stebbins 1972). The race *C.h. beldingi* is found in the coastal sage scrub zone from its southernmost limit near El Rosario (Baja California) north to Orange and San Bernardino counties (Smith 1946).

Adult orange-throated whiptail densities on a study plot in western Riverside County from 1989-1991 varied from 0.7-2.5/ha (0.3-1.0/ac); hatchling/juvenile densities varied from 0.5-1.3/ha (0.2-0.53/ac) (Rowland). Lilburn (1994) observed a lizard density of 2.3/ha (0.92/ac) in inland coastal scrub surveyed at a favorable season, and densities ranging from 0.09-0.67/ha (0.04-0.27/ac) in other habitat types.

The elevational range in California is generally rather low; Brattstrom (1992) showed that 89 percent of all known localities are below 610 m (2000 feet) elevation, 99 percent are below 855 m (2,800 feet), and 100 percent are below 1,065 m (3,500 feet). Even though the Central subarea has elevations up to and greater than 610 m (2,000 feet), Lilburn (1994) found no whiptails above 365 m (1,200 feet), 10% occurred between 275 m and 365 m (900 and 1,200 feet), and 90% of the sightings were below 275 m (900 feet).

Whiptails were widely distributed in the Central subarea (91 sightings) but limited in the coastal subregion, where eight sightings were all on the inland slopes of the San Joaquin Hills (>4 miles from the coast)(Lilburn 1994). Although historic records of this species exist from Corona del Mar and Dana Point, extensive surveys by LSA (unpublished data) in the coastal portion of the San Joaquin Hills have also failed to produce this species.

An extrapolation of the 99 Lilburn sightings based on habitat types, elevational zones, and subregional differences yields an estimate of 18,915 orange-throated whiptails in the project area, including 14,975 in the Central subarea and 3,940 in the Coastal subarea (See Table 2-5, numbers represent the “low” population estimate).

Figure 7 shows the locations of survey transects and orange-throated whiptail sightings from the surveys by Lilburn (1994). In addition, habitat types have been coded to reflect population densities extrapolated from the index of abundance provided by the transect survey technique (Table 2-5). It should be noted that Brattstrom density estimates remain constant throughout the table because he did not differentiate between habitat types. On the other hand, the Lilburn densities are varied because they represent field observations within the different habitats.

-- Population Trends and Threats

The greatest identified threat to the orange-throated whiptail population is loss of habitat and fragmentation effects, including urbanization, channelization of natural drainages; off-road vehicle activities; and type conversion of shrub communities due to increased fire frequency and grazing (McGurty 1981, Fleishman and Murphy 1993). Predation by scrub jays (*Aphelocoma coerulescens*), northern mockingbirds (*Mimus polyglottos*), domestic cats (*Felis catus*), and other urban edge predators also appear to be significant for whiptails (Brattstrom 1991). Unlike the San Diego horned lizard (*Phrynosoma coronatum blainvillei*), this species does not appear to have been depleted by the pet and curio trade (Grinnell and Grinnell 1907, McGurty 1980, Jennings 1987).

Coastal California Gnatcatcher

This bird is the first target bird species for the NCCP/HCP, and is listed as threatened by the US Fish and Wildlife Service. In addition to those specifically cited below, general references

used in the preparation of this section include: Atwood 1988, 1990, ERCE 1990, Bontrager 1991, Dawson 1923, Ehrlich *et al.* 1988, Fleishman and Murphy 1993, Roach 1988, Unitt 1984, and Woods 1949.

Project area surveys provide data on the distribution and abundance of gnatcatchers. These surveys include those conducted in 1991 and 1992 by Jones and Stokes (Jones and Stokes 1993) and a team of biologists assembled by Ed Almanza and Associates (SEB 1993), as well as spring 1994 surveys by SEB (SEB 1994). The surveys produce census-type data, as gnatcatchers can be relatively reliably detected, yielding essentially complete counts for the areas surveyed. Field survey techniques followed the recommendations of the Scientific Review Panel, including three visits spaced at least a week apart. Biologists assessed multiple sightings in an area and judged whether they represented a repeat sighting or a new sighting. The Jones and Stokes surveys were conducted at an optimal time of year (after juvenile dispersal and before nesting), and Almanza surveys were conducted during a longer portion of the year. Surveys covered nearly all of the wildlands within the two subregions, with visits to all patches of coastal sage scrub within the areas surveyed.

-- Taxonomy

Although originally described as a distinct species over 100 years ago (Brewster 1881), the California gnatcatcher at the species level was long considered conspecific with the desert's black-tailed gnatcatcher (*P. melanura*) (Grinnell 1926; Grinnell and Miller 1944; AOU 1931, 1957, 1983; Mayr and Short 1970). Following Atwood's (1988) taxonomic study, these two taxa are once again considered distinct (AOU 1989, Sibley and Monroe 1990, Phillips 1991).

-- Life History

The gnatcatcher is an inconspicuous inhabitant of coastal sage scrub. Pairs mate for life and are completely resident, spending most of their time together. Gnatcatchers eat insects almost solely, thus obtaining sufficient water from their diet. They glean their prey from the foliage, primarily while moving slowly and methodically through the brush.

Table 2-5
ORANGE-THROATED WHIPTAIL POPULATION DENSITY ESTIMATES

CENTRAL SUBAREA					
HABITAT TYPE	ACRES²	OBSERVED DENSITY	BRATTSTROM DENSITY	POPULATION	
				LOW⁵	HIGH⁶
CSS	14,739	0.92	20	13,560	294,780
Chaparral	5,334	0.12	20	640	106,680
Grass	7,459	0.06	20	448	149,180
Riparian ¹	2,111	0.04	20	84	42,220
Oak Woodland	899	0.27	20	243	17,980
TOTAL				----- 14,975	----- 610,840
COASTAL SUBAREA-uncorrected for season³					
HABITAT TYPE³	ACRES²	OBSERVED DENSITY	BRATTSTROM DENSITY	POPULATION	
				LOW⁵	HIGH⁶
CSS	11,983	0.09	20	1,078	239,660
Chaparral	4,937	0.00	20	0	98,740
Grass	13,294	0.03	20	399	265,880
Riparian ¹	1,650	0.00	20	0	33,000
Oak Woodland	236	0.00	20	0	4,720
TOTAL				----- 1,477	----- 642,000
COASTAL SUBAREA-corrected for season³					
HABITAT TYPE³	ACRES²	OBSERVED DENSITY⁴	BRATTSTROM DENSITY	POPULATION	
				LOW⁵	HIGH⁶
CSS	11,983	0.24	20	2,876	239,660
Chaparral	4,937	0.00	20	0	98,740
Grass	13,294	0.08	20	1,064	265,880
Riparian ¹	1,650	0.00	20	0	33,000
Oak Woodland	236	0.00	20	0	4,720
TOTAL				----- 3,940	----- 642,000
POPULATION⁷					
TOTAL				18,915	1,252,840

NOTES:

- | | |
|---|---|
| 1) Includes lakes per Lilburn, but shouldn't. | 5) Based on Observed Density. |
| 2) Assumes all habitat below Elev. 1200. | 6) Based on Brattstrom Density. |
| 3) No allowance made for absence of lizards on coastal slope. | 7) Derived by adding Central and Coastal-corrected populations. |
| 4) Based on 2.56 x more lizards per mile in prime season than resurvey. | 8) Acreages per GIS |

Annual adult survival has been studied in the Rancho San Diego area and on the Santa Margarita Ranch (Ogden 1992), ranging from 60.9 percent in a mild winter to 25.6 percent in a cold, wet winter. Average adult annual survival in the three-year Rancho San Diego study was 39.2 percent. These figures indicate that a two-year life span (for those reaching adulthood) is common for this bird, and that longer life spans occur for a minority.

Territory size varies considerably, both geographically and seasonally. Territories are generally smallest at prime locations near the coast and at lower elevations. A number of studies have documented a territory size range of 0.2-19 ha (.5-46 acres) (MacMillen *et al.* 1991, LSA unpublished data, K. Pluff unpublished data, Woods 1921, MBA 1991b, Atwood 1984, Impact Sciences 1990, Bontrager 1991, RECON 1987, Anderson 1991, PSB 1989, Mock *et al.* 1991, ERCE 1990, Monroe *et al.* 1992). The birds generally expand their territories considerably after the nesting season, when they are prone to use a wider range of habitats as well.

The nesting season is rather protracted, extending from late February into August at the extremes (Ogden 1992, LSA unpublished data), with egg dates from early March to the end of July. Pairs spend the entire year together, but typically focus on their nesting territory in January, becoming more vocal and aggressive in territory defense. Both parents participate in building a nest, generally placed 0.6-0.9 m (2-3 feet) up in the crown of a low bush. Three to five eggs may be laid, with four most common in normal years, and a mean clutch size of 3.84 (Atwood 1988). Males and females alternate incubating the eggs, which usually hatch in about 14 days. Nestlings remain in the nest another 9-15 days, and family groups remain intact for three to five weeks. Pairing may occur within a few weeks after leaving the natal territory (Ogden 1992, LSA unpublished data). As many as seven nestings may be attempted in a season, but no more than three broods have been recorded as successfully reared. In a three-year study of a population in Rancho San Diego, productivity ranged from 1.61 to 4.3 fledglings/pair (Ogden 1992).

Young gnatcatchers in their first summer and fall of life will travel the greatest distances. Twenty-six juveniles in San Diego County were found to disperse 0.5-6.1 miles from their natal territories, with a mean dispersal distance of 1.7 miles (Ogden 1992). In western Riverside County, juveniles have been recorded dispersing as many as eight miles (Monroe *et al.* 1992). Gnatcatchers are known to have crossed four lane highways (Noss 1992, LSA unpublished data), and there is circumstantial evidence of crossing eight lanes or more of Interstate 5 in southern Orange County (LSA unpublished data).

-- Habitat Requirements

Gnatcatchers are generally considered an obligate resident of coastal sage scrub, with only marginal use made of such adjoining habitats as mulefat scrub, saltbush scrub, chaparral, riparian woodland, and ruderal areas. Based on bird densities, optimum conditions appear to exist near the coast and at lower elevations. Sparse, low scrub is generally favored by coastal California gnatcatchers over higher, denser stands. Several studies have found mean percent gap in shrub canopy ranging from 23.1 to 51 percent, with canopy cover between 30 and 90 percent (Bontrager 1991, ERCE 1991, Anderson 1991, Monroe *et al.* 1992). It is clear that not all coastal sage scrub is occupied by coastal California gnatcatchers, a fact perhaps due to habitat suitability but also possibly a result of other physical and biotic factors.

California sagebrush is considered the most important plant species for California gnatcatchers, with California buckwheat, California encelia (*Encelia californica*), and prickly pear and cholla cactus (*Opuntia* spp.) are also important. A subregion survey (SEB 1993) found gnatcatchers in 11 scrub subtypes, but 75 percent of all birds were located in only three subtypes: sagebrush-buckwheat (41 percent); southern cactus scrub (17 percent); and sagebrush scrub (17 percent). A strong negative correlation with black sage (*S. mellifera*) dominated coastal sage scrub has been noted by some researchers (Atwood 1990, Mock *et al.* 1990, Anderson 1991, Bontrager 1991), but questioned by others (Fleishman and Murphy 1993). Within the subregion, approximately five percent were found in sagebrush-black sage habitat, but only one percent were in areas dominated by black sage (SEB 1993).

Coastal California gnatcatchers are usually associated with gentle slopes. Atwood (1990) found them seldom foraging on slopes in excess of 50 percent or nesting on slopes in excess of 25 percent. At Camp Pendleton, Tutton *et al.* (1991) indicates 96 percent of all sightings were on slopes less than 35 percent, and 86.5 percent were on slopes less than 25 percent.

Elevation has an important influence on gnatcatcher distribution. Atwood and Bolsinger (1992) found that 84 percent of recent gnatcatcher localities are under 250 m (800 feet) elevation, 97 percent are under 500 m (1,600 feet), and 100 percent are under 750 m (2,400 feet). Sixty-nine historical sites showed a similar pattern, with 94 percent below 500 m (1,600 feet).

-- Distribution and Abundance

The historic range of the coastal California gnatcatcher essentially corresponds to that of the coastal sage scrub community, from its southern limit near El Rosario (Baja California) north to southwestern San Bernardino and the lower Santa Clara River Valley in southern Ventura County (Grinnell 1928, Grinnell and Miller 1944, AOU 1957). The gnatcatcher's range was apparently always somewhat patchy and localized (Grinnell 1898; Dawson 1923; Grinnell and Miller 1944; Woods 1949; Atwood 1980, 1993; Ogden 1992). The species is now absent from much of the northern and eastern portion of its range (USFWS 1991, Atwood 1993). A limited number of birds on the Palos Verdes Peninsula and in the Montebello/Whittier Hills represent the only known extant population in Los Angeles County.

The project area surveys found a total of 615 sites, including 325 in the Central subarea and 290 in the Coastal subarea (Jones and Stokes 1993, SEB 1993, SEB 1994). As noted above, the number of sites should not be used to estimate population numbers. In the Coastal subarea, gnatcatchers were especially numerous on the coastal shelf of Crystal Cove State Park north of Los Trancos Canyon and around Sand Canyon Reservoir; relatively few sightings were made in Emerald and Laurel canyons and southern Laguna Beach; and moderate numbers were found throughout the remainder of the subarea. In the Central subarea, several clusters of gnatcatchers were found along the southern/western edge of the Lomas de Santiago, including the MCAS El Toro magazine area, Siphon Reservoir, Rattlesnake Reservoir, and the Tustin Ranch area. In addition, significant clusters of birds were observed in fragmented habitat remaining in the cities of Orange and Anaheim. Lesser densities were found elsewhere in the lower elevations within the Central subarea, and very few gnatcatchers were observed in interior, higher elevation portions of this subregion.

Figure 7 shows the distribution of gnatcatchers within the Central and Coastal subareas, as found during the project surveys. The drawing also shows the extent of areas surveyed within the subregions.

The Laguna Beach fire burned 116 coastal California gnatcatcher sites (Note: The Biological Opinion for the SJHTC estimates that 208 of 409 gnatcatchers were in the burn "footprint," Appendix 8). Observations of large numbers of gnatcatchers within the burn in the days after the fire show that direct fire mortality was not high, but bird numbers dropped dramatically about a week after the fire. It appears that at least some of these birds were displaced to unburned refugia around the fire perimeter. In the spring of 1994 there were 11 occupied

gnatcatcher sites within the burn, or 11% of the pre-fire number. Gnatcatcher populations within the burn are expected to recover fully (Bontrager *et al.* 1994).

-- Population Trends and Threats

Loss of coastal sage scrub habitat for this species has been well documented (Kirkpatrick and Hutchinson 1977, Unitt 1984, Westman 1987, O'Leary 1990, MBA 1991a, Salata 1991, Atwood 1993). The effects of habitat loss are exacerbated by fragmentation, including edge effects, environmental variability, and the risk of small population size (Wilcox and Murphy 1985, Pimm *et al.* 1988, Soulé 1988, ERCE 1991, Salata 1991, Noss 1992, Ogden 1992). Fragmentation may increase predation by feral cats and other mesopredators (Soulé 1988, Atwood 1990, Anderson 1991); predation and human disturbance are the major inhibiting factors in gnatcatcher productivity (Roach 1989, Bontrager 1991). Nevertheless, gnatcatcher population estimates have actually increased somewhat since 1980, an artifact of attention focused on the species (Atwood 1980, MBA 1991a, Salata 1991, Atwood 1992, USFWS 1993).

Brown-headed cowbird (*Molothrus ater*) brood parasitism has increased in frequency in California gnatcatchers (Unitt 1984, Atwood 1990, Bontrager 1991, Salata 1991, Braden 1992, Fleishman and Murphy 1993). Impacts on gnatcatchers are most substantial near favored cowbird habitat, such as riparian areas, golf courses and stables (Atwood 1984, 1985, 1990; Monroe *et al.* 1992).

Fire has always been a natural component of the coastal sage scrub environment. Altered fire cycles can affect gnatcatcher habitat, however (Rea and Weaver 1990, ERCE 1991, Tutton *et al.* 1991). On Camp Pendleton, where fire frequency has been accelerated, Tutton *et al.* found 81 percent of gnatcatcher localities to be areas that had not burned in at least 16 years.

Coastal Cactus Wren

This bird is the second of two avian "target species" for the NCCP/HCP. In addition to the references specifically cited below, general references used in the preparation of this summary include: Anderson and Anderson 1973, Dawson 1923, Ehrlich *et al.* 1988, Fleishman and Murphy 1993, Noss 1992, Rea and Weaver 1990, Weathers 1983, and Woods 1948.

Project area surveys provide data on the distribution and abundance of coastal cactus wrens. These surveys include those conducted in 1991 and 1992 by Jones and Stokes (Jones and

Stokes 1993) and Almanza and Associates (SEB 1993), as well as spring 1994 surveys (SEB 1994). The surveys produce direct census data, as wrens and their habitat are relatively conspicuous and complete counts can be obtained. Surveys covered nearly all of the wildlands within the two subareas, including visits to all patches of coastal sage scrub within the areas surveyed. Field survey techniques followed the recommendations of the Scientific Review Panel, including at least three visits spaced a week apart. Biologists assessed multiple sightings in an area and judged whether they represented a repeat sighting or a new sighting. Wren surveys were conducted concurrently with gnatcatcher surveys.

-- Taxonomy

The coastal cactus wren is the northernmost of 13 species in the primarily neotropical genus *Campylorhynchus* (Selander 1964, Sibley and Monroe 1990).

Sub-species definitions and limits are unresolved. Most authorities in the 20th century have considered all California birds representative of the race *C.b. couesi*, (Swarth 1904; Grinnell 1921, 1928; Willett 1933; Grinnell and Miller 1944; AOU 1957; Phillips *et al.* 1964; Unitt 1984; Behle *et al.* 1985) or *C.b. anthonyi* (Mearns 1902, Selander 1964, Anderson and Anderson 1973, Oberholser 1974, Monson and Phillips 1981, Rea 1983, Browning 1990). Long suggested differences in coastal San Diego County birds (summary in Rea and Weaver 1990) culminated in the description of coastal southern California birds as a distinct subspecies, *Campylorhynchus brunneicapillum* [*sic*] *sandigense* (Rea 1986) endorsed by Browning (1990) using the more traditional name *Campylorhynchus brunneicapillus sandiegensis*. Rea and Weaver (1990) refined the known range to include northwestern most Baja California to San Juan Creek in southern Orange County. McKernan (1991) found wrens from the San Joaquin Hills showed characters as distinct for *C.b. sandiegensis*, but also noted that "as of June 1991, the American Ornithologists' Union has not recognized *C.b. sandiegensis* as a distinct subspecies." This document will refer to "coastal cactus wrens" for these reasons.

In response to a petition filed in 1993 to add the Pacific coast population of the cactus wren to the federal List of Threatened and Endangered Wildlife, the FWS published its one-year finding (September 2, 1994, 59 CFR 45659) for the cactus wren. In this finding the FWS determined that listing is not warranted and transferred the cactus wren from Category 2 to Category 3B of the Candidate Notice of Review. The FWS determined that the coastal population of cactus wrens do not constitute a distinct population segment. Despite these

FWS determinations, the NCCP/HCP will continue to designate the cactus wren as a "target species", and treat it as if it were listed for purposes of FESA.

-- Life History

Coastal cactus wrens are residents of arid scrub containing cactus. They forage primarily on the ground for a diet made up mostly of insects and spiders in the warmer months and augmented by fruit and seeds, especially in winter. Small vertebrates are also occasionally taken. Water is normally consumed only in winter, when less dietary water is obtained from insects (Anderson and Anderson 1973, Weathers 1983).

Coastal cactus wrens are strictly resident, mating for life and defending territories year-round throughout their adult lives. They exhibit limited wandering in winter, and adjust territories only slightly between years. Territory size in southern California has been found to range from 0.8-3.7 ha (2.0-9.2 acres), most commonly 1.2-2 ha (3-5 acres) (LSA unpublished data, Rea and Weaver 1990). Territories are often elliptical, corresponding to the shape of draws supporting cactus (Rea and Weaver 1990). Birds rarely exceed five years of age in the wild, and Anderson and Anderson (1973) found that "lost" birds in a territory invariably were quickly replaced, apparently by "floaters" in the system.

Coastal cactus wrens have high reproductive potential, but mortality is believed to be high among young birds. The breeding season starts in February or March in southern California, with egg dates from March 2-July 5 (Woods 1948). Up to six clutches of three to seven eggs (most often 4, mean 3.4) can be laid per year, but no more than three broods are successfully raised (Anderson and Anderson 1973). The incubation period is typically 16 days; and young are fed by both parents, with fledgling occurring in 19-23 days.

Young begin to construct their own nests by late summer, and are generally tolerated on the natal territory into the winter. Females disperse farther than males (Anderson and Anderson 1973), and dispersal of about three miles has been documented in the San Joaquin Hills (D.R. Bontrager, personal communication). The naturally patchy distribution of cactus suggests that "long distance" dispersal occurs at least occasionally (Noss 1992).

-- Habitat Requirements

Coastal cactus wrens are very closely associated with tall cactus, as nests are only located at heights over 0.6-0.8 m (two to three feet). The cactus most often used are prickly pear (*Opuntia prolifera*) and cholla (*O. littoralis*), typically growing on south and west facing slopes in coastal sage scrub but sometimes grow among coast live oaks and sycamores. Rea and Weaver (1990) found wrens preferred areas dominated by California sagebrush and California buckwheat and to avoid areas dominated by sages (*Salvia* spp.). Wrens were found in 12 subtypes of coastal sage scrub during project surveys, but 59 percent of all birds were located in southern cactus scrub, defined as coastal sage scrub having 20 percent or more *Opuntia* spp. (SEB 1993).

-- Distribution and Abundance

As a species, the coastal cactus wren is resident from the southwestern United States to central Mexico (AOU 1983). For this document, the coastal cactus wren ranges from southern Ventura and southwestern San Bernardino counties south to northwesternmost Baja California (Garrett and Dunn 1981, Rea and Weaver 1990). Birds have been found to the upper limit of coastal sage scrub at 450 m (1,475 feet) elevation in Orange County (Fleishman and Murphy 1993). The species' distribution is naturally patchy as a result of cactus distribution.

Project area surveys produced a total of 1,033 sites, including 612 in the Central subarea and 421 in the Coastal subarea (Jones and Stokes 1993, SEB 1993, SEB 1994). Figure 8 shows the distribution of coastal cactus wrens within the Central and Coastal subareas, per the project area surveys. Within the Coastal subarea, coastal cactus wrens were especially numerous in the central part of the San Joaquin Hills and around Sand Canyon Reservoir; and relatively few sites were in the coastal portions of this subarea. Relatively high numbers of cactus wrens were found in the MCAS El Toro magazine area, Limestone Canyon, Whiting Ranch Wilderness Park and the adjacent Southern California Edison easement in the Central subarea; moderate numbers were found in the Santiago Hills and Weir and Gypsum canyons; and few wrens were found elsewhere in this subarea. Numerous bird clusters also were observed in fragmented habitat in the cities of Orange and Anaheim.

The Laguna Beach fire footprint included 509 coastal cactus wrens according to the Biological Opinion for the SJHTC (Appendix 8). Large numbers of coastal cactus wrens were observed within the burn in the days after the fire, showing that direct mortality was not high.

Contrasting with gnatcatchers, a substantial number of cactus wrens continued on their territories for weeks and months after the burn, and there was no evidence that birds displaced to the burn periphery. In the spring of 1994 there were 31% of the pre-fire number of wrens within the burn. Despite the lesser short-term impact, recovery of cactus wrens is expected take longer than gnatcatcher recovery due to the slow growth rate of cactus (Bontrager *et al.* 1994).

-- Population Trends and Threats

The decline of coastal cactus wrens was first noted early in the century (Dawson 1923, Willett 1933, Grinnell and Miller 1944), and thought to be the result of habitat loss, but also possibly egg collecting (Grinnell and Miller 1944) and vandalism (Woods 1948). Rea and Weaver (1990) found coastal cactus wrens absent at 33 percent of San Diego County sites known occupied in the preceding decade, and noted that grazing and accelerated fire frequency, along with development, are contributing to the loss of coastal sage scrub. Soulé *et al.* (1988) suggested that coastal cactus wrens are among the most susceptible bird species to habitat fragmentation in chaparral [*sic*]. Increased predation by cats and other mesopredators are believed to be involved.

2.6.2 Additional Identified Species

The following additional "Identified Species" will receive coverage under Section 10 of the FESA and the CESA, as discussed in Part I and in Section 4.5 of Part II. Each of these species were identified as covered species for one or more reasons, which include: 1) the species habitat closely overlaps that of one or more of the three "target species", 2) the species habitat generally overlaps with one or more of the three "target species" and the additional "Identified Species" is more widespread and secure, 3) the species is largely or completely endemic to the subregion and its known population(s) are adequately protected by the reserve and adaptive management program, 4) the species is widely distributed beyond the NCCP region and the NCCP reserve and adaptive management program provide fully adequate conservation measures within the context of this subregion, 5) the species distribution is limited to a very small portion of the subregion that overlaps one or more of the "target species"; or 6) the species is an important top predator and habitat linkages designed in the reserve will allow it to continue to play that role.

Foothill Mariposa Lily (*Calochortus weedii* var. *intermedius*)

This species has been identified for coverage because its distribution and habitat requirements generally coincide with the “target species”.

-- Taxonomy

Foothill mariposa lily is a member of the lily family (Liliaceae). Foothill mariposa lily, also known as intermediate mariposa lily (CDFG 1994; Skinner and Pavlik 1994), is distinguished from the other varieties by its purplish flowers and from *C. plummerae* by its petals, which are fringed with long hairs (not fringed in *C. plummerae*).

-- Life History

Foothill mariposa lily is an herbaceous perennial that persists as a bulb after the above-ground parts have dried up. The leaves and stems emerge during the spring, but the plants do not bloom until the early summer, May through July (Skinner and Pavlik 1994).

-- Habitat Requirements

Foothill mariposa lily occurs on dry, rocky slopes in grasslands, chaparral, and coastal scrub (Hickman 1993; Skinner and Pavlik 1994). This lily is found in habitat types similar to the three “target species”.

-- Distribution and Abundance

Foothill mariposa lily is restricted to Orange County, the southern tip of Los Angeles County, and western Riverside County (Skinner and Pavlik 1994). The California Department of Fish and Game (CDFG 1994) ranks the variety S3.2, indicating between 21 and 100 known occurrences, 3,000 to 10,000 known individuals, or 10,000 to 50,000 known occupied acres. Within the subregion, it is known to occur in the Lomas de Santiago, the Gypsum Canyon area, the Peralta Hills area, the North Ranch Policy Plan Area (Central subarea) and in the San Joaquin Hills (Coastal Subarea).

-- Population Trends and Threats

CNPS categorizes the species as "endangered in a portion of its range" (Skinner and Pavlik 1994). In addition to loss of wildland habitats throughout the area, populations may possibly be declining due to hybridization with *C. plummerae* (Skinner and Pavlik 1994).

Catalina Mariposa Lily (*Calochortus Catalina*)

This species has been included for coverage because its habitat requirements are generally similar to the "target species" and because it is more secure than the "target species".

-- Taxonomy

Catalina mariposa lily is a member of the lily family (Liliaceae).

-- Life History

Catalina mariposa lily is an herbaceous perennial that persists as a bulb after the above-ground parts have dried up. The leaves and stems emerge during the winter rainy season, and the plants bloom between February and May (Skinner and Pavlik 1994).

-- Habitat Requirements

Catalina mariposa lily appears to grow in heavy soils of open grasslands or shrub lands (Hickman 1993). Habitats in which the species occurs include grasslands, chaparral, coastal scrub, and cismontane woodland (Skinner and Pavlik 1994). Its habitat requirements are similar to the "target species", with an emphasis on grasslands.

-- Distribution and Abundance

Catalina mariposa lily is distributed from San Luis Obispo County to San Diego County, including Santa Rosa, Santa Cruz, and Santa Catalina islands (Skinner and Pavlik 1994). The California Department of Fish and Game (CDFG 1994) ranks the variety S3.2, indicating between 21 and 100 known occurrences, 3,000 to 10,000 known individuals, or 10,000 to 50,000 known occupied acres. Within the subregion, it is known from both the San Joaquin Hills (Coastal Subarea) and the Lomas de Santiago (Central Subarea).

-- Population Trends and Threats

CNPS categorizes Catalina mariposa lily as "endangered in a portion of its range," but also categorizes the species as ". . . found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time" (Skinner and Pavlik 1994).

Laguna Beach Dudleya (*Dudleya stolonifera*)

This plant has been identified for coverage because it is endemic to the subregion and five of six known occurrences are within the Reserve System.

-- Taxonomy

Laguna Beach Dudleya is a member of the stonecrop family (Crassulaceae), described by Reid Moran (1950) from his collections in Laguna and Aliso canyons in Orange County.

-- Life History

Laguna Beach Dudleya is a succulent perennial that spreads vegetatively via stolons (Hickman 1993). The plants bloom between May and July (Skinner and Pavlik 1994).

-- Habitat Requirements

Laguna Beach Dudleya grows on steep, north-facing sandstone and basalt cliffs within grassland, chaparral, coastal scrub, and cismontane woodland habitats (CNDDDB 1995).

-- Distribution and Abundance

Laguna Beach Dudleya is found only in the San Joaquin Hills of Orange County. The CNDDDB (1995) lists nine occurrences, three of which are locality reports lacking any additional information. Roberts (unpublished data) indicates that there are six extant occurrences. A plot of the six clearly verifiable CNDDDB occurrences shows the Big Bend (CNDDDB 1) and the Canyon Acres (CNDDDB 5) sites are clearly outside the reserve; the Aliso Canyon mouth (CNDDDB 2) site is very near the edges of the reserve, existing use, and non-reserve areas; and the Laurel Canyon (CNDDDB

4), Canyon "B" (CNDDDB 6), and Temple Hill/Bonn Drive (CNDDDB 7) sites are clearly in the reserve. Of these, the Canyon Acres and Canyon "B" sites are considered to be small populations, and the other four are relatively large.

-- Population Trends and Threats

The CNDDDB (1995) and Roberts (unpublished data) report that one population of Laguna Beach Dudleya appears to be declining in numbers due to encroachment by non-native species and that the trend for the other populations is currently unknown. Horticultural collecting may be causing population declines (Skinner and Pavlik 1993; CNDDDB 1995). One private landowner owning a portion of the Aliso Canyon mouth population is voluntarily protecting it through an agreement with the Nature Conservancy.

Santa Monica Mountains Dudleya (*Dudleya cymosa* spp. *ovatifolia*)

This species is included for coverage because all known occurrences in the subregion are either in the reserve or in the National Forest, and the NCCP reserve and adaptive management program provide adequate conservation measures within the context of this subregion.

-- Taxonomy

Santa Monica Mountains Dudleya (*Dudleya cymosa* spp. *ovatifolia*) is a member of the stonecrop family (Crassulaceae). The subspecies *D. c. ovatifolia* is now considered to include the form previously known as *D. c. agourensis* (Skinner and Pavlik 1994, Hickman 1993). The common name is shared with *D. c. marcescens*.

-- Life History

This Dudleya is a succulent perennial with a branched inflorescence, flowering between March and June (Skinner and Pavlik 1994, Hickman 1993).

-- Habitat Requirements

Santa Monica Mountains Dudleya is found in both coastal scrub and chaparral, apparently preferring volcanic substrates (Skinner and Pavlik 1994, CNDDDB 1995). It is found on shaded, rocky slopes (Hickman 1993, CNDDDB 1995).

-- Distribution and Abundance

Most occurrences are in the Thousand Oaks area of Los Angeles and Ventura Counties (CNDDDB 1995). For those with data available, occurrences are estimated to be between 100 and 1,000 plants (CNDDDB 1995). All known occurrences in the subregion are in Flemming Regional Park or in the National Forest (Roberts, personal communication).

-- Population Trends and Threats

This species is thought to be threatened by habitat loss and recreational use of its habitat (Skinner and Pavlik 1994). Several occurrences are in protected habitats, including those in the subregion, those at Topanga State Park, and others on lands owned by open space districts.

Coulter's Matilija Poppy (*Romneya coulteri*)

This species has been included for coverage because its habitat requirements are generally similar to the "target species" and because it is more secure than the "target species".

-- Taxonomy

Coulter's Matilija poppy is a member of the poppy family (Papaveraceae).

-- Life History

Coulter's matilija poppy is an herbaceous perennial that spreads via rhizomes (Hickman 1993). The plants bloom between May and July (Skinner and Pavlik 1994).

-- Habitat Requirements

Coulter's matilija poppy occurs in dry washes and canyons in chaparral and coastal scrub habitats (Hickman 1993; Skinner and Pavlik 1994). It frequently shows up as a "fire-follower" in burned areas where it occurs (Skinner and Pavlik 1994). This poppy is found in habitat types similar to the three "target species".

-- Distribution and Abundance

Coulter's matilija poppy is distributed in coastal southern California from Los Angeles to San Diego counties. The California Department of Fish and Game (CDFG 1994) ranks the variety S3.2, indicating between 21 and 100 known occurrences, 3,000 to 10,000 known individuals, or 10,000 to 50,000 known occupied acres. This species occurs primarily along the foothills of the Santa Ana Mountains.

-- Population Trends and Threats

CNPS categorizes Coulter's matilija poppy as "endangered in a portion of its range," but also categorizes the species as "... found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time" (Skinner and Pavlik 1994).

Nuttall's Scrub Oak (*Quercus dumosa*)

This species has been included for coverage because most of its occurrences in the subregion are protected, and the NCCP reserve and adaptive management program provide adequate conservation measures within the context of this subregion. However, many occurrences are very near the edge of the reserve, making fuel management key to effective conservation of this species. To the degree that projects by *non-participating landowners* set aside additional habitat adjoining the reserve, conservation of this species may improve.

-- Taxonomy

Nuttall's scrub oak (*Quercus dumosa*), also known commonly as coastal scrub oak, was relatively recently determined to be distinct from the interior form of scrub oak (*Q. berberidifolia*). The two species can hybridize (Hickman 1993, Skinner and Pavlik 1994).

-- Life History

Like other scrub oaks, this species is a substantial shrub (1-3 m tall) with dark green toothed leaves. It flowers from February through March, and its acorns mature in one year (Skinner and Pavlik 1994, Hickman 1993).

-- Habitat Requirements

Nuttall's scrub oak is associated with sandy substrates near the coast (Hickman 1993), where it is a component of maritime chaparral and coastal scrub communities.

-- Distribution and Abundance

This species is known from Santa Barbara, Orange, and San Diego counties, and also occurs in Baja California (Skinner and Pavlik 1994). Eight populations are known from Orange County (Roberts, personal communication).

-- Population Trends and Threats

This species has declined due to habitat loss in coastal southern California (Skinner and Pavlik 1994). Within the subregion, most of the development likely to affect Nuttall's scrub oak has already occurred. The most direct threats are in San Diego County (Roberts, personal communication).

Small-flowered Mountain Mahogany (*Cercocarpus minutiflorus*)

This species has been identified for coverage because it is relatively secure within its overall range and because its only known occurrence in the subregion is in the reserve and/or an existing use area where no land use conflicts are expected. For this reason, the NCCP reserve and adaptive management program provide adequate conservation measures within the context of this subregion. The occurrence is very near the edge of the reserve, making fuel management key to effective conservation of this species.

-- Taxonomy

Small-flowered mountain mahogany (*Cercocarpus minutiflorus*) is a member of the rose family (Rosaceae).

-- Life History

This species is a large shrub (2-5 m tall) with both leaves and flowers smaller than most other *Cercocarpus* species.

-- Habitat Requirements

This species requires habitat suitable for maritime chaparral, which is the plant community it occurs in.

-- Distribution and Abundance

Small-flowered mountain mahogany is found from Orange County south through San Diego County and into Baja California (Roberts, personal communication, Hickman 1993). CNPS considered it too common for inclusion in its *Inventory of Rare and Endangered Vascular Plants of California* (Skinner and Pavlik 1994), indicating its relative abundance. Only one population is known from Orange County, which is at Niguel Hill (Roberts, personal communication).

-- Population Trends and Threats

This species has presumably been affected by habitat loss comparable to other maritime chaparral species.

Heart-leaved Pitcher Sage (*Lepichinia cardiophylla*)

This species has been identified for coverage because in the subregion it is associated primarily with the Tecate cypress forest habitat type, most of which is conserved in the reserve. The species also occurs on adjoining National Forest lands. For these reasons, the NCCP reserve and adaptive management program provide adequate conservation measures within the context of this subregion.

-- Taxonomy

Heart-leaved pitcher sage (*Lepichinia cardiophylla*) is one of four pitcher sage species, which are members of the mint family (Lamiaceae).

-- Life History

This species is a very aromatic small shrub or subshrub, spreading vegetatively, and flowering from April through July (Hickman 1993, Skinner and Pavlik 1994).

-- Habitat Requirements

Heart-leaved pitcher sage is found in a variety of interior plant communities, including Tecate cypress forest, closed-cone coniferous forest, cismontane woodland and chaparral (CNDDDB 1995, Skinner and Pavlik 1994).

-- Distribution and Abundance

Heart-leaved pitcher sage is found in Orange and Riverside counties in the Santa Ana Mountains, in San Diego County, and in Baja California. Most populations where data are available consist of a few hundred or fewer plants (CNDDDB 1995).

-- Population Trends and Threats

CNPS identifies habitat loss as the primary threat to this species (Skinner and Pavlik 1994), however, most occurrences in the United States are on National Forest lands (CNDDDB 1995). The species is known from the Coal Canyon Ecological Reserve in the subregion, and approved development nearby is not expected to affect significant numbers of this plant.

Tecate Cypress (*Cupressus forbesii*)

This species has been included for coverage because almost all of its primary occurrence in the subregion is included in the reserve.

-- Taxonomy

Tecate cypress is a conifer belonging to the cypress family (Cupressaceae), and was described by Jepson (1922) based on collections made by Charles Forbes from the north side of Otay Mountain in San Diego County. Little (1971) considered Tecate cypress to be a variety of *C. guadalupensis*, and Beauchamp (Thorne 1978; Beauchamp 1986) proposed that it be treated as a subspecies of *C. guadalupensis*.

-- Life History

Tecate cypress is a closed-cone conifer with a life history adapted to the southern California chaparral fire cycle (Zedler 1977; Armstrong 1978; Dunn 1985, 1986). The cones remain closed until opened by the heat of fire. Tecate cypress requires 30 to 40 years to reach the peak of cone production, so more frequent fire intervals interfere with the reproductive cycle (Dunn 1985).

-- Habitat Requirements

Tecate cypress occurs in nutrient-poor soils, primarily on north-facing slopes, between sea level and 4,200 feet, typically associated with chaparral (Stottlemeyer and Lathrop 1981; CNDDDB 1995).

-- Distribution and Abundance

Within the United States, Tecate cypress occurs on Sierra Peak in Orange County and on Tecate Peak, Otay Mountain, and Guatay Mountain in San Diego County (CNDDDB 1995). Almost all of the Sierra Peak population occurs within the reserve. An additional very small and apparently natural stand occurs in Fremont Canyon within the North Ranch Policy Plan Area. The species also occurs in a larger number of widely scattered localities in Baja California (Minnich 1987). Because of the extremely high population densities present in portions of each population, estimates of the total number of Tecate cypress trees range from the millions to tens of millions (LSA 1989).

-- Population Trends and Threats

One population (Tecate Peak) is known to have declined significantly (Zedler 1977), and others in the US have remained more or less stable. Projects approved near the Sierra Peak stand have been required to prepare management plans for the cypress. Long-term stability of this population is largely dependent on the success of the fire management plans in maintaining a suitable fire regime.

Riverside Fairy Shrimp (*Streptocephalus woottoni*)

This species has been identified for conditional coverage under the NCCP/HCP (refer to Section 4.5, Chapter 4 for a description of specific conditions relating to the fairy shrimp). This vernal pool crustacean species has not been confirmed to occur in the subregion and there are no known examples of high quality vernal pool habitat in the subregion. If present in the subregion, it would likely occur in highly degraded and/or artificial habitat, as is the case with other fairy shrimp species known to occur in the subregion.

-- Taxonomy

The Riverside fairy shrimp (*Streptocephalus woottoni*) is a crustacean, and a member of the order Anostraca.

-- Life History

The life history of the Riverside fairy shrimp is tied to the cycles of the vernal pools it inhabits. As the pools fill with water in the early winter, a portion of the cysts which have been dormant in the soil of the pool bottom hatch into the free-swimming form. Riverside fairy shrimp apparently hatch later in the season as the water in vernal pools warms (Eng *et al.* 1990). Fairy shrimp are strong swimmers, using their eleven pair of legs to swim upside down on their backs, a distinctive form of locomotion. Fairy shrimp eat smaller invertebrates, protozoa, algae, and detritus. Most fairy shrimp reach maturity in a few weeks, and have only one generation per year. As the vernal pools dry, eggs form resistant cysts which persist in the dried soil until a future wetting of the vernal pool soil.

-- Habitat Requirements

Like all fairy shrimp, Riverside fairy shrimp are restricted to seasonally ponded water. Vernal pools are the natural habitat, and are characterized by a unique hydrologic cycle consisting of wetting in late fall and early winter (wetting phase), ponding in winter and early spring (aquatic phase), drying later in the spring (drying phase), and desiccation through the summer and fall (drought phase). While most vernal pools support a flora distinct from the surrounding matrix, the flora of vernal pools typically includes both vernal pool endemic plants and less specialized plants, the latter often typical of disturbed seasonal wetlands (Zedler 1987). Vernal pools form in depressions on flat terrain having a restricted permeability subsurface layer, which can be a hardpan, claypan, or rock (*e.g.* basalt, volcanic mudflows, granite). Riverside fairy shrimp are known to occur in both hardpan and claypan vernal pools in San Diego County and in a vernal pool on granitic substrate in Riverside County. Not all vernal pools support fairy shrimp species for a variety of reasons (*e.g.* some dry out too fast), and more narrowly endemic species like the Riverside fairy shrimp occupy only a small fraction of all vernal pools.

-- Distribution and Abundance

This species is not currently known from the subregion, but it has been confirmed immediately adjacent to the subregion at Saddleback Meadows in the Southern Orange County subregion (Dawes, personal communication). Three other populations are known: Otay Mesa claypan vernal pools in southern San Diego County, Miramar hardpan vernal pools in central San Diego County, and at Skunk Hollow (CNDDDB 1995) and other vernal pools in western Riverside County (Eng *et al.* 1990). This species has been rumored to occur in Santiago Canyon within the subregion, but first-hand reports from individuals qualified to identify this species have not been made public.

True vernal pools have only recently been recognized in Orange County. Most are from the coastal terrace, on land forms similar to claypan vernal pool sites at Otay Mesa, Camp Pendleton, Goleta, and Vandenberg Air Force base. *Branchinecta lindahlii*, a more common fairy shrimp species similar in overall appearance to Riverside fairy shrimp, has been found in vernal pools in the subregion (LSA unpublished data), and other fairy shrimp unidentified to species have also been found (MBA 1995).

-- Population Trends and Threats

Because southern California vernal pools are found primarily on flat terrain on the highly urbanized coastal shelf (Zedler 1987), historic losses of this habitat type have been extremely high.

San Diego Fairy Shrimp (*Branchinecta sandiegoensis*)

This federally-listed (endangered, January 1997) species has been identified for conditional coverage (refer to Chapter 4 “coverage” discussion in Section 4.5). This vernal pool crustacean species has not been confirmed to occur in the subregion. If present in the subregion, it would likely occur in highly degraded and/or artificial habitat, as is the case with other fairy shrimp species known to occur in the subregion. There are no known examples of high quality vernal pool habitat in the subregion. Because vernal pool habitat in the subregion known to support other fairy shrimp species is highly degraded and/or is artificial and has been colonized by fairy shrimp, relocation is a potentially viable mitigation technique.

-- Taxonomy

The San Diego fairy shrimp (*Branchinecta sandiegoensis*) is a crustacean, and a member of the order Anostraca.

-- Life History

The life history of the San Diego fairy shrimp follows the cycles of the vernal pools it inhabits. As the pools fill with water in the early winter, a portion of the cysts which have been dormant in the soil of the pool bottom hatch into the free-swimming form. San Diego fairy shrimp apparently hatch at cool water temperatures of 10-15°C (Simovich and Fugate 1992), and adults can be found throughout the late winter and early spring (CNDDDB 1995). Fairy shrimp are strong swimmers, using their eleven pair of legs to swim upside down on their backs, a distinctive form of locomotion. Fairy shrimp eat smaller invertebrates, protozoa, algae, and detritus. Most fairy shrimp reach maturity in a few weeks, and have only one generation per year. As the vernal pools dry, eggs form resistant cysts which persist in the dried soil until a future wetting of the vernal pool soil.

-- Habitat Requirements

Like other fairy shrimp, San Diego fairy shrimp are restricted to seasonally ponded water. Vernal pools are the natural habitat, and are characterized by a unique hydrologic cycle consisting of a wetting phase, aquatic phase, drying phase, and drought phase. While most vernal pools support a flora distinct from the surrounding matrix, the flora of vernal pools typically includes both vernal pool endemic plants and less specialized plants, the latter often typical of disturbed seasonal wetlands (Zedler 1987). Vernal pools form in depressions on flat terrain having a restricted permeability subsurface layer, which can be a hardpan, claypan, or rock (*e.g.* basalt, volcanic mudflows, granite). San Diego fairy shrimp are known to occur in hardpan vernal pools (CNDDDB 1995). Not all vernal pools support fairy shrimp species for a variety of reasons (*e.g.* some dry out too fast), and San Diego fairy shrimp are thought to be limited to certain specialized vernal pool types (US Department of the Interior 1994a).

-- Distribution and Abundance

This species is not currently known from the subregion. It is known from as far north as San Marcos in San Diego County (Simovich and Fugate 1992), and similar hardpan vernal pools are known to occur on Camp Pendleton (CNDDDB 1995). The species has been rumored to occur in claypan vernal pools in Santa Barbara County, but has not been verified there despite directed searches (US Department of the Interior 1994a). To the south, the known range extends slightly into Baja California at Valle de las Palmas (Simovich and Fugate 1992).

True vernal pools have only recently been recognized in Orange County. Most are from the coastal terrace, on landforms similar to claypan vernal pool sites. *Branchinecta lindahli*, a more common fairy shrimp species extremely similar in appearance to Riverside fairy shrimp, has been found in vernal pools in the subregion (LSA unpublished data), and other fairy shrimp unidentified to species have also been found (MBA 1995).

-- Population Trends and Threats

Because southern California vernal pools are found primarily on flat terrain on the highly urbanized coastal shelf (Zedler 1987), historic losses of this habitat type have been extremely high.

Quino [Wright's] Checkerspot (*Euphidryas editha quino*)

This federally-listed (endangered, January 1997) species has been identified for conditional coverage because it is associated with the coastal scrub mosaic, although factors affecting its distribution are not fully understood (refer to Section 4.5, Chapter 4, for a description of conditions). This species has not been found within the subregion for nearly 20 years, and the core of its current range is believed to lie to the east in southwestern Riverside County, suggesting a limited probability that it occurs in the subregion. Because butterflies of this genus are known to have both core habitat areas where populations persist from year to year and satellite populations that are regularly colonized and extirpated, any populations that might be found in the subregion are more likely to be satellites than cores, although presence of a core population in the subregion cannot be ruled out.

-- Taxonomy

The generic and specific names of checkerspot butterflies have recently been subject to considerable change in the literature. The Quino checkerspot is known by the USFWS as a member of the genus *Euphydryas* and the subspecies *Euphydryas editha quino*. Both the genus and subspecies of the Quino checkerspot have been changed recently, so the butterfly formerly known as Wright's checkerspot (*Euphydryas editha wrighti* (Gunder)) is now called (*Occidryas editha quino* (Behr)) (Garth and Tilden 1986). Further, the butterfly now known as Henne's checkerspot butterfly (*Occidryas chalcone hennei* (Scott)) was formerly known as the Quino checkerspot (*Euphydryas editha quino* (Behr)), but Henne's checkerspot is a completely different species from *E. e. quino* (= *O. e. quino*).

-- Life History

The Quino checkerspot has one generation a year. Adult butterflies occasionally fly in February but typically fly during the months of March and April.

The Quino checkerspot lays its eggs on annual plantain (*Plantago erecta*). The eggs hatch in approximately two weeks and the larvae begin feeding on the host plant. As the larva grows, and as the annual plantain dries (this plantain is a very small and short-lived annual), it leaves the plantain and seeks out a second host species, most commonly purple owl's clover (*Castilleja exserta*) (Garth and Tilden 1986). After reaching the third instar, the larvae begin a period of diapause. The diapause lasts throughout the summer, fall and most of the winter.

Sometime in January or February, diapause ends and the larvae resume feeding. After the larvae have attained a certain size, they pupate. The pupal stage lasts approximately 2 weeks and then the adult butterfly emerges.

Largely because the relative abundance of the two food plant species is dynamic from year to year, populations of checkerspot butterflies are also highly dynamic. In particular, checkerspot butterflies have both core habitat areas where populations persist from year to year and satellite populations that are regularly colonized and extirpated.

-- Habitat Requirements

The Quino checkerspot inhabits grasslands, open scrub areas, and open woodlands, particularly where the host plant species are present. There may be some preference for heavy clay soils and soils derived from metamorphic rock, such as serpentine (Garth and Tilden 1986).

-- Distribution and Abundance

The distribution of the Quino checkerspot includes Orange, San Diego and western Riverside counties. It has not been recently collected in Orange County but is formerly known from Dana Point, Laguna Lakes, Black Star Canyon Hills above Hidden Ranch, and the hills north of Irvine Park (Orsak 1977). Its current center of distribution is thought to be the Oak Mountain area of western Riverside County (Murphy, personal communication).

-- Population Trends and Threats

Loss of habitat is a major reason for the decline of this species. The restriction of its larval foodplant to an ephemeral annual plant and the complex phenological requirements of the emergence of the adults from the pupa, the length of time for eggs to hatch and the time required for larvae to reach a size where they can diapause causes this species to be especially vulnerable to fragmentation and stochastic population effects. In addition, the historic shift in grassland composition to favor European annual grasses over small forbs like annual plantain may have contributed to the decline of this species (Murphy, personal communication).

Arboreal Salamander (*Aneides lugubris*)

This species has been identified for coverage because it is associated especially with a habitat type well-represented in the reserve, oak woodland, and because it is widely distributed and common outside the subregion. For these reasons, the NCCP reserve and adaptive management program provide adequate conservation measures within the context of this subregion.

-- Taxonomy

The arboreal salamander (*Aneides lugubris*) is a member of the family Plethodontidae, the lungless salamanders.

-- Life History

This terrestrial salamander is active nocturnally during moist periods from approximately October through May. During dry periods salamanders use moist refuges such as rodent burrows, seepages, rock fissures, caves, water tanks, or wells. As the name implies, this salamander is a good climber. It has been found in tree cavities as high as 9.1 m (30 ft) and one was found in the nest of a red tree vole at a height of 16 m above the ground (Zeiner *et al.* 1988). The eggs of this salamander are laid in moist cavities under surface objects, crevices, and tree cavities and are laid in clusters of 12 to 18 eggs (Stebbins 1951). Eggs hatch from August through September and are brooded by the female.

Prey items of this salamander include arthropods (Zweifel 1949), slender salamanders (Stebbins 1951), and possibly fungi (Stebbins 1972).

-- Habitat Requirements

The arboreal salamander occurs primarily in oak woodland and ranges into the mixed conifer and oak woodlands in the Sierra (Stebbins 1972). It also occurs in chaparral. Surface objects such as rotting logs, rocks, bark and leaf litter are used for cover during surface activity.

-- Distribution and Abundance

Arboreal salamanders occur in the Coast Ranges from Humboldt County south into Baja California and in the Sierra Nevada from El Dorado County South to Madera County (Stebbins 1985). The population in the San Joaquin Hills is probably isolated (Fisher, personal communication). Populations are also known from South Farallon, Ano Nuevo, and Santa Catalina Islands and several islands within San Francisco Bay. The elevational range extends from sea level to 1520 m (5000 ft.) This salamander can be common where it occurs (Zeiner *et al.* 1988).

-- Population Trends and Threats

Little is known about the population trends for this species. The arboreal salamander has likely been adversely affected by the conversion of its habitat by land uses incompatible with its survival, including urban and industrial development, agriculture and water impoundments.

Black-bellied Slender Salamander (*Batrachoseps nigriventris*)

This species has been identified for coverage because it is associated especially with a habitat type well-represented in the reserve, oak woodland, and because it is widely distributed and common outside the subregion. For these reasons, the NCCP reserve and adaptive management program provide adequate conservation measures within the context of this subregion.

-- Taxonomy

The black-bellied slender salamander (*Batrachoseps nigriventris*) is a member of the family Plethodontidae, the lungless salamanders. The form found in the subregion may differ from the form found in the Chino Hills (Fisher, personal communication).

-- Life History

This salamander is surface-active after winter and spring rains when ambient temperatures are favorable, retreating underground in dry periods (Stebbins 1954). Except in habitats with loose soil and leaf litter, they are incapable of making their own burrows or underground retreats (Stebbins 1954). As many as eight or nine months of the year are favorable for surface activity

in the coastal habitats (Yanev 1978). Reproductive activities likely take place under cover or underground. Eggs have been found from November 5 to March 14 (Stebbins 1954). In southern California eggs are laid in winter and hatch in winter and early spring (Stebbins 1985). Nests sites have been found under boards, rocks and in loose soil, but are probably usually laid underground (Stebbins 1954).

-- Habitat Requirements

The black-bellied slender salamander is usually found in open oak woodlands, mixed conifer forests and mixed chaparral near drainages (Zeiner *et al.* 1988). Suitable habitat consists of semi-mesic areas with an overstory of trees or shrubs and abundant surface objects such as rotting logs, rocks and surface litter for cover (Zeiner *et al.* 1988). Passages made by other animals or those produced by root decay or soil shrinkage are used by this salamander.

-- Distribution and Abundance

This slender salamander occurs in the South Coast and Transverse Ranges and on the western slopes of the central and southern Sierra Nevada (Stebbins 1985). It is a locally common species (Zeiner *et al.* 1988).

-- Population Trends and Threats

Little is known about the population trends for this species. The black-bellied salamander has likely been adversely affected by the conversion of its habitat by land uses incompatible with its survival, including urban and industrial development, agriculture and water impoundments.

Western Spadefoot Toad (*Scaphiophis hammondi*)

This species has been identified for coverage because recent surveys have shown it to be present at a number of breeding locations in the reserve and other open space, and relatively few breeding locations are known outside the reserve. The reserve and adaptive management program provide adequate conservation measures within the subregion.

-- Taxonomy

The western spadefoot (*Scaphiophis hammondi*) is a member of the family Pelobatidae, or spadefoot toad family.

-- Life History

Spadefoot toads are largely nocturnal and are rarely seen outside the breeding period. Breeding typically occurs during winter and spring following heavy rains (January through May). Eggs are deposited by females in small cylindrical clusters of 10-42 and are attached to the stems of vegetation or detritus (Stebbins 1985). Depending on temperature, eggs hatch in 0.6-6 days (Brown 1967). Burgess (1950) found a minimum length of 25 days was required for larval development and a mean length of 51 days for larval development under laboratory conditions. During the day and outside the breeding period spadefoots inhabit self-constructed burrows in loose soil at least three feet deep or the burrows of small mammals (Stebbins 1954, Stebbins 1972).

-- Habitat Requirements

Western spadefoots typically occur in open habitat types such as grassland where soil is sandy or gravelly (Stebbins 1985). The breeding habitat of the western spadefoot is temporary pools, especially relatively ephemeral pools. The pools must last at least three weeks for successful metamorphosis (Feaver 1971). Fishes, bullfrogs (*Rana catesbeiana*), African clawed frogs (*Xenopus laevis*), and crayfish are absent from pools in which successful metamorphosis takes place (Jennings and Hayes 1994, LSA unpublished data).

-- Distribution and Abundance

The western spadefoot occurs in the Central Valley and adjacent foothills and in the Coast ranges from Santa Barbara County south into Baja California. In Orange County, spadefoots have been found in San Juan Creek, Bee Canyon, Aliso Creek, San Joaquin Hills, and formerly at Dana Point. Spadefoots have been found at three locations in the proposed Shady Canyon project site. They may also be present on Santiago Creek in the vicinity of Irvine Reservoir.

LSA recently conducted surveys of potential spadefoot breeding areas within the greater San Joaquin Hills. Seventy-seven pools or pool systems were surveyed on 18 dates from February

7 to May 6, 1995. Larval spadefoots were found at 12 pools within the study area, all but two of which are within the reserve or other planned open space (LSA 1995).

-- Population Trends and Threats

In southern California (from the Santa Clara River Valley, Los Angeles and Ventura Counties southward), more than 80% of habitat once occupied by the western spadefoot has been developed or converted to land uses undoubtedly incompatible with its successful reproduction and recruitment (Jennings and Hayes 1994). Placement of mosquitofish into spadefoot breeding pools threatens some populations (Jennings and Hayes 1994). Some populations may also be threatened by juvenile and adult bullfrog emigrating to breeding sites (Morey and Guinn 1992).

Southwestern Arroyo Toad (*Bufo microscaphus californicus*)

This species has been identified for conditional coverage because it is associated with larger watercourses and the adjoining coastal scrub mosaic in the Central subarea (refer to Chapter 4 "coverage" discussion in Section 4.5). Large portions of this habitat are incorporated into the reserve, and the sole known population of this species in the subarea is found in a special linkage. Additional populations may occur in the subarea, but the better quality habitat is thought to be in the North Ranch Policy Plan Area and the National Forest where this NCCP/HCP does not authorize covered species take.

Most of the information in the following account is from (Sweet 1992). A literature review and efforts to synthesize a recovery strategy for this species are currently underway, but not yet available (Brown, personal communication).

-- Taxonomy

The arroyo toad (*Bufo microscaphus californicus*) is a member of the family Bufonidae. Most authors treat it as a subspecies of *Bufo microscaphus*. Some biologists consider it a distinct species (Collins 1991), and particularly consider the degree of morphological differentiation of the arroyo toad from the Arizona toad (*Bufo m. microscaphus*) to be great enough that species recognition is justified (Frost and Hillis 1990).

-- Life History

Arroyo toads estivate in burrows in the dry summer and fall, becoming active after the first warm rains of winter, usually in January, February or March. Adult arroyo toads are entirely nocturnal. Prior to initiation of breeding behavior, adults forage on stream terraces and marginal zones, and make use of the adjacent uplands to an unknown degree.

Males start calling in early March with the peak of calling activity from early April through late May. The call of male arroyo toads is a high trill, usually lasting 8 to 10 seconds. Breeding begins in late March and continues through mid-June. The linear, string-like egg masses are deposited on a substrate of mud, sand, or gravel in stream pools with minimal current and little or no emergent vegetation. The eggs are apparently always laid at the male's calling site or in deeper water within a few feet of the calling site. Because males exhibit calling site fidelity, several clutches are sometimes laid in the same spot.

Eggs hatch in 4-6 days at field temperatures ranging from 12-16°C and larva require approximately 11 weeks to begin metamorphosis. Metamorphosis generally occurs in June or July and can span a period of several weeks at an individual breeding pool. Juvenile arroyo toads remain on the sand or gravel bars along pool margins for 8-12 weeks depending on the moisture content of the bars, and then disperse to the same stream terraces as the adults (Sweet 1992). Juveniles are initially active by day.

Both the aquatic and terrestrial phases are subject to predation by native and exotic predators. Eggs and small larval arroyo toads (before dispersal as free swimming larvae) do not appear to be vulnerable to predation. They are subject to declining water level in a pool, infrequent localized attacks by fungi, and siltation and disruption during spring maintenance of unculverted dirt road crossings. Several species of exotic fish, two-striped garter snakes (*Thamnophis hammondi*), and a large aquatic hemipteran waterbug (*Abedus indentatus*) prey on free-swimming larvae. Bullfrogs are potentially predators on juvenile and adult arroyo toads.

-- Habitat Requirements

Arroyo toads have a very specialized habitat (Sweet, 1992). Adults require gravel and/or sand-bottomed overflow pools adjacent to the inflow channel of third order or greater level streams for breeding (Jennings and Hayes 1994). Breeding pools are typically exposed and have

minimal current velocity with sand or gravel substrates and pool margins for juvenile toads after metamorphosis. Associated stable sandy stream terraces or a central bar with scattered shrub and tree vegetation overstory are also necessary to provide burrowing areas for adults and dispersing juveniles. A moderately well developed shrub and tree overstory is usually present on the terraces. Typically the understory is barren and contains dead leaves or a few scattered grasses and rodent burrows (Jennings and Hayes 1994). In Orange and San Diego counties arroyo toads are often associated with cobble in addition to sandy terraces.

-- Distribution and Abundance

Historically, the arroyo toad was found in drainages in coastal southern California from the Salinas River system in San Luis Obispo County south through San Diego County (Jennings and Hayes 1994). In addition, there are records of the arroyo toad from six locations on the desert slope: the Mojave River, Big Rock Creek, San Felipe Creek, Vallecito Creek, (Jennings and Hayes 1994), Whitewater River, and Pinto Creek (R. Fisher personal communication).

Currently, arroyo toads are believed to occur only as small isolated populations in the headwaters, primarily on National Forest lands (Sweet 1992). Extant populations occur in Santa Barbara, Ventura, Orange, Los Angeles, Riverside, and San Diego counties and recent sightings of scattered individuals have been reported from San Bernardino, and southwest Imperial counties (US Department of the Interior 1993, R. Fisher personal communication, Patten and Myers 1992).

Southern populations are located primarily in San Diego County and Riverside Counties, in the Santa Margarita, Guejito, Sweetwater, Vallecito, San Luis Rey, Santa Ysabel, Witch, Cottonwood, Temescal, Agua Caliente, Santa Maria, Lusardi, Pine Valley, Noble, Kitchen, Long Potrero, upper San Diego River, San Vicente, and Morena drainages (US Department of the Interior 1994). Within the subregion, arroyo toads may occur in Limestone Canyon, Boxer Canyon (in the Santiago Canyon drainage) and the Silverado watershed (R. Fisher, personal communication). In Southern Subregion arroyo toads occur in San Juan Creek, (R. Fisher personal communication), in the Christianitos drainage, and La Paz, Talega, and Gabino Canyons (R. Hamilton personal communication). None of these drainages have been thoroughly surveyed for the arroyo toad (R. Fisher personal communication). The arroyo toad is not known to occur in or around the San Joaquin Hills.

-- Population Trends and Threats

Arroyo toad populations have declined due to various human activities and human-caused alterations of habitat. These activities include short- and long-term changes in stream and river hydrology, including: the construction of dams that flood their specialized habitat; water diversions; alteration of riparian wetland habitats by agriculture and urbanization; road construction; site-specific damage by off-road vehicles; development of camping and recreational facilities; overgrazing; and mining activities (US Department of the Interior 1994). In areas with many unculverted dirt roads, the toads will select the road crossings as breeding sites before spring maintenance takes place, and breeding efforts will then be disrupted. Other causes of population decline include the introduction of non-native predatory fishes and frogs that feed on eggs and young; and environmental extremes, such as drought, which prevent recruitment of juveniles into the now fragmented and isolated populations.

San Diego Horned Lizard (*Phrynosoma coronatum blainvillii*)

This species has been identified for coverage because its distribution and habitat requirements generally coincide with the "target species".

-- Taxonomy

Horned lizards are members of the family Iguanidae. Various taxonomic allocations of horned lizards in the *coronatum-blainvillii* complex exist in the literature, and the San Diego horned lizard has been given both species and subspecies recognition (Jennings and Hayes 1994).

-- Life History

This lizard is active on the surface primarily from late March to July, with egg-laying occurring from May through early July (Stebbins 1954). Most populations estivate after this time, briefly reappear in August, and enter hibernation sometime during late August through early October.

Horned lizards commonly partially bury themselves in sand and wait in ambush for prey. The primary food of this lizard is harvester ants (Pianka and Parker 1975), but it is an opportunistic feeder and will eat other insects when they are abundant.

-- Habitat Requirements

In general, the habitat used by San Diego horned lizards is similar to habitat supporting the orange-throated whiptail. San Diego horned lizards are found in a variety of habitats including coastal sage, annual grassland, chaparral, oak woodland, riparian woodland and coniferous forest. This species' favored habitat consists of sandy washes and other open, sandy areas in coastal sage scrub and chaparral communities. Low bushes are required for cover, as well as open spaces for sunning, and relatively flat patches of fine, loose soil for burrowing. ". . . the most consistent and distinctive general characteristics of the habitats of both *P.c. blainvillei* and *C.h. beldingi* is the predominance of low, sparse drought-resistant vegetation on level and gently sloping fine grained soils of sandy loam texture . . ." (McGurty, unpublished data). In foothill and mountain habitats these lizards are largely restricted to areas where an open micro habitat is created by either natural events such as fire or floods or man-made disturbances such as fire breaks, roads, and livestock grazing (Jennings and Hayes 1994).

-- Distribution and Abundance

This lizard is found in western Riverside County, Orange County, western San Diego County, and portions of Los Angeles and San Bernardino counties. It is primarily found west of the deserts but does occur in scattered sites along the extreme western desert slope of the Peninsular Ranges. It was observed less often than orange-throated whiptails in surveys within the subregion, but this difference is likely due to the difficulty in detecting this species.

-- Population Trends and Threats

Populations of this species are subject to decline due to habitat loss comparable to the orange-throated whiptail.

Coronado Skink (*Eumeces skiltonianus interpanietalis*)

This species has been identified for coverage as its habitat requirements generally coincide with the "target species", and it is more widely distributed than the "target species".

-- Taxonomy

The Coronado skink is a member of the family Scincidae, and is considered to be a subspecies of the western skink. Further study is needed in the taxonomy of the Pacific Coast skinks (*Eumeces skiltonianus*-*E. gilberti*) group, as there are inconsistencies in many of the morphological characters used to distinguish the taxa and to identify genetically distinct populations within subspecies. (Jennings and Hayes 1994).

-- Life History

Few life history data are available for the Coronado skink (Jennings and Hayes 1994), but life history data for other subspecies of the western skink is available. Closely related species reach sexual maturity at two to three years of age, and the females lay 2-6 eggs in cavities constructed under rocks, logs, *etc.* Western skinks are a secretive, diurnal lizard. Adults are active from early spring through early fall, with juveniles extending their period of activity later into fall. Western skinks are good burrowers and sometimes construct burrows several times their own body length (Zeiner et. al. 1988). Skinks forage actively through leaf litter, dense vegetation and loose soil (Zeiner et. al. 1988). Prey of Coronado skinks probably includes small invertebrates found in leaf litter and other organic debris. Known predators of the western skink include the California whipsnake (Swaim, 1994) California mountain kingsnake (*Lampropeltus zonata*; McGurtry, 1988) night snake (*Hypsiglena torquata*; Swaim 1994), and western rattlesnake.

-- Habitat Requirements

The Coronado skink is found in mesic areas of a wide range of plant communities, including native and non-native grasslands, coastal sage scrub, chaparral, and woodlands. Rocks, rotting logs, and surface litter provide cover. Densely forested areas and heavy brush seem to be avoided (Zeiner et. al. 1988). Although standing water does not appear to be a requirement moister micro habitats appear to be preferred (Zeiner et. al. 1988). Substantial overlap occurs with the western whiptail and orange-throated whiptail.

-- Distribution and Abundance

The Coronado skink inhabits the coastal plain and Peninsular Ranges west of the deserts from near San Geronio Pass in Riverside County, southward to San Quentin, Mexico (Tanner 1988).

-- Population Trends and Threats

Populations of this species are subject to decline due to habitat loss resulting from urbanization and conversion of wildlands to agriculture. Impacts may also result from use of herbicides and pesticides (particularly in avocado orchards), and possibly from increased human appropriation of surface water and subsequent drying of the more mesic pockets which may be important to this reptile (Jennings and Hayes 1994).

Coastal Western Whiptail (*Cnemidophorus tigris multiscutatus*)

This species has been identified for coverage because its habitat requirements generally coincide with the "target species" and it is more widely distributed than the "target species".

-- Taxonomy

Whiptail lizards are members of the family Teiidae.

-- Life History

This lizard is an active diurnal species. The diet includes grasshoppers, beetles, spiders, scorpions and other invertebrates, some of which may be detected by odor and dug up from the ground (Stebbins 1985). Small lizards are also occasionally eaten. Mating occurs in May and June with hatchlings appearing in July and August (Stebbins 1954).

-- Habitat Requirements

In general, the habitat supporting western whiptails is similar to habitat supporting the orange-throated whiptail. This species usually occurs in openings in coastal sage scrub and chaparral where plants are sparse and there is room for running. Western whiptails have been observed

in southern cactus scrub within the subregion. It is especially common in washes and sandy flats, and may prefer areas of looser soil.

-- Distribution and Abundance

The coastal western whiptail ranges from southwestern California to central Baja California. It was observed less often than orange-throated whiptails in surveys within the subregion.

-- Population Trends and Threats

Populations of this species are subject to decline due to habitat loss comparable to the orange-throated whiptail.

Coastal Rosy Boa (*Lichanura trivirgata rosafusca*)

This species has been identified for coverage because its distribution and habitat requirements generally coincide with the "target species".

-- Taxonomy

The coastal rosy boa (*Lichanura trivirgata rosafusca*) is a member of the family Boidae.

-- Life History

Rosy boas are chiefly nocturnal, but may also be found active at dusk. They climb well and feed on small mammals and birds. Activity peaks in late spring and early to mid-summer. Young of this snake are live-born.

-- Habitat Requirements

Overall, the habitat of rosy boas is similar to the habitat occupied by orange-throated whiptails. Rosy boas inhabit rocky areas of chaparral and coastal sage habitats. This snake is attracted to water sources such as permanent and intermittent streams, but does not require permanent water (Stebbins 1985).

-- Distribution and Abundance

This snake is restricted to southwestern California and northern Baja California. It was not observed in surveys within the subregion, which can be attributed to the snake's nocturnal habits.

-- Population Trends and Threats

Populations of this species are subject to decline due to habitat loss comparable to the orange-throated whiptail.

San Bernardino Ringneck Snake (*Diadophis punctatus modestus*)

This species has been identified for coverage because its distribution and habitat requirements generally coincide with the "target species".

-- Taxonomy

This small snake is a member of the family Colubridae.

-- Life History

Ringneck snakes lay one, possibly two, clutches of eggs in June or July, often in a communal nest (Stebbins 1985). The diet of this snake includes slender salamanders (*Batrachoseps* spp.), small frogs, worms and slugs. This snake coils its tail and turns it up to reveal a bright orange underside when alarmed.

-- Habitat Requirements

This snake can be found in woodland, grassland, or chaparral and scrub habitats, generally a wider range of habitat types than the orange-throated whiptail. However, it particularly prefers moist habitats, including more mesic scrub and chaparral, drainage areas, and oak woodlands. Ringneck snakes are seldom seen in the open, but can be found under surface cover such as rocks, logs and debris such as boards.

-- Distribution and Abundance

San Bernardino ringneck snake occurs in southwestern California from about Ventura to Orange counties. It was not observed in surveys within the subregion, which can be attributed to the snake's secretive habits. It is expected to occur within the subregion, generally west of Irvine Lake.

-- Population Trends and Threats

Populations of this species are subject to decline due to habitat loss comparable to the orange-throated whiptail.

Northern Red Diamond Rattlesnake (*Crotalus ruber ruber*)

This species has been identified for coverage because its habitat requirements generally coincide with the "target species" and it is more widely distributed than the "target species".

-- Taxonomy

This rattlesnake, a member of the family Viperidae, is morphologically distinct and has generally not been confused with other rattlesnakes since it was first described (Jennings and Hayes 1994).

-- Life History

April and May are the months this species is most frequently seen, but at least some red diamond rattlesnakes are active year-round (Klauber 1939). Mating occurs as early as March. Three to 20 young are born live, usually between late July and September (Klauber 1937, Wright and Wright 1957). As adults, this snake feeds on ground squirrels, rabbits and birds. Lizards are an important component of the diet of juveniles (Tevis 1943, Klauber 1972)

-- Habitat Requirements

In general, the habitat supporting northern red diamond rattlesnake is similar to habitat supporting the orange-throated whiptail. It is most frequently encountered below 1200 m (3,900 feet) (Klauber 1972). Heavy brush associated with large rocks or boulders appears to

be the habitat most frequented by this snake (Klauber 1972). It occurs in coastal sage scrub. Habitats with rocks and boulders may provide better retreats or more abundant food resources for this snake.

-- Distribution and Abundance

The snake is found from the vicinity of San Geronio Pass, east of Riverside, south to central Baja California. It was observed during orange-throated whiptail surveys within the subregion, conducted by Lilburn in 1991, and is regularly encountered by other biologists during fieldwork in the subregion.

-- Population Trends and Threats

Populations of this species are subject to decline due to habitat loss similar to the orange-throated whiptail.

Northern Harrier (*Circus cyaneus*)

This species is identified for coverage because it is widely distributed beyond the coastal southern California region, and the NCCP reserve and adaptive management program provide adequate conservation measures within the context of this subregion.

-- Taxonomy

The northern harrier is a member of the family Accipitridae, and although the common name was changed from "marsh hawk" to be more consistent with world-wide nomenclature, the taxonomy of this bird has not changed recently.

-- Life History

The northern harrier is a ground-nesting or shrub-nesting hawk; with breeding commonly occurring from April to September and peaking in June and July (Polite 1988). This hawk preys primarily on small grassland rodents, captured primarily while flying low over grasslands. Long legs and an owl-like facial disk of feathers are unique adaptations to this foraging style. The species is migratory.

-- Habitat Requirements

Northern harriers are associated primarily with grassland, which is their preferred foraging habitat. They also forage in agricultural fields.

-- Distribution and Abundance

Harriers primarily use the subregion as wintering habitat, although they still breed in low numbers in the subregion. The species is found throughout all but the mountainous parts of California as either a wintering or breeding bird. Outside California, it is found throughout much of the North American continent.

-- Population Trends and Threats

California populations have been described as declining since the 1940s, probably due to habitat loss and incompatible agricultural practices.

Sharp-shinned Hawk (*Accipiter striatus*)

This species is identified for coverage because it is widely distributed beyond the coastal southern California region, and the NCCP reserve and adaptive management program provide adequate conservation measures within the context of this subregion.

-- Taxonomy

The sharp-shinned hawk is a member of the family Accipitridae, and is the smallest of our *Accipiter* hawks.

-- Life History

Like other *Accipiter* hawks, sharp-shinned hawks specialize in preying upon birds, particularly in and along the margins of woodland habitats. Stick nests are built, primarily in dense woodland; and breeding occurs from April through August, with a peak between May and June. This species is migratory (Polite and Pratt 1988).

-- Habitat Requirements

A fairly wide variety of habitat types are used by wintering birds, but this species is most commonly associated with woodlands and brushlands.

-- Distribution and Abundance

Sharp-shinned hawks winter throughout most of California, and breed primarily in mountainous areas. It is considered the least common *Accipiter* in Southern California. Outside California, it is distributed over much of the North American continent.

-- Population Trends and Threats

The breeding status of this species in California is poorly known, but the population is thought to be declining.

Golden Eagle (*Aquila chrysaetos*)

This species is identified for coverage because it is widely distributed beyond the coastal southern California region, and the NCCP reserve and adaptive management program provide adequate conservation measures within the context of this subregion.

-- Taxonomy

The golden eagle is a member of the family Accipitridae.

-- Life History

Golden eagles prey primarily on rodents and lagomorphs (rabbits and hares), but will also consume carrion. Stick nests are built, either on cliffs or in trees, and several nests are often maintained over a period of years. Breeding occurs from January through August, peaking from March to July. The species is generally non-migratory, although seasonal up slope/down slope movement is known to occur (Polite and Pratt 1988).

-- Habitat Requirements

Golden eagles will forage in a wide variety of habitat types, from grasslands to brushlands and open woodlands. Although nests are built in trees at times, cliff sites seem to be preferred for nesting.

-- Distribution and Abundance

Golden eagles are uncommon residents of the subregion. They are found throughout much of California, and are distributed across North America.

-- Population Trends and Threats

Populations within the subregion have no doubt declined as development occurred over the past decades.

Prairie Falcon (*Falco mexicanus*)

This species has been included for coverage because substantial amounts of its habitat within the subregion have been included in the Reserve System, because it is much more widely distributed than the “target species”, and because it is more secure than the “target species”.

-- Taxonomy

The family Falconidae includes all the world's falcons. This is a distinctive member of the cosmopolitan genus *Falco*. No subspecies have been described.

-- Life History

Prairie falcons may nest in the Gypsum Canyon area, but are primarily found in the subregion in winter. They feed primarily on small mammals, birds, and reptiles.

-- Habitat Requirements

This is primarily a bird of grasslands and other open habitats. Foraging occurs over wide areas, but cliffs are generally required for nest sites.

-- Distribution and Abundance

Prairie falcons are distributed in western North America from southern Canada to central Mexico, with a decided southward and coastward shift in winter. Like most large falcons, this species is found in generally low numbers throughout its range.

-- Populations Trends and Threats

This species is susceptible to pesticide poisoning, shooting, and other human disturbances, but habitat loss is undoubtedly the greatest threat. They require large expanses of open country in which to forage.

Peregrine Falcon (*Falco peregrinus*)

This species has been included for coverage because substantial amounts of its habitat within the subregion have been included in the Reserve System, and because it is much more widely distributed than the "target species". This species has been found to be relatively adaptable to human presence. For these reasons, the NCCP reserve and adaptive management program provide adequate conservation measures within the context of this subregion.

-- Taxonomy

The peregrine falcon (*Falco peregrinus*) belongs to the family Falconidae. The number of subspecies is uncertain, perhaps as many as 19. Three subspecies are recognized in North America (Palmer 1988).

-- Life History

Peregrine falcons feed primarily on birds. Nests are located on ledges or in pot holes in cliffs or rock outcroppings, usually near water. No nest is constructed: the eggs are simply laid in

a cup scraped out of debris on the ledge. Eggs are usually laid in March and April and young usually leave the nest at five to six weeks of age (Malette and Gould 1977, Palmer 1988).

-- Habitat Requirements

Peregrine falcons nest on rock outcrops and require large expanses of open country, seeming to prefer sites near marshes and other wetland in which to forage (Palmer 1988, Hamilton and Willick, in press). In the past few decades, peregrines also have adapted to large buildings and other structures (e.g. bridges) for nesting, and now are found in urban settings regularly.

-- Distribution and Abundance

Peregrine falcons are found throughout the world but are now greatly reduced in number. The subspecies most frequently found in southern California is *F. p. anatum*. It breeds from Alaska to northern Mexico (Palmer 1988). Historically, there were from 100 to 300 pair of peregrine falcons breeding in California. By 1970 only two active nests were known in California. Captive breeding programs in the state have resulted in the release of more than 500 peregrine falcons as of 1989, and by 1989, there were 90 active nests in California (Steinhart 1990). Garrett and Dunn (1981) noted that in southern California peregrine falcons were formerly much more common and nested in small numbers along the coast from San Luis Obispo south to Point Loma, San Diego County, and that they are now a rare fall transient and winter visitor in the region. In Orange County, known historic nesting sites include Williams, Black Star, and San Juan Canyons, and two sites at or near Santiago and Laguna Canyons (Hamilton and Willick, in press).

-- Population Trends and Threats

In the subregion, observations of peregrine falcon have increased greatly since the mid-1980's and a pair nested for the first time in many years, in 1992, at an Orange County coastal location (Hamilton and Willick, in press). This species is very susceptible to pesticide poisoning, shooting, and other human disturbances. Pesticide poisoning and the loss of nesting habitat and large expanses of open space for foraging are the greatest threats to this species in the subregion and elsewhere.

Red-shouldered Hawk (*Buteo lineatus*)

This species has been included for coverage because it is a widely distributed species and, overall, it is more secure than the "target species". This hawk is also relatively tolerant of human presence. For these reasons, the NCCP reserve and adaptive management program provide adequate conservation measures within the context of this subregion.

-- Taxonomy

The red-shouldered hawk (*Buteo lineatus*) is one the "broad-winged" hawks in the family Accipitridae. Palmer (1988) notes that the red-shouldered hawk fits better morphometrically in the genus *Asturina* than in *Buteo*, and uses the former generic name. Five subspecies are recognized, all occurring in the United States (Palmer 1988).

-- Life History

Red-shouldered hawks tend to prey primarily on cold-blooded vertebrates (amphibians and reptiles). They also prey on small mammals, birds and some insects, and occasionally feed on carrion. Nests are built in large trees such as cottonwood (*Populus fremonti*) and oaks (*Quercus* spp.) which occur in stands of mature trees. The nest is a loose platform of sticks in a fork of a tree, from 30 to 75 feet above the ground. In California, eggs are laid in late March or early April and young leave the nest at approximately five to six weeks of age. California red-shouldered hawks are generally territorial year-round. A few of the more northern nesters may be migratory (Malette and Gould 1977, Palmer 1988). In southern California there is some local dispersion of red-shouldered hawks into the coastal plains during the fall and winter (Garrett and Dunn 1981).

-- Habitat Requirements

In the breeding season, red-shouldered hawks prefer mature lowland forests with open water and clearings nearby. In California they prefer wooded river bottoms and have adapted to nesting in eucalyptus (*Eucalyptus* spp.) groves. There are recent records of this species nesting in residential areas, as in Ojai, Ventura County, some distance from water. In winter they are more widely distributed, but are found mostly in lowland areas near standing or running water (Palmer 1988).

-- Distribution and Abundance

The western red-shouldered hawk (*B. l. elegans*) occurs west of the Sierra Nevada and Cascades from southwestern Oregon south to northwestern Baja California. Other subspecies of red-shouldered hawks occur in the eastern half of the United States (Palmer 1988). In Southern California, red-shouldered hawks occur primarily in the coastal slope of the region. It is rare east of the coastal mountains (Garrett and Dunn 1981). Grinnell and Miller (1944) noted that the red-shouldered hawk was formerly common, but is now greatly reduced nearly everywhere (in California). Remsen (1978) noted that the red-shouldered hawk is thought to be holding its own or expanding in most of California, but that this species is showing dramatic declines in the eastern United States. Garrett and Dunn (1981) noted that red-shouldered hawks are fairly common in coastal southern California. In the subregion red-shouldered hawks are a common resident of oak and sycamore woodlands on the lowlands and foothills. They nest to an elevation of about 2,000 feet in Silverado Canyon and young birds occasionally disperse though the higher mountains (Hamilton and Willick, in press).

-- Population Trends and Threats

The western red-shouldered hawk is a common and highly adaptable predator that frequently occupies home ranges in close association with people. The greatest threat to this species in southern California, and elsewhere, is the loss of riparian woodland habitat. Because of the small size of their home range the setting aside of suitable amounts of appropriate habitat should be feasible (Bloom *et al.* 1993).

Rough-legged Hawk (*Buteo lagopus*)

This species is identified for coverage because it is widely distributed beyond the coastal southern California region, and the NCCP reserve and adaptive management program provide adequate conservation measures within the context of this subregion. This species is rare and unusual within the subregion, so its conservation needs in this subregion are less than many other species.

-- Taxonomy

The rough-legged hawk (*Buteo lagopus*) is also one of the "broad-winged" hawks in the family Accipitridae. Three subspecies are described, one of which occurs in North America (Palmer 1988).

-- Life History

Rough-legged hawks prey primarily on small mammals such as lemmings and voles. Their feet are quite small for such a large hawk, an adaptation to taking prey much smaller than would otherwise be expected. They occasionally prey on small birds, frogs, fish, lizards, and insects, and will consume carrion. In North America they nest only in the Arctic and sub-Arctic regions of Alaska and Canada, where they nest on the tundra and Arctic coast, on rock outcrops, ledges, and in trees where found. They winter throughout much of the United States in open grasslands and pastures, primarily south of Canada and south of the coniferous forest zone. The extent of their southward migration is controlled by the extent of snow cover and the abundance of their principal prey item, mice (Malette and Gould 1977, Palmer 1988).

-- Habitat Requirements

Rough-legged hawks occur in California only during the winter months, from October through March. They occur in prairies, semideserts, grassland, pastures and marshlands that are distant from extensive woodlands and densely settled areas (Palmer 1988).

-- Distribution and Abundance

Rough-legged hawk populations fluctuate regionally due to their dependance on small mammals which fluctuate greatly in number (Palmer 1988). In California rough-legged hawks normally winter as far south as the Tehachapi Mountains, Kern County, and their numbers vary from year to year, depending on food availability (Malette and Gould 1977). In southern California rough-legged hawks are irregular and local winter visitors, primarily in the interior, east of the coast ranges. In the subregion rough-legged hawks are absent in most years except during "flight years" (when conditions favor an unusually southward extent of arctic migrants) (Garrett and Dunn 1981). Since 1976 they have been recorded only twice, with one in Bolsa Chica State Ecological Reserve and one at Seal Beach National Wildlife Refuge (Hamilton and Willick, in press).

-- Population Trends and Threats

Widespread losses of open grasslands and rangelands have apparently led to this hawk's decline in the region (Hamilton and Willick, in press).

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

This species has been identified for conditional coverage (refer to Section 4.5, Chapter 4 "coverage" discussion). Its most common occurrence in the subregion is as a migrating species (with multiple subspecies represented), a stage in its life history when it is relatively widely distributed and does not appear to be limited by habitat availability. Although not known to nest in the subregion for many years, this species appears to be responding positively to cowbird trapping efforts in portions of its range, and it is likely to eventually become reestablished as a breeding bird in the subregion. Several of the more likely potential nesting locations are included within the reserve or are other protected open space, including Bonita Reservoir, San Joaquin Marsh, lower Big Canyon, upper portions of the Laguna Canyon drainage, and the Villa Park Dam reservoir. Nesting might also occur sporadically in other locations with more limited long-term conservation value.

This species account is based primarily on the listing rule for this species (US Department of the Interior 1995), as it contains the most recent review of literature on this subspecies.

-- Taxonomy

The southwestern willow flycatcher (*Empidonax traillii extimus*), a member of the family Tyrannidae, is one of five recognized subspecies of willow flycatcher.

-- Life History

The southwestern willow flycatcher, which winters in Mexico and Central America, is present and singing on breeding territories by mid-May, although its presence and status is often confused by the migrating individuals of northern subspecies passing through southwestern willow flycatcher breeding habitat. The southwestern willow flycatcher builds nests and lays eggs in late May and early June and fledges young in early to mid-July. Variation in these dates may be related to altitude, latitude, and renesting.

The southwestern willow flycatcher is an insectivore. It forages within and above dense riparian vegetation, taking insects on the wing or gleaning them from foliage, and also forages in areas adjacent to nest sites, which may be more open. Other subspecies of willow flycatcher are known to forage in a narrow band of habitat surrounding the defended territory (Sanders and Flett 1989).

The nest is a compact cup of fiber, bark, and grass, typically with feathers on the rim, lined with a layer of grass or other fine, silky plant material, and often has plant material dangling from the bottom. It is constructed in a fork or on a horizontal branch, approximately 1-4.5 m (3.2-15 feet) above ground in a medium-sized bush or small tree, with dense vegetation above and around the nest.

Nest parasitism by brown-headed cowbirds is thought to be a major factor in the decline of the southwestern willow flycatcher. Cowbirds have become much more common within the range of the least Bell's vireo during the past century (Laymon 1987). Because the flycatcher especially prefers to nest in low vegetation near the edge of willow patches (Sanders and Flett 1989) it is particularly vulnerable to cowbird parasitism.

-- Habitat Requirements

The southwestern willow flycatcher occurs in riparian habitats along rivers, streams, or other wetlands, where dense growths of willows (*Salix* spp.), mule fat (*Baccharis* spp.), arrowweed (*Pluchea* sp.), buttonbush (*Cephalanthus* sp.), tamarisk (*Tamarix* spp.), Russian olive (*Eleagnus* sp.) or other plants are present, often with a scattered overstory of cottonwood (*Populus* sp.). Throughout the range of southwestern willow flycatcher, these riparian habitats tend to be rare, widely separated, small and/or linear locales, separated by vast expanses of arid lands.

The southwestern willow flycatcher nests in thickets of trees and shrubs approximately 4-7 meters (m) (13-23 feet) or more in height, with dense foliage from approximately 0-4 m (13 feet) above ground, and often a high canopy cover percentage. The diversity of nest site plant species may be low (e.g., willows) or comparatively high (e.g., mixtures of willow, buttonbush, cottonwood, boxelder, Russian olive, mule fat, and tamarisk). Nest site vegetation may be even- or uneven-aged, but is usually dense and structurally homogeneous. Historically, southwestern willow flycatcher nested primarily in willows, buttonbush, and mule fat, with a scattered overstory of cottonwood. Following modern changes in riparian plant communities,

southwestern willow flycatcher still nests in native vegetation where available, but has been known to nest in thickets dominated by tamarisk and Russian olive.

Nesting willow flycatchers of all subspecies generally prefer areas with surface water nearby but southwestern willow flycatcher virtually always nests near surface water or saturated soil. At some nest sites surface water may be present early in the breeding season but only damp soil is present by late June or early July. Ultimately, a water table close enough to the surface to support riparian vegetation is necessary.

Defining a minimum habitat patch size required to support a nesting pair of southwestern willow flycatcher is difficult. Throughout its range, determining the capability of habitat patches to support southwestern willow flycatchers is confused by the species' rarity, unstable populations, variations in habitat types, and other factors. However, the available information indicates that habitat patches as small as 0.5 ha (1.23 acres) can support one or two nesting pairs. Southwestern willow flycatchers have occurred in habitat patches ranging from 0.5 to 1.2 ha (1.23 to 2.96 acres). Two habitat patches of 0.5 and 0.9 ha (1.23 and 2.2 acres) each supported two territories.

-- Distribution and Abundance

The breeding range of the southwestern willow flycatcher includes southern California, southern Nevada, southern Utah, Arizona, New Mexico, and western Texas. It may also breed in southwestern Colorado, but nesting records are lacking. Records of probable breeding southwestern willow flycatcher in Mexico are few and are restricted to extreme northern Baja California del Norte and Sonora.

This flycatcher formerly nested in lowland riparian habitat throughout much of California, and probably bred in Orange County. The nearest extant breeding population is at the Prado Basin in Riverside County, a short distance north of the Orange County line, where the breeding population has been less than six pairs recently. Other important locations in southern California include the Santa Margarita River, the San Luis Rey River, San Dieguito River, San Diego River, and Tijuana River.

-- Population Trends and Threats

Declines in the dense, expansive riparian woodlands that this species requires for nesting, combined with brood parasitism by brown-headed cowbirds, have greatly reduced breeding numbers of willow flycatchers in California and the west. Its population is much smaller now than 50 years ago and no change in the factors responsible for the decline seem likely. Data are now available that indicate continued declines, poor reproductive performance, and/or continued threats for most remaining populations.

Least Bell's Vireo (*Vireo bellii pusillus*)

This species has been identified for conditional coverage (refer to Section 4.5, Chapter 4, "coverage" discussion). Its most common occurrence in the subregion is as a migrating species, a stage in its life history when it is relatively widely distributed and does not appear to be limited by habitat availability. Although it had not nested regularly in the subregion for many years, it has nested at Bonita Reservoir (included in the reserve) in most of the past several years. This species appears to be responding positively to cowbird trapping efforts in portions of its range, and it is likely to eventually become reestablished as a breeding bird in more of the subregion. Several of the more likely potential nesting locations are included within the reserve or are other protected open space, including San Joaquin Marsh, lower Big Canyon, upper portions of the Laguna Canyon drainage, and the Villa Park Dam reservoir. Nesting might also occur sporadically in other locations with more limited long-term conservation value.

-- Taxonomy

The least Bell's vireo (*Vireo bellii pusillus*), a member of the family Vireonidae, is one of four recognized subspecies of Bell's vireo.

-- Life History

Least Bell's vireos are migratory, wintering in Mexico and nesting in riparian thickets in coastal southern California and northern Baja California. Males arrive at the breeding habitat first, setting up a territory where all reproductive activity then takes place. Egg laying begins a few days after the nest is constructed, followed by about 14 days of incubation; and fledging usually occurs 10 to 12 days after hatching (Franzreb 1989). Although capable of laying multiple

broods, most researchers believe only one successful brood can be produced each year. Least Bells' vireos usually leave for wintering areas between July and September.

Nest parasitism by brown-headed cowbirds is a major factor in the decline of the least Bell's vireo. Cowbirds have become much more common within the range of the least Bell's vireo during the past century (Laymon 1987), and the vireo has not had opportunity to evolve protective strategies employed by other species with a longer exposure to cowbirds (Franzreb 1989). Because cowbirds are especially associated with human modified habitats (turf, livestock pastures, *etc.*), cowbird parasitism appears to link adjacent land uses to the decline of the least Bell's vireo.

-- Habitat Requirements

Least Bell's vireos inhabit dense riparian thickets. Vegetation density in the lower 12± feet (0-4m) is especially important (Goldwasser 1981, Gray and Greaves 1984). Riparian habitat adjoining coastal scrub and grasslands were found to be more productive than riparian habitat adjoining agricultural and urban areas (RECON 1986), probably due to increased predation and parasitism in the latter case.

-- Distribution and Abundance

This species may be seen as an occasional migrant throughout the subregion.

Until recently, least Bell's vireos were very sporadic nesters in Orange County, and had not been known to nest in the subregion for several decades. Several years ago a pair of vireos nested at Bonita Reservoir within the subregion (USFWS 1994), and the species has nested there regularly since that time (Dawes, personal communication). Other sites with substantial amounts of potentially suitable habitat, where future nesting may occur, include San Joaquin Marsh, lower Big Canyon, upper portions of the Laguna Canyon drainage, the Villa Park Dam reservoir, and Sand Canyon and Shady Canyon, San Diego Creek and its tributaries between I-405 and Irvine Center Drive, and Agua Chinon from MCAS El Toro to Portola Parkway.

The most important site for least Bell's vireo outside but near the subregion is the Prado Basin, where populations have exceeded 100 pairs recently (Dawes, personal communication). Other important locations in southern California include the Santa Ynez River, Santa Clara River,

Sweetwater River, Coyote Creek, Jamul/Dulzura creeks, the San Luis Rey River, Santa Margarita River, and San Diego River (USFWS 1985).

-- Population Trends and Threats

Although populations have declined dramatically, there are signs that management activities have tended to stabilize the population (CDFG 1991) or are increasing it (Dawes, personal communication).

Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)

This species has been included for coverage because its habitat requirements generally coincide with the California gnatcatcher, one of the “target species”.

-- Taxonomy

This sparrow is a member of the family Emberizidae, a large family including sparrows, warblers, blackbirds, and orioles.

-- Life History

Rufous-crowned sparrows are present in the subregion year-round. They nest on the ground, often near the base of a shrub, with the peak of nesting from May to June. Like most sparrows, the diet is a mixture of small invertebrates and seeds, taken primarily from the ground.

-- Habitat Requirements

This sparrow is found on grass covered hillsides, in coastal sage scrub and chaparral, often occurring near the edges of the denser scrub and chaparral associations. It appears more tolerant of steep slopes than California gnatcatchers, and is more prone to use true chaparral and grassy areas with very few shrubs, but otherwise its habitat requirements are similar to the gnatcatcher.

-- Distribution and Abundance

This subspecies is resident from Santa Barbara County south to northwestern Baja California. It is more widespread and common than the California gnatcatcher.

-- Population Trends and Threats

Populations of this species are subject to decline due to habitat loss similar to the California gnatcatcher.

Coyote (*Canis latrans*)

This species has been included because of its ecological role as top predator and because habitat linkages have been provided to maintain the species in key areas like Upper Newport Bay and San Joaquin Marsh.

-- Taxonomy

The coyote is a member of the dog family (Canidae).

-- Life History

Coyotes are the top predator in the Coastal subarea, and may also be the most important predator in the Central subarea because they are more numerous than mountain lion (*Felis concolor*). The top predator capacity is believed to be important in maintaining overall ecosystem function for coastal scrub and other habitat types, including salt marsh.

Coyotes are omnivorous, capturing their own prey, scavenging, and consuming vegetable foods. They are primarily nocturnal, but can be active any time of day. Breeding typically focuses on a burrow den, and usually occurs in the spring. One litter per year is normal.

-- Habitat Requirements

Coyotes are found in essentially all wildland habitat types within the subregion. In addition, they are adaptable enough to make significant use of both agricultural and developed lands. Radio telemetry of a coyote denning near Upper Newport Bay showed that the animal

regularly moved between the bay and the San Joaquin Hills, traveling through developed areas and strips of wildland (Zembal unpublished data).

-- Distribution and Abundance

Coyotes are distributed throughout most of North America, and are common in the subregion.

-- Population Trends and Threats

Populations within the subregion have undoubtedly trended downward with the high degree of development over the past few decades, but this decline has probably been less severe than with less adaptable species. Coyotes have apparently been extirpated from some key coastal areas, such as Anaheim Bay.

Gray Fox (*Urocyon cinereoargenteus*)

This species has been included because of its ecological role as a native predator and because habitat linkages have been provided to maintain the species in key areas like Upper Newport Bay and San Joaquin Marsh.

-- Taxonomy

The gray fox (*Urocyon cinereoargenteus*) is a member of the dog family (Canidae).

-- Life History

This fox is omnivorous, eating smaller mammals, fruits and seeds, invertebrates, and some carrion. It is primarily crepuscular and nocturnal, and is only occasionally seen during the day. One litter is produced per year, usually in April (Ahlborn 1990).

-- Habitat Requirements

This species is found in many habitat types, preferring woodlands, chaparral, and coastal scrub. It readily climbs trees, unlike most other canids. A source of drinking water is needed (Ahlborn 1990).

-- Distribution and Abundance

This species is found throughout California, except in the Modoc Plateau. Outside this state, it is distributed across much of the US except for the extreme Northwest, northern Rocky Mountains and western Great Plains (Burt and Grossenheider 1976). No specific data are available on their abundance in the subregion.

-- Population Trends and Threats

Populations within the subregion have undoubtedly trended downward with the high degree of development over the past few decades.

San Diego Desert Woodrat (*Neotoma lepida intermedia*)

This species has been included for coverage because its habitat requirements largely coincide with the coastal cactus wren, one of the “target species”.

-- Taxonomy

The San Diego desert woodrat is a member of the Cricetidae, which is the family including new world rats, mice, lemmings, and voles. Unlike the old-world rats, the native woodrats have hairy tails and do not infest urban areas.

-- Life History

This woodrat, or packrat, commonly builds small nests of cactus parts, twigs, and similar materials. It is primarily nocturnal. Four or more litters per year are normal.

-- Habitat Requirements

Desert woodrats frequent poorly vegetated, arid lands, and are especially associated with cactus patches and other thorny vegetation. The San Diego desert woodrat occurs throughout much of the subregion, in and around coastal sage scrub and rock outcrop communities, particularly where cactus is present.

-- Distribution and Abundance

San Diego desert woodrats are found along the Pacific slope from about San Luis Obispo to northwestern Baja California.

-- Population Trends and Threats

Populations of this species are subject to decline due to habitat loss similar to the coastal cactus wren.

Pacific Pocket Mouse (*Perognathus longimembris pacificus*)

The Pacific pocket mouse has been identified for conditional coverage under the terms set forth in Section 4.5 of Chapter 4. The only known population within the subregion occurs on the Dana Point Headlands site.

-- Taxonomy

The Pacific pocket mouse (*Perognathus longimembris pacificus*) is a member of the Heteromyidae family of rodents. This family includes pocket mice, kangaroo mice, and kangaroo rats. The Pacific pocket mouse is a race of the little pocket mouse (*P. longimembris*) species group, along with *brevinasus* and other southern races. According to Williams (1986), these southernmost races may form a distinct species from *P. longimembris*.

-- Life History

The Pacific pocket mouse feeds exclusively on plant seed. Local populations fluctuate widely in numbers of individuals, and *pacificus* may be locally the most abundant rodent in a given locality.

The Pacific pocket mouse constructs elaborate burrow systems underground in suitable sandy soils. Numerous small rodent burrows and diggings revealed the presence of some colonies to early collectors. This species forages for seed at night, presumably emerging from its burrow just after dusk and retreating underground before dawn. The effect of the lunar cycle on nighttime behavior is not known for this species, although some investigators argue that small

prey mammals in general are less likely to be active during a full moon phase (O'Farrell, pers. comm.).

The activity period extends from April through September. Individuals remain underground during the winter months from December through February. Pregnant and lactating females have been found from April through July. Immature animals have been noted on the surface from June through September. Brylski (1993) found some juveniles reproductively active in July and August.

-- Habitat Requirements.

The Pacific pocket mouse frequents sandy soils with a sparse vegetative cover. Telegraph weed (*Heterotheca grandiflora*) has been recorded as the "principal associational plant" at three capture sites in San Diego County (von Blocker 1931). At capture sites in Orange County, the dominant plant species is California sagebrush (*Artemisia californica*), a component of the coastal sage scrub plant community.

The Pacific pocket mouse has been captured in coastal strand and coastal sage scrub plant communities, ruderal vegetation on river alluvium, and on sand dunes (Grinnell, 1933; Meserve, 1972). With the exception of one capture on a "gravelly slope" on San Onofre Bluff in September 1903 (dictation of Frank Stephens in Joseph Grinnell's field notes dated 8 August 1916), all captures have apparently been on sandy substrata.

-- Distribution and Abundance

Records of the Pacific pocket mouse extend from the vicinity of Marina del Rey in Los Angeles south along the immediate coast to the Mexican border. Historically, nine definite localities are known, all within four kilometers of the ocean and at elevations of 200 meters or less. Specific localities include the Marina del Rey/El Segundo area, Clifton and Wilmington in Los Angeles County; Newport Beach and Dana Point Headlands in Orange County; and San Onofre Bluff, Santa Margarita River mouth and vicinity, Los Penasquitos Lagoon and lower Tijuana River Valley in San Diego County. About 1,250 acres of potential pocket mouse habitat has been identified within the subregion (Figure 39).

The only known remaining population within the subregion is on the Dana Point Headlands in Orange County. Brylski (1993) documented 25 to 36 individuals occupying approximately 1.5 hectares of coastal sage scrub on a 50-hectare parcel proposed for development. Outside

the subregion the Pacific pocket mouse has been captured at three sites located on/or adjacent to Camp Pendleton.

The only other documented capture since 1945 within Orange County [M'Closkey (1970, 1972) and Meserve (1972, 1976a,b)] was in an area in the San Joaquin Hills that has since been graded for development.

Focused trapping efforts in 1993 and 1994 in the vicinity of the other eight historic sites did not find any animals. Previous trapping in these and other sites have also failed to located any Pacific pocket mouse populations. Various records were made of captures of individual mice tentatively identified as Pacific pocket mouse, but these records are incomplete and are not considered to be reliable.

The USFWS conducted surveys for the Pacific pocket mouse in 1994 and 1995 on Camp Pendleton. One new population was confirmed in 1995, located at MASS 3 (Oscar 1 Training Area) in the southern portion of the base. The site had two study areas (about 700 meters apart), resulting in the capture of 54 individual Pacific pocket mice.

Two other populations were discovered in the northern portion of Camp Pendleton. These two populations (known as Panhe and Cuchillo populations) are separated by San Mateo Creek and an ongoing agricultural operation. The Panhe population is estimated to contain approximately 33 individuals. No population estimate has been made of the Cuchillo population; however, a total of 13 Pacific pocket mice were trapped in this location in 1995.

-- Population Trends and Threats

Because of their location along the intensively developed Southern California coast, nearly all of the known Pacific pocket mouse populations are extirpated. As a result, the Pacific pocket mouse is in decline and has been listed by the USFWS as endangered.

Potential habitat areas for the Pacific pocket mouse are threatened by loss due to urbanization, highways and off-road vehicle activities (Williams, 1986). Other probable factors include

habitat loss from industrial and agricultural development, habitat fragmentation, and predation by non-native red foxes (Jurek, 1992; Lewis et al., 1993) and feral cats (Jurek, 1994). The spread of non-native annual grasses may also have impacted populations of the Pacific pocket mouse by reducing the available amount of relatively open ground.

The one known population in the subregion is located within a fenced area that limits access to the occupied habitat area. However, no other protection measures have been implemented for this population and predation and it remains prone to stochastic events and to predation by feral cats and other animals.

The newly discovered populations on Camp Pendleton, with its approximately 17 miles of relatively undisturbed coastline, significantly improve the chances for the long-term survival of the species. Erickson noted in 1993 that the habitat within Camp Pendleton likely provides the best opportunities for the long-term survival of the Pacific pocket mouse. Furthermore, action taken at Camp Pendleton will be subject to Section 7 of the FESA, which precludes any action taken by a federal agency that would be likely to jeopardize the continued existence of the species.

The small population at the Headlands site, the limited amount of occupied habitat on the property, the existing constraints for habitat expansion on the site (site size and configuration, soils, vegetation characteristics, increasing density of coastal sage scrub about occupied habitat, constraints on “controlled” burns, animal predation, impacts from human trespass, disconnectedness from other open space or other habitat, etc.), the population’s heightened exposure to natural environmental stochastic events on this site, the population’s vulnerability to demographic stochastic events, and the high chance for inbreeding depression all collectively act to produce a relatively low probability that the population will maintain itself without proactive efforts aimed at enhancing the genetic viability of the population and creating opportunities for the population to expand its habitat range.

2.6.3 Other Sensitive Plant Species on the Dana Point Headlands Property

Five additional sensitive plant species addressed by the NCCP/HCP occur or could occur on the Dana Point Headlands property and are covered for Incidental Take/management take only for this site. The justification for such coverage is discussed in sections 4.5.1 and 4.5.4. Four of these five species have been found to occur on the Headlands site. The other species was found in 1983 in small numbers (under 10 plants), but has not been found in more recent surveying.

Blochman's Dudleya

Approximately 250 flowering plants of this taxon were noted during directed search for this species in the Spring of 1991. Heavy foot and vehicle traffic continue to degrade the relatively open terrain where this plant grows on the site.

-- Taxonomy

Blochman's Dudleya is a member of the family Crassulaceae.

-- Life History

Blochman's Dudleya is a tiny corm sprouting perennial. The species is best detected in late spring and early summer (Beauchamp 1993).

-- Habitat Requirements

This species grows in sandy openings in Diegan Sage Scrub near the coast. Las Flores loamy fine sand and Terrace Escarpments are the soil types mapped at Camp Pendleton (Beauchamp 1993). The species is known from atop coastal bluffs below 350 feet (Sweetwater 1994).

-- Distribution and Abundance

This plant is known to occur from San Luis Obispo County, South to Baja California, Mexico (Smith and Berg 1986). A large population of over 1,000 individuals was discovered west of the helicopter landing strip, near the beach on Shingle Bluff at Camp Pendleton. It is also

found in small colonies just south of Cocklebur Creek on an ocean bluff, and at four or five other locations in San Diego County including Las Flores, La Costa, La Jolla and Pacific Beach. Several hundred are scattered along the ridge north of Dana Point Harbor in Orange County. Reported by Roberts elsewhere in Orange County in San Clemente State Park. Historical collections to the north include Point Sal Ridge in Santa Barbara County, on a serpentine outcrop near Morro Beach in San Luis Obispo County, and in Long Grade Canyon in the northern Santa Monica Mountains. Database reports for Los Angeles County are from Point Dume, near Malibu Beach; for Ventura County the species has been found on the Conejo Grade west of Newbury Park, Dos Vientos Ranch southeast of Conejo Mountain in western Thousand Oaks. In San Luis Obispo County, the species is known from approximately five locations. Two sites from Baja California have recorded specimens at the San Diego Natural History Museum's herbarium (Beauchamp 1993).

-- Population Trends and Threats

The CNPS Lists this species as List 1B, RED Code 1-2-2. The species is not listed by the USFWS or CDFG.

Western Dichondra

Small populations of this species have been found on the Headlands property (Beauchamp 1993).

-- Taxonomy

Western dichondra is a member of the family Convovulaceae.

-- Life History

This cryptic perennial herb is particularly found on recently exposed areas of burns.

-- Habitat Requirements

This species generally occurs on dry slopes as an understory plant in Diegan Coastal sage scrub, chaparral, oak woodland and rocky outcrops in grassland. It often proliferates on recently burned slopes. It often grows in rocky crevices or completely hidden at the base of leafy

shrubs. Soil tolerances for *Dichondra* appear variable with Loamy alluvial land of the Huerhuero complex utilized at Torrey Pines, Hambright gravelly clay loam in the San Onofre Mountains, and a variety of other types elsewhere.

-- Distribution and Abundance

This species is found in coastal San Diego, Santa Barbara and Orange counties, on some of the Channel Islands and in Northern Baja California, Mexico. Western *Dichondra* is occasionally common following burns in coastal San Diego County, for example, near Black Mountain Road south of Peñasquitos Canyon. It is potentially present at many San Diego County sites in coastal chaparral or diegan sage scrub. It is abundant on the slopes above the ocean at the Torrey Pines Preserve as a dominant understory element. *Dichondra* is a widely dispersed understory plant in Military Sector Alfa Two on Camp Pendleton with sightings extending throughout the San Onofre Mountains. It is expected to be abundant following fire. Among other sites, the species has been found at the Jamul Mountains Lower Otay Lake, near Windmill Lake Golf Course on Camp Pendleton, and north of Poggi Canyon in Chula Vista. Three reports are from Fortuna Mountain. However, most historical sites are clustered near the immediate coast. Limited populations were seen near the Mexican border, in Encinitas, in La Jolla, and in Del Mar and on Spooner's Mesa in the Tijuana Hills. (Beauchamp 1993). The species is reported in La Jolla Valley and Deer Canyon in Ventura County, near Tuna and Topanga Canyons in Los Angeles County and at Point Mugu and Leo Carillo State Park (Beauchamp 1993).

-- Population Trends and Threats

Due to its fairly wide distribution and relative abundance in San Diego County and elsewhere, this species is not considered at this time to be highly sensitive (Sweetwater 1994). Western *dichondra* is slowly declining in Coastal San Diego County and is a borderline species for inclusion on the CNPS list (Beauchamp 1993). This species is a CNPS List 4, RED Code 1-2-1 and is not listed by either USFWS or CDFG.

Cliff Spurge

This species occurs in clusters along the edge of the sea bluffs and is concentrated near the steep bluffs on the Headlands property. Natural erosion may eventually limit population size on the Headlands.

-- Taxonomy

Cliff spurge is a member of the family Euphorbiceae.

-- Life History

Cliff spurge is a perennial shrub with hairy leaves that flowers between January and August and apparently is subject to frost damage.

-- Habitat Requirements

Cliff spurge occurs on coastal bluffs in coastal sage scrub habitat below 480 feet (Beauchamp 1986). Maritime Sage Scrub with a high incidence of cactus is typical of the preferred habitat for Cliff Spurge. Usually the scrub is quite low-growing and windswept near the beach. Olivenhain cobbly loam is utilized on Otay Mesa; Gaviota fine sandy loam is found at Point Loma (Beauchamp 1993).

-- Distribution and Abundance

Cliff spurge ranges from Corona del Mar, Orange County to San Diego, San Clemente, and Catalina Islands and creosote bush scrub at Whitewater, in the Colorado Desert (Munz 1974). The species is known to occur from Carlsbad, Point Loma, San Diego, Sweetwater Valley, Otay Mesa, San Ysidro, and Tijuana Hills (Beauchamp 1986). Outstanding populations are found at the Naval Sub Base and Cabrillo National Monument on Point Loma (Beauchamp 1993). An excellent stand grows on south-facing slopes of Dillon Canyon on Otay Mesa, as well as Spring Canyon near San Ysidro. It is also found on the west-facing slopes of Spooner's Mesa near the Mexican border. Old biological survey reports note sites in Moody Canyon on Otay Mesa, in Spring Canyon on Otay Mesa, west of the Salk Institute in La Jolla, as well as north on the San Dieguito River and south of Via de la Valle on a bluff overlooking the Fairbanks County Club (Beauchamp 1993). Roberts reports two small Orange County populations on

beach bluffs in Corona Del Mar. It is also reported on the sea bluffs at San Clemente Island. Seventy-seven herbarium specimens from Baja California are found at the San Diego Natural History Museum south to 27° 29' North where collected by Moran (SD 115893), west of Volcan tres Virgenes; also on islands to the south. It is locally common in Baja California, Mexico on ocean bluffs from Rosarito Beach south to the Ensenada region, as at La Fonda, and is widespread on Punta Banda (Beauchamp 1993).

-- Population Threats and Trends

Cliff spurge populations in San Diego County are stable (Beauchamp 1993). The species is listed by CNPS as List 2, RED Code 2-2-1, and is not listed by either USFWS or CDFG.

Palmer's Grappling Hook

Less than 10 Palmer's Grappling Hook plants were found on the Headlands property in 1983. This species could not be relocated in 1991 where reported or elsewhere on the site. The reported habitat of the 1983 sighting was observed to be in a degraded condition at present.

-- Taxonomy

This plant is a member of the family Boraginaceae.

This genus is characterized by flowers that are in a leafy-bracted false raceme with pedicels that are twisted and laterally deflexed at maturity.

-- Habitat Requirements

Palmer's Grappling Hook occurs on dry slopes and burns in the hills and clay depressions on the mesas between 200 and 1500 feet in elevation, in chaparral, coastal sage scrub, and grassland habitat (Munz 1974; Jepson 1943; Beauchamp 1986). Clay vertisols with open grassy slopes and open diegan sage scrub offer typical habitat. Diablo clays are favored along the coast; sloping gullied land is mapped for Table Mountain (Beauchamp 1993).

-- Distribution and Abundance

Palmer's Grappling Hook is reported from Los Angeles, Orange, Riverside, and San Diego counties, Baja California, Mexico and Arizona (Smith and Berg 1988; Roberts 1989; Beauchamp 1986; Wiggins 1980). Reported localities of Palmer's Grappling Hook include Santa Catalina Island, Murietta, Riverside County, Dehesa School in Sweetwater Valley, Otay, southwestern San Diego County, Box Canyon, Mason Valley, Guajome Mesa, Rancho Santa Fe, Olivenhain, Poway Grade, Kearny Mesa, Emerald Hills, Mission Gorge, Rice Canyon, and Table Mountain (Jepson 1943; Beauchamp 1986). Eight populations of 3,000, 2,500, 1,000, 500, 200, 30, 25 and 20 individuals respectively were detected in Carlsbad (Sweetwater 1992). In Baja this species is reported from Mexicali to mid peninsula (Wiggins 1980). In western Riverside County Palmer's Grappling Hook grows in heavy clay soils on Alberhill Mountain, on the south slopes of Bachelor Mountain near Lake Skinner, and at Harford Springs Park near Idaleona Road, among other locations. This species is reported in Orange County at Dana Point, Casper's Regional Park, and Cabino Canyon in Rancho Mission Viejo. It is said to be frequent on Catalina Island by Thorne. Shreve and Wiggins report variety *arizonica* from Pima and Maricopa Counties in Arizona. This species is also reported from Isla Guadalupe (Beauchamp 1993).

-- Population Trends and Threats

Palmer's Grappling Hook is declining on the coast. According to Plant Sensitive Ratings, this species is given a relatively low rarity status (Beauchamp 1993). It is a CNPS List 2, RED Code 1-2-1 species and is not listed by either the USFWS or CDFG.

Palmer's Grappling Hook is known from Mission Trails Regional Park and The Nature Conservancy's McGinty Mountain Preserve (Dames and Moore 1991; Brown and Weir 1992). Any extant populations from these preserves would be protected. Approximately 3,500 individuals will be conserved by the Carlsbad/La Costa HCP.

Prostrate Spineflower

This plant grows on the sandiest substrates observed on the bluffs at the Headlands property.

-- Taxonomy

Recent taxonomic changes, as noted in the 1993 update of the Jepson Manual of the flora of California (Hickman 1993), have "merged" this variety taxonomically with a closely related form of limited rarity, formerly referred to as variety *albiflora*. Cumulatively these two forms are now known as *Chorizanthe procumbens*, and lack the trinomial formerly used to delineate varieties (Beauchamp 1993).

-- Life History

This species is a small annual.

-- Habitat Requirements

Openings in Chamise Chaparral are typical locales for the prostrate Spineflower; however, it may also occur in sage scrub. It regularly occupies recently disturbed micro habitats such as the shoulders of dirt roads or areas of lightly brushed chaparral. At Rancho Cuca the soils utilized are Crouch rocky course sandy loam; Fallbrook sandy loams are mapped for the Riverview Road site; Cieneba-Fallbrook rocky sandy loams for the Gregory Canyon site.

-- Distribution and Abundance

The Prostrate Spineflower is found in Los Angeles, Ventura, San Bernardino, Orange, Riverside and San Diego counties. It also grows in chaparral openings at Poway. It is locally common at Rancho Cuca near the eastern boundary and on a chaparral hillside east of Sandia Creek. It is scattered in chaparral openings north of the freeway at Alpine and in Fallbrook. Other small populations include near Rocky Mountain Road well north of Jamul Butte, on Whale Peak near Ballena, within La Zanja Canyon, in Pamo Valley near Orosco Ridge, near Jamul Butte, east of Olive Hill Road near Bonsall, on a coastal peak east of Interstate 15 and south of Poway Road. It is still found at both the northern and southern extension of Torrey Pines State Park. Herbarium specimens for *C. procumbens* exist from the east slope of El Cajon Mountain, Pauma Valley, Pacific Beach, Point Loma, northeast of San Vicente Creek, Carlsbad, 2.5 miles east of Encinitas, Hidden Glen, Balboa Park, the Silver Strand, Harbison Canyon, Twin Oaks Valley and Gopher Canyon Road--and by the U.S. Boundary Monument 238. Thirteen specimens from Baja California are found at the San

Diego Natural History Museum, south to a locale near 30° 23' North were collected by Moran (SD 88855).

-- Population Trends and Threats

Prostrate Spineflower is stable and apparently wide ranging in the "back country" of southern California (Beauchamp 1993). Substantial potential habitat occurs in little explored chaparral in the San Pasqual region (Beauchamp 1993). The species is not presently listed with the CNPS as a sensitive plant species (CNPS List 4, RED Code 1-1-3) and is not listed by either the USFWS or CDFG.

2.6.4 Other Species Of Interest

A number of additional plant and animal species of special interest are potentially located within the subregional NCCP/HCP study area (Table 2-6). These species are an important component of the coastal sage scrub natural community and the ecosystem mosaic of the project area. Sufficient information is not available for these taxa to prepare complete conservation plans, nevertheless, the NCCP/HCP reserve and adaptive management program should benefit these species. Species are identified, and listed below, to ensure that they can be considered in the reserve design process. Most of these species would benefit along with the "target species" and the coastal scrub natural community as a whole. Finally, it should be noted that several of the species included in Table 2-6 are species considered likely to be eligible for regulatory coverage in the future after completion of focused field surveys within the Reserve System. These species are identified as "Special Interest Species" and discussed in Section 4.5.5 and listed in Table 4-10 of Chapter 4 of the NCCP/HCP. If the future field surveys demonstrate that regulatory coverage is justified, these species will be added to the list of species "covered" for regulatory purposes by the NCCP/HCP.

Table 2-6
ADDITIONAL SPECIES OF INTEREST
IN THE NCCP CENTRAL AND COASTAL ORANGE COUNTY SUBREGIONS

Species	Federal	State	Habitat Use
MAMMALS			
Pallid bat <i>Antrozous pallidus</i>	--	CSC	coastal sage scrub, oak woodland, and chaparral
California mastiff bat <i>Eumops perotis californicus</i>	--	CSC	widespread forager, but roosts in cliffs and structures
San Diego black-tailed jackrabbit <i>Lepus californicus bennettii</i>	--	CSC	coastal sage scrub, annual grassland, and chaparral
Northwestern San Diego pocket mouse <i>Chaetodipus fallax fallax</i>	--	CSC	coastal sage scrub, annual grassland, and chaparral
Ramona grasshopper mouse <i>Onychomys torridus ramona</i>	--	CSC	annual grassland and coastal sage scrub
Badger <i>Taxidea taxus</i>	--	CSC	widespread in natural habitats
Mountain lion <i>Felis concolor</i>	--	--	widespread in natural habitats
BIRDS			
Mountain plover <i>Charadrius montanus</i>	C1	CSC	winters in annual grassland and agricultural fields
Burrowing owl <i>Speotyto cunicularia</i>	--	CSC	annual grassland and other open areas
Short-eared owl <i>Asio flammeus</i>	--	CSC	grasslands
Long-eared owl <i>Asio otus</i>	--	CSC	widespread forager, but nests in woodlands
Yellow warbler <i>Dendroica petechia</i>	--	CSC	widespread migrant, but nests in riparian woodland
Yellow-breasted chat <i>Icteria virens</i>	--	CSC	riparian woodland
Bell's sage sparrow <i>Amphispiza belli belli</i>	--	CSC	chaparral and coastal sage scrub
Grasshopper sparrow <i>Ammodramus savannarum</i>	--	--	annual grassland
Tricolored blackbird <i>Agelaius tricolor</i>	--	CSC	agricultural fields, annual grassland, and riparian
REPTILES			
Southwestern pond turtle <i>Clemmys marmorata pallida</i>	C1	CSC	near aquatic habitats
San Diego banded gecko <i>Coleonyx variegatus abbotti</i>	--	--	coastal sage scrub and chaparral
Silvery legless lizard <i>Anniella pulchra pulchra</i>	--	CSC	chaparral, oak woodland, and coastal sage scrub
Coast patch-nosed snake <i>Salvadora hexalepis virgulata</i>	--	CSC	annual grassland, coastal sage scrub, and chaparral
Two-striped garter snake <i>Thamnophis hammondi hammondi</i>	--	--	riparian

Species	Federal	State	Habitat Use
AMPHIBIANS			
Western spadefoot <i>Scaphiophus hammondii</i>	--	CSC	near vernal pools
California red-legged frog <i>Rana aurora draytoni</i>	<u>FT</u>	CSC	riparian areas
FISH			
Arroyo chub <i>Gila orcutti</i>	--	CSC	aquatic
Santa Ana speckled dace <i>Rhinichthys osculus</i> subsp.	--	CSC	aquatic
Santa Ana sucker <i>Catostomus santaanae</i>	--	CSC	aquatic
INSECTS			
Greenest tiger beetle <i>Cicindela tranquebarica viridissima</i>	--	--	interior riparian
Dun skipper <i>Euphyes vestris harbisoni</i>	--	--	interior riparian
Wandering skipper <i>Panoquina panoquinoides errans</i>	--	--	estuarine and near-estuarine areas
PLANTS			
Aphanisma <i>Aphanisma blitoides</i>	--	--	coastal bluff and coastal sage scrub
Braunton's milk vetch <i>Astragalus brauntonii</i>	<u>FE</u>	--	coastal sage scrub and chaparral
South coast saltbush <i>Atriplex pacifica</i>	--	--	coastal bluff and coastal sage scrub
Thread-leaved brodiaea <i>Brodiaea filifolia</i>	PT	SE	vernal pools and annual grassland
Summer holly <i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>	--	--	coastal chaparral
Western dichondra <i>Dichondra occidentalis</i>	--	--	coastal sage scrub and chaparral
Blochman's Dudleya <i>Dudleya blochmannae</i> ssp. <i>blochmannae</i>	--	--	coastal bluff and coastal sage scrub, chaparral, and annual grassland
Santa Monica Mountains Dudleya <i>Dudleya cymosa</i> ssp. <i>ovatifolia</i>	<u>FT</u>	--	coastal sage scrub and chaparral
Many-stemmed Dudleya <i>Dudleya multicaulis</i>	--	--	coastal sage scrub, annual grassland, and chaparral
Sticky-leaved Dudleya <i>Dudleya viscida</i>	C1	--	coastal sage scrub and chaparral
Cliff spurge <i>Euphorbia misera</i>	--	--	coastal bluff and coastal sage scrub
Palmer's grapplinghook <i>Harpagonella palmeri</i> var. <i>palmeri</i>	--	--	coastal sage scrub and chaparral

Species	Federal	State	Habitat Use
Southern tarweed <i>Hemizonia parryi australis</i>	--	--	annual grassland
Chaparral beargrass <i>Nolina "cismontana"</i>	--	--	coastal sage scrub and chaparral
Crown beard <i>Verbesinia dissita</i>	<u>FT</u>	ST	chaparral and coastal sage scrub

Legend

FE	Federally-listed as endangered
FT	Federally-listed as threatened
PE	Federally-proposed as endangered
PT	Federally-proposed as threatened
C1	Federal category 1 candidate for listing as threatened or endangered; refers to taxa for which the U.S. Fish & Wildlife Service has sufficient information to support a proposal to list as endangered or threatened, but insufficient capacity to complete the process at this time
SE	State listed as endangered
FP	Fully protected by California
ST	State listed as threatened
CSC	California Species of Special Concern

Tab placeholder.

CHAPTER 3: BIOLOGICAL RESERVE PLANNING PROCESS

This chapter describes the biological planning process used to design the Reserve System. The process included a number of discrete steps: resource inventory, consideration of alternative reserve design strategies, formulation of a preliminary reserve concept, preparation of a "Proposed" Reserve design and formulation of a final reserve design that reflected comments and modifications generated during the public review and hearings on the Draft NCCP/HCP, Joint EIR/EIS and Implementation Agreement. The Proposed Reserve provided the basis for preparation of the Draft NCCP/HCP, including the adaptive management plan, assessment of conformity with NCCP Planning Guidelines and FESA Section 10 (a) standards, and evaluation of reserve habitats as equivalents of critical habitat in the following chapters. The Final NCCP/HCP includes amendments/modificationsto the Draft NCCP/HCP that were adopted by the County, CDFG and USFWS following completion of the public review process.

SECTION 3.1 BIOLOGICAL RESERVE DESIGN TENETS

This section outlines the basic biological goals and objectives of reserve design. These goals and objectives have guided the design process, and have been used to identify the larger, interconnected blocks of habitat which are vital to maintaining overall habitat value. Less essential habitat which may be designated for development to gain an overall viable reserve has been identified. The basic biological tenets of reserve design, as described in the November, 1993 NCCP Conservation Guidelines express a number of Principles that were applied during the reserve design process. Each reserve design tenet was used to formulate one or more objectives for the circumstances of the Central and Coastal Subregion.

1. Conserve the three target species (*i.e.*, California gnatcatcher, coastal cactus wren, and orange-throated whiptail lizard) throughout the planning area. Species that are well-distributed across their native ranges are less susceptible to extinction than are species confined to small portions of their ranges. For example, a broad distribution allows greater ability for organisms to respond to changes in climate from year to year.

- Reserves should represent the full range of physiographic conditions which support the three target species, such as the immediate coastal terrace/frontal slopes along with more inland areas, lower along with higher elevations, and different vegetational assemblages.
2. Emphasize large reserves over small reserves. Large blocks of habitat containing large populations of the target species are superior to small blocks of habitat containing small populations. This goal is derived in large part from the island biogeography concept that larger islands are more likely to maintain stable and diverse biota than smaller islands.
- Reserve units should include the largest practical numbers of target species, thereby minimizing the instabilities inherent in smaller populations. This objective must be balanced against the need to identify reserve boundaries which are manageable and viable in the long term (see number 7).
3. Keep reserve areas close. Blocks of habitat that are close to one another are better than blocks of habitat that are far apart. Close geographic proximity allows for easier dispersal of organisms between reserve areas.
- The distance between blocks of habitat should be well within the distance that can be traveled by dispersing individuals of the target species, particularly the two birds. Because available data indicate that dispersal distances of less than a mile are usual and less than two miles are common, blocks of habitat which support target species should be no more than one or two miles apart wherever practical. Species may need visual cues as guidance if habitat patches are separated by one or more miles. The presence and type of linkages (number 5) affect this objective.
 - Linkage which require animals to cross "gaps" should ideally consist of narrow gaps with broad "landing zones" on either side. Organisms which "jump" from one are thus much more likely to successfully land on the other side of the linkage. Gaps at the ends of long narrow fingers of habitat pointing toward each other are less likely to be successfully transited, and are less desirable (see number 5).

4. Keep habitat contiguous. Habitat that occurs in less fragmented, continuous blocks is preferable to habitat that is fragmented or isolated by urban lands. Fragmentation may inhibit dispersal of many species and may contribute to deleterious edge effects.
 - To the degree possible, reserve blocks of core habitat should be on the order of a thousand or more acres. In this community and setting, reserve habitat blocks in the hundred or more acre range may require special management effort to remain viable, and reserve habitats in the 10-acre range will often not be viable in the long run (see number 2). (Note that these numerical targets should be interpreted according to the specifics of habitat blocks: for example, a well-connected and nearly round block in the high 100's of acres may function better in the reserve than a long and narrow "dead end" block in the low thousands of acres, and an archipelago of smaller blocks may remain viable under some circumstances). This objective applies to the blocks of habitat making up the core of the reserve, but it will often be necessary and desirable to include smaller blocks of habitat at strategic locations for habitat linkages (see number 5).

5. Link reserve units via wildlife movement corridors. Interconnected blocks of habitat serve conservation purposes better than isolated blocks of habitat.
 - Linkages allow for genetic exchange, recolonization of habitat following perturbations, and operation of the "rescue effect" for smaller populations. Linkages within subareas are more important in terms of the latter two functions, while linkages between subregions are more important for genetic exchange. A linkage functions if enough animals transit the linkage often enough for these functions to occur; and a linkage does not have to allow completely unimpeded movement of individual organisms to function. The important individuals are those which are actively dispersing, most often juveniles.
 - Corridors which are large enough to include habitat sufficient for several home ranges may not require an organism to successfully transit the entire linkage when dispersing, and thus are more likely to allow flow of individuals between populations. For this reason, they are preferable to smaller corridors. Similarly, they may be somewhat longer than the distance most individual organisms disperse. These habitat linkages, which represent linear patches of native

habitat connecting large blocks, may function as both corridor (for larger animals) and habitat (for smaller, less fragile species) (see number 3 and 4).

- Corridors function best when they contain native habitat (*e.g.*, coastal scrub, mulefat riparian) or non- native habitats readily crossed by target species (*e.g.*, annual grassland, ruderal habitats dominated by mustard). Non-habitat linkages function best when the habitat within them resembles the habitat preferred by target species. Culverts, agricultural fields, golf courses, and other non-native landscape features that lack barriers to dispersal may function as corridors, especially for important non-target species such as coyote.
 - Linkages are more likely to function if individual animals can see (or otherwise sense) desirable habitat within or beyond the corridor (see number 3). Linkages which cross canyons or road cuts (where elevation allows animals to see across) are thus preferable to corridors obscured by topography, development, and/or ornamental vegetation.
 - Multiple, or redundant corridors are preferable where linkages are longer than normal dispersal distances, include gaps which must be "jumped," include visual barriers, and/or include significant non-habitat components (*e.g.*, golf course, fuel modification zones).
 - A certain degree of separation (but not complete isolation) between reserve units is desirable to minimize potential adverse effects of corridors. For example, Simberloff and others have argued that corridors provide the most likely avenues for dispersal of disease, parasites, and introduced weedy species. In this subregion, the recent Laguna Beach fire has illustrated the importance of peripheral refugia in limiting the extent of expected periodic catastrophic events.
6. Maintain reserve units that are biologically diverse. Blocks of habitat should contain a diverse representation of physical and environmental conditions so that the diversity of CSS is captured and complex community-based ecological relationships are maintained.

- The reserves should include other habitat types that may occur in a mosaic pattern with CSS and contribute to the long-term protection and management of the CSS Reserve System. Reserve boundaries should be drawn to include other habitat types which occur within a manageable physiographic unit (*e.g.*, a canyon or ridge system) containing coastal scrub. Small exclusions of other habitat types which produce a highly interdigitated boundary or pockets of development should be avoided (see number 7).
 - Larger areas (see number 2) typically support a greater species richness owing to increased habitat heterogeneity in larger patches.
7. Protect reserves from encroachment. Blocks of habitat that lack roads or otherwise are inaccessible to human disturbance better serve target species than accessible habitat blocks.
- In the Central and Coastal Subregion, the greatest potential for encroachment is from urban edges surrounding reserve lands. Encroachment by non-native species (seeds, cats, dogs, etc.) may reduce the habitat quality and value of reserve lands and thereby lower their carrying capacity. Edges are also the most likely ignition points for wildfire. For these reasons, the reserve boundary should minimize perimeter and avoid highly interdigitated configurations.
 - The above objective must be balanced against needs for firebreak or other features to inhibit large-scale spread of ecological catastrophes and infrastructure/access for reserve management and passive recreation uses.

Many of these goals/tenets either exhibit a degree of redundancy or are intimately interrelated. For example, larger reserves (number 2) are likely to encompass greater habitat heterogeneity and, in turn will be more diverse (number 6). Hence, adherence to number 2 will contribute to satisfying number 6 - the preservation of biologically diverse reserve units. Likewise, numbers 3, 4 and 5 all are related to geographic proximity and connectivity of reserve units. If reserve units are close (number 3) and/or contiguous (number 4), corridors and linkages (number 5) will be maintained. If reserve units are close but not contiguous, corridors may have a more important role.

In addition to its spatial design and configuration, the reserve must also be evaluated in other contexts, including adaptive management (which includes fire management), biological protection of other species found associated with coastal scrub, restoration/enhancement opportunities and socio-economic functions. Non-geographic goals and objectives for the NCCP/HCP include the following.

- a. Long-term support of ongoing applied research and monitoring, to provide feedback in support of adaptive management and day-to-day operation of the reserve. This objective recognizes the fact that the reserve being created is in an urbanized setting and will require management to maintain viability. Basic research can also be accommodated within the Reserve System, but it serves a fundamentally different purpose and should be funded and administered separately from the reserve.
- b. Identification of restoration and enhancement opportunities for degraded areas that may serve as mitigation and/or help establish or restore habitat linkages.
- c. Development of adaptive management strategies for reserve lands (*e.g.*, fuel management and prescribed burnings, cowbird management, revegetation efforts, trail closures during the breeding season of sensitive species, Identified Species population enhancement, development of appropriate buffers and edge treatments and grazing management).
- d. Utilization of infrastructure or other appropriate facilities as fuel breaks to inhibit wholesale loss of habitat caused by unpredictable wildfires and other similar ecological catastrophes. Such features also are likely to be useful points of control for prescribed burns, which are expected to be an integral part of long-term management of coastal sage scrub.

SECTION 3.2 ALTERNATIVE RESERVE DESIGN STRATEGIES

3.2.1 The Need for a Design Strategy

Before beginning the process of designing the reserve, it was necessary to resolve how wide a range of parameters was to be considered in the reserve design process. Specifically, it was necessary to resolve how and if existing land use plans and phased open space/dedication open space agreements would be incorporated as an integral part of the reserve design process. In

short, would a biologically preferred reserve design be prepared considering only biological parameters, or would a wider range of parameters including economic resources and land use be considered? Scientific models (such as population viability analyses) that could establish how much CSS habitat must be preserved do not exist. Thus, creation of any reserve alternative must be based on best professional judgment and guided by an overall design strategy.

3.2.2 Biologically Preferred Design Strategy

By definition, a biologically preferred approach to reserve design would be based only on biological parameters. The only clear-cut biologically preferred alternative is one which preserves all remaining natural lands, maximizes restoration, and provides for ongoing management of the reserved lands. Preservation of existing CSS, target species, biodiversity, and habitat linkages would be maximized, and all available restoration opportunities would be exercised. Such an alternative is clearly infeasible because all funding for land acquisition, restoration and management would have to come from government agencies that already are financially over-extended. Thus, this strategy would do nothing to apply the biological goals and objectives outlined above in a way that would guide design of a feasible alternative.

Feasible alternatives must consider non-biological parameters to a degree. There is no clear distinction along the continuum of alternatives to determine which additional economic and/or land use factors are to be considered. As more economic and land use considerations are considered, the distinction between a biologically preferred alternative and a subregional alternative becomes less and less apparent. Any number of alternatives, several of which could be considered biologically defensible, could be generated as more economic and land use parameters are considered.

3.2.3 Subregional Reserve Design Strategy

The subregional design strategy is defined here as an approach which establishes clear biological goals and considers biological parameters and the economic land use factors specific to the subregion as necessary to produce feasible alternatives. Such an approach also recognizes that different alternatives could be designed which meet biological goals. The preferred alternative designed using this strategy, would be the one which best can be demonstrated to be feasible (*i.e.*, achievable in timely, cost effective manner based on available science.) Designs which require major restructuring of existing land use plans and/or purchase

of significant amounts of private property would be much less likely to be successful (*i.e.*, feasible) than those which make use of existing land use plans and dedication agreements.

As explained in Chapter 5 (Minimization), the pre-existing phased open space dedication agreements are particularly important to the reserve design process because these agreements have resulted in mechanisms that will set aside almost 20,000 acres of wildlands over the next several years. Another example, the San Joaquin Hills Transportation Corridor was already entitled by local, state, and federal agencies and required mitigation had been initiated when the design process began. Designing a reserve in consideration of this fact ensures that biological functions can be maintained, and eliminates interminable delays in implementation that would make an alternative infeasible should the reserve design conflict with the entitled facility.

3.2.4 Selected Strategy for the Reserve Design Process

The subregional design strategy was chosen for this NCCP/HCP. While either the “Biologically Preferred” or “Subregional” design strategy could result in a reserve design that functioned biologically and met NCCP biological goals, only the subregional approach would produce an alternative which is both feasible to implement and capable of functioning biologically over the long term. If the biologically preferred approach considered enough economic and land use parameters to yield a feasible design, it would become indistinguishable from the subregional approach.

The following steps were determined necessary to design the Central/Coastal reserve using a subregional approach.

- Step 1 Inventory: biologic data, including relevant field surveys, and land use planning information was gathered.

- Step 2 Habitat Evaluation: conservation value was to be determined based on polygon or patch size, contiguity with other natural areas, whether the area served as a linkage to other natural areas, diversity, and the ability to protect the habitat from encroachment. These factors are consistent with the reserve design tenets of the NCCP Conservation Guidelines outlined above, and would assist in determining which natural areas were essential to the reserve function and which were not.

- Step 3 Subarea Reserve Design Objectives: the reserve design tenets outlined above were applied to characteristics specific to the Central and Coastal subareas. The resulting specific objectives ensure that the reserve design was biologically functional and considered the planning opportunities and constraints specific to each subarea.
- Step 4 Synthesis: the three steps above were synthesized to produce the proposed reserve design.

SECTION 3.3 INVENTORY

3.3.1 Biological Resources

The planning process began with an inventory of the biological resources. These inventories include: 1) vegetation type maps of the subregion, 2) census-level inventories of California gnatcatcher and coastal cactus wren sites throughout the subarea, 3) a sampling-level inventory of orange-throated whiptail distribution and abundance, and 4) compilation of miscellaneous survey and anecdotal observations of other sensitive species. The nature of these inventories is more fully described in the Biological Setting chapter, its corresponding appendix, and the reports prepared for each survey making up the inventories.

This resource inventory serves as the basis for the biological parameters in reserve design. The primary purpose of the reserve and NCCP management program is to provide for no net loss of long-term habitat "value" for CSS and the target species. A second purpose is to protect and enhance overall biodiversity within the subregion. The resource inventory supports these purposes by documenting the distribution and extent of coastal sage scrub, the distribution and numbers of the three target species, and the distribution and nature of other known biotic elements.

3.3.2 Land Use

While the biological resource inventory identifies the biological parameters used in reserve design, a feasible reserve design requires consideration of existing land use plans, open space/dedication agreements and entitled projects. The land use inventory consisted of a map compiling a composite of all adopted land use plans in the subregion and the many phased open space/dedication agreements, as well as discussions with affected agencies, jurisdictions

and landowners to determine where opportunities and constraints existed with respect to reserve designation.

The land use inventory showed that when the existing public open space (15,660 acres) is added to the natural areas included in the phased dedication areas (17,877 acres), a total of 33,537 acres of natural lands, including more than 16,000 acres of CSS, were already planned for open space. That land use designation provided a foundation which would be built upon to address the identified reserve design goals. A more extensive discussion of the planned open space areas and their relationship to one another is included in Chapter 5 of the Joint EIR/EIS as part of the "avoidance and minimization" discussion.

SECTION 3.4 HABITAT EVALUATION

Habitat areas identified in the inventory were evaluated to determine their conservation value, that is, the potential contribution they could make to the long-term viability of target species and to overall reserve design. The evaluation process is described in this section.

The reserve design principles derived from the NCCP Guidelines form the basis for determining the importance, or potential conservation value, of habitat areas. Wildlands polygons which are 1) larger, 2) close to or contiguous with other habitat areas, 3) provide linkages between areas, 4) contain a diversity of habitat types, associations, elevations, etc., or 5) can be protected from encroachment to remain viable over the long term, are of higher potential conservation value. In contrast, wildland polygons which are 1) smaller, distant from other polygons, 2) are not strategically located to provide linkages (*e.g.*, form "dead-end fingers"), 3) have minimum diversity and/or are largely non-native communities, and 4) are highly vulnerable to future disturbance, are of lower conservation value. Medium values are associated with characteristics intermediate between the higher and lower values described above.

Two sets of working maps were produced to characterize the conservation value of the project area, shown on Figure 9 and 10. The maps illustrate the results of the two different approaches to evaluating habitat value.

Figure 9 shows the results of the approach based on assigning areas a high, medium or low conservation value based on the highest value of the biological resources present. No pre-set limits on the amount of habitat that should be classified in any one category were imposed

using this approach. Because no limits were applied on how much habitat was included in any classification, habitat polygons and portions of polygons could be assigned a conservation value using best professional judgment in applying the standards cited above. Using this approach, habitat totaling 34,346 acres (about 50 percent of the remaining wildlands) was assigned a "high" conservation value, 13,428 acres (about 20 percent) received a "medium" conservation value rating, and 22,582 acres (about 30 percent) of the existing wildlands were classified as having "low" conservation value.

A different habitat value classification approach reflects the mapping and classification system provided for in the NCCP Planning Guidelines (Attachment A: Conservation Guidelines). This approach limits the amount of CSS that can be classified as "high value" habitat to 50 percent of the CSS habitat within the subregion or subarea and establishes a 10-25 percent threshold or "quota" for low value CSS habitat. The "50 percent limit" approach to classifying habitat value was included in the NCCP Planning Guidelines as part of the interim take process as a tool to assure that the highest value natural areas were identified for protection during the NCCP planning period. Recent experience in other southern California jurisdictions had shown that there was a tendency among biologists to apply "high" value ratings to 75 percent or more of remaining wildlands, thus making it difficult to assign real priorities for purposes of guiding decisions concerning interim permitting of development prior to preparation/approval of NCCPs.

Application of the 50 percent threshold limits on the amount of CSS that could be assigned a "value" rating resulted in a different habitat value profile. Figure 10 illustrates the distribution of lands with high, medium and low conservation value based on this approach. As in the "no threshold" approach discussed above, best professional judgment was used to assign conservation values to polygons/portions of polygons. A total of 27,605 acres (40 percent of the remaining wildlands) was rated as having "high" conservation value, 14,734 acres (20 percent) received a "medium" value rating, and 28,017 acres (40 percent) received a "low" value rating.

Clearly, the two habitat evaluation approaches produce different results. The "threshold" approach forces finer divisions in classification of CSS habitat (*i.e.*, it is necessary to identify the "best" and "worst" of the medium category and reassign these areas to meet the quotas) that affects the value assigned to adjacent non-CSS habitat polygons. This effect on non-CSS habitat value ratings is accentuated by the naturally fragmented character of CSS habitat. As a result, the "threshold" rating approach identifies a lower percentage of the overall remaining

wildlands as having a "high" conservation value rating, and increases the amount of habitat receiving a "low" value rating.

Because of the differences in these classification approaches, and because the intent is to create a multiple-species, multiple-habitat reserve rather than simply a CSS-based reserve design, the "no threshold" approach to classifying habitat value probably provides a better tool for evaluating habitat reserve design.

It is critical to understand the difference between conservation value and whether a given area is essential or necessary for the reserve to be able to function consistent with FESA Section 10 and NCCP Guidelines requirements. All high value areas are desirable for inclusion in the reserve, but not all high value areas are essential for a functional reserve. Most, but not all, of these areas can be reduced to some degree and remain functional. The importance of the remaining high value habitat increases when a high value area is reduced by excluding a portion from the Reserve System, for example, an existing linkage can often be made narrower and still function, but the importance of the remaining linkage is magnified. Most areas of medium conservation values are desirable for inclusion in the reserve, but few, if any, are essential. Most areas of low conservation value are undesirable for inclusion in the reserve because they would require more management effort than their biological value justifies, and none of the low value areas are essential to the reserve.

SECTION 3.5 SUBAREA RESERVE DESIGN OBJECTIVES

Upon completion of the habitat evaluation maps, it became apparent that specific reserve design objectives were needed for each of the NCCP subareas. The subarea objectives apply the reserve design goals outlined above to ensure that the reserve design was biologically functional and considered the planning opportunities and constraints specific to each subarea.

3.5.1 Coastal Subarea

Several reserve design objectives were identified for the Coastal Subarea.

- Incorporate the core habitat in the San Joaquin Hills, especially where target bird species are more dense (generally north and west of Moro Canyon and the Laguna Lakes).

- Incorporate several peripheral areas that appear to have functioned as refugia and are probable recolonization sources following the Laguna Beach fire. These areas include the Crystal Cove shelf, the Sand Canyon Reservoir areas, the Sycamore Hills, the Aliso and Wood Canyons Regional Park, and to a lesser extent Buck Gully and Upper Newport Bay.
- Provide linkages between the core habitat areas and the peripheral areas. Also provide linkage to important wetland ecosystems in the subarea, specifically Upper Newport Bay and San Joaquin Marsh (these areas support important populations of wetland-associated endangered species, and continued function of both the coastal scrub community and these wetland communities are probably dependent on coyotes as a key top predator).
- Determine whether there is any potential link to other subareas/subregions.
- Incorporate other biologically important habitat as practical and to the degree consistent with manageability considerations.

3.5.2 Central Subarea

Several reserve design objectives were identified for the Central Subarea.

- Incorporate the core habitat on the frontal slopes of the Lomas de Santiago and Weir Canyon.
- Incorporate several areas where densities of gnatcatchers are locally high (cactus wrens are more broadly distributed in this subarea), generally on lower elevation ridges closest to the coastal maritime climatic influences. These concentration areas include the MCAS El Toro magazine area, the ridge adjacent to Siphon Reservoir, ridges above Rattlesnake Reservoir, lower Peters Canyon Reservoir/Tustin Ranch, and probably other hillsides in the Orange/Anaheim area (spring 1994 surveys later confirmed this).
- Provide linkages between the core habitat areas and the concentration areas. Connect the concentration areas into larger, more contiguous blocks of habitat.

- Provide linkages through the East Orange area which connect habitats generally south of Santiago Creek and along the Lomas de Santiago Ridge with other habitat areas generally north of Santiago Creek and west of Irvine Lake in and near Irvine Regional Park. Provide similar linkages between upper Weir Canyon and Coal Canyon.
- Provide a link or links to other subareas/subregions, particularly the South NCCP Subregion.
- Incorporate other biologically important habitat as practical and to the degree consistent with manageability considerations.

SECTION 3.6 RESERVE DESIGN SYNTHESIS PROCESS

The information gained and summarized in the foregoing sections was synthesized to produce the Central/Coastal Subregion Reserve System. The synthesis required identifying already protected natural areas, determining which additional areas were necessary to meet subarea objectives, and formulating a reserve map reflecting the synthesis.

3.6.1 Identification of Valuable Protected Natural Areas

Presently protected habitat was identified through the land use inventory, which included various types of natural open space status. Protected habitat includes areas managed for habitat protection (state parks, ecological reserves), other publicly owned natural open space (regional parks), natural open space which is committed to public dedication when specified development activities occur (*i.e.*, phased dedication programs), and lands designated as open space in adopted local general plans. Protected natural areas encompassed 15,660 acres of wildlands in the Central and Coastal subareas. Overlaying the habitat evaluation maps with the inventory of protected natural areas revealed an overall pattern of habitat value and protection. Large areas of highly valued habitat were already being preserved in both the Central and Coastal subareas, anchored by the Limestone-Whiting Wilderness Park and Weir Canyon dedication areas in the Central Subarea, and by the Emerald Canyon, the Laguna Greenbelt, and Aliso and Wood Canyons Regional Park in the Coastal Subarea.

3.6.2 Identify Unprotected Natural Areas Important to Reserve Function

The inventory of protected natural areas was compared to the Subarea Reserve Design Objectives outlined above to identify areas where essential reserve functions were not provided by the presently protected natural areas. The conservation values of unprotected natural areas, identified through the habitat evaluation process above were considered along with the Subarea Reserve Design Objectives to define which unprotected areas were essential to reserve function, which unprotected areas were desirable (but not essential) to reserve function, and which unprotected areas would contribute little or nothing to the reserve.

The NCCP/HCP evaluation of unprotected natural areas to determine their importance considered both reserve functions and conservation values. As described above, when a high value area was not entirely protected, the importance of protecting the function of other high value areas (such as redundant linkage) became increased to ensure that a particular Reserve Design Objective could be met. The relative importance of the five habitat evaluation factors described in Section 3.4 (block size, contiguity/proximity, linkage, biodiversity, target species populations, and boundary manageability) changed as different non-protected areas were evaluated. In some places the linkage function would be the primary value in an unprotected area, in others the values of large blocks of habitat was the primary factor, and in still others boundary manageability values were the most important.

3.6.3 Formulation of a Preliminary Reserve Concept

Synthesis of the conservation values, already protected natural lands, and unprotected natural lands important to reserve function produced a preliminary reserve concept for the Central and Coastal Subregion. The preliminary concept took maximum advantage of the lands that are already protected, and built upon that base to achieve both the overall Biological Goals and Objectives set forth in section 3.1 and the Subarea Reserve Design Objectives set forth in section 3.5. The preliminary reserve concept is shown on Figure 11 and Table 3-1.

Habitat areas included in the preliminary reserve were identified as one of four categories to indicate the primary reason for their inclusion in the reserve. These reserve habitat categories reflect the various Biological Goals and Objectives outlined in Section 3.1. The categories are as follows.

Table 3-1
COASTAL AND CENTRAL SUBREGION NCCP/HCP
Preliminary Habitat Reserve Concept:
Habitat Acreages and Target Bird Species*

Habitat Type	Acreage	Target Bird Species Counts			
		Gnatcatchers		Cactus Wrens	
		Singles	Pairs	Singles	Pairs
0 Other			2	1	2
1 Dunes					
2 Scrub	19,932	36	166	112	327
3 Chaparral	7,894	4	10	13	44
4 Grassland	6,44	9	28	25	60
5 Vernal Pool	23				
6 Marsh	28				
7 Riparian	1,938		6	8	6
8 Woodland	869		1	2	5
9 Forest					
10 Cliff / Rock	216				
11 Marine / Coastal	66				
12 Lakes Reservoirs	181	1	1		
13 Watercourses	200		1		1
14 Agriculture	756	2	2	5	4
15 Developed	1,285		4	4	3
16 Disturbed	1,096	1	4	4	5
Reserve Totals	40,928	53	225	174	457

* Based on GIS database as of 4/15/94. Subject to change based on inclusion of Spring Survey data for 1994.

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- Target species habitat: areas with significant coastal sage scrub components and target species populations. Habitat areas in this category make up the "core" of the reserve. (Primarily goals 1, 2, 3 and 7.)
- Habitat linkage: areas of natural habitat with coastal sage scrub and other habitats that are especially important as linkages. (Primarily goals 3, 4, and 5.)
- Biodiversity habitat: areas with minimal to modest coastal sage scrub and/or target species that contribute toward a more diverse and manageable reserve. (Primarily goals 2, 3, 4, 6, and 7.)
- Restoration opportunity: areas that are currently subject to intensive agricultural or functionally similar land uses (*e.g.*, landfills) where restoration would add coastal scrub in key linkage areas and/or contribute to a more manageable reserve boundary. (Primarily goals 1, 2, 3, 4, and 7.)

Special Linkages and Management Areas: areas where proposed development or existing land use (*e.g.*, private open space, park or golf course) provides either 1) an opportunity to voluntarily conserve target species in an area which would otherwise be difficult to acquire and manage effectively, or 2) an area where proposed land uses are potentially compatible with connectivity functions. Projects will be designed to enhance connectivity functions in these locations (primarily goals 1 and 5).

In the Coastal Subarea, the subarea reserve design objectives were achieved in the following manner:

- core habitat was included throughout the San Joaquin Hills;
- peripheral areas were included in the reserve to function as refugia and recolonization sources in the event of fire or other catastrophic event, and included Crystal Cove State Park, the Sand Canyon Reservoir area, Sycamore Hills, the Aliso and Wood Canyons, Buck Gully and Upper Newport Bay;
- linkages were provided between core habitat and peripheral areas as follows:

- Crystal Cove State Park to the San Joaquin Hills via Los Trancos Canyon and Muddy Canyon
 - the Sand Canyon Reservoir area to the San Joaquin Hills via Quail Ridge and a special linkage zone oriented around a proposed golf course in lower Shady Canyon
 - Sycamore Hills, Aliso and Wood Canyons to the San Joaquin Hills via Laguna Canyon
 - Buck Gully to the San Joaquin Hills and Los Trancos Canyon via special linkage in a homeowners open space area on the frontal slopes of Pelican Hill
 - Buck Gully and San Joaquin Reservoir area via a special linkage through El Capitan Park
 - Upper Newport Bay and the San Joaquin Reservoir area to the San Joaquin Hills via a restored Bonita Creek corridor
 - The north slope of Signal Peak to the San Joaquin Hills via a wildlife crossing under the San Joaquin Hills Transportation Corridor
 - Additional linkages associated with the SJHTC EIR/EIS and FESA Section 7 Consultation;
- a linkage between the Coastal subarea and the Southern Orange County NCCP Subregion was provided through the Salt Creek corridor. This linkage indirectly connects the Central and Coastal subareas via the Southern Subregion. A linkage directly connecting the Central and Coastal subareas was considered and rejected due to doubtful feasibility in light of the need for major restoration of agricultural lands and acquisition of large acreage in an urbanized part of the subregion, much of which is already heavily developed;
 - other biologically important habitat was incorporated as practical and consistent with manageability considerations, including the Laurel Canyon area, Aliso/Wood Canyon,

and upper Los Trancos Canyon. The biodiversity in the Coastal subarea reserve is illustrated by the fact that over half of the proposed reserve is in non-CSS habitat types;

In the Central Subarea, the subarea reserve design objectives were achieved in the following manner:

- core habitat along the frontal slopes of the Lomas de Santiago and in and adjacent to Weir Canyon was included in the reserve;
- several areas with locally high densities of gnatcatchers and cactus wrens were included in the reserve, including the magazine area of MCAS El Toro, the Siphon Reservoir area and the Rattlesnake Reservoir area;
- linkages between the core habitat areas and the high concentration areas were provided as follows;
 - MCAS El Toro magazine area to core habitat via a long strip of natural habitat between Portola Parkway and the Foothill Transportation Corridor
 - Linkages in the form of consolidation of the Lomas de Santiago frontal slopes, Siphon Reservoir area, and Rattlesnake Reservoir area into a habitat block (by elimination of 1,895 acres of designated development areas);
- linkages through the East Orange area were provided through a number of corridors connecting the Lomas de Santiago and habitat areas north of Santiago Creek and west of Irvine Lake. A similar linkage between Weir Canyon and Coal Canyon is provided through Windy Ridge;
- linkages to other subareas are provided through the Coal Canyon area to the north toward the Chino Hills. Linkages to the Southern Orange County NCCP Subregion were provided via a higher elevation linkage northeast of Cooks Corner and a lower elevation linkage through Whiting Ranch Regional Park and lands owned by Southern California Edison;
- other biologically important habitat was incorporated as practicable and consistent with manageability considerations, including land in the Limestone Canyon, Santiago

Canyon Sierra Peak, and Coal Canyon areas. The biodiversity in the Central Subarea reserve is illustrated by the fact that over half of the reserve is in non-CSS habitat types;

Upon completion, the Preliminary Reserve Concept encompassed 40,928 acres, including 19,932 acres of coastal sage scrub.

3.6.4 Designation of “Special Linkages” to Supplement the Reserve

In addition to the lands designated for inclusion in a habitat Reserve System, the preliminary reserve concept was supplemented by the designation of other non-reserve lands called “Special Linkages.” These “Special Linkages” were not considered “essential” areas for inclusion within the reserve; nor were they envisioned to be actively managed as a part of the “adaptive management program.” The “Special Linkages” were designated as areas that contained “target” species or biological habitat that could enhance connectivity between elements of the Reserve System. The Reserve System habitat management policies would not govern uses/activities within such non-reserve linkages.

Functionally, these linkages included areas where proposed development or current uses (*e.g.*, private open spaces, parkland, golf courses, or low density residential uses) would provide either an opportunity to conserve habitat useful for biological connectivity or support of target species while permitting compatible non-habitat uses. Examples of Special Linkages designated to supplement the preliminary reserve concept included (Figure 11):

- Coastal Subarea
 - the frontal slopes of Pelican Hill
 - the proposed Shady Canyon Golf Course
 - El Capitan Park
 - Coyote Canyon Landfill

- Central Subarea
 - the proposed golf course along Limestone Creek
 - lands along Santiago Creek and northeast of Irvine Lake
 - a linkage in the Mountain Park Specific Plan area

SECTION 3.7 AGENCY, LOCAL GOVERNMENT, AND WORKING GROUP REVIEW

Upon completion, the Preliminary Reserve Concept was circulated to the resource agencies, Orange County, members of the state's Scientific Advisory Panel and other experts, landowners, and representatives of environmental interest groups for review and comment. During this time, additional biological data became available, consisting of target bird surveys covering wildland areas not included in the original GIS data base. These surveys were conducted in the spring of 1994 by Sweetwater Environmental Biologists, and are described in their report included in Appendix 7.

SECTION 3.8 FORMULATION OF THE PROPOSED RESERVE DESIGN

The next step in the reserve design process involved formulation of the “proposed” reserve design that provided the basis for preparation of the Draft NCCP/HCP policies and adaptive management program and completion of the Draft EIR/EIS and was circulated for public review and comment. The Preliminary Reserve Concept was re-evaluated in consideration of the comments received and the additional biological information gathered in the spring of 1994. Comments included suggestions to improve biological reserve function and comments identifying several parcels of land owned by unwilling sellers with imminent development plans. Revisions and refinements were made to the proposed reserve as deemed appropriate by the project biologist, considering biological reserve functions and re-evaluation the need for non-available lands in light of reserve functions. In addition, certain lands included in the reserve in the concept were taken out of the reserve and included in the “special linkage” category at the request of cities and landowners.

Table 3-2 provides a statistical summary for the proposed reserve design. It details the habitat types and the target bird sites included in the proposed reserve. The boundaries of the proposed Habitat Reserve System were displayed in Figure 12 of the Draft NCCP/HCP.

**Table 3-2:
PROPOSED RESERVE VEGETATION AND TARGET SPECIES**

Vegetation	Reserve	Special Linkage	Existing Use	Non Reserve Open Space	Policy Plan Area	National Forest OS	National Forest Private	Other Non Reserve	Total
Area in Acres									
Dunes						9	8	2	18
Scrub	18,831	458	792	278	3,003	1,727	1,832	7,472	34,392
Chaparral	7,290	18	355	82	5,267	13,106	6,510	2,590	35,218
Grassland	6,104	498	442	1,453	692	102	345	12,239	21,874
Vernal Pools	9	2		0				42	53
Marsh	344		1	230				83	657
Riparian	1,818	125	87	361	224	804	495	1,213	5,126
Woodlands	951	19	42	53	155	252	178	270	1,920
Forest	191				4	563	43	3	804
Cliff and Rock	74	7	1	1	14	29	12	35	173
Marine and Coastal	362		4	4				1,561	1,930
Lakes, Reservoirs, Basins	84	10		802			0	460	1,357
Water Courses	197	1	4	15			9	558	784
Agriculture	576	83	25	73			21	12,488	13,266
Developed	923	206	210	400	28	3	250	81,110	83,131
Disturbed	985	459	141	208	69	10	59	6,077	8,009
Total	38,739	1,886	2,104	3,960	9,456	16,605	9,762	126,202	208,713

Gnatcatcher Total Sightings	381	22	65	11	5			116	600
Cactus Wren Total Sightings	674	40	52		14			214	994
Total Sightings	1,055	62	117	11	19	0	0	330	1,594

CSS Total Acres	18,831	458	792	278	3,003	1,727	1,832	7,474	34,392
OW Total Acres	17,422	680	936	3,002	6,357	14,864	7,599	19,055	69,896
DDA Total Acres	2,484	749	377	681	96	14	331	99,675	104,405

Notes

CSS - Coastal Sage Scrub Habitat
 OW - Other Wildland Habitat
 DDA - Developed, Disturbed and Agricultural

- 1) Target Species Sites in the National Forest are excluded from this analysis
- 2) Target Species impacted by Corridor Projects are excluded from this analysis.

The current Figure 12 no longer shows the proposed reserve design. It was subsequently updated following the public approval process to reflect the Final Reserve System boundaries adopted by the Board of Supervisors and discussed in the next section). The approved Reserve System included 38,738 total acres and 18,831 acres of CSS habitat. The reserve configuration was, in the best professional judgment of the project biologist, biologically viable and met all of the Biological Goals and Objectives set forth in Section 3.1 and the Subarea Reserve Design Objectives set forth in Section 3.5.

For the reasons set forth in Section 3.9, the Draft NCCP/HCP and proposed reserve design were modified to address comments submitted by interested local government jurisdictions.

SECTION 3.9 THE FINAL RESERVE DESIGN: DESCRIPTION OF THE CHANGES TO THE RESERVE SYSTEM AND SUPPORTING GEOGRAPHIC COMPONENT BOUNDARIES RESULTING FROM THE PUBLIC REVIEW PROCESS

During the public comment period for the NCCP/HCP, the cities of Anaheim, Dana Point, Laguna Beach and Laguna Niguel requested boundary changes that affected the boundaries of the habitat reserve, Existing Use Areas and Special Linkages. The reasons provided by the cities for the requested boundary changes included the following:

- the city has not agreed to manage reserve lands in accordance with the NCCP/HCP;
- the boundaries include existing development or activities that are incompatible with reserve management policies;
- the boundaries are based on mapping errors (e.g., incorrect vegetation data);
- there is a need to provide for existing and future fuel modification areas adjacent to existing residential development;
- the areas deleted from the reserve are regraded slopes that will require ongoing maintenance;

- land uses have been planned for the subject areas that are not permitted within the reserve under the NCCP/HCP; or
- EMA adjusted the boundaries of the reserve where appropriate to reflect ownership boundaries.

These local government requests resulted in changes to the reserve, existing use area and special linkage boundaries that were incorporated into the Final NCCP/HCP, FEIR/FEIS and Final Implementation Agreement. These changes are summarized below.

3.9.1 Changes to the Habitat Reserve System

The changes to the proposed habitat reserve boundary are depicted in Figures 74 and 75 (showing the types/locations of map changes), in Table 3-3 below and in other tables, maps and text numbers contained in the Final NCCP/HCP, FEIR/FEIS and Implementation Agreement.

Some areas formerly included in the habitat Reserve System were shifted to non-reserve, special linkage, existing use area, non-reserve open space and North Ranch Policy Plan Area designations. In addition, other areas formerly located outside the reserve are now included in the reserve (see the following summary Table 3-3).

Areas deleted from the Reserve System reflect the following technical considerations:

- correcting GIS mapping errors identified by the commenting cities (e.g., mapping areas as natural habitat when they are already developed);
- correcting registration problems related to compiling GIS information from different databases;

- deleting open space from the reserve because it consists of existing/future man-made slopes that must be regraded/maintained for geotechnical reasons; or
- providing for fuel modification zones adjacent to already existing residential areas.

Table 3-3
SUMMARY OF RESERVE SYSTEM CHANGES

	<u>Transferred to the Reserve (acres)</u>	<u>Transferred From Reserve to Other Categories (acres)</u>	<u>Net Change to Reserve</u>
<u>Non-Reserve</u>	<u>308</u>	<u>1,281</u>	<u>(973)</u>
<u>Special Linkage</u>	<u>14</u>	<u>45</u>	<u>(31)</u>
<u>Existing Use Area</u>	<u>0</u>	<u>392</u>	<u>(392)</u>
<u>Non-Reserve Open Space</u>	<u>43</u>	<u>29</u>	<u>14</u>
<u>North Ranch Area</u>	<u>49</u>	<u>36</u>	<u>13</u>
<u>Total Changes</u>	<u>414</u>	<u>1,783</u>	<u>(1,369)</u>

The overall reserve size was reduced by a total of 1,369 net acres (from 38,738 acres to 37,378 acres), including 279 acres of CSS, 327 acres of chaparral, 363 acres of grassland, 48 acres of riparian and 12 acres of woodlands habitat. The reserve changes also reduced the amount of developed/disturbed lands in the reserve by 283 acres. Most of the revisions to the Central Subarea reserve reflect technical modifications necessary to correct GIS registration. Additionally, not all of the 1,369 acres taken out of the reserve would result in loss of protection under the NCCP/HCP and much of the change involves areas that are not natural habitat.

The change in reserve boundaries decreased the number of gnatcatcher sites protected under the NCCP/HCP by 11 sites. However, as discussed below, the number of gnatcatcher sites authorized for take actually decreased by 8 sites due

to increases in the lands designated as “Existing Use Areas” that resulted in 22 additional gnatcatcher sites being excluded from take authorization.

3.9.2 Changes to Existing Use Area Boundaries

The total area included within Existing Use Areas increased by 1,692 acres as a result of the boundary changes. The increases occurred in the cities of Costa Mesa, Orange, Anaheim and Laguna Niguel.

The City of Laguna Niguel declared that it had not committed to manage its lands consistent with the NCCP/HCP. This declaration required the Salt Creek Corridor, Chapparosa Park and other areas be deleted from the reserve design. Because of the presence of CSS and target species sites and the important biological connectivity provided within this corridor, these areas were designated “Existing Use Areas.” The shift of lands in the City of Laguna Niguel from “reserve” to “Existing Use Areas” increases the acreage in the latter category by about 390 acres. Additional acreage within the City of Laguna Niguel shifted from a “non-reserve” to an “Existing Use Area” designation.

The remaining increases in the “Existing Use Area” category (about 1,200 acres) resulted from re-designating areas shown as “non-reserve” by the “proposed” reserve design in the cities of Anaheim (e.g. the Coal Canyon area) and Costa Mesa (e.g. lands near the mouth of the Santa Ana River) to the “Existing Use Area” designation under the approved NCCP/HCP.

Incidental Take is not authorized under the NCCP/HCP in Existing Use Areas. The boundary changes resulted in a total of 22 additional gnatcatcher sites being included within the Existing Use Areas. Seven of the additional gnatcatcher sites within this category were previously included within the reserve (Salt Creek Regional Park). All but three of the other new gnatcatcher sites in this category were previously within the non-reserve areas. Cactus wren sites within the

“Existing Use Areas” increased by 13 sites as a result of the final changes to the boundaries.

3.9.3 Changes to Special Linkage Area Boundaries

Special linkage areas are increased in size by 20 acres when compared with the draft reserve design. These changes also resulted in a net decrease of two gnatcatcher sites within “Special Linkages.” Except as specifically provided for in the Implementation Agreement, the NCCP/HCP does not authorize Incidental Take of listed species habitat in special linkage areas.

3.9.4 Changes to the Non-Reserve Area

As indicated in the Table 3-3, 1,281 acres were deleted from the reserve category to the non-reserve category while 308 acres were moved from non-reserve category to the Reserve System. However, other former “non-reserve” areas in the subregion (e.g. in the cities of Costa Mesa, Laguna Beach, Laguna Niguel and Anaheim) were re-designated “Existing Use Areas.” Therefore, the net result was a decrease of 260 acres in the total non-reserve category within the subregion.

3.9.5 Other Changes

Minor acreage revisions have been made to the non-reserve open space and North Ranch Policy Plan categories. These changes were not considered significant.

3.9.6 Conclusions: Evaluation of the Effect of Boundary Changes on Consistency of the NCCP/HCP with FESA, CESA and the NCCP Conservation Guidelines

The boundary revisions incorporated into the NCCP/HCP Reserve System as result of local agency and other comments were evaluated to determine whether they would affect the draft “consistency” findings contained in the Draft EIR/EIS and draft Implementation Agreement. For the reasons set forth below, the County staff, after consultation with the wildlife agencies, has determined that the boundary revisions incorporated into the NCCP/HCP result in a subregional conservation strategy consisting of the habitat Reserve System, supporting geographic components, adaptive management program and Implementation Agreement that is consistent with the requirements of FESA, CESA and the NCCP Conservation Guidelines because:

- Revisions to reserve boundaries did not impact core habitat areas or areas containing significant target species populations.
- Boundary revisions did not authorize take of habitat within areas considered important to subregional and regional biological connectivity.
- Boundary revisions did not significantly reduce the total amount of CSS habitat protected within the Reserve System and other supporting geographic components and actually result in a net increase in the number of gnatcatcher sites protected under the NCCP/HCP.
- Many of the changes to the habitat reserve consisted of corrections to the GIS database requested by local governments; these changes affect peripheral areas that were incorrectly mapped as natural habitat, but already have been developed/disturbed and no longer provide habitat value.
- Corrections to the Reserve System boundary were related to GIS registration/translation problems resulting from combining different databases (e.g., in the Mountain Park area) and did not impact habitat value or reserve function.

- Other peripheral areas deleted from the reserve are existing or necessary future fuel modification areas and, therefore, did not provide important habitat value.
- Deletion of the Salt Creek Regional Park (City of Laguna Niguel) and loss of active management within this important linkage corridor was mitigated by its designation as an “existing use area,” a designation that prohibited impacts to occupied habitat containing coastal California gnatcatchers or other listed species without USFWS authorization.
- The expanded existing use area designations at the mouth of the Santa Ana River and in the cities of Laguna Niguel, Laguna Beach, Orange and Anaheim maintained existing USFWS regulatory authority on additional natural areas that contain CSS habitat and either:
 - are occupied by target and Identified Species, or
 - may be occupied by gnatcatchers and/or other listed species but field surveys were not available at the time the NCCP/HCP was prepared.
- the total acreage included within all of the “protected” categories actually increased by more than 200 acres as a result of the boundary changes (protected areas include the reserve, Special Linkages, Existing Use Areas, non-reserve open space and the Policy Plan Area)
- Based on the above determinations, the boundary revisions did not alter the findings contained in the DEIR/DEIS concerning consistency of the NCCP/HCP with the tenets of reserve design set forth in the NCCP Conservation Guidelines.
- Also based on the above determinations, the boundary revisions did not affect the conclusions reached in the DEIR/DEIS regarding the contributions of the Reserve System to mitigation on the part of *participating landowners*, and these revisions do not affect the conclusions reached regarding “levels of significance” of authorized take set forth in Chapter 8 of the EIR/EIS.

SECTION 3.10 HABITAT CONSERVATION VALUES IN RELATION TO THE PROPOSED AND FINAL RESERVE DESIGNS

The long-term conservation value of the remaining wildlands was the most important factor considered during formulation of the habitat reserve design. Outside the Congressional Boundaries of the Cleveland National Forest, about 70,000 acres of wildlands remain within the subregion. Additional disturbed and agricultural lands are located outside urbanized areas. Section 3.4, including the graphic information presented in figures 9 and 10, evaluated the relative conservation value of the subregion's remaining wildlands.

Section 3.4 used two approaches to evaluate potential conservation value. Both approaches categorized lands as having high, medium or low conservation value. However, one approach evaluated and classified potential conservation value without considering a limit on the amount of CSS classified as "high value" (see Figure 9) while the other approach limited the amount of CSS categorized as having "high" and "low" conservation value (Figure 10). As noted in Section 3.4, the latter approach is based on the "Interim Protection" provisions included in the NCCP Planning Guidelines.

The "no threshold" habitat evaluation illustrated in Figure 9 appears to be best suited to evaluating conservation value for habitat reserve design purposes because it does not impose an artificial limit on the amount of CSS habitat that can be designated as having a "high conservation value." Using the "no threshold" evaluation approach:

- almost 50 percent (more than 34,000 acres) of the total remaining wildlands within the subregion are designated as lands having "high" conservation value;
- 20 percent (about 13,000 acres) are "medium" conservation value lands; and
- 30 percent (about 22,000 acres) are "low" value lands.

3.10.1 CONSERVATION VALUE OF LANDS IN THE "PROPOSED RESERVE"

Figure 13 overlays the distribution of high, medium and low conservation lands as illustrated in Figure 9 for the proposed reserve design. Figure 13 and Table 3-4 combine to reveal the following reserve/habitat value relationships:

- about two-thirds (65 percent) of the lands included within the proposed reserve system are designated as high conservation value lands in Figure 9;
- the proposed reserve system contains almost three-quarters (73 percent) of the total acreage of high value conservation lands identified within the subregion; and
- about one-quarter (23 percent) of the high conservation value lands are located outside the habitat Reserve System in other non-reserve areas that could be subject to future development.

Table 3-4
CONSERVATION VALUE OF LANDS
WITHIN THE PROPOSED RESERVE

Reserve Category	Habitat Value (in Acres)				Total
	Low	Medium	High	Not Related*	
Target Species	841	2,368	19,489	935	23,632
Biodiversity	2,097	3,263	2,726	1,066	9,152
Habitat Linkage	620	964	2,489	504	4,577
Restoration	280	71	425	601	1,377
Total Reserve	3,837	6,666	25,129	3,106	38,738

* Areas in this category consist of: 1) wildlands where the primary value is for non-CSS habitat (*e.g.* Upper Newport Bay Ecological Reserve); 2) existing recreational facilities at parks incorporated into the reserve (*e.g.* Crystal Cove State Park); and 3) restoration opportunities.

As would be expected, given the above numbers for high conservation value lands, the relative share of the remaining "medium" and "low" conservation value lands contained within the Reserve System is much lower than the share of high value lands captured within the reserve. Whereas about 73 percent of the remaining high value lands are included within the reserve, only 17 percent of the remaining "low" value lands and about 50 percent of the "medium" value lands within the subregion are included within the proposed reserve system.

For the sake of comparison, if the "threshold" limit evaluation approach is applied (Figure 10) instead of the "no threshold" approach, the share of "high" value habitat captured within the proposed reserve system would be 68 percent of the remaining high value habitat (18,850 acres

out of a total of 27,605 acres). About 26 percent of the existing "low" value habitat and 66 percent of the "medium" value habitat would be included within the reserve. Thus, under either evaluation approach, the proposed reserve system emphasizes the capture of habitat lands having high conservation value.

The data presented in Figure 13 and Table 3-2 demonstrate that the reserve design process for the Central and Coastal Subregion resulted in a proposed habitat reserve system that focused on wildlands with high potential conservation value. This emphasis on including wildlands with high conservation value contributes directly to the multiple habitat, multiple species character of the reserve and capitalizes on prior open space dedication commitments. The benefits of this reserve design process in terms of subregional biodiversity are illustrated by the descriptions of the Reserve System contained in Chapter 4. Tables 4-1 and 4-2, which summarize the habitat composition of the Reserve System in terms of both absolute acreage and as a percentage of the remaining habitat type within the subregion, demonstrate that the approved Reserve System is a multiple-species, multiple-habitat reserve.

Based on the reserve design and conservation strategy description presented in Chapter 4, the adaptive management measures set forth in Chapter 5, and the funding discussion in Chapter 6, it is reasonable to conclude that the approved reserve design provides the basis for long-term protection and management of CSS within the context of a multiple-species and multiple-habitat subregional conservation strategy.

3.10.2 CONSERVATION VALUE OF LANDS WITHIN THE FINAL RESERVE

Table 3-5 summarizes conservation value of lands included within the final reserve design approved by the Board of Supervisors, CDFG and USFWS. As indicated, the specific numbers within categories varied slightly as a result of the reduction in reserve acreage when the "Final" reserve boundaries were established. However, the relative share of "high" quality habitat versus "low" quality habitat within the Final reserve does not differ significantly from the ratios for "high" and "low" quality habitat for the "proposed" reserve identified in Table 3-4.

SECTION 3.11 COMPARISON OF OPEN SPACE COMMITMENTS PRECEDING THE SUBREGIONAL NCCP/HCP WITH OPEN SPACE/HABITAT PROTECTION UNDER THE FINAL NCCP/HCP

An evaluation and understanding of the biological reserve design process is enhanced by comparing the open space that would be provided within the subregion with and without the NCCP/HCP planning program. The following discussion identifies previous open space lands and regulatory decisions that were incorporated into the NCCP planning process to formulate the reserve design. Three components of the Reserve System are identified and described that, together, make up the reserve design:

- public open space lands existing prior to the NCCP/HCP;
- future open space dedications committed to (but not yet dedicated) by TIC under development approvals prior to the NCCP/HCP; and
- additional open space lands specifically provided for by this NCCP/HCP.

**Table 3-5
CONSERVATION VALUE OF LANDS WITHIN THE FINAL RESERVE**

Reserve Category	Habitat Value (in Acres)				Total
	Low	Medium	High	Not Related*	
Target Species	872	2,349	19,764	308	23,292
Biodiversity	2,079	3,208	2,633	801	8,721
Habitat Linkage	617	907	2,339	123	3,986
Restoration	265	124	806	184	1,379
Total Reserve	3,833	6,587	25,542	1,417	37,378

* Areas in this category consist of: 1) wildlands where the primary value is for non-CSS habitat (e.g. Upper Newport Bay Ecological Reserve); 2) existing recreational facilities at parks incorporated into the reserve (e.g. Crystal Cove State Park); and 3) restoration opportunities.

3.11.1 Public Open Space Existing Prior to Commencement of the NCCP/HCP

Prior to commencement of the NCCP/HCP planning process significant public open space was already set aside for habitat management and compatible recreational/cultural uses within the subregion. Of these public lands, appropriate open spaces totaling 14,948 acres have been included within the approved Reserve System. These existing public lands are located within

both the Central and Coastal subareas (refer to Figure 14 and Table 3-6), and include regional and wilderness parks managed by the County of Orange EMA, other regional parks/open space managed by cities located within the subregion (e.g., City of San Juan Capistrano and Laguna Beach open spaces), the Crystal Cove State Park, and the Upper Newport Bay and Coal Canyon ecological reserves managed by CDFG.

As a result of review and comments received following completion of the preliminary and proposed reserve concepts, the CDFG Upper Newport Bay Reserve and two county regional parks (Talbert Regional Park and Upper Newport Bay Regional Park) were incorporated into the final reserve design. These public lands total 1,022 acres and provide important biodiversity habitat.

Based on the final reserve design, the public open spaces that are included within the Reserve System now total more than 5,900 acres of CSS habitat and about 7,000 acres of other wildlands. These public areas also include all of the major habitat types extant within the subregion. In addition, these areas contain 112 of the gnatcatcher sites and 211 of the cactus wren sites that were identified during the 1991/1992 and 1994 bird surveys conducted as a part of NCCP/HCP planning. Thus, more than 29 percent of the gnatcatcher sites, 31 percent of the cactus wren sites, and 31 percent of the CSS habitat contained within the approved reserve is included within the existing open space.

3.11.2 Dedications of Open Space Included in the Reserve System Pursuant to Existing Entitlement Agreements

In addition to the already existing public open space within the subregion, significant lands have been designated for future phased dedication as public open space by TIC and local governments as part of entitlement agreements (Figure 14). Lands committed to future phased dedication as public open space under these TIC entitlements are located within both the Central and Coastal subareas. These dedication lands include a total of 17,877 acres of natural lands: 11,700 acres in the Central Subarea and 6,177 acres within the Coastal Subarea components of the reserve.

In total, the phased dedication lands that are included within the Reserve System contain about 10,500 acres of CSS and 9,500 acres of other wildlands (about 325 acres are disturbed

or agriculture). These lands also contain 107 gnatcatcher sites and 318 wren sites. Thus, about 26 percent of the total CSS habitat and 28 percent and 47 percent, respectively, of gnatcatcher sites and cactus wren sites included within the subregional reserve are located within dedication areas.

The phased dedication lands provided for by these entitlements are discussed in more detail in the Joint EIR/EIS (Chapter 5, Minimization and Avoidance in the EIR/EIS).

3.11.3 New Open Space Added to the Reserve System Under the NCCP/HCP

The combination of existing public open space and phased open space dedications provides an excellent foundation for NCCP/HCP planning. However, the NCCP consulting team determined that even the substantial amount and strategic location of existing and planned open space dedications would not be adequate for purposes of assembling and implementing an effective subregional Reserve System and management program.

Therefore, the subregional NCCP/HCP recommends that additional lands, totaling 4,777 acres of natural open space, be incorporated into the Reserve System. Figure 14 illustrates the location of the additional lands that are included in the subregional Reserve System. Lands designated as part of the reserve include:

- 3,001 acres currently owned by TIC that currently are general-planned for residential use;
- 1,033-acres within the El Toro Marine Corps Air Station owned by the Department of Defense (DOD);
- the privately-owned 120-acre Santiago Ranch (excluding the existing 11-acre equestrian facility adjacent to Santiago Canyon Road);
- the 524-acre Barham Ranch property owned by the Orange Unified School District and Serrano Irrigation District; and

Table 3-6
EXISTING PUBLIC OPEN SPACE INCLUDED WITHIN
THE SUBREGIONAL HABITAT RESERVE

Facility	Acres
COUNTY OF ORANGE	
Aliso and Wood Canyons Regional Park	3,350
Irvine Regional Park	477
Laguna Coast Wilderness Park	1,876
Peters Canyon Regional Park	359
Santiago Oaks Regional park	384
Talbert Nature Preserve	211
Upper Newport Bay Regional Park	133
Weir Canyon Wilderness Park	210
Whiting Ranch Wilderness Park	1,377
CITIES	
Laguna Beach O/S	1,662
San Juan Capistrano O/S	<u>254</u>
STATE	
Coal Canyon Reserve (CDFG)	953
Crystal Cove State Park	2,807
Upper Newport Bay Reserve (CDFG)	678
University of California Irvine	<u>135</u>
<u>California Ecological Reserve in the Laguna Coast Wilderness Park (CDFG)</u>	82
Total Pre-Existing Public Open Space	<u>14,948</u>

- 99 acres owned by SCE adjacent to Portola Ranch, which would be added to other portions of the SCE corridor that are to be purchased by the County.

The county EMA is involved in ongoing negotiations with the SCE and owners of the Santiago Ranch and Barham Ranch to purchase these properties. It should be noted that only the TIC, DOD and SCE lands are considered essential to the long-term function of the Reserve System. Failure by the County to acquire the other ownerships would not be considered a breach of the Implementation Agreement or be grounds for revoking applicable state/federal permits.

A. Lands Located Along the Frontal Slopes of the Lomas de Santiago

All of the lands included in the Reserve System would enhance the long-term function of the Reserve System. However, the 1,033-acre El Toro MCAS and the 1,920-acre portion of the TIC property located east and south of the existing TIC phased dedication areas along the frontal slopes of the Lomas de Santiago are considered especially important to the function and viability of the subregional Reserve System (Figure 14). The El Toro property currently is used for training and magazine (ordinance) purposes. TIC acreage currently is designated for residential use by the City of Irvine General Plan. The current City of Irvine General Plan would permit construction of about 1,200 dwelling units on the 1,920 acres. It should be noted that an additional 214 acres of TIC frontal slope lands actually were acquired by the TCA from the TIC for inclusion in the reserve as partial mitigation for the ETC under the terms of the Biological Opinion for the ETC. This acreage surrounds the Siphon Reservoir, south of the ETC.

The biological significance of these lands is best understood when expressed in terms of the CSS habitat and target species populations that now exist within the 2,953-acre area that consists of the TIC and El Toro ownerships. The El Toro MCAS property currently contains 405 acres of CSS habitat and 92 gnatcatcher sites and 68 cactus wren sites. TIC-owned frontal slopes of the Lomas de Santiago currently entitled for residential use contain 1,157 acres of CSS and 48 gnatcatcher sites and 30 cactus wren sites. The frontal slopes and El Toro areas combine to account for only 14 percent of the Central Subarea reserve acreage and about eight percent of the total subregional reserve acreage. However, these lands provide target species and biodiversity habitat, and linkage areas containing major (source) gnatcatcher populations that account for:

- 23 percent of the total gnatcatcher sites within the overall Central/Coastal Subregion;

- 37 percent of the total gnatcatcher sites within the combined subarea reserve components; and
- 68 percent of the gnatcatcher sites located within the Central Subarea reserve component.

Thus, while the added lands total only 14 percent of the Central Subarea reserve, they contain 68 percent of the gnatcatcher sites within the subarea reserve. Similarly, these lands account for only 8 percent of the total subregional reserve area, but contain 37 percent of the subregional gnatcatcher sites in the reserve. Therefore, the importance of these two components to the Reserve System is much greater than indicated solely by the acreage total.

In addition to providing essential target species populations, the frontal slope and El Toro parcels are important to reserve design and function because their inclusion in the reserve would enhance habitat connectivity within the Central Subarea. Addition of these lands enables the creation of a continuous expanse of protected and managed open space extending in an east-west direction across the southern margin of the Central Subarea (Figure 14). Creation of this continuous band of open space links local population concentrations and allows extensive opportunities to cross the ETC and FTC(N) toll roads in both east-west and north-south directions. Because of the reserve design benefits related to inclusion of these areas in the reserve, the 1,033-acre portion of the El Toro MCAS and the TIC-owned frontal slope lands are regarded as important components of the future subregional habitat Reserve System.

B. Additional Lands Located Within the East Orange General Plan Area

In addition to the important lands located along the frontal slopes, significant new open space was designated for inclusion in the Reserve System within the already-approved EOGP area. Within the EOGP area, the NCCP/HCP adds 925 acres as additional reserve acreage (Figure 14) over and above the open space land provided for under the EOGP approval. New reserve areas are located along existing open space that has been identified in prior planning as providing important linkage functions. Specifically, these added lands will enhance north-south biological connectivity through the EOGP when compared with the plan approved prior to preparation of the NCCP/HCP by improving linkages connecting the habitat located along the frontal slopes of the Lomas de Santiago (refer to the prior discussion of El Toro/TIC-owned lands) and the CSS and other habitat areas located in and adjacent to Weir Canyon, the North Ranch Policy Plan Area, and the Cleveland National Forest. In the northeast corner

of the EOGP, the added reserve lands will improve biodiversity and reserve boundary manageability.

C. Additional Non-TIC Private Lands Located Within the Central and Coastal Subareas

The remaining portions of the new lands designated for inclusion in the Central and Coastal subarea reserves (totaling 743 acres of the 4,777 acres) provide a combination of core habitat, biodiversity, and habitat linkage functions that will enhance the long-term function of the Reserve System. These additional lands (743 acres) are non-TIC ownerships located within the Central Subarea. They include:

- the Barham Ranch (524 acres);
- Santiago Ranch (120 acres);
- SCE Corridor (99 acres in the Portola Ranch area); and

D. TIC Lands Located Within the Coastal Subarea

These lands were designated for inclusion in the Reserve System based on a review of existing entitlement/approved plans. An additional 152 acres of TIC land are provided to be included to the reserve in the Coastal Subarea. These lands are located adjacent to the SJHTC in the San Joaquin Hills (102 acres north and south of the SJHTC) along the Bonita Creek Corridor (eight acres), and adjacent to the Coyote Landfill (25 acres). Generally, these lands have been added to the reserve to improve biological connectivity and biodiversity within the Coastal Subarea component of the Reserve System.

Adjacent to the SJHTC, the added reserve lands are intended to enhance connectivity between the target species populations surrounding the Sand Canyon Reservoir and the central San Joaquin Hills and the Bonita Creek Corridor. In particular, the added lands will enhance the value of nearby SJHTC wildlife under crossings and facilitate movement of species along the northern and southern boundaries of the SJHTC between Bonita Creek and the San Joaquin Hills.

Additions to the Bonita Creek Corridor (totaling eight acres) are relatively small in size, but are important because they will enhance essential linkages connecting Upper Newport Bay and source populations of target bird species in the San Joaquin Hills and around the Sand Canyon Reservoir. This linkage is important both for target species and predators (*e.g.*, Coyotes) trying to make their way between the Upper Bay and the main reserve in the San Joaquin Hills. Maintenance and enhancement of these biological linkages is essential to the long-term function of the Reserve System consistent with FESA and NCCP Guidelines requirements.

E. Summary of Target Species and CSS Within the New Reserve Lands Designated by the NCCP/HCP Planning Process

The entire 4,777 acres of the private lands and DOD property designated for inclusion within the Reserve System contain 151 gnatcatcher sites, 145 cactus wren sites, and more than 2,300 acres of CSS habitat. In terms of the total Reserve System, these lands represent only about 14 percent of the total reserve area; however, they include about 40 percent of the total gnatcatcher sites and 22 percent of the cactus wren sites contained within the reserve boundaries. Finally, biodiversity within the reserve is improved by the addition of these lands and connectivity is enhanced both within Central/Coastal subregion reserve and between this subregion and the adjacent Southern NCCP reserve that is currently being formulated.

SECTION 3.12 SUMMARY OF RESERVE DESIGN ALTERNATIVES THAT WERE CONSIDERED AND REJECTED DURING THE PLANNING PROCESS

The preceding section described why existing public open space and open space dedication commitments that preceded the NCCP/HCP planning were supplemented by the inclusion of other lands to create the subregional habitat reserve. This concluding section explains why certain design alternatives that were suggested during the formulation of the Reserve System were considered but not incorporated into the Final Reserve System.

During the NCCP/HCP planning period, and concurrent with the preparation of the Draft reserve design and NCCP/HCP document, a number of significant reserve alternatives/modifications were suggested by interested parties and considered. In response to these suggestions and ongoing review of the 1994 survey data a number of design modifications were evaluated.

The major reserve design alternatives that were considered and rejected during the reserve design planning process are identified and briefly discussed below. These discussions are designed to allow the reviewer to better understand the biological planning process, but they are not intended to exhaustively include all relevant information related to each design alternative. Additional discussion of these design alternatives is contained in Chapter 5 of the EIR/EIS (Minimization and Avoidance).

3.12.1 Reserve Alternatives Relating to Both the Central and Coastal Subareas

Establish a habitat corridor linking the Central and Coastal subarea portions of the Reserve System.

Environmental interests involved in the reserve design process suggested creating a north-south biological connection that would link the major blocks of habitat located within the Central and Coastal subareas. The corridor connection suggested would have enhanced the San Diego Creek alignment northerly of the TIC Spectrum project to link the Coastal Subarea to the southerly extension of the 1,033-acre El Toro MCAS. The Consulting team considered the proposed corridor linkage and discussed such a linkage with reviewing agency biologists.

The Central and Coastal subarea reserves approach one another most closely in the vicinity of the MCAS El Toro magazine area and the open space between TIC's Spectrum 5 project and Laguna Canyon Road. Ideally, a connecting habitat linkage would follow a natural watercourse across this gap. However, the major watercourse adjacent to the Coastal reserve in this area, San Diego Creek, flows through an intensely farmed area and an existing densely developed urban area rather than forming a connection to the El Toro magazine area, as does a secondary tributary, Serrano Creek. The preferred type of connection, which would be riparian-centered, is not feasible. Alternatively, a linkage in this area would require acquisition of roughly 1,000 acres (assuming a corridor 1/10 as wide as long, a fairly modest width) of agricultural lands and developed portions of the MCAS El Toro Base, removal of existing structures and improvements, and restoration of this area to native habitats. Because of intensive uses presently on the land, habitat restoration would be particularly problematic given the absence of native soils, residual seed banks etc. that are associated with more successful projects. The costs that would be incurred (involving both expensive land acquisition from unwilling sellers and very extensive habitat restoration) to attempt a rather narrow, linear linkage through already urbanized/farmed areas make such a corridor very difficult and speculative at best. Discussions between the project biologist and agency staff

confirmed their consensus that available resources would be much more productively used for other more reliable and productive management measures (e.g., controlling exotic/invasive species within the reserve, and implementing fire management measures).

Finally, the final reserve design incorporates alternative, more feasible corridor/linkages between the Central and Coastal subareas. These alternative linkages connect the Central and Coastal subareas via the proposed Southern NCCP Reserve System. The Coastal Subarea linkage to the Southern NCCP area is via Trabuco Creek. Trabuco Creek crosses under the I-5 freeway where the Southern NCCP subregion meets the Coastal Subarea. Animals can use this under crossing to move back and forth between the subregions. This linkage extends through the Southern NCCP Reserve System via the Trabuco Creek and O'Neill Regional Park to link with the Central Subarea north of the Oso Reservoir via the SCE corridor habitat linkage adjacent to Portola Ranch.

Because of the extreme costs associated with the San Diego Creek alternative, the speculative biological value of the resulting connection, and the available linkage of the two subareas through the Southern NCCP Subregion, this reserve design alternative was judged to be infeasible and inadvisable.

3.12.2 Alternatives Relating to the Central Subarea

A. Include the Tustin Ranch Parcel

The Tustin Ranch parcel is an undeveloped 200-acre parcel located immediately south of the Peters Canyon Regional Park in the City of Tustin. It is zoned for residential use. Because the parcel contains more than 100 acres of CSS and relatively high densities of gnatcatcher (18 sites) and cactus wren (16 sites) populations, there was considerable discussion among program participants about the need to include the parcel within the Reserve System.

The most compelling reason to consider including the Tustin Ranch parcel is provided by the number of target species birds located onsite. It is not known whether the presence of the birds in the densities measured means that the site is a population "hot spot" or, whether it is a population "sink" that occurs because the gnatcatchers and cactus wrens have become concentrated on this site as surrounding CSS was cleared for development and agriculture during the past decade.

The alternative was evaluated within the context of three perspectives. The first factor addresses the issue of whether or not it is necessary to include the parcel in the reserve design. This issue focuses on the location of the site relative to the rest of the reserve. Because this parcel of land is located south of the Peters Canyon Regional Park, and southwest of the frontal slopes of the Lomas de Santiago, it is separated from the rest of the Central Subarea reserve. Clearly, it is not far enough from other reserve habitat to be considered totally isolated from the reserve; however, it is situated such that there is a question as to its long-term manageability and the long-term function of the reserve should not rely on the inclusion of this parcel and its habitat and resident target species. Therefore, while inclusion of the site within the reserve could enhance the reserve design, it was determined that inclusion was not necessary for assembling an effective reserve.

If the Tustin Ranch parcel was included in the Reserve System there is a real question as to whether it could be effectively managed over the long-term consistent with the purposes and policies of the NCCP/HCP. The conclusion reached by the NCCP/HCP was that this parcel could not be effectively managed on a long-term basis because:

- the area in question has extensive urban edge exposure and a relatively narrow band of CSS habitat that would be virtually surrounded by urban development;
- both in terms of management objectives and achieving maximum benefit from future reserve management funding, any attempt to manage this portion of the Tustin Ranch area on a long-term basis would require a disproportionate amount of funding and staff time to maintain target species because of the continuous human and domestic animal intrusions that would occur; and
- currently existing urban development and the presence of a large eucalyptus grove make it very likely that increasing pressure will be generated to eliminate potential fuel load in the form of CSS vegetation to reduce/eliminate future wildfire threats to adjacent residential development.

For these reasons, an effective adaptive management program does not appear to be feasible from either an economic or environmental perspective.

The analytic focus on whether inclusion would be “necessary” to designing the reserve, rather than merely determining whether inclusion might be desirable, is appropriate in this instance.

The subject property is owned by TIC. As a part of the reserve design process, TIC already would be providing more than 2,200 acres of habitat along the frontal slopes south of the ETC/FTC(N) alignment as part of the reserve design. As noted in Section 3.10.3, these TIC properties include major target species populations (48 gnatcatcher sites and 30 cactus wren sites) and provide an important habitat linkage function. More than 1,700 acres of this acreage is already designated for residential uses on the local government General Plan a fact that helps define the scope of the landowner's contribution to the reserve.

The other factor which was considered during the evaluation of this alternative is the timing and economic significance of proposed development. Whereas development of the other portions of TIC frontal slope lands located along the Lomas Ridge to the east is considerably in the future, development of the Tustin Ranch site is imminent. Thus, deletion of the residential uses on this site would have significant and immediate adverse economic impacts on the landowner and, therefore, potentially significant costs would be incurred if the NCCP/HCP included this site into the Reserve System.

Based on all of these considerations, the evaluation of the Tustin Ranch alternative arrived at the following conclusions:

- considering that the Tustin Ranch site would not function as an important linkage area within the reserve, it may be desirable, but it is not necessary to include the Tustin Ranch property within the reserve; and
- considering the size and importance of the frontal slope habitat already being provided by TIC in support of the reserve design, fairness dictates that TIC should not be requested to delete proposed residential uses on this site when it already is burdened with the responsibility of providing more than 2,200 acres of important core habitat and habitat linkage along the frontal slopes.

B. Re-design the East Orange General Plan (EOGP) area to create a wide north-south habitat corridor in the western portion of the EOGP.

An alternative was considered that involved the redesign of the EOGP. The redesign would delete proposed residential/commercial uses in the western portion of the existing plan and consolidate these uses in the central and eastern portions of the EOGP. The goal of this alternative would be to create a single, wide natural lands corridor in the western portion of

the planning area linking the frontal slopes of the Lomas de Santiago with Weir Canyon, the Policy Plan Area, and other areas to the north.

Consideration of this alternative demonstrated that a redesign of the EOGP to relocate and consolidate development in the eastern portions of the EOGP was not necessary to formulate a viable reserve design. This evaluation also determined that the "western corridor" alternative was not feasible.

Specifically, the EOGP was evaluated to determine whether alternative habitat linkage alignments/designs were available that would improve connectivity between the frontal slopes of Lomas de Santiago and Weir Canyon, the Policy Plan Area, and the Cleveland National Forest. As a result of that review, more than 900 acres of natural lands were added to the Reserve System, primarily along a central open space corridor extending from the frontal slopes to the northern edge of the EOGP, at the western edge of Irvine Lake. An original, narrower and more fragmented open space corridor along this alignment was part of the approved EOGP that preceded the NCCP/HCP. This enhanced corridor linkage, in combination with connectivity provided along the northwest and northern edges of the EOGP (also enhanced during the reserve design process), provide adequate connectivity between the frontal slopes and northern portions of the Central Subarea.

The alternative "western corridor" approach would require a time consuming and costly re-planning of the entire EOGP area. Existing approved uses in the western portion of the EOGP would be re-located to the central and eastern portions of the area under the alternative. This re-design effort could require several years and it would raise significant new issues that would need to be addressed.

- The western portion of the EOGP contains the most developable portions of the EOGP in terms of the availability of existing infrastructure and suitable terrain. The "western corridor" alternative would require committing the lands closest to existing infrastructure and with the gentler terrain to open space. Proposed residential/commercial uses would be deleted from this area and concentrated in areas located to the east that contain more rugged terrain and are located farther from existing infrastructure. Thus, the alternative would require development to move to lands where construction would be more expensive and the extension of infrastructure connections (roads, sewers, water, etc.) would involve construction through the newly created open space corridors. Under such circumstances,

it is not clear whether the intensity and level of development necessary to make the EOGP economically feasible could be attained if new development is re-located eastward.

- Finally, it should be noted that under the previous approval of the EOGP, the landowner committed to phased dedications of extensive natural lands within the City of Orange portion of the Lomas de Santiago, and in the Limestone Canyon areas. The EOGP amendment approved prior to the NCCP/HCP was based on implementation of a regional open space strategy. Accordingly, the EOGP approval included significant open space dedications and provisions for biological linkages as a part of the plan amendment approval. It should be noted that the NCCP/HCP reserve design includes modifications to the current EOGP that provide additional improvements to biological linkages within the EOGP. Section 3.10.3 summarized the EOGP open space changes that are a part of this NCCP/HCP.

In addition to the acreage along the Lomas de Santiago, the phased dedication commitments include more than 2,200 acres of wildlands in the Limestone Canyon area that are included within the reserve (more than 2,900 acres is included within the Limestone dedication area if the habitat dedicated as mitigation for the ETC is included). The TIC portion of the Limestone Canyon dedication is particularly important to the reserve design. It includes 1,300 acres of CSS. It contains important core habitat occupied by target species, biodiversity habitat (including regionally-significant oak woodlands and other sensitive species habitat), and habitat linkage areas. The phased dedication commitments generated by the EOGP represent a major portion of the core habitat within Coastal Subarea reserve area. These dedication commitments would have to be re-negotiated if the existing EOGP entitlements were to be amended to the extent required under the “western corridor” alternative.

While there is evidence to indicate that the “western corridor” alternative could work from a purely biological perspective for the reasons cited above, the suggested “western corridor” alternative was determined to be unnecessary and infeasible. Therefore, the alternative was rejected. Instead, the EOGP open space modifications shown on Figure 14 were incorporated into the reserve design. These reserve design modifications provide adequate biological linkage to the Lomas de Santiago frontal slope populations and to the Southern NCCP Subregion via Limestone Canyon and Whiting Ranch Wilderness Park. In addition, the NCCP/HCP reserve design will not require a major re-design of the EOGP that would

impact previous open space dedications that are essential to reserve function within the subarea.

C. Re-design of the Mountain Park Specific Plan area to reduce development in the Gypsum Canyon portion of the property.

A suggestion to redesign the Mountain Park Specific Plan was evaluated. This undeveloped specific plan area is located in the eastern portion of the City of Anaheim, along the northern edge of the Central Subarea and it includes Gypsum Canyon, Weir Canyon and the Windy Ridge areas. Like the EOGP area, this specific plan originally was designed to be part of a regional open space strategy.

The Mountain Park terrain is generally moderate to rugged, and elevations within the specific plan area generally are above the limits usually inhabited by the target species. This area is characterized by wider fluctuations in temperature than experienced by other areas favored by the target species. Orange throated whiptail lizards are found onsite but only two gnatcatcher sites and no cactus wren sites were identified during the bird surveys conducted in 1991/92 in accordance with the NCCP Survey Guidelines. There also is habitat that supports other sensitive biological resources (e.g., the San Diego horned lizard, Tecate cypress, etc.)

As a condition of approval of the specific plan, the City required the landowner to commit to the phased dedication of Windy Ridge and Weir Canyon as mitigation for the development of Gypsum Canyon. These dedication areas are incorporated into the reserve design. The Weir Canyon and Windy Ridge areas are directly linked to each other and the Coal Canyon Reserve and the EOGP open space to provide for a continuous open space link between the Cleveland National Forest and the frontal slopes of the Lomas de Santiago. In conjunction with the North Ranch Policy Plan Area, this corridor linkage adequately addresses the need for biological connectivity within the Central Subarea, and by providing the linkage to the National Forest, and from there, between the Central/Coastal Subregion and the Chino Hills area to the north. If the specific plan were to be re-designed, the open space dedications resulting from the previous approval would have to be re-negotiated and the availability of these areas for inclusion in the Reserve System could not be assured.

The Mountain Park area does not contain extensive target species habitat. It would not be necessary to include the Gypsum portion of the property in the reserve to provide for either important target species habitat or biological connectivity. Therefore, a re-assessment of the

existing Mountain Park Specific Plan was determined not to be necessary in order to formulate an effective reserve design in order to comply with FESA and NCCP Guidelines requirements.

D. Inclusion of the "islands" of natural open space located in the cities of Anaheim and Orange in the Reserve System.

During the 1994 spring target species surveys conducted as part of the NCCP/HCP (Sweetwater Environmental Biologists, 1994), a total of 80 gnatcatcher sites and 114 cactus wren sites were found in the scattered, remnant islands of natural habitat located within the cities of Anaheim and Orange, to the west of the Reserve System. These small "islands" of varying quality habitat range in size from 10 to 75 acres and most are located along the western extension of the frontal slopes of the Lomas Ridge. During the planning process, it was suggested that these "islands" of natural habitat be included in the subregional Reserve System because of the presence of a significant number of target species birds.

In response to this suggestion, inclusion of these scattered islands of habitat in the Reserve System was considered and discussed with the resource agencies. Based on the review of this alternative, it was determined that inclusion of these "islands" was not necessary to enable creation of an effective reserve design consistent with FESA and the NCCP Guidelines.

Only the habitat located within the Santiago Oaks Regional Park was included within the reserve. Other "islands" were designated as "Existing Use Areas," and not included in the reserve based on a determination that coordinated, long-term management consistent with the NCCP adaptive management policies would not be feasible. The habitat included within these other "islands" exists in a fragmented ownership pattern, including ownerships such as SCE, the City of Anaheim, special districts, various homeowner associations, and individual private owners. In order to assure the protection of these "islands" consistent with NCCP/HCP reserve policies, it would be necessary to purchase or in some other manner acquire an interest in the subject lands.

A review of the ownership characteristics indicated that it would be impracticable to superimpose the mandatory management and use policies of the NCCP/HCP on the existing fragmented uses/ownerships. For example, under the reserve management program policies, fuel modification zones must be located outside the reserve. Clearly, it would not be feasible to impose such a policy after the fact on small islands of open space that have been surrounded by residential and other development for decades. Accordingly, inclusion of the "islands" in

the Reserve System was rejected in favor of designating appropriate portions of the “islands” as “Existing Use Areas” outside the reserve. The “existing use area” designation is intended to permit uses other than habitat management on portions of the designated areas, while selectively maintaining biological linkages and Identified Species habitat to enhance the function of the reserve. The roles and distribution of “special linkage” and “Existing Use Areas” are discussed in Chapter 4.

E. Deletion or re-design of the ETC due to its adverse impacts on reserve design and function.

One of the alternatives proposed during the reserve design process by environmental interests focused on a request to consider deleting or re-routing the ETC through the Central Subarea to avoid habitat included within the Reserve System. If deletion was not possible, this alternative suggested re-locating the ETC westerly of the reserve to follow an alignment located within the developed portions of the cities of Anaheim and Orange.

While this alternative was being considered, the USFWS issued a Biological Opinion for the ETC (Dated July 6, 1994) that included the following conclusions concerning the ETC:

It is the biological opinion of the Service that the proposed project, including the mitigation and avoidance measures required by the Final EIS and Biological Assessment, and as modified by the additional mitigation measures proposed in the Federal Highway Administration’s final submittal to the Service (FHA 1994c), is not likely to jeopardize the continued existence of the coastal California gnatcatcher. (at p. 3, Appendix 8)

The Biological Opinion the USFWS also declared:

While the Service has only recently obtained some of the digital data for the Central and Coastal Subregional NCCP (Stine, USFWS, Pers. Comm.), we conclude at this time that the Loma Ridge NCCP reserve unit as currently designed, . . . and with management provided through the NCCP plan, will likely provide for the long-term viability of the gnatcatcher, and likely other coastal sage scrub associated species in this area. (at p. 22)

In summary, the Service concludes that the proposed project will not jeopardize the overall survival and recovery of these species or the maintenance of viable populations of the species

within the Northern Orange County Santa Ana Mountains and project "Action Area," primarily because of the habitat reserves created as part of the Central Subarea reserve design, and the substantial impact avoidance and compensation measures incorporated into the project description. Further, given these impact avoidance and compensation measures and the best scientific information, the Service concludes that the project-related bifurcation, the removal of coastal sage scrub habitat, and the indirect impacts likely will not impact the overall utility of the Northern Orange County Santa Ana Mountains as important, and probably essential, coastal cactus wren and gnatcatcher habitats and population centers. . . . (at p. 23)

Following the issuance of the Section 7 Consultation for the ETC, grading commenced for construction of the transportation corridor. The majority of the ETC right of way already has been graded as of the distribution of the draft NCCP/HCP.

In view of the specific findings prepared by the USFWS relating to the ETC, and in view of the fact that much of the grading necessary for constructing the ETC is already completed or under way, the alternative calling for deletion or re-design of the ETC project to avoid potential adverse impacts on the Reserve System is rejected as infeasible.

F. Inclusion of Hon Company's Cypress Canyon Specific Plan Area in the Reserve.

One design alternative suggested the inclusion of the currently undeveloped Hon Company property located in the Cypress/Coal Canyon area within the Reserve System. The primary rationale for this request focused on the value of the property as a biological linkage between the Central Subarea open space and Chino Hills. Secondary reasons included claims of the presence of target species within the specific plan area.

This alternative was carefully considered. In fact, the 1994 preliminary reserve concept included a portion of the Hon property within the Reserve System to provide for a direct north-south wildlife linkage designed to enable animals to cross the property and pass under/over State Route 91. Closer review of the property and consultation with resource agencies during the reserve design process demonstrated that inclusion of this ownership within the reserve would not be feasible and would not be necessary. In response to numerous comments received during the public review period concerning the failure to include Coal (Cypress) Canyon in the reserve, a detailed analysis

explaining why this canyon and surrounding Hon property was not included in the reserve was prepared for inclusion in the EIR/EIS Response to Comments document (see General Response No. 26).

Factors cited in the Response to Comments document to support omitting Coal Canyon from the reserve included, but were not limited to the following:

- The Hon property is no longer designated as part of the “non-reserve” area. It has been re-designated as an “Existing Use Area” under the Final NCCP/HCP. Therefore, no take of Identified Species is authorized and, prior to take occurring on the property, field surveys would have to be conducted to determine whether the property is occupied by coastal California gnatcatchers or other protected species. If the property does contain “occupied” habitat, Hon would need to pursue one of the three “Take” options provided for in Existing Use Areas under the NCCP/HCP. To date, the presence of gnatcatchers or other sensitive species within the property has not been documented but testimony was submitted during the public review process citing the presence of coastal California gnatcatchers.
- The NCCP is a voluntary program and the owners of Coal Canyon did not choose to participate in the NCCP/HCP. The Hon Company is not a willing seller and it wishes to proceed with the development plan approved by the City of Anaheim and successfully litigated in court.
- While currently undeveloped, Coal Canyon is subject to an adopted Specific Plan that authorizes development of up to 1,550 dwelling units, 8 acres of commercial uses, an elementary school, neighborhood park, electrical substation and fire station. If all or even a significant portion of this authorized development is actually built, the value of Coal Canyon as a wildlife corridor will be lost.

- Based on the value of the permitted residential and commercial uses approved as part of the Development Agreement, acquisition of the property could be extremely expensive. Further, Hon previously sold about 600 acres of this property to CDFG for what Hon believed to be less than fair market value.
- While Coal Canyon may be the best biological linkage between the Chino Hills and the Central Subarea reserve, particularly for large mammals such as the mountain lion, it is not essential to retain the function of the reserve for target and Identified Species. The SRP tenets of reserve design do address the need for biological connectivity (Tenet 5); however, the tenets do not require that wildlife corridors must accommodate all species in order for the reserve to be functional. The best professional judgement of the consulting and agency biologists determined it would be desirable to include Coal Canyon in the reserve but that adequate connectivity could be provided between Chino Hills and Central Subarea reserve for target and Identified Species without the Coal Canyon linkage.

For all of the above reasons, and in consideration of the other factors raised by public commentors and discussed in the EIR/EIS Response to Comments document, inclusion of the Coal (Cypress) Canyon property owned by the Hon Company in the Final Reserve System was rejected.

G. Inclusion of the North Ranch Policy Plan Area

During the reserve design process inclusion of the North Ranch Area was carefully considered. Consistent with the description of the North Ranch Area set forth in Section 4.4.2 of the NCCP/HCP, inclusion of this area as a part of the Reserve System was rejected.

Designation of this area as a “policy plan area” rather than including it within the reserve was based on the following considerations:

- take of habitat/species within the “policy plan area” is not authorized under the NCCP/HCP and no take of species or loss of habitat would occur within the area prior to completion of the planning and biological studies set forth in the policies in Chapter 5 of the NCCP/HCP;
- policies were formulated that are designed to assure that future planning within the policy plan area will protect biodiversity and biological connectivity within the area and provide for compatibility of future uses within the area with the adjacent approved subregional habitat reserve;
- field survey data (Jones and Stokes, 1992) demonstrated that the vast majority of this area is not used by the “target” species (*e.g.* because much of the area is at elevations higher than those generally tolerated by these species);
- chaparral, not CSS, is the dominant habitat type within the area;
- much of the existing CSS habitat is a different vegetation subtype, more similar to the Riversidian subtype than the Diegan scrub subtype found throughout the lower elevations in the rest of the Subregion;
- the three target species used to initiate design of the Reserve System are inappropriate target species for this area and current field data is not adequate to identify optimum target species for the North Ranch Area;
- because of the lack of comparable biological data on alternative target species, there is insufficient information upon which to base site specific decisions concerning the location of reserve boundaries and appropriate development areas; and
- this area unlike the rest of the Subregion, has not undergone planning and entitlement review at the general plan/specific plan level.

In response to these factors, the NCCP/HCP does not include this area in the reserve. It does, however, implement coordinated conservation and development planning for the North Ranch area in the future consistent with the policies in Section 4.4.2.

H. Proposed Land Exchange Involving the U. S. Department of Defense and TIC

Although never considered an “alternative” in terms of the reserve design, during the course of the reserve design process, various interests explored the potential for trading DOD El Toro MCAS property for undeveloped TIC property located within the Central Subarea. Varying acreages for both the TIC and federal ownerships were discussed during these negotiations. During the NCCP/HCP planning process these land exchange discussions were terminated.

Prior to terminating the land exchange discussions, the County of Orange, TIC and the State of California jointly declared that such a trade of public and private lands should be reviewed as a separate, independent action from the NCCP/HCP. This joint position reflected the speculative nature of the land exchange discussions. For instance, no specific designation of exchange lands was agreed upon, toxic cleanup costs related to years of military operations on the federal lands were not addressed, and all parties recognized that the actual exchange of designated lands could be delayed well into the future by financial and environmental constraints even if a land exchange agreement could be reached. For all these reasons, a land exchange involving TIC and the DOD was not considered a feasible or appropriate component of the reserve design process.

3.12.3 Alternatives Relating to the Coastal Subarea

A. Inclusion of Non-Reserve Portions of the City of Irvine GPA 16 Open Space

During the reserve design process some participants requested the inclusion of those portions of the open space provided for by the City of Irvine’s GPA 16 that were not included in the reserve design. The GPA 16 open space area, comprising approximately 4,870 acres, is identified for future phased dedication to the City in the City’s General Plan (refer to figures 16 and 49). The reserve does not include all of this open space and involves only those specific portions of the GPA 16 area located in the Coastal Subarea adjacent to and northeast of the Sand Canyon Reservoir “special linkage” area and the TIC Shady Canyon general plan amendment area.

An evaluation of including these open spaces in the reserve was conducted. Biologically, these areas generally contain non-CSS habitat (e.g., non-native grasslands) and they are not occupied by target species. The areas in question will be set aside as open space whether or not they are included in the reserve; therefore, the issue is whether inclusion is necessary to create a viable reserve.

Based on the fact that the subject areas do not contain significant CSS, do not contain target species, and do not provide important reserve connectivity functions, it was determined that these open spaces were not essential to the reserve design. In addition, given the limited funding available to support the long-term adaptive management program, it was determined that any potential biodiversity value added to the reserve by including these lands would not offset the added cost of long-term management. Therefore, these open spaces were not included in the reserve.

B. Re-design of the TIC Irvine Coast Project to Protect Core Habitat and Improve Biological Connectivity Between the San Joaquin Hills and the Upper Newport Bay

This reserve design alternative focused on the re-design of the Irvine Coast area to address concerns about urban development that was permitted by the Local Coastal Program (LCP) in three areas of the Irvine Coast:

- the residential development below Signal Peak (Planning Areas 2B and 2C);
- the residential and tourist commercial development (hotels) on Pelican Hill; and
- the Wishbone Hill residential development.

These areas contain CSS habitat and are occupied by target species birds. Additionally, all of the areas could contribute to connectivity within the subarea.

The LCP for the 10,000-acre Irvine Coast planning area was certified by the California Coastal Commission (CCC) in 1988. The Coastal Commission action followed more than 15 years of cooperative, but difficult public planning and negotiations. The CCC certification resulted in the consolidation of permitted residential and tourist commercial uses in the western portion of the LCP area. As the primary mitigation for the permitted uses within the LCP area, the certified LCP sets aside more than 76 percent of the Irvine Coast as permanent open space

(7,234 acres, including the 2,807-acre Crystal Cove State Park). More than 4,000 acres of this open space has been or will be provided as phased dedications to offset permitted development, and transferred to the County of Orange as open space as build-out of permitted uses occurs within the LCP area.

As a result of the Coastal Commission approval, a consolidated open space area was created along the coast and on the coastal slopes of the San Joaquin Hills. This open space system, in combination with the adjacent 4,870-acre GPA 16 open space, constitutes the core of the Coastal Subarea reserve. This committed open space extends from the shoreline inland to the crest of the San Joaquin Hills, and when the GPA 16 area is included, down the northern slopes of the San Joaquin Hills to within a mile of I-405. The Irvine Coast open space contains both core target species habitat and substantial non-CSS habitat that provide important biodiversity and habitat linkage functions within the Coastal Subarea.

The portions of the Irvine Coast LCP that were questioned involve about 1,800 acres of the 10,000-acre planning area. The three areas designated for development under the LCP (the Pelican Hill area, Planning Areas 2B and 2C and Wishbone Ridge) contain 700 acres of CSS, 24 gnatcatcher sites, and 34 cactus wren sites. However, if these areas were included in the reserve it would require that the LCP certification of proposed residential/tourist commercial uses on these lands be overturned. This action, if taken, would violate the terms of the phased dedication agreements between the County and TIC because each of the areas now being questioned provides the legal linkage (*i.e.*, “nexus” between the build-out of permitted residential and tourist commercial uses and the future dedication of the open space). Therefore, rejecting permitted development in these areas could result in the loss of up to 2,000 acres of important open space that now comprises a substantial portion of the core habitat included within the Coastal Subarea reserve.

The re-assessment of the Irvine Coast LCP plan design resulted in a finding that deleting proposed residential/tourist commercial uses within the questioned areas would not be necessary to produce a feasible reserve design, would potentially be detrimental to the reserve design by reducing the availability of open space committed for inclusion in the reserve, and would not be feasible within the NCCP time constraints. Potential benefits resulting from protecting the habitat located in the three subject areas (Pelican Hill, Wishbone Ridge, and below Signal Peak) would not offset the adverse effects on reserve design resulting from the loss of the 2,000 acres of committed open space. Moreover, the prospects for successfully conducting a new planning process for the Irvine Coast area must be regarded as speculative.

If the existing permitted uses are deleted from the LCP, and the LCP must be re-designed and go through the public review process again, and it is possible that the next round of planning for this area could be as time consuming as the last public planning process (more than 15 years for completion). Therefore, an alternative that upset the current LCP is judged to be contrary to the goals and objectives of the NCCP/HCP planning process. Such an alternative also would appear to conflict with the purposes of FESA and the NCCP Guidelines as they relate to the long-term protection of habitat for multiple endangered and threatened species.

Therefore, this alternative was rejected.

C. Inclusion of the Headlands Property Located Within the City of Dana Point

The 121-acre Headlands Property located on the Dana Point Headlands in the City of Dana Point is owned by Chandis-Sherman. This property is surrounded by urban development and for many years has been planned as a residential and tourist commercial development. The Headlands property is isolated from the Reserve System by about two miles of existing urban development. Despite its isolation from other remaining natural areas within the subregion, this site was evaluated to determine whether it should be included within the habitat Reserve System. Consideration of inclusion of the Headlands site within the Reserve System reflected the variety of sensitive plant and animal species that are found on the site, including:

- one of the few populations of the federally-listed Pacific pocket mouse;
- representatives of all three target species, including nine sites occupied by the federally-listed coastal California gnatcatcher; and
- several plant species either identified as state/federal “candidate” species or considered sensitive by state and federal agencies.

Taking into account the variety of sensitive species on the property, it was nonetheless concluded that inclusion of the Headlands Property in the Reserve System was neither feasible nor appropriate. The factors contributing to this conclusion included the following:

- the site is physically isolated from other elements of the Reserve System by more than two miles of urban development;

- the site's physical isolation from other reserve areas likely would preclude any biological connectivity function in relation to the Reserve System;
- the site is relatively small, surrounded by existing urban/residential uses, bisected by paved and dirt roads and already heavily trespassed by local residents and visitors that use the site for recreational purposes;
- the size and isolation of the site, in combination with previous development and the already heavy use by neighbors and visitors, make it a poor candidate for long-term management of existing biological values, particularly for species such as the Pacific pocket mouse, which would continue to be exposed to significant threats to its continued existence from natural stochastic events, limited suitable habitat, a significant chance of inbreeding depression, habitat disturbance and exposure to predation by domestic and feral animals;
- the site's lengthy planning history indicates that inclusion of the site within the Reserve System would involve very high costs (*i.e.*, in the several tens of millions of dollars) due to the potential value of this uniquely situated oceanfront land for residential and visitor serving uses; and
- because it is small, physically isolated, and would not contribute significantly to improved biological connectivity within the subregion, inclusion of the site in the Reserve System was not considered essential to formulating an effective subregional reserve design when viewed in the context of the NCCP reserve design tenets.

For all of the above reasons, this site was rejected as a component of the subregional habitat Reserve System.

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CHAPTER 4: OVERVIEW OF THE SUBREGIONAL CONSERVATION STRATEGY AND DESCRIPTION OF THE HABITAT RESERVE SYSTEM

SECTION 4.1 INTRODUCTION

This Chapter provides a summary of the NCCP/HCP's subregional conservation strategy and describes the habitat Reserve System. The description of the Reserve System is accompanied by a discussion of the non-reserve components of the conservation strategy that will provide support for the reserve and management program. These components include areas designated as "Special Linkages and special management areas," non-reserve public open space and the North Ranch Area. After the physical description of the reserve and geographic supporting components, this Chapter explains how the reserve will be assembled, and discusses the non-profit management authority that will administer it.

Following the description of the Reserve System, Chapter 4 identifies the species that receive state and federal regulatory coverage under the NCCP/HCP.

Finally, the chapter concludes with a summary discussion of the biological, regulatory/economic, and social benefits related to the NCCP/HCP.

The descriptive information in Chapter 4 provides the basis for the management program policies set forth in Chapter 5 and the specific program implementation and funding provisions contained in Chapter 6. When combined, Chapters 4, 5, and 6 of the NCCP/HCP constitute the conservation strategy for the Central and Coastal NCCP subregion.

The chapter begins with a brief overview of the subregional NCCP conservation strategy, including a brief discussion of the roles and responsibilities of key program participants.

SECTION 4.2 OVERVIEW OF THE SUBREGIONAL CONSERVATION APPROACH

The subregional conservation strategy consists of the following components:

1. creation of a publicly-owned ~~37,378~~-acre habitat Reserve System that will include the full CSS habitat mosaic, including 12 of the 13 major habitat types currently existing within the subregion;
2. provision of state and federal regulatory coverage under FESA Section 10, CESA Sections 2081/2084 and 2835 for thirty-nine (39) “Identified Species”, five plant species on the Headlands site only, and procedures for adding additional species to the list of “covered” species;
3. designation of “Special Linkages” and “Existing Use Areas” as supplemental components supporting the Reserve System in order to enhance biological connectivity within the Reserve System and subregion;
4. implementation of an “adaptive management” program within the Reserve System, as recommended by the state’s NCCP Planning Guidelines;
5. provisions for “Interim” management of designated reserve lands prior to transfer of these lands to public ownership and formal incorporation within the Reserve System;
6. provisions for mitigating CSS impacts on lands located both inside and outside the Reserve System that are owned by “*participating landowners*” that contribute significant land to the reserve or funding to the management program;
7. provisions for mitigation of CSS impacts on lands located within the subregion but outside the Reserve System and owned by landowners that have not participated by contributing funding or lands to the NCCP/HCP process; and
8. establishment of a funding program to pay for creation of the Reserve System, adaptive management, and mitigation measures designed to offset CSS and non-CSS impacts (*i.e.*, restoration and enhancement) and maintain net long-term habitat value within the subregion.

4.2.1 Key NCCP Participants And Their Roles

The following sections identify the participants in the NCCP/HCP program. To assist the reviewer in understanding the roles and responsibilities related to each NCCP participant, the following summary is provided.

1. Landowners

Landowners represent a significant category of participants in the NCCP/HCP program. Two types of landowners will be affected by the NCCP/HCP. The first category of landowners includes those that are contributing significant lands to the Reserve System and/or funding for preparation of the NCCP/HCP. These are referred to as “participating landowners.” They include TIC, Chandis-Sherman, TCAs, IRWD, UCI, SCWD, METROPOLITAN, SCE, DPR, CDFG and the County of Orange. The second category of landowners, termed “*non-participating landowners*,” are those that are not contributing significantly to the preparation or implementation of the NCCP/HCP, and that own land outside the Reserve System. The roles and responsibilities for each of these landowner groups are summarized below.

- *Participating Landowners* That Contribute Land or Funding to the NCCP/HCP and Own Lands Inside or Outside the Reserve System
 - under the terms of the NCCP/HCP Implementation Agreement (IA), these landowners will provide land and/or funding to support creation of the Reserve System and/or implementation of the adaptive management program
 - based on their contributions to the preparation and implementation of the NCCP/HCP, no further CDFG or USFWS approvals and/or mitigation measures, except as provided for in the Implementation Agreement, will be required pursuant to CEQA, CESA, or the NCCP Act or required for protection of species pursuant to FESA or NEPA for impacts to CSS and “covered” non-CSS habitats and “Identified Species” (and five plants on the Headlands site) on their lands located inside or outside the Reserve System, including “Special Linkages,” will be required because such Incidental Take will be authorized under the terms of this NCCP/HCP

- during the “interim” phase (*i.e.*, prior to transfer of designated lands to a public reserve owner/manager), these landowners will:
 - consistent with the allowable use provisions of the NCCP/HCP, refrain from developing, or allowing others to develop, such lands in a manner that would impair the suitability of the lands for inclusion in the Reserve System
 - permit access to designated reserve lands for the purposes of conducting annual species and habitat monitoring and inventories
 - permit measures designed to control invasive plant species and predator animal species as provided for in approved adaptive management activities
 - permit fire management planning and implementation activities by County/CDF
 - at the discretion of the landowner, allow other management, restoration or enhancement activities, and
 - prepare and implement a grazing management plan.
- *Non-Participating Landowners with Lands Outside the Reserve System*
 - will identify occupied CSS acreage impacted by proposed activities as required under existing state and federal laws, for development impacting CSS
 - for development resulting in Take of CSS species listed as endangered species or threatened species under FESA or CESA, landowners will have the option of mitigating such impacts by either paying a mitigation fee to the non-profit corporation responsible for managing

the Reserve System, or by providing acceptable mitigation under FESA or CESA, as provided under existing law

- if a “non-participating landowner” owning land within a signatory jurisdiction outside designated “Existing Use Areas” selects the “mitigation fee” option to address CSS impacts, the Incidental Take will be covered under the terms of the NCCP/HCP Section 10(a) Permit granted to the signatory local government and no additional approvals will be required by USFWS and CDFG with regard to all CSS species (CSS species are defined in Section 1.18 of the Implementation Agreement)

2. Local Jurisdictions (Cities and the County of Orange)

This subregion includes 13 cities that will be affected by the recommended NCCP/HCP. Each city which signs the Implementation Agreement and the County will be responsible for conducting some or all of the following actions, depending on whether portions of their jurisdictions are included within the Reserve System or Take of “Identified Species” will occur within their jurisdiction. Consistent with the responsibilities and limitations set forth in Section 8.1 of the Implementation Agreement, signatory cities will be expected to address the following responsibilities with regard to actions of the signatory cities and landowners subject to the jurisdiction of such cities:

- consider general plan, zoning, or other implementing ordinances to carry out state General Plan/Zoning consistency requirements;
- consistent with police power, carry out NCCP/HCP implementation measures that are administrative in nature within present discretion and consistent with existing land use regulations within the jurisdiction and proceed to process land dedications and modifications of existing land use regulations necessary or desirable to implement the NCCP/HCP (this commitment does not commit a local jurisdiction to exercise legislative discretion in any particular way);

- adopt fuel modification ordinances/standards consistent with the NCCP/HCP fuel modification policies that will be applicable to areas bordering the reserve, and within Special Linkages and Existing Use Areas;
- in cooperation with the individual reserve owner/manager, review project proposals within the Reserve System on lands owned by the particular local government to assure consistency with the NCCP/HCP;
- assure that “non-participating landowners” provide evidence of payment of the CSS mitigation fees to the non-profit reserve management corporation where the landowner elects to use the mitigation fee option;
- record/compile “Identified Species”, CSS and covered habitat impacts within its jurisdiction annually and report CSS losses/mitigation to the County of Orange EMA to enable the County, as the lead agency, to compile subregional data for transmittal to CDFG and USFWS;
- ensure that NCCP minimization and mitigation measures set forth in the NCCP/HCP EIR/EIS are enforced.
- make best efforts to acquire conservation easements over privately owned Existing Use Areas owned by “non-participating landowners”;
- for those local governments owning land within the Reserve System, formally commit such lands to the reserve, and manage such lands in accordance with the NCCP/HCP and the Implementation Agreement;
- accept and use the NCCP/HCP EIR/EIS as the CEQA program EIR, defining the mitigation program and covering all Take allowed for CSS, “Identified Species” and covered habitat impacts of planned activities;

- recognize the mitigating values of preservation of non-CSS resources in the Reserve System in acting on specific planned activities; and
- commit to the CSS, “Identified Species” and covered habitat mitigation assurances.

In their role as reserve managers, cities shall not be required to fund restoration or enhancement activities within the reserve; such funding shall be provided by the non-profit corporation or other sources.

3. County of Orange EMA as the Lead Agency

The County EMA will serve as the lead agency during the early implementation years for the Central and Coastal Subregion NCCP/HCP. In this capacity, the County will be responsible for the items described below and in Section 4.4.4, consistent with Section 8.1 of the Implementation Agreement. The County will have ongoing functions, after the non-profit reserve management corporation is operating, as follows:

- updating the County-wide GIS program;
- preparing annual reports regarding management activities within the County’s portion of the Reserve System for submittal to the Reserve System non-profit management corporation for inclusion in the annual report/work program to CDFG and USFWS; and
- coordinating fire management programs with CDF and, through the Orange County Fire Authority (OCFA), cooperating with CDF to implement fire management measures within the Reserve System consistent with the NCCP/HCP.

4. Non-Profit Reserve Management Corporation

The non-profit reserve management corporation is the coordinating body responsible for assembling the Reserve System and implementing the adaptive management program within the Reserve System as provided for in Chapter 5. The non-profit corporation will be directed by a Board of Directors consisting of representatives of major public and private landowners, participating local jurisdictions, USFWS and CDFG. These representatives will serve on the Board of Directors in a voting capacity.

Also serving on the Board in a voting capacity will be three public representatives appointed by the Board of Directors. Non-voting members of the Board will include an ex-officio member designated by and representing CDF and a member designated by the Coastal Greenbelt Authority (at the Greenbelt Authority's discretion). Finally, the Board will appoint a technical advisory committee consisting of scientists knowledgeable in the field of ecology, conservation biology, reserve management, habitat restoration or other appropriate disciplines.

Meetings of the Board of Directors will be public meetings subject to the notice requirements of state law. During the conduct of its duties, the non-profit corporation will not have enforcement powers or authority over local jurisdictions, or the individual reserve owners/managers. The responsibilities of the non-profit management corporation will include:

- providing staff support to the Board of Directors to manage and administer the Reserve System;
- hiring staff and consultants to implement Board directives;
- coordinating activities of the individual Reserve System public owners/managers (*e. g.* EMA HBP, State DPR, DOD, CDFG, and UCI);

- preparing annual reports for the overall Reserve System for submittal to CDFG, USFWS, participants, and interested parties (see Section 4.3.4 for a discussion of the preparation and content of the annual report);
- preparing and updating a list of property acquisition priorities relating to future additions of lands to the Reserve System;
- collecting mitigation fees for development on lands owned by “*non-participating*” landowners and located outside the Reserve System;
- receiving other funding for reserve management and, if necessary, accepting lands for inclusion in the subregional Reserve System;
- disbursing funds to individual public reserve owners/managers to carry out the adaptive management program;
- hiring and managing biologists to conduct annual species and habitat monitoring and inventory efforts within the Reserve System; and
- compiling and analyzing biological data obtained during monitoring and inventories for inclusion in the annual report.

5. Individual Public Reserve Owners/Managers

Although the non-profit management corporation will coordinate and oversee creation of the Reserve System and implementation of the adaptive management regime within the Reserve System, the actual management of reserve lands will be conducted by the individual public owners/managers. The number of public reserve owners/managers may change; however, at this time, the reserve owners/managers are identified on Figure 21. Upon signing the Implementation Agreement, these owners/managers will be responsible for the following activities:

- coordinating management activities with the non-profit management corporation and assuring that such activities on their respective ownerships are consistent with the annually-approved subregional Reserve System work program;
- in consultation with the non-profit corporation, preparing the management work program component for its ownership for the following year activities;
- providing an annual progress report on the current year work program to the non-profit management corporation for inclusion in the overall annual report submitted to CDFG and USFWS;
- accepting ownership and management responsibility for designated reserve lands upon transfer by private owners to the Reserve System; and
- conducting, or allowing the non-profit management corporation or other appropriate public agency or non-profit to conduct specific management measures within their respective ownerships required under the NCCP/HCP and the then current work program, including the following activities:
 - habitat restoration
 - habitat enhancement
 - habitat management
 - public access/recreation management
 - grazing management
 - cooperation in fire management including prescribed burns
 - cooperation in invasive plant and animal species control

- Cooperating with USFWS as part of any Pacific pocket mouse research and recovery efforts

6. Resource Agencies

Subject to the availability of funds, the state (CDFG) and federal (USFWS) resource agencies will provide funding, staff support and counsel, and program oversight functions as defined in the Implementation Agreement during the long-term implementation of the NCCP/HCP. Pursuant to the Implementation Agreement it will be up to these agencies to assure that the NCCP/HCP plan is implemented consistent with the provisions of the Special 4(d) Rule, FESA, the NCCP Act, NCCP Conservation Guidelines, and CESA. The functions of the resource agencies will include the following:

- to the extent available, providing annual funding contributions consistent with the NCCP funding program;
- supporting the transfer of 1,033 acres of El Toro MCAS to the Reserve System;
- reviewing annual reports submitted by the non-profit reserve management corporation and providing comments/recommendations as required by the NCCP/HCP Implementation Agreement;
- addressing Take of listed species, in accordance with applicable law, where “non-participating landowners” do not elect the mitigation fee option provided for under the NCCP/HCP;
- monitoring landowner and local government compliance with the provisions of the NCCP/HCP, and
- issuance of Section 10(a) Permits and other necessary approvals/permits.

The following section describes the subregional Reserve System and explains how the Reserve System will be assembled and administered.

SECTION 4.3 DESCRIPTION OF THE PERMANENT HABITAT RESERVE SYSTEM

The overall subregional conservation strategy recommended for this subregion incorporates several distinct functional and geographic components. The heart of the recommended conservation strategy is the creation of a diverse permanent habitat Reserve System supporting multiple species and habitats.

4.3.1 Subregional Reserve Overview

- Quantitative Assessments of Habitat and Species Protection

To understand the quantitative assessments of habitat/species protection presented in this NCCP/HCP it is important to understand how the percentages used in the text and tables in this chapter and Chapter 7 (Impacts and Incidental Take) are derived.

-- CSS and Habitat Protection Calculations

Table 4-1 provides a tabular summary of the natural habitat and developed, disturbed and agricultural lands within the Central/Coastal subregion. This tabular summary identifies how much of each major habitat type is located within each of the geographic components of the NCCP/HCP (*i.e.*, the reserve, Special Linkage and Existing Use Areas, other non-reserve open space, North Ranch Policy Plan Area, and the Cleveland National Forest). In most cases, the percentages stated in this document do not include all of the acreage within the subregion. The 26,404 acres included within the Cleveland National Forest (CNF) Congressional Boundary is omitted from such calculations. This means that 3,568 acres of CSS and 22,480 acres of other wildlands (primarily chaparral) are not counted when percentages relating to protected and impacted wildlands are stated.

There are three reasons why the habitat located within the CNF is excluded from calculations of habitat protection and impact. First, habitat located within the CNF generally occurs at elevations above those normally tolerated by "Target Species" (*e.g.*, above 2,000 feet). Second, the U.S. Forest Service (USFS) manages these lands in accordance with the provisions of its master plan, and the USFS is not participating in the NCCP program. Finally, the NCCP/HCP does not authorize Incidental Take for activities conducted within the CNF boundaries that impact CNF resources.

**Table 4-1
Central & Coastal Subregion NCCP
Habitat Reserve Vegetation and Target Species**

Vegetation	Reserve	Special Linkage	Existing Use	Non Reserve Open Space	Policy Plan Area	National Forest OS	National Forest Private	Other Non Reserve	Total
Area in Acres									
Dunes	0	0	0	0	0	9	8	2	18
Scrub	18,527	449	1,103	283	3,006	1,733	1,835	7,456	34,392
Chaparral	6,950	23	735	79	5,251	13,114	6,510	2,556	35,218
Grassland	5,732	518	1,053	1,402	694	105	346	12,025	21,874
Vernal Pools	9	2	0	0	0	0	0	42	53
Marsh	343	0	29	234	0	0	0	52	657
Riparian	1,770	116	116	379	240	804	497	1,204	5,126
Woodlands	940	16	33	52	157	253	179	291	1,920
Forest	191	0	0	0	2	563	43	5	804
Cliff and Rock	74	7	1	1	14	29	12	35	173
Marine & Coastal	362	0	15	0	0	0	0	1,553	1,930
Lakes, Reservoirs, Basins	99	10	1	790	0	0	0	456	1,357
Water Courses	182	1	22	8	0	0	9	563	784
Agriculture	577	90	5	83	0	0	21	12,489	13,265
Developed	694	199	415	324	23	12	254	81,210	83,131
Disturbed	929	475	269	195	68	10	59	6,004	8,008
Total	37,378	1,906	3,796	3,831	9,456	16,632	9,772	125,942	208,713

Gnatcatcher Total Sightings	370	20	87	10	5	0	0	108	600
Cactus Wren Total Sightings	671	39	64	0	14	0	0	206	994
Total Sightings	1,041	59	151	10	19	0	0	314	1,594

CSS	Total Acres	18,527	449	1,103	283	3,006	1,733	1,835	7,456	34,392
OW	Total Acres	16,651	693	2,004	2,946	6,358	14,877	7,603	18,784	69,915
DDA	Total Acres	2,200	764	689	602	92	22	334	99,702	104,405

Notes:

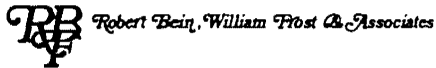
CSS - Coastal Sage Scrub Habitat

OW - Other Wildland Habitat

DDA - Developed, Disturbed and Agriculture

1) *Target Species Sites in the National Forest are excluded from this analysis.

2) Target Species Sites impacted by Corridor Projects are excluded from this analysis.



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Table 4-2
Distribution of Wildlands
Within the Reserve and Supporting Geographic Components
(Percentage of Wildlands, excluding National Forest)

Vegetation	Reserve	Special Linkage	Existing Use	Non Reserve Open Space	Policy Plan Area	Other Non Reserve	Total Acres
Percentage of Acres							
Dunes	0%	0%	0%	0%	0%	100%	2
Scrub	60%	1%	4%	1%	10%	24%	30,824
Chaparral	45%	0%	5%	1%	34%	16%	15,594
Grassland	27%	2%	5%	7%	3%	56%	21,424
Vernal Pools	18%	3%	0%	1%	0%	78%	53
Marsh	52%	0%	4%	36%	0%	8%	657
Riparian	46%	3%	3%	10%	6%	31%	3,825
Woodlands	63%	1%	2%	3%	11%	20%	1,489
Forest	97%	0%	0%	0%	1%	3%	198
Cliff and Rock	56%	6%	1%	1%	11%	26%	132
Marine & Coastal	19%	0%	1%	0%	0%	80%	1,930
Lakes, Reservoirs, Basins	7%	1%	0%	58%	0%	34%	1,356
Water Courses	23%	0%	3%	1%	0%	73%	775
Total Acres							78,259

% of Gnatcatcher Sites	62%	3%	15%	2%	1%	18%	600
% of Cactus Wren Sites	68%	4%	6%	0%	1%	21%	994
Total Sites							1,594

% of Total CSS Acres	60%	1%	4%	1%	10%	24%	30,824
% of Total OW Acres	35%	1%	4%	6%	13%	40%	47,435
% of Total DDA Acres	2%	1%	1%	1%	0%	96%	104,049

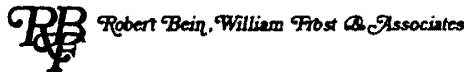
Notes:

CSS - Coastal Sage Scrub Habitat

OW - Other Wildland Habitat

DDA - Developed, Disturbed and Agriculture

1) Target Species Sites impacted by Corridor Projects are excluded from this analysis.



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Therefore, while Tables 2-2 and 4-1, and Figures 4, 15 and 16 summarize the location and total amount of CSS and other natural habitats existing within the subregion, Table 4-2 should be consulted to determine the “baseline” acreage for each habitat type that is used to calculate percentages of habitat “protected” and impacted. The “baseline” acreage represents the habitat area located within the subregion but outside the CNF boundaries. For instance, Table 4-2 indicates that a total of 30,834 acres of CSS habitat is located outside the CNF, and that 60 percent of the 30,834 acres of CSS is included within the Reserve System. Similarly, this tabular summary indicates that about one percent of CSS is within other public non-reserve open space, three percent is within the Special Linkage and Existing Use Areas, ten percent is in the North Ranch Area, and 24 percent is located in areas designated by the NCCP/HCP for potential development.

-- Target Bird Species Calculations

A total of 627 gnatcatcher sites and 1,033 cactus wren sites are included within the NCCP/HCP subregional data base. The 627 gnatcatcher site total includes 615 bird sites that were located during the 1991/92 and 1994 NCCP field surveys, nine gnatcatcher sites added based on the detailed surveys conducted for the Headlands property in Dana Point, and three sites based on personal communications by Dr. Linda Dawes, of the USFWS. The 1,033 wren sites in the database include 1,031 sites located during the 1991/92 and 1994 NCCP field surveys and two sites found on the Headlands property.

To arrive at the number of gnatcatcher and cactus wren sites that will be protected or impacted by the NCCP/HCP, the above site counts for both species are adjusted because some of the gnatcatcher and wren sites shown on the figures and included in Table 4-1 already should be considered “Taken” due to recent USFWS Section 7 approvals of the ETC, FTC(N), and SJHTC toll roads. These USFWS approvals resulted in occupied habitat losses due to recent construction activities. Additional habitat supporting birds will be lost as construction is completed.

The Biological Opinions for the ETC, FTC(N), and SJHTC identified a total of 30 to 40 gnatcatcher sites and 27 to 44 wren sites that would be impacted by construction of the three approved toll roads (refer to Appendix 8, Biological Opinions). The GIS database for the NCCP/HCP identifies a total of 25 gnatcatcher sites and 27 cactus wren sites within the toll road limits of grading. In addition, the GIS maps show two gnatcatcher sites and two cactus

wren sites located within the right-of-way for the Portola Parkway extension, north of the FTC(N). This facility already has been constructed. Approval of the NCCP/HCP will not impact the habitat supporting these sites and no mitigation will be required under the NCCP/HCP.

Therefore, the habitat located within the grading limits for the toll roads that supports the 27 gnatcatcher sites and 29 cactus wren sites are not considered when calculating reported Incidental Take and bird impacts. Accordingly, for purposes of calculating protection and potential impacts on bird sites, the NCCP/HCP starts with a baseline total of 600 gnatcatcher sites (627 sites minus the 27 locations impacted by prior USFWS decisions) and 1,004 cactus wren sites (1,033 sites minus the 29 locations impacted by prior decisions).

- Subarea Reserve Components

As a result of historic development patterns and regional open space planning, wildlands are concentrated in two large areas (Figure 12) within the subregion: in the foothills of the Santa Ana Mountains, extending from the Lomas de Santiago to Gypsum and Coal canyons (Central subarea); and in the San Joaquin Hills (Coastal subarea). The extensive central plains area separating these remaining wildlands is already urbanized or has been cultivated for most of the past 100 years.

- Reserve Size

The habitat Reserve System for this subregion contains 37,378 acres (more than 58 square miles, Figure 12 and Table 4-1). Reserve boundary maps at a scale of one inch equals 1,000 feet are included in Appendix 9. The Reserve System includes twelve of the thirteen major habitat categories located within this NCCP subregion. Dune habitat, totaling only 18 acres within the subregion, is the only habitat category that is not represented within the Reserve System.

- Creation of a Multiple-Habitat/Multiple-Species Reserve System

The Reserve System has been designed to enable the reserve to function effectively as a multiple-habitat and multiple-species reserve, capable of providing long-term protection for a broad range of both CSS species and non-CSS species.

The NCCP/HCP includes more than 35,000 acres of wildlands within the reserve design. The remainder of the reserve consists of agricultural and disturbed lands that will eventually be restored under the NCCP/HCP, and some already-developed lands. The 35,000 acres of wildlands within the reserve accounts for almost one half (45 percent) of the total remaining wildlands within the subregion (77,451 acres) located outside the CNF. If the wildlands included within Special Linkages and Existing Use Areas, other permanent open space, and the North Ranch Policy Plan Area are included (these areas contain an additional 25 percent of the remaining wildlands), the adopted conservation strategy protects more than two-thirds (70 percent) of the subregional wildlands. Less than one-third (30 percent) of the remaining wildlands are within areas subject to future CSS habitat conversion under the NCCP/HCP and designated for development pursuant to pre-NCCP local government approvals.

One way of understanding the multiple-habitat character of the Reserve System design is to examine the proportional share of each of the subregional habitat types that is included within the Reserve System. As noted, 12 of the 13 major habitat classes are represented within the reserve (only the coastal dune type is omitted). Of these 12 habitat types, when the amount of existing habitat outside the CNF is considered, the Reserve System contains (Table 4-2):

- 60 percent of existing CSS;
- 45 percent of existing chaparral;
- 27 percent of existing grasslands (note: no information is available on the share of native grasslands);
- 52 percent of existing marshes;
- 46 percent of existing riparian areas;
- 63 percent of existing woodlands;

- 97 percent of existing forest lands (primarily Tecate cypress); and
- 56 percent of cliff and rock habitat.

When considering whether a particular CSS or non-CSS species is adequately protected by the reserve design, consideration should be given to the share of the related species-habitat contained in the Reserve System.

An assessment of the reserve design also should consider the contributions to habitat protection offered by the supporting geographic components of the management strategy. For instance, the permanent non-reserve open space within the subregion contains 36 percent of the remaining marsh habitat, 7 percent of remaining grasslands, 10 percent of remaining riparian, and 58 percent of the lake/reservoir acreage within the subregion. Finally, the North Ranch Policy Plan Area contains more than 34 percent of the chaparral and 10 percent of the CSS habitat within the subregion. While no specific share can be considered protected over the long term within the North Ranch Area, it is clear that significant acreage will be added to the acreage of the cited habitats included within the Reserve System. Planning for the North Ranch Area will complement and protect the function of the reserve design. Therefore, the subregional conservation strategy provides adequate coverage for a number of species dependent on six of the twelve habitat types included within the Reserve System, including:

- coastal sage scrub;
- chaparral;
- riparian;
- woodlands;
- forest lands; and
- rock and cliff.

Other habitat types within the subregional reserve, involve aquatic or marine habitats, such as marine/coastal, water courses, marshes and vernal pools. These habitats did not receive priority consideration during the reserve design process. One category in particular, marine and coastal habitat, was not intended for inclusion in the Reserve System, although Upper

Newport Bay reserve was added because of the presence of adjacent “Target Species” habitat and its existing public ownership and management. The remaining habitat types represent small, scattered acreages that are protected under the Clean Water Act (e.g., vernal pools and water courses).

In addition to protecting CSS, a basic goal of the reserve design process was to maintain biodiversity within the subregion. The task of protecting biodiversity is made easier by the fact that CSS is a naturally-fragmented habitat, mixed with a variety of habitat types to create a complex biologic mosaic. The major habitat components in terms of acreage (Table 4-1) within the Reserve System are:

- CSS (18,527 acres);
- chaparral (6,950 acres); and
- grasslands (5,732 acres).

These three habitat types cumulatively account for more than 83 percent (31,209 acres) of the 37,378-acre Reserve System. In addition to chaparral and grasslands, the reserve design incorporates a significant share of other habitats, such as riparian, marsh and woodlands. Although naturally present in smaller acreage than the three primary habitats, these additional habitats contribute to long-term subregional biodiversity, provide protection for non-CSS habitats and species, and contribute to the future function of the reserve.

The reserve design protects the majority of the CSS habitat within the subregion. Figures 15 and 16, and Tables 4-3 and 4-4 illustrate the distribution of CSS within the Central and Coastal subarea reserves. The Reserve System incorporates 9,931 acres of CSS within the Central subarea and 8,597 acres of CSS within the Coastal subarea. Thus, significant protection of both inland and coastal CSS habitat is provided and there is an emphasis on the protection of CSS habitat located within the Coastal subarea and along the frontal slopes of the Lomas de Santiago. The maritime-influenced micro-climates associated with the San Joaquin Hills and the frontal slopes of the Lomas de Santiago (*i.e.*, the lower frequency and severity of winter freezes) are thought to enhance the productivity of subpopulations of many of the “target” and other “Identified Species”. Therefore the reserve design focuses on including these areas in the future habitat Reserve System.

The reserve design also reflects the need to protect CSS at the lower elevations (under 1,200 feet) where “Target Species” are the most abundant and the pressures to convert existing CSS and other habitats are greatest. Protection for the lower elevation CSS was a key criteria used to formulate the recommended reserve design.

- Target Species Protected

Chapter 2 and Appendix 6 to the NCCP/HCP describe existing biological conditions and present the results of the field surveys and literature reviews conducted during the formulation of this subregional NCCP/HCP plan. These components of the overall document describe the target and “identified” species occurring within the Central and Coastal NCCP subregion. All of the species cited in Chapter 2 and Appendix 6 will benefit from implementation of the subregional NCCP/HCP plan.

However, as discussed in Chapter 3, the Reserve System was designed to focus on the long-term protection and management of the three “Target Species” designated for the CSS subregional NCCPs. Thus, the Reserve System shown in Figure 12 contains significant habitat for the designated “Target Species”. Figures 15 and 16, and Tables 4-3 and 4-4 summarize the distribution of “Target Species” birds within the subregion and subarea components of Reserve System.

Tables 4-1 and 4-2 indicate that 62 percent of the gnatcatcher sites and 68 percent of the cactus wren sites are included within the Reserve System. The bird counts presented in this Chapter could have been based on a strict GIS tabulation of bird symbols in/out of the reserve/Special Linkages. For several reasons, however, reliance solely on GIS counts would not accurately portray the protection provided by the Reserve System and supporting geographic components. Specific limitations related to GIS “counts” are listed below.

- A “GIS count” does not Take into consideration how close the bird site is to the Reserve System boundary. Some of the bird symbols are virtually on the boundary yet they are counted as outside the reserve.

Table 4-3
Central Subarea Summary
Habitat Reserve, Vegetation and Target Species

Vegetation	Reserve	Special Linkage	Existing Use	Non Reserve Open Space	Policy Plan Area	National Forest OS	National Forest Private	Other Non Reserve	Total
Area in Acres									
Dunes						9	8		17
Scrub	9,931	159	664	190	3,006	1,733	1,835	4,893	22,410
Chaparral	3,613	5	313	31	5,251	13,114	6,510	1,445	30,281
Grassland	2,567	145	314	78	694	105	346	4,331	8,581
Vernal Pools	1							13	14
Marsh	11			2				1	14
Riparian	1,185	48	40	55	240	804	497	647	3,515
Woodlands	753	16	33	46	157	253	179	248	1,685
Forest	191				2	563	43	5	804
Cliff and Rock	51				14	29	12	14	120
Marine & Coastal									0
Lakes, Reservoirs, Basins	61		1	588			0	272	922
Water Courses	167			0	0		9	129	305
Agriculture	571			15			21	8,378	8,985
Developed	488	25	257	24	23	12	254	30,060	31,144
Disturbed	587	145	33	60	68	10	59	2,870	3,833
Total	20,177	543	1,654	1,089	9,456	16,632	9,772	53,307	112,631

Gnatcatcher	Total Sightings	206	4	46	3	5			46	310
	% of Study Area	66%	1%	15%	1%	2%	0%	0%	15%	100%
Cactus Wren	Total Sightings	409	9	44		14			113	589
	% of Study Area	69%	2%	7%	0%	2%	0%	0%	19%	100%
Total Sightings		615	13	90	3	19	0	0	159	899
Total % of Study Area		68%	1%		0%	2%	0%	0%	18%	90%

CSS	Total Acres	9,931	159	664	190	3,006	1,733	1,835	4,893	22,410
	% of Study Area	44%	1%	3%	1%	13%	8%	8%	22%	100%
OW	Total Acres	8,600	213	700	800	6,358	14,877	7,603	7,106	46,258
	% of Study Area	19%	0%	2%	2%	14%	32%	16%	15%	100%
DDA	Total Acres	1,647	170	290	100	92	22	334	41,308	43,963
	% of Study Area	4%	0%	1%	0%	0%	0%	1%	94%	100%

Notes:

CSS - Coastal Sage Scrub Habitat

OW - Other Wildland Habitat

DDA - Developed, Disturbed and Agriculture

1) *Target Species Sites in the National Forest are excluded from this analysis.

2) Target Species Sites impacted by Corridor Projects are excluded from this analysis.

Table 4-4
Coastal Subarea Summary
Habitat Reserve, Vegetation and Target Species

Vegetation	Reserve	Special Linkage	Existing Use	Non Reserve Open Space	Other Non Reserve	Total
Area in Acres						
Dunes					2	2
Scrub	8,597	290	440	93	2,563	11,982
Chaparral	3,337	18	422	48	1,111	4,937
Grassland	3,164	373	739	1,324	7,694	13,294
Vernal Pools	9	2		0	28	39
Marsh	332		29	233	50	644
Riparian	585	68	76	324	557	1,611
Woodlands	186	0		5	43	235
Forest						0
Cliff and Rock	22	7	1	1	21	53
Marine & Coastal	362		15	0	1,553	1,930
Lakes, Reservoirs, Basins	38	10		203	184	434
Water Courses	15	1	22	8	434	479
Agriculture	6	90	5	69	4,111	4,280
Developed	206	174	158	300	51,149	51,987
Disturbed	342	329	236	134	3,134	4,175
Total	17,201	1,363	2,142	2,742	72,635	96,082

Gnatcatcher	Total Sightings	164	16	41	7	62	290
	% of Study Area	57%	6%	14%	2%	21%	100%
Cactus Wren	Total Sightings	262	30	20		93	405
	% of Study Area	65%	7%	5%	0%	23%	100%
Total Sightings		426	46	61	7	155	695
Total % of Study Area		61%	7%	9%	1%	22%	100%

CSS	Total Acres	8,597	290	440	93	2,563	11,982
	% of Study Area	72%	2%	4%	1%	21%	100%
OW	Total Acres	8,051	479	1,303	2,146	11,677	23,657
	% of Study Area	34%	2%	6%	9%	49%	100%
DDA	Total Acres	553	594	399	503	58,394	60,443
	% of Study Area	1%	1%	1%	1%	97%	100%

CSS - Coastal Sage Scrub Habitat

OW - Other Wildland Habitat

DDA - Developed, Disturbed and Agriculture

Notes:

- 1) Target Species Sites impacted by Corridor Projects are excluded from this analysis.

- The symbol location does not necessarily reflect true location. Each symbol is a composite of three field visits. In many cases the composite symbol (each symbol covers one acre of land on a 1:24000 map) was located on the edge of the presumptive habitat, providing potentially misleading locational information.
- The GIS count does not reflect the fact that field surveys are “snap shots” in time. Bird nesting locations change frequently and birds sighted in 1992 or in 1994 may not be present at the same locations a year later.

Therefore, USFWS staff was requested to assist in estimating how many of the coastal California gnatcatcher sites identified in 1991/92 and 1994 were located such that enough of the presumptive habitat would be included in the Reserve System and Special Linkage Areas to consider them “protected.” Evaluations of vegetation/bird maps by USFWS staff (Dr. Linda Dawes) and the project team biologist indicated that 20 out of 92 sites that the GIS identified as “unprotected” (*i.e.*, in the non-reserve category) were located such that much of the habitat used by these birds would be protected under the reserve/special linkage systems.

Based on these GIS “limits,” the professional judgment of biologists who know the study area was relied on to identify those bird sites that are “protected” by the NCCP/HCP. The estimates of these biologists place the level of protection afforded by the combination of the Reserve System and other geographic components at about 75 to 80 percent of the “Target Species” birds.

- Other “Identified” Species Protected

As explained in Section 4.5, inclusion within the habitat Reserve System of twelve of the thirteen extant major habitat types within the subregion provides significant levels of protection for a broad range of species that are dependent on both CSS and non-CSS habitats. In addition to protecting habitat for the federally-threatened coastal California gnatcatcher and the two other “Target Species”, the Reserve System provides habitat for thirty-six (36) other species, including six other federally-listed species, at a level that justifies state and federal regulatory coverage under CESA and FESA. In terms of the federally-listed species, the Reserve System includes substantial habitat believed to be suitable for the Pacific pocket mouse, the Quino checkerspot butterfly, the least Bell’s vireo, southwestern willow flycatcher, southwestern arroyo toad, Riverside fairy shrimp and peregrine falcon. Five of these listed

species have been or nearly were extirpated from the subregion. Creation of the Reserve System and implementation of the adaptive management program offers an opportunity to re-introduce these species and/or to expand their limited populations within the subregion.

Section 4.5 identifies 30 other unlisted species that are treated "as if listed" under the NCCP/HCP. Substantial habitat is contained within the Reserve System capable of supporting these "identified" species. Because of the amount of habitat set aside within the Reserve System and the demonstrated ability to implement the adaptive management program within the reserve, these 30 "Identified Species" also receive regulatory coverage under the NCCP/HCP. In addition, following the completion of additional focused field surveys within the Reserve System, Section 4.5 identifies other species that may be protected to a level that would justify state/federal regulatory coverage under CESA and FESA.

- **Non-Wildlands Included Within the Reserve**

The remaining acreage within the subregional reserve (totaling 2,200 acres, Figure 12 and Table 4-1) consists of agriculture (577 acres), disturbed lands (929 acres) and developed lands (694 acres, including park and other public facilities). As lands are transferred into the reserve and funds become available during implementation of the NCCP/HCP, significant portions of the agricultural and disturbed lands within the reserve (now totaling 1,506 acres) are to be restored to CSS or other natural habitats. Section 5.6 describes the NCCP/HCP's restoration and enhancement policies/priorities and addresses uses and activities that will be permitted within the reserve.

Existing developed lands generally are located within parks, such as Irvine Regional Park and Crystal Cove State Park. Existing uses on the developed lands within the habitat reserve will continue.

4.3.2 Description of the Central Subarea Reserve

The Central subarea reserve is a 20,177-acre system (almost 32 square miles) located south and west of the Cleveland National Forest in the foothills and frontal slopes of the Santa Ana Mountains (Figure 15 and Table 4-3). More than 92 percent of the Reserve System is located in the existing unincorporated County jurisdiction, but small areas on the western edge of the reserve are included in two County regional parks located within the cities of Anaheim,

Orange, and Tustin (Table 4-5). On the west, the subarea Reserve System extends from Santiago Oaks Regional Park, in the City of Orange, about 14.0 miles southeast to El Toro Road, the boundary with the adjacent South NCCP subregion. From its northernmost point in the Coal Canyon Preserve adjacent to the Cleveland National Forest boundary, the reserve extends about 7.5 miles southwest to the southern edge of the frontal slopes of the Lomas de Santiago. Major physiographic features contained within the Central subarea reserve include Windy Ridge, Weir Canyon, Irvine Lake, the frontal slopes of the Lomas de Santiago, and Limestone Canyon.

The subarea reserve also includes and/or is traversed by significant public facilities. The Coal Canyon Reserve (owned/managed by CDFG) and the County of Orange's Santiago Oaks Regional Park, Peters Canyon Regional Park, and Whiting Ranch Wilderness Park areas are incorporated into the reserve design. In addition, the reserve area is traversed by the rights of way of two toll roads that now are being constructed. Both the Eastern Transportation Corridor (ETC) and the North Segment of Foothill Transportation Corridor (FTCN) pass through the reserve, but the rights of way for these toll roads are not included within the reserve boundaries. The reserve also is crossed by several important infrastructure systems, including arterial roads and public utilities. The infrastructure facilities are on lands included within the Reserve System.

The Central subarea reserve design incorporates habitat linkages and corridors that serve to connect all of the important habitat blocks within the reserve into a contiguous Reserve System. For instance, animals can enter the Reserve System from the South NCCP subregion by crossing over or under El Toro Road. Once on the west side of El Toro Road, animals can move through contiguous habitat and linkages west and north to enter the Cleveland National Forest directly through Whiting Ranch Wilderness Park. They also could choose to move in a more westerly direction through Limestone Canyon along Santiago Creek, or along the frontal slopes of Lomas de Santiago. Via any of these connections, animals could reach the East Orange General Plan (EOGP) area, and follow the wildlife corridors identified and reserved in the EOGP to move toward Weir Canyon, Windy Ridge, and the Cleveland National Forest. From the CNF, animals would have access to the Chino Hills and points north. Animals entering the reserve from the north would have the same movement opportunities, but in the opposite direction.

**Table 4-5
Local Government Jurisdictions
Coastal Sage Scrub and Other Wildlands Distribution
Central & Coastal Subregion**

City		Total	NCCP Reserve			Special Linkage			Existing Use			Non-Reserve OS			Other Non-Reserve			Total SubRegion		
			CSS	DDA	OW	CSS	DDA	OW	CSS	DDA	OW	CSS	DDA	OW	CSS	DDA	OW	CSS	DDA	OW
ANAHEIM	Inc.	9,389	185	2	75	24	8	36	248	131	83	4	20	52	1,235	5,686	1,601	1,696	5,846	1,847
COSTA MESA	Inc.	8,785	0	11	175					0	1				3	8,069	526	3	8,080	702
DANA POINT	Inc.	3,421	0		20				7	1	17				113	2,794	469	121	2,794	506
HUNTINGTON BEACH	Inc.	34														17	17	0	17	17
IRVINE	Inc.	27,546	1,365	182	1,572	166	106	377	132	53	134	19	225	1,398	298	17,286	4,230	1,981	17,853	7,712
LAGUNA BEACH	Inc.	5,672	958	26	485				107	58	309				652	2,213	865	1,717	2,297	1,658
LAGUNA HILLS	Inc.	3,325											0	6	2,855	464	6	2,855	464	
LAGUNA NIGUEL	Inc.	9,392	323	7	207				153	41	524	10	102	114	109	6,716	1,087	594	6,865	1,933
LAKE FOREST	Inc.	5,352	0	0	0										180	4,734	437	181	4,734	437
MISSION VIEJO	Inc.	298	0		0										11	199	86	11	199	86
NEWPORT BEACH	Inc.	8,880	37	23	328	0	13	1		23	58	21	11	85	93	7,474	712	151	7,545	1,184
ORANGE	Inc.	7,616	261	106	333	31	18	25	165	117	66		0	1	301	5,761	431	758	6,003	855
SAN JUAN CAPISTRANO	Inc.	2,399	43	10	201					6	46				11	1,748	334	53	1,764	581
SANTA ANA	Inc.	367														330	37	0	330	37
TUSTIN	Inc.	6,837	77	29	30										242	6,141	318	319	6,170	349
VILLA PARK	Inc.	1,325								0					9	1,295	20	9	1,296	20
YORBA LINDA	Inc.	55													3	46	7	3	46	7
UNINCORPORATED (COUNTY)		108,022	15,269	1,802	13,223	228	619	254	291	259	766	1,961	266	16,173	9,041	26,764	21,105	26,790	29,710	51,521
Total		208,713	18,519	2,199	16,649	449	764	693	1,103	689	2,004	2,016	624	17,823	12,306	100,128	32,747	34,392	104,404	69,916

CSS - Coastal Sage Scrub Habitat
OW - Other Wildland Habitat
DDA - Developed, Disturbed and Agriculture

Habitat linkages included within the reserve adequately provide for animal movement within the subarea. In addition, however, the linkages within the reserve are supplemented by additional linkages that connect to the reserve but are not included within the reserve. These supplemental linkages are called "Special Linkages" and they are described in Section 4.4 of this chapter.

Because of prior urbanization and agricultural activities in the central plain that separates the Santa Ana Mountains from the San Joaquin Hills, a major man-made barrier separates the Santa Ana Mountains wildlands from the remaining wildlands located in and around the San Joaquin Hills. A direct corridor linkage between the two subareas does not currently exist. Further, it has been determined that creation of a direct wildlife corridor linking the two subareas is not feasible (*e.g.*, by using a combination of San Diego Creek, Borrego Wash, or Serrano Creek south of the El Toro MCAS, refer to the discussion of reserve design alternatives in Chapter 3).

Therefore, connectivity between the Central subarea reserve and the Coastal subarea reserve must rely on a connection through the South NCCP subregion. Based on the reserve design, wildlife movement between the Central and Coastal subareas would be via the connection between the Central subarea and the South NCCP subregion across El Toro Road near Cooks Corner. Animal movement along this connection can continue east and south into O'Neill Regional Park and, once in the park, along the Trabuco Creek corridor in a southerly direction until it reached the 1-5 Freeway. Following the channelized crossing the 1-5 Freeway created for Trabuco Creek, animals can then enter the Coastal subarea Reserve System via Trabuco and Oso creeks. While this wildlife connection is far from ideal, reliance on movement through the South subregion is the only feasible alternative.

- CSS and Other Habitats Included Within the Reserve

Figure 15 and Table 4-3 also illustrate the relative share of CSS, other habitats, and "Target Species" birds contained within the Central Subarea Reserve System. As indicated in Table 4-3, CSS habitat occupies 49 percent of the Central Subarea Reserve System. Other major habitat components include chaparral (18 percent) and grasslands (13 percent). Riparian habitat also is an important component of the Reserve System (6 percent). Restoration currently underway within the subarea will provide additional "Target Species" habitat.

The subarea Reserve System includes 53 percent of the CSS within the Central Subarea that is located outside of the CNF boundary, including about 4,200 acres of CSS located at elevations below 900 feet elevation and another 3,100 acres of CSS located below 1,200 feet (Table 4-6). In all, 74 percent of the CSS habitat within the Central Subarea reserve is found below the 1,200 foot elevation. In contrast, 86 percent of the 3,003 acres of CSS located within the adjacent Policy Plan Area is found at elevations above 900 feet and virtually all of the CSS located in the CNF is above 900 feet. From a reserve design perspective the elevation of CSS is significant because, within this subregion, two of the three “Target Species” (the coastal California gnatcatcher and the orange-throated whiptail lizard) are uncommon above 900 feet, and rarely are found at elevations above 1,200 feet.

- Target Species Birds

Figure 15 and Table 4-3 illustrate the distribution of “Target Species” birds within the Central Subarea in relation to the Reserve System, special linkage/management area, other open space, and Policy Plan Area. Within the Central Subarea 206 of the gnatcatcher sites (66 percent) and 409 of the cactus wren sites (70 percent) are located within the reserve. Forty-six (15 percent) of the gnatcatcher sites and 113 (19 percent) of the cactus wren sites are located within the non-reserve areas designated by the NCCP/HCP as being available for future development. The remainder of the bird sites within the subarea (19 percent of the gnatcatcher sites and 11 percent of the cactus wren sites) are located within the other permanent open space, special linkage and Existing Use Areas, and North Ranch Area. Table 4-7 illustrates the distribution of target bird species within local jurisdictions. As indicated, 60 percent of the gnatcatcher sites and 69 percent of the cactus wren sites are located in the unincorporated area. As in the case of CSS and other habitat located within the CNF, the 10 cactus wren sites located in the CNF are not included in calculations related to the protection of bird sites.

- Other Subarea Features and Future Planning Considerations

Overall biodiversity within the Central subarea is enhanced by the habitat contained within the geographic components that support but are outside of the 20,177-acre Reserve System. Within the subarea, these supporting components include:

Table 4-6
Elevation Summary
Vegetation Categories and the Habitat Reserve
Coastal & Coastal Subregion

Elevation	Central Subarea							Coastal Subarea					Central & Coastal Subregion							
	Reserve	Special Linkage	Existing Use	Other Open Space	Policy Plan Area	Other Non Reserve	Total	Reserve	Special Linkage	Existing Use	Other Open Space	Other Non Reserve	Total	Reserve	Special Linkage	Other Open Space	Policy Plan Area	Other Non Reserve	Total	
CSS	<900'	4,238	102	571	104	451	3,172	8,638	8,200	283	440	90	2,144	11,156	12,439	384	193	451	5,316	19,794
	900'-1200'	3,050	57	78	99	1,244	1,573	6,101	396	7		3	420	827	3,446	64	103	1,244	1,993	6,927
	>1200'	2,643		15	1,720	1,311	1,983	7,671						0	2,643	0	1,720	1,311	1,983	7,671
OW	<900'	2,744	175	462	746	516	5,047	9,690	7,756	464	1,303	2,068	11,434	23,025	10,499	639	2,814	516	16,481	32,715
	900'-1200'	3,077	38	195	67	2,037	1,965	7,379	295	16		78	243	633	3,372	54	145	2,037	2,208	8,012
	>1200'	2,780		28	14,864	3,805	7,713	29,189						0	2,780	0	14,864	3,805	7,713	29,189
DDA	<900'	1,388	155	285	100	8	39,534	41,470	550	594	399	503	58,290	60,335	1,939	748	602	8	97,823	101,805
	900'-1200'	214	16	8	0	80	1,505	1,823	2	0			104	107	217	16	0	80	1,610	1,930
	>1200'	44		18	22	4	582	670						0	44	0	22	4	582	670

CSS - Coastal Sage Scrub Habitat

OW - Other Wildland Habitat

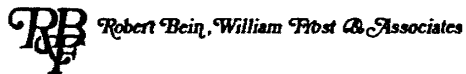
DDA - Developed, Disturbed and Agriculture

**Table 4-7
Local Government Jurisdictions
Target Bird Species Distribution
Central & Coastal Subregion**

City		Central												Coastal													
		Reserve		Special Linkage		Existing Use		Other OS		Other Non-Res.		Total		Reserve		Special Linkage		Existing Use		Other OS		Other Non-Res.		Total			
		CW	G	CW	G	CW	G	CW	G	CW	G	CW	G	CW	G	CW	G	CW	G	CW	G	CW	G	CW	G		
Anaheim	Inc.	8	5	2	4	12	20			22	5	44	34												0	0	
Dana Point	Inc.											0	0											2	11	2	12
Irvine	Inc.											0	0	86	41	20	13	19	29		1	36	13	161	97		
Laguna Beach	Inc.											0	0	31	10							5		36	10		
Laguna Niguel	Inc.											0	0	3	4			1	10					4	14		
Lake Forest	Inc.	1	1							3		4	1											0	0		
Mission Viejo	Inc.									2		2	0											0	0		
Newport Beach	Inc.											0	0		4	1					6	3		4	10		
Orange	Inc.	21	16			30	21			16	4	67	41											0	0		
San Juan Capistrano	Inc.											0	0	3	12				1					3	13		
Tustin	Inc.	2	5							19	25	21	30											0	0		
Unincorporated		377	179	7		2	5		3	65	17	451	204	139	93	9	3					47	38	195	134		
Total		409	206	9	4	44	46	0	3	127	51	589	310	262	164	30	16	20	41	0	7	93	62	405	290		

Notes:

- 1) Target Species Sites in the National Forest are excluded from this analysis.
- 2) Target Species Sites impacted by Corridor Projects are excluded from this analysis.



- 2,197 acres located in six Special Linkages and Existing Use Areas;
- 1,089 acres located in other permanent public open space outside the Reserve System;
- the 9,456-acre North Ranch Area that is designated for future coordinated conservation and development planning consistent with specified policies and designed to protect the function of the Reserve System; and
- the 26,023 acres of degraded and natural habitat contained within the CNF.

The function of the first three components is discussed in sections 4.4.1, 4.4.2 and 4.4.3. As explained earlier, habitat and species management within the CNF is not being addressed by the NCCP/HCP.

Future habitat and multiple species planning within the Central subarea will focus on the completion of planning for the North Ranch Area and on planning efforts related to inclusion of the 1,033-acre portion of the MCAS El Toro property into the subarea Reserve System.

For the El Toro property, the primary issues will involve assuring the transfer of the property to the Reserve System and, upon such transfer, enhancing and protecting the important “Target Species” habitat existing within the federal ownership. Finally, there is a need to recognize that inclusion of the El Toro property does not restrict the ability of the County and other involved interests to proceed with base reuse planning involving the possible future development of a commercial airport on the non-reserve portions of the El Toro MCAS site.

Planning for the North Ranch Area will focus on identifying important habitat areas for future biological management and identifying the habitat linkages that will protect the long-term function of the subarea Reserve System, particularly with regard to protection of connectivity between elements of the Reserve System and the CNF.

4.3.3 Description of the Coastal Subarea Reserve

The Coastal subarea reserve contains 17,201 acres (almost 27 square miles) located primarily in and surrounding the San Joaquin Hills (Figure 16 and Table 4-4). The Subarea Reserve

extends from the shoreline in Crystal Cove State Park inland almost 7.5 miles to a point close to the 1-405 Freeway. Starting from the Upper Newport Bay reserve, the reserve extends southeast about 16.0 miles to the confluence of Oso Creek and Trabuco Creek, adjacent to the South NCCP subregion. Most of the subarea Reserve System is located within the unincorporated jurisdiction of the County; however, significant portions of the reserve are within the cities of Irvine, Laguna Beach and San Juan Capistrano (Figure 18). Smaller portions of the reserve also are located within the cities of Costa Mesa and Newport Beach.

The dominant physiographic features within the subarea reserve include Upper Newport Bay, the various drainages and ridges contained within the coastal and inland slopes of the San Joaquin Hills, the Aliso-Woods canyons and the Oso/Trabuco creek corridor (the latter in the City of San Juan Capistrano).

The reserve also contains or is traversed by important public facilities. The San Joaquin Hills Transportation Corridor (SJHTC) right of way passes through the reserve near the ridge line of the San Joaquin Hills, but its right of way is not included within the Reserve System. Other significant public infrastructure facilities are included within the reserve, including arterial roads and utility corridors and facilities. Important recreation facilities within the reserve include Crystal Cove State Park, the Upper Newport Bay reserve (CDFG), the Aliso-Woods Canyons Wilderness Park and the Laguna Coast Wilderness Park. Talbert Regional Park, located near the mouth of the Santa Ana River on the extreme western edge of the subarea, also is included within the reserve as an outlying island.

Biological connectivity provided by the Coastal subarea reserve design focuses on assuring usable corridor connections between the San Joaquin Hills and peripheral areas such as Upper Newport Bay, Bonita Canyon, Quail Hill, the coastal shelf of Crystal Cove State Park and Aliso-Woods canyons. Accordingly, the Coastal subarea reserve design focuses on protecting usable wildlife corridor connections between the main reserve habitat in the San Joaquin Hills and these peripheral areas. The reserve design incorporates linkages that connect the various geographic components of the reserve into a contiguous system and allow animals to move throughout the subarea via a continuous system of reserve habitat and linkages. As discussed in Section 4.3.2, the reserve design also addresses the need for connections to the South NCCP subregion and the Central subarea.

As in the case of the Central subarea, additional non-reserve public open space, "Special Linkages" and "Existing Use Areas" located outside the Reserve System serve to enhance the biological connectivity provided by the reserve design. The location and function of these "Special Linkages" and "Existing Use Areas" are discussed in Section 4.4.

- CSS and Other Wildlands Within the Subarea Reserve

Within the Coastal subarea Reserve System, CSS constitutes almost 50 percent of the total subarea reserve (Table 4-4). Other important habitat components include chaparral (19 percent) and grasslands (18 percent). Virtually all of the CSS (96 percent) within the Reserve System is found at elevations below 900 feet and 100 percent of the reserve CSS is below the 1,200 foot elevation (Figure 17). The elevations where the CSS occurs, in combination with the moderating effects of its proximity to the ocean, make the Coastal subarea Reserve System particularly important as habitat for the coastal California gnatcatcher and a variety of CSS-related species.

- Target Species Birds

Figure 16 and Table 4-4 illustrate the distribution of "Target Species" birds within the Coastal subarea in relation to the Reserve System, special linkage areas, and other public open space. Within the Coastal subarea 164 gnatcatcher sites (57 percent) and 262 cactus wren sites (65 percent) are located within the Reserve System. The non-reserve portion of the subarea designated for future potential development contains 62 gnatcatcher sites (21 percent) and 93 cactus wren sites (23 percent). The remainder of the bird sites within the subarea (22 percent of the gnatcatcher sites and 12 percent of the cactus wren sites) are located within the other public open space and Special Linkages and Existing Use Areas.

- Other Subarea Features and Future Planning Considerations

As in the case of the Central subarea, overall biodiversity within the Coastal subarea is enhanced by habitat included within the geographic components that support the 17,201-acre subarea Reserve System. Within the subarea, these supporting components include:

- 2,742 acres of public open space located outside the reserve (e.g., Quail Hill and other non-reserve open space portions of the City of Irvine GPA 16, the San Joaquin Marsh, Mason Regional Park, the Aliso Creek Corridor, and the Laguna Niguel Regional Park); and
- 3,505 acres located within twelve Special Linkages and Existing Use Areas.

The function of these components is discussed in sections 4.4. and 4.4.2.

Future habitat planning within the subarea that could enhance reserve function involves ongoing planning on the University of California at Irvine campus. The University of California will be evaluating whether it is feasible to eliminate the extension of California Avenue through the existing habitat reserve on campus. California Avenue is accommodated in the NCCP/HCP reserve design as a two-lane, minimum width road. UCI has evaluated the necessity of this roadway link (UCI Long Range Development Land Circulation and Open Space Amendment Draft EIR October 1995, SCH#95031053) and has determined that this link will remain on its LRDP as a necessary component of its planned circulation system, but will continue to monitor the future need for this link.

Another important planning process with positive implications for the NCCP/HCP program involves TIC efforts to re-design its plans for residential development along the ridge located between Los Trancos Canyon and Muddy Canyon and the Wishbone frontal slopes and hills. Subject to review and approval by the California Coastal Commission, the proposed re-design would consolidate residential development currently shown along the ridge that separates Los Trancos Canyon and Muddy Canyon such that much of future residential development would be located closer to PCH. The re-design also would minimize proposed development from a parcel located adjacent to the SJHTC that previously was proposed as a major equestrian center. Consolidation of the residential development along Wishbone frontal slopes and hills would replace the two narrow Special Linkages that link Los Trancos and Muddy canyons with a much wider habitat linkage that could be incorporated into the Reserve System. Inclusion in the habitat reserve of the site formerly proposed as an equestrian center and creation of a much wider reserve linkage between Los Trancos and Muddy canyons to replace the narrower non-reserve Special Linkages designated by NCCP/HCP would further enhance connectivity and biodiversity within the Coastal area reserve.

Both the UCI and TIC planning efforts would significantly benefit the biological function of the Reserve System. In addition, both planning processes would result in a net gain in reserve acreage. Therefore, if the plans progress as anticipated, and if the Coastal Commission approves the TIC proposal, modifications to the reserve boundaries related to these planning efforts could be handled as “minor amendments” to the NCCP/HCP under the terms of the Implementation Agreement.

4.3.4 Ownership and Management of the Permanent Reserve System

The Reserve System contains lands currently owned by a variety of public and private interests. This section describes the current ownership of lands designated for inclusion within the permanent habitat reserve, future ownership of the reserve after the reserve is fully assembled, and the permanent non-profit corporation that will be created to serve as the ongoing management authority for the Reserve System.

Current Ownership of Designated Reserve Lands

Current public and private ownerships of designated reserve lands are shown in Figure 19 and described in the following discussion.

- Existing Public Landowners

Public ownerships within the recommended Reserve System now total about 16,347 acres and include the following (refer also to Table 3-2):

- about 8,377 acres owned by the County of Orange and managed by the County’s Harbors Beaches and Parks Department (EMA HBP);
- the 2,807-acre Crystal Cove State Park owned by the State of California and operated by the Department of Parks and Recreation (DPR);
- the University of California at Irvine (UCI) owns or will manage about 135 acres, including the existing 63.5-acre habitat reserve that it now manages;

- an 1,033-acre portion of the existing El Toro Marine Corps Air Station owned by the U. S. government and operated by the Department of Defense (DOD);
- the 1,713 acres owned by the State of California and managed by the CDFG, including Upper Newport Bay reserve, Coal Canyon reserve and the California Ecological Reserve within Laguna Coast Wilderness Park;
- 1,662 acres owned/managed by the City of Laguna Beach; and
- 318 acres owned by the TCAs for environmental mitigation purposes (214 acres around Siphon Reservoir and 104 acres within the Coyote Landfill).

As explained in Chapter 5 and the Implementation Agreement (Part IV), during the initial phase of the implementation process, each of these public ownerships will be formally incorporated into the management program of the Reserve System. With the signing of the subregional NCCP Implementation Agreement, the Reserve System includes all of the above public acreage except for the 318 acres owned by the TCAs, which will be transferred to the Reserve System at a later date under the terms of existing agreements with USFWS. The rights of way for the SJHTC, ETC, and FTC are not included within the Reserve System.

- Existing Private and Other Lands Within the Reserve System

The Irvine Company (TIC) is by far the largest private owner of designated reserve lands within the subregion (Figure 19). TIC owns 20,878 acres that are included in the Reserve System. This includes 17,877 acres that already are designated for future dedication to the County or cities of Irvine, Orange, Anaheim, or Newport Beach as natural open space under the terms of existing dedication programs and development agreements (Figure 20). In accordance with existing agreements, dedication of these lands will be phased to coincide with phasing of approved entitlements in the cities of Anaheim, Orange, Irvine, and the County of Orange. Although transfer of portions of the 17,877 acres will occur in the early years of implementation, completing the assemblage of these lands as part of the reserve will require many years.

In addition to the TIC dedication areas, the Reserve System also includes 3,001 acres of TIC lands that were not previously offered as future open space. These lands currently are

approved for residential uses in adopted local general plans. Inclusion of such lands within the Reserve System and elimination of residential uses will require the cooperation of TIC. Amendments to the affected local government general plans will not be required to execute the transfer of lands to the reserve but such amendments ultimately may be processed to update general plans.

Other smaller ownerships were determined to be of sufficient biologic value to warrant their inclusion within the Reserve System. To be included within the Reserve System, the cooperation of the owners of these private or quasi-public lands is required. In other words, they must be “willing” sellers. Of the smaller ownerships listed below, only the SCE parcel is considered to be essential for long-term reserve function. This is due to its critical location and function as a linkage to the Southern NCCP Subregion Reserve System. The other parcels of land are considered to be desirable, but not essential for reserve function. These land ownerships will be acquired if and when funding becomes available, and include (Figure 19):

- 99 acres which have part of the 148-acre parcel of land owned by the Southern California Edison Company (SCE);
- the 120-acre Santiago Ranch property (excluding the existing 11-acre stables adjacent to Santiago Canyon Road);
- the 524-acre Barham Ranch, owned by the Orange Unified School District and Serrano Irrigation District.

Future Reserve Ownership Policies

Lands contained in the permanent habitat Reserve System will conform to the following policies:

1. All public and privately-owned lands identified in Section 4.1.2 (Figures 19 and 20) are to be operated and managed as part of the Reserve System.
2. Consistent with current state and federal land acquisition practices, fee or other interests in the private lands designated for future inclusion in the permanent Reserve System will be acquired only if the landowner is a willing participant in the transaction.

3. After the permanent Reserve System is fully assembled, all lands located within the permanent habitat reserve will be owned/managed by qualified public agencies or non-profit organizations under the terms of this document and the NCCP/HCP Implementation Agreement.
4. A single, coordinated set of habitat management programs and policies, as set forth in this chapter, will govern the implementation of the recommended NCCP/HCP for the multiple ownerships included within the Reserve System. A process for amending the adopted habitat management program and policies in the future also is included in this chapter.
5. Existing public agency land managers will retain their respective ownership and management responsibilities for all reserve lands under their control. In some cases this may be accomplished by the use of cooperative management agreements entered into by the respective owners/managers designed to increase operating efficiency. Following completion of phased dedications, and transfer of the additional 3,001 acres of TIC property and the 1,033-acre MCAS El Toro property, it is expected that reserve lands will be owned/managed by the following entities (Figure 21):
 - the County EMA HBP will own approximately 21,000 acres;
 - 1,662 acres owned by the City of Laguna Beach;
 - 5,809 acres owned by the City of Irvine;
 - 2,929 acres owned by the City of Orange;
 - 1,033 acres owned by the DOD;
 - about 200 acres managed by the City of San Juan Capistrano;
 - the UCI will own or manage 135 acres on its campus between the SJHTC and California Avenue;
 - the state DPR will own or manage the 2,807-acre Crystal Cove State Park; and

- the CDFG will own 1,713 acres, including the 678-acre Upper Newport Bay reserve, the 953 acres included in the Coal Canyon reserve and the California Ecological Reserve within Laguna Coast Wilderness Park.
6. Ownership changes within the Reserve System may occur over time, as lands are transferred from private to public ownerships under the terms of the NCCP/HCP and Implementation Agreement.
 7. Consistent with the NCCP/HCP amendment procedures set forth in the Implementation Agreement, additional lands may be added to the reserve in the future, or future exchanges of lands that would not result in a net reduction of the size of the permanent Reserve System or compromise its biological integrity, may Take place if approved by CDFG, USFWS, applicable landowners, and the non-profit management corporation. Land additions and exchanges shall not significantly and adversely affect the integrity and function of the Reserve System.

Policies Guiding the Creation and Operation of a Management Authority for the Permanent Reserve System

As indicated in the preceding discussion, the NCCP/HCP creates a habitat Reserve System consisting of lands owned and managed by several separate public agencies. In order to assure coordinated and effective long-term implementation of reserve management, the NCCP/HCP creates a non-profit reserve management corporation. Creation of a non-profit corporation responsible for managing the habitat Reserve System is consistent with the following policies.

1. A permanent non-profit management corporation shall be created to oversee and coordinate the ongoing administration of the Reserve System consistent with the policies of the approved subregional NCCP/HCP and the terms set forth in the Implementation Agreement.
2. Membership in the non-profit corporation will include each of the identified public owner/managers, the participating private landowners, three public members, CDF, CDFG, and USFWS. CDFG and USFWS shall participate on a “voting” basis but the

CDF representative will serve as an “ex-officio” non-voting member. During the formative years of the program, an experienced non-profit habitat manager (e.g., The Nature Conservancy) also could be included as a non-voting participant.

3. The purpose of the new non-profit corporation shall be to coordinate implementation of the management program and provide oversight with respect to the implementation policies set forth herein consistent with the “adaptive management” approach established by the NCCP Planning Guidelines. The oversight function reflects the fact that individual jurisdictional owner/managers will actually carry out management activities on their respective ownerships within the Reserve System.
4. While a representative designated by Chandis-Sherman remains on the Board and the City of Dana Point remains a signatory to the Implementation Agreement, Chandis-Sherman will consult with the City on a periodic basis with respect to USFWS and CDFG activities within the temporary preserve area established on the Chandis-Sherman property and with respect to pending actions of the non-profit reserve management corporation regarding the Pacific pocket mouse or activities identified by the City of Dana Point affecting the City.
5. To facilitate coordination between the Coastal Greenbelt Authority and the non-profit corporation Board, a non-voting member of the Board may be designated by the Coastal Greenbelt Authority.
6. Over time the membership of the non-profit Board of Directors will decrease as private lands (e.g., TIC) and other initial owners (e.g., TCAs) complete the transfer of designated lands to public owner/managers within the Reserve System. Consistent with Section 5.1.2 of the Implementation Agreement, the by-laws of the non-profit corporation shall provide for changes in the Board of Directors as changes occur in the ownership of land within the Reserve System.
7. The “oversight and coordination” functions of the permanent non-profit corporation will include, but not be limited to the following:

- hiring and supervising staff and/or consultants to administer implementation of the subregional NCCP/HCP;
- hiring and coordinating seasonal biologists to carry out monitoring, field inventories, and management activities described in Section 5.6;
- contracting with TNC or other non-profit organizations to function as consultants, provided that such organizations have demonstrated expertise in preparing/implementing habitat management and restoration plans;
- coordinating ongoing management activities undertaken by individual reserve owners/managers, to assure compliance with the terms and provisions of the NCCP/HCP, including the adaptive management policies;
- coordinating “interim management” activities within private lands designated for inclusion in the Reserve System;
- appointing a technical advisory committee consisting of scientists, ecologists, conservation biologists and others with expertise in protecting and managing habitat resources to provide assistance to the Board of Directors relating to reserve management issues;
- preparing annual implementation programs and reports, such annual reports to include the following information:
 - recommending modifications to specific management policies and programs consistent with the ongoing “adaptive management” program referenced in Section 5.3.2 of the Implementation Agreement (e.g., changes to permitted levels of public access and recreation),
 - preparing a specific management program/budget for the following year,
 - updating prior budgets and other ongoing funding recommendations and priorities,

- summarizing activities undertaken by all participants in the management of the Reserve System,
- accounting for the location and amount of Take of “Identified Species” and loss of habitat within the Reserve System during the prior year,
- accounting for mitigation fees and related loss of habitat in the subregion by amount and location outside the reserve,
- accounting for all other funds received and disbursed to participating agencies for management, restoration/enhancement, and acquisition activities related to the approved NCCP/HCP;
- accounting for land added to the Reserve System, and
- preparing and updating a land acquisition priority list relating to potential land additions to the Reserve System,
- soliciting grants and other sources of funding from agencies, organizations or landowners/individuals;
- accepting and managing the use of mitigation fees and/or funds from landowners, organizations, state and federal programs, and interested non-profit organizations participating in the implementation of the NCCP/HCP; and
- finding that reserve management is properly functioning under the terms of the Implementation Agreement, including a finding of compliance with permitted Incidental Take within the Reserve System;

8. Annual reports prepared by the non-profit management corporation pursuant to Policy 4 above shall be submitted to CDFG and USFWS for review and comment in accordance with the following:

- annual reports shall be submitted by the non-profit corporation to CDFG and USFWS no later than December 1 of each year, commencing December 1, 1996;
 - prior to approval of the annual report, a public meeting will be held by the non-profit corporation to discuss the report and provide an opportunity for public comment; and
 - CDFG and USFWS shall review and comment on the submitted annual report shall be completed by February 1, or within 60 days of submittal if the report is not submitted by December 1.
9. If the CDFG and USFWS review of the annual report reveal significant disagreements concerning the status/effectiveness of management efforts (*e.g.*, disagreements concerning reported habitat quality, recreation impacts, progress on phased activities, or management activities proposed to be undertaken during the following year), then the agencies shall meet and confer with the non-profit corporation to discuss those portions of the annual report which raise issues, and attempt to determine whether mutually acceptable resolution of issues is feasible. In the event there is a disagreement between CDFG and USFWS concerning the findings and/or recommendations contained in the annual report, the two agencies shall resolve their dispute in a manner that does not impact the ability of the non-profit reserve management authority to implement the NCCP/HCP. For federally-listed species, USFWS decisions shall prevail. CDFG decisions shall prevail for species listed only at the state level.
10. In the event that emergency situations arise (*e.g.*, due to wildfires) the non-profit corporation and participating landowner/managers shall consult with USFWS and CDFG to the extent practicable to formulate responses and, if necessary, emergency measures necessary to protect the biological resources within the Reserve System. Such emergency measures/actions shall not be limited by the provisions contained in the latest adopted work program/budget prepared by the managing authority and reviewed by CDFG and USFWS. However, any additional costs will not be borne by *participating landowners*, nor will emergency actions require the involvement of lands located outside the Reserve System.

SECTION 4.4 DESCRIPTION OF THE NON-RESERVE GEOGRAPHIC COMPONENTS OF THE SUBREGIONAL CONSERVATION STRATEGY

The Reserve System described above, in combination with the adaptive management program that will be described in Chapter 5, represent the heart of the subregional conservation strategy. However, additional geographic areas within the subregion support the reserve and management program, and will contribute to the long-term protection of CSS and biodiversity. These supporting geographic components of the conservation strategy include:

- Supplemental Non-reserve Habitat Areas, including Special Linkages and Existing Use Areas;
- public open space located outside the reserve;
- a temporary preserve for the Pacific pocket mouse located on the Dana Point Headlands;
- the North Ranch Policy Plan Area; and
- the Cleveland National Forest.

The following discussions describe each of these components.

4.4.1 Supplemental Non-Reserve Habitat Areas: Special Linkages and Existing Use Areas

In addition to the 37,378-acre Reserve System, other areas totaling 5,702 acres that include significant natural lands are designated for inclusion in the subregional conservation strategy. These additional areas, called "supplemental non-reserve habitat areas," consist of "Special Linkages" owned by participating landowners and "Existing Use Areas" owned by non-participating landowners and they are identified in Figure 22. The purpose of these "supplemental non-reserve" areas is to maintain connectivity between core CSS habitat areas within the subregion, to improve biological linkages between this subregional Reserve System and adjacent NCCP subregions (e.g. Southern Subregion and the Chino Hills) and to provide for other "Target Species" habitat located outside the Reserve System.

The NCCP/HCP designates lands as “Special Linkages” or “Existing Use Areas” in those instances where one or more of the following conditions are present:

- “Target Species” and/or CSS habitat are present;
- the subject lands function by contributing to connectivity between reserve areas;
- the principal uses within the portions of “Special Linkages” involve activities other than species/habitat protection, but significant portions of the designated area provide linkage functions for “Target Species” or important regulators of predators, such as coyotes;
- the linkage is important to reinforce and/or provide redundancy for other linkages contained within the Reserve System;
- CSS within the designated areas/linkages is not necessary for inclusion in the permanent habitat reserve in order for the Reserve System to function consistently with the standards contained in Section 10 of the FESA and the provisions of the NCCP Planning Guidelines, but could enhance linkage/connectivity functions; and
- the area provides important backup (redundancy) habitat for “Target Species”, potential refuge function and provides the potential to contribute to the long-term genetic pool of target and “Identified Species”.

The “Special Linkages” and “Existing Use Areas” designated by the NCCP/HCP contain a total of 107 gnatcatcher sites and 1,552 acres of CSS habitat (Table 4-1).

Many of these areas are not expected to experience significant development pressures during implementation of the NCCP/HCP. However, some “Existing Use Areas,” such as the Coal (Cypress) Canyon in the City of Anaheim, the O’Hill property in City of Laguna Niguel and the property located at the mouth of the Santa Ana River are either already entitled or actively involved in planning for future development.

Because *participating landowners* will make habitat protection commitments for areas within the "Special Linkages" and because they will make additional mitigation commitments to the NCCP/HCP Reserve System, authorization for Take within the "Special Linkages" is provided for CSS habitat supporting four gnatcatcher sites within two "Special Linkages" (related to construction of the proposed Sand Canyon and Shady Canyon golf courses). The NCCP/HCP does not authorize Incidental Take within the "Existing Use Areas." As required under existing law, a landowner request for authorization of Incidental Take of gnatcatcher habitat within "Existing Use Areas" in the future will require approval by the USFWS in addition to normal local government approvals. The USFWS will determine whether such Take is permissible and, if so, how it should be mitigated (refer to Section 7.3 for additional explanation of the regulatory approach for these areas).

The following sections identify and briefly describe the ten "Special Linkage Areas" and eight "Existing Use Areas" that are designated as "supplemental non-reserve habitat areas" within the subregion. Six of these designated "linkages and areas" are located within the Central Subarea, and twelve are designated within the Coastal Subarea.

Special Linkage Areas

Certain lands within the subregion owned by *participating landowners* are designated as "Special Linkages" by the NCCP/HCP. The designated "Special Linkage" areas include ten areas totaling 1,906 acres (see Figure 22, sites 1 through 10). These lands exhibit one or more of the biological characteristics/functions listed in the preceding discussion. Incidental Take of gnatcatcher habitat under the NCCP/HCP is authorized for 106 acres of CSS within these areas (four gnatcatcher sites currently occupy about 40 acres of CSS). This Take is mitigated by the *participating landowners'* contributions to creation of the Reserve System, implementation of the adaptive management program and commitments within the "Special Linkages." No additional mitigation or approvals by CDFG and USFWS, in accordance with the provisions of the Implementation Agreement, will be required for this Take in addition to the mitigation provided by the NCCP/HCP.

“Special Linkages” Located Within the Central Subarea.

1. SCE Special Linkage Area Located in the City of Anaheim

The only designated Special Linkage within the City of Anaheim involve the 135 acres contained within the linear SCE easement that crosses the City in a southwest to northeast direction. SCE holds the easement in question and is a *participating landowner* in the NCCP/HCP program. The SCE right of way is about 2,000 feet long and varies in width from 330 feet to 550 feet. The SCE easement varies in distance from about 1,000 feet to 6,000 from the reserve. The corridor contains 51 acres of CSS, 84 acres of other wildlands, and 11 gnatcatcher sites and 4 cactus wren sites. Current and future uses within the right of way consist of overhead electrical transmission lines that will continue to be maintained. No future development is proposed within the easement and SCE is committed to implementing the purposes and policies contained in the NCCP/HCP.

Due to the long-term habitat protection and management benefits conferred by the permanent special linkage area commitments established pursuant to Section 6.1(d) of the Implementation Agreement, Take by SCE for operation and maintenance activities at its facilities within the special linkage area is authorized by the NCCP/HCP and Implementation Agreement.

2. Limestone Creek Golf Course Special Linkage

This 223-acre Special Linkage consists of a wildland creek drainage area that is owned by TIC. The approved EOGP designates this area as open space and identifies it as an area planned for development as a golf course. Most of the linkage will be contiguous with portions of the reserve. At the west end of the linkage, there will be a break between the special linkage and the adjoining reserve, which consists of a CSS-covered hill overlooking the special linkage. A number of habitat types are present, including sycamore riparian, grassland, and small amounts of CSS. CSS accounts for about 64 acres of the total linkage area. This linkage is located away from the moderating sea breezes that appear to benefit the frontal slopes of the Lomas de Santiago, at elevations ranging from 800 feet to more than 900 feet. No target birds were sited during prior field surveys and it is not expected that this area will support significant populations of “Target Species”. The NCCP/HCP authorizes Take of up to 20 acres of CSS.

The Limestone Creek linkage provides a riparian-type connection to Irvine Lake for species using the Reserve System. This connection will be most valuable to non- "Target Species". However, gnatcatchers are also thought to use riparian corridors, especially during seasons when the drought-deciduous coastal scrub plants have lost their leaves. This linkage supplements the upland linkages included in the reserve.

With respect to the Limestone Creek golf course, golf course development shall be governed by:

- the requirements of the City of Orange final EIR 1278; and
- the golf course design and construction provisions of the September 14, 1989, agreement between TIC and Sea and Sage Audubon Society (see Section 6.1(b)(4) of the Implementation Agreement);

If the Arroyo toad is present on the project site, golf course development shall be subject to additional design modifications and onsite measures, consistent with the purposes and feasibility of the golf course project, appropriate for the protection of the Arroyo toad, developed in coordination with the USFWS and CDFG. While attempts will be made to accommodate the Arroyo toad onsite, TIC will have the option of relocating all life stages of the toad to permanently protected areas. The conservation easement requirements shall be carried out in the same manner as provided for in the Shady Canyon golf course.

Under such circumstances, conservation easement requirements shall be carried out in the same manner as provided for in the Shady Canyon special linkage under Section 6.1(b)(1) of the Implementation Agreement.

Golf course design will incorporate native vegetation to the maximum extent feasible, and make maximum use of existing woody vegetation, including both trees and shrubs. The golf course will be designed to maintain the integrity of the riparian zone in order to provide the intended linkage benefits to the reserve.

3. Frank Bowerman Landfill Golf Course Special Linkage

This Special Linkage is a 173-acre area containing 38 acres of CSS located within the north-central part of the County's existing Frank Bowerman Landfill. The Special Linkage portion of the landfill will be developed as a golf course after landfill operations are terminated and landfill closure actions have been completed. The County will confer with USFWS and CDFG in the design and construction of the golf course to minimize impacts to adjacent Reserve System lands. Previous field surveys found two cactus wren sites and no gnatcatcher sites within the Special Linkage portion of the landfill. Upon completion of construction and landscaping for the golf course, the remaining 500 acres of the landfill that surrounds the Special Linkage shall become part of the Reserve System and managed in accordance with the provisions of the Implementation Agreement and then applicable landfill closure requirements.

"Special Linkages" Located Within the Coastal Subarea

4. Sand Canyon Reservoir Golf Course Special Linkage

The Sand Canyon Special Linkage area, like the Turtle Rock Existing Use Area, is an area that is expected to provide significant value for connectivity and as a refugium for "Target Species". All of the lands included within the Special Linkage currently are undeveloped. Portions of this 296-acre linkage area are owned by the County of Orange, the IRWD and TIC. The portion owned by TIC has been committed for future dedication to the City of Irvine as open space under the provisions of the City's GPA 16. An IRWD reservoir and associated facilities occupy a portion of the linkage area.

In response to a request from the County, this 296-acre area was shifted from a "reserve" designation in the preliminary reserve concept to "special linkage" in the NCCP/HCP. This 296-acre linkage contains 56 acres of CSS, and a combination of grasslands, other wildlands and agricultural lands. Spring surveys conducted during 1994 identified seven gnatcatcher sites and no cactus wren sites within the linkage. Field survey data provided by Almanza and Associates indicates that the number of "Target Species"

increased between 1994 and 1995. Elevations within the linkage area range from 100 to 200 feet.

The County of Orange, the City of Irvine and IRWD are proposing the construction of a golf course providing a total of 18 holes, a driving range, and clubhouse within the Special Linkage area. An additional nine holes may be constructed on other lands located outside the Reserve System. The County/IRWD golf course, ancillary facilities, and access road have been designed to minimize to the extent feasible the impact of these facilities on “Target Species” habitat. The design will reflect the connectivity value of the remaining “Target Species” habitat and its value as a refugium, including the particular importance of protecting resident “Target Species” populations during the next few years as source populations that could contribute to re-populating areas burned during the 1993 Laguna Fire. As depicted in Figure 73, the golf course and related facilities will result in Take of six acres of occupied CSS and loss of six additional acres of non-CSS occupied by gnatcatchers. As provided for in Section 6.1(a)(3) of the Implementation Agreement, mitigation will include eight acres of on-site CSS re-vegetation, 14 acres of off-site restoration and 14 acres of artichoke thistle abatement removal. The lead agencies concluded, after reviewing detailed Sand Canyon golf course plans that were submitted by the County, including on-site/off-site mitigation, that connectivity and “refugia” functions now provided within this area would be maintained. The details of restoration will be contained in a Restoration Management Plan to be approved by USFWS prior to habitat modification.

This linkage reinforces connectivity within the Coastal Subarea. In particular, it serves to enhance connectivity between the Turtle Rock Existing Use Area and the Quail Hill portion of the reserve. Finally, the linkage reinforces connectivity through the Shady Canyon linkage between Turtle Rock and the main reserve contained within the San Joaquin Hills.

5. Shady Canyon Golf Course Special Linkage

The 357-acre Shady Canyon Special Linkage is an undeveloped area that includes two separate open space areas that are being planned in concert with the overall planning for Planning Area (PA) 22 within the City of Irvine. The two components of the linkage include a proposed golf course that will be designed and constructed within a 312-acre area along the southwestern

margins of PA 22 contiguous with the reserve, and a 45-acre portion of the planning area called North Hill. The North Hill component is separated from the reserve by 500 feet to 1,100 feet of proposed residential development. A total of 117 acres of CSS are located within the two linkage components, with annual and perennial grassland occupying most of the rest of the linkage area. Other important habitat within the linkage includes well-developed sycamore and willow riparian areas. Habitat polygons range in elevation from 200 feet to 580 feet and, according to the NCCP database, a total of six gnatcatcher sites and 21 cactus wren sites are located within the overall linkage.

The provisions of Section 6.1(b)(1) of the Implementation Agreement shall apply to the Shady Canyon Special Linkage. The North Hill portion of the reserve is to be left undeveloped. Existing habitat resources are not to be modified within this area and a permanent conservation easement will be provided for the hill area. The golf course and open space proposed for the other linkage component are within a 312-acre area. The design of the golf course is intended to preserve significant portions of both the riparian and CSS biological resources within this 312-acre portion of the linkage. Roughly a quarter to one-third of the existing native vegetation will remain intact, including several slopes and ridges and all but 10 acres of the riparian habitat. The golf course design has not been finalized but TIC is committed, pursuant to the Implementation Agreement, to incorporating native vegetation and to providing adequate opportunity for wildlife movement through this corridor. Design measures will make use of existing trees and shrubs and strengthen the integrity of the riparian zone to the extent feasible. The NCCP/HCP authorizes the Take of up to 40 acres of CSS related to the proposed golf course.

Upon completion of construction and landscaping of the golf course, a conservation easement will be placed on the golf course affecting the open space to ensure future protection of Special Linkage functions. The open space boundaries may be modified over time upon mutual agreement of the City of Irvine and TIC to reflect adjustments in golf course use or design, provided that total amount of open space and CSS habitat specified in the final EIR (90 acres of open space and 61 acres of CSS within the "Golf Course Open Space" category) are retained within the Special Linkage area. For the North Hill portion of the Special Linkage, a conservation easement will be recorded over the entire area in favor of the County of Orange or CDFG or other offeree as provided in the standard form of conservation easement set forth in the Implementation Agreement.

The Special Linkage reinforces connectivity between the important “Target Species” populations located in and around Turtle Rock and the Sand Canyon Reservoir. Both of these areas are also designated as “Special Linkages” and, in the past, they have provided important refugia for “Target Species” during and after the large 1993 Laguna Fire. This Special Linkage ties directly into the Sand Canyon Reservoir linkage on the north west. The Turtle Rock Special Linkage area is linked to Shady Canyon by the Sand Canyon Reservoir linkage area. Together, the Turtle Rock, Sand Canyon, and Shady Canyon “Special Linkage” areas provide an important biological linkage between “Target Species” populations in and around Sand Canyon Reservoir and the San Joaquin Hills populations.

6. Wishbone Special Linkage

The Wishbone Special Linkage includes 98 acres owned by TIC. This linkage includes three segments along the Wishbone Ridge, overlooking the Pacific Coast Highway (PCH) and Crystal Cove State Park. The remainder of Wishbone Ridge is proposed for residential development by TIC.

The larger, lower segment of the linkage occupies the steep frontal slope of the ridge closer to PCH and the smaller segment occupies a saddle higher up on the ridge. The lower segment is primarily ruderal grasslands with minor amounts of CSS. The middle linkage segment is primarily CSS with a minor amount of grassland. The upper linkage is primarily CSS with a minor amount of grassland. Both segments are contiguous with the Reserve System, and provide east-west links between Muddy Canyon and Los Trancos Canyon. Eighteen of the 98 acres included within the linkage area is CSS. Although “Target Species” birds occupy other portions of Wishbone Ridge outside the linkages, no “Target Species” were found within the Special Linkage area during the NCCP surveys. Elevations range from 400 feet to 1,000 feet within the linkage area.

This link reinforces connectivity between the main parts of the reserve in Muddy Canyon and the smaller Los Trancos Canyon portion of the reserve by improving connectivity across Wishbone Ridge. Although residential development proposed near the upper segment will only separate reserve areas by 400 to 1,000 feet, a distance readily crossed by dispersing individuals of the target bird species, visual connectivity is poor because the proposed development is situated on the ridgeline. The upper segment of the Special Linkage relieves the poor visual connectivity. CSS restoration is planned for portions of the lower linkage

segment. Fuel modification plans also will be implemented within the two segments, consistent with the plant palettes and design standards provided for in the NCCP/HCP.

As indicated in the Chapter 4 discussion of future planning considerations for the Coastal Subarea (see Section 4.3.3), TIC is considering an amendment to the Irvine Coast Local Coastal Program that, if approved by the Coastal Commission, would replace the three narrow linkages between Muddy and Los Trancos canyons with a much wider open space connection between these canyons higher on Wishbone Ridge. The widened connection would become a part the habitat Reserve System rather than be a Special Linkage. If the proposed redesign of Wishbone Ridge residential development is approved by the Coastal Commission, it will become the basis for requesting a minor amendment to the reserve boundary in accordance with the Implementation Agreement.

7. Coyote Canyon Golf Course Special Linkage

The 219-acre Coyote Canyon linkage consists of the upper portion of the closed Coyote Canyon Landfill. One acre of CSS is included within the site and no “Target Species” are present. The lower slopes of the landfill are outside the Special Linkage boundary and are included in the reserve. This slope area will be revegetated with CSS in accordance with the Section 7 Consultation for the SJHTC. The Special Linkage portion of the landfill is planned for use as a golf course. Because the linkage portion of the landfill is contiguous to the reserve on both its western and eastern edges, the County proposes to enhance the connectivity value of the future golf course by using native plants to the extent feasible.

This Special Linkage enhances connectivity between the Signal Peak area within the reserve and, via Bonita Canyon, the linkage to Upper Newport Bay. Enhancing connectivity between these areas is particularly important for the coyote, the top predator in the area. The linkage includes an under crossing suitable for coyotes under Newport Coast Drive. The golf course shall be constructed in a manner consistent with Section 6.1(b)(1) of the Implementation Agreement and the County is required to confer with the USFWS and CDFG to minimize impacts to “Identified Species”. The future golf course has not been designed. Figure 76 identifies the extent of the golf course on the landfill and the location of the wildlife crossing under Newport Coast Drive.

8. El Capitan Park Special Linkage

This Special Linkage consists of a 13-acre linear park (300 feet wide by 2,000 feet long) situated between two residential developments located in the City of Newport Beach and unincorporated County jurisdiction. It is located north of San Joaquin Hills Road, across the road from the upper end of Buck Gully. No significant natural vegetation remained following creation of the park but it was recently re-vegetated by planting native plants that will link Buck Gully with the open space surrounding the San Joaquin Reservoir. Trees planted to screen the park from adjacent residential development also are planted within the linkage. No “Target Species” have been sighted in the linkage but California quail and coyotes have been observed transiting the park during recent habitat restoration activities.

As noted previously under the discussions of the Pelican Hill and golf course linkages, this linkage serves to reinforce connectivity between populations of “Target Species” located in Buck Gully and other portions of the reserve (particularly Crystal Cove State Park) with the Upper Newport Bay Reserve habitat and “Target Species” populations. It also is particularly important for ensuring continued access by coyotes, the top predator in this area, to Buck Gully, Bonita Canyon, and the Upper Newport Bay system.

9. Pelican Hill Special Linkage

This 81-acre Special Linkage is located on the seaward slopes of Pelican Hill in Planning Area 18. The linear linkage separates residential and hotel development planned for Pelican Hill located above and below the linkage, and is separated from the Los Trancos Canyon and Buck Gully portions of the reserve by Newport Coast Drive and Pelican Hill Road, respectively. The linkage includes 67 acres of CSS, portions of which might better be described as soft chaparral. Five cactus wren sites were found in the linkage during the NCCP/HCP field surveys but no gnatcatcher sites were identified within the linkage although several gnatcatcher sites and additional cactus wren sites are located immediately adjacent to the linkage. Elevations within the linkage range from 400 to 600 feet.

This linkage reinforces connectivity between the Buck Gully and Los Trancos segments of the reserve and, more important, serves to reinforce the overall biological connectivity between the important gnatcatcher populations in Crystal Cove State Park and the reserve. When

combined with the El Capitan linkage discussed below, it also reinforces connectivity between the State Park and Upper Newport Bay Reserve via the Bonita Creek Canyon.

Pursuant to the Implementation Agreement TIC has committed to place a permanent conservation easement on this linkage to assure its continued function as a linkage area. In addition, a habitat management plan was prepared and is being implemented to enhance the long-term biological function of the linkage. This plan is designed to provide for a balance between biological connectivity, fuel modification, and aesthetic concerns. The re-vegetation and provision for a conservation easement over the subject lands will be implemented consistent with Section 6.1(b)(3) of the Implementation Agreement.

10. Pelican Hill Golf Course Special Linkage

A 311-acre Special Linkage area designation includes two existing golf courses owned by TIC. These golf courses occupy the lower portion of the frontal slopes below Pelican Hill and the mouth of Los Trancos Canyon. The linkage extends east from the edge of Buck Gully, along Pacific Coast Highway (PCH) to Newport Coast Drive, and from Newport Coast Drive east to Los Trancos Canyon. Crystal Cove State Park is located southerly of the linkage and is separated only by the PCH. Within the golf course boundaries, the linkage includes 37 acres of CSS, three gnatcatcher sites, and three cactus wren sites. Elevations within the linkage range from 200 to 400 feet.

The existing golf course use within the linkage will continue. Portions of the natural habitat located along the margins of the golf course fairways within the linkage were restored under a Section 7 Consultation for a TIC project. Additional restoration within the linkage will occur as a result of and consistent with Interim Take approved under the Special 4(d) Rule for the Disney Newport Coast Resort project. The subject restoration and enhancement was designed to improve connectivity function and values. TIC has committed to placing a permanent conservation easement, recorded with the same provisions specified for the Shady Canyon golf course, over the linkage to protect the connectivity values provided by this linkage subject to the same provisions specified for the Shady Canyon golf course Special Linkage.

Working in combination with the Pelican Hill and El Capitan “Special Linkages”, this linkage will reinforce connectivity between adjacent components of the reserve (Buck Gully, Los Trancos Canyon, and Crystal Cove State Park), and between these reserve components and Upper Newport Bay.

Existing Use Areas

“Existing Use Areas” are those designated areas within the subregion owned by “non-participating landowners” and public agencies identified in Figure 22 of the NCCP/HCP. Existing Use Areas designated in the NCCP/HCP include eight areas totaling 3,796 acres (see Figure 22, sites A through H). The term “Existing Use Areas” is applied to these areas because no additional restrictions on existing landowner uses and no additional regulation/management by local governments will be required within these areas unless a change in existing land use is proposed that would affect natural habitats. As provided for under existing law, future Incidental Take of CSS habitat on these lands will be regulated by the USFWS. The NCCP/HCP does not authorize Incidental Take within these areas; therefore, if a change in land use is proposed by landowners, they will need to obtain approval from the USFWS, just as currently required under the FESA.

Existing Use Areas Within the Central Subarea

A. Existing Use Areas Located in The City of Anaheim

Within the city of Anaheim a number of remnant natural areas contain significant CSS habitat and populations of both target bird species. The SCE Corridor Special Linkage contains some of the CSS and “Target Species” birds, but the majority of the CSS and “Target Species” bird sites are contained within other non-participating land ownerships, including areas owned by homeowners associations and City-owned parcels of land (Figures 15 and 22).

The natural habitat areas designated as Existing Use Areas in the City of Anaheim by the NCCP/HCP contain a total of 1,202 acres of wildlands and disturbed habitat, including 450 acres of CSS and 752 acres of other wildlands. CSS generally is the dominant habitat type. In addition, however, to CSS, the designated areas contain significant chaparral, grassland and oak woodland habitat. A total of 20 gnatcatcher sites (species surveys were not available

for Coal Canyon) and 14 cactus wren sites also were identified in these areas during the 1994 NCCP bird surveys.

Except for Coal Canyon, these natural areas are located primarily along the frontal slopes of ridgelines in terrain and habitat similar to those areas containing target bird concentrations within the Reserve System. Elevations within these areas range from 400 feet to more than 900 feet. The areas are visually well-linked to the core of the Central Subarea reserve and to each other and this probably helps to explain why target bird species continue to occupy the remnant habitat. Immigration and emigration probably continue to occur and these areas are expected to provide ongoing reinforcement and support to source populations located within the Reserve System.

The Coal Canyon property owned by the Hon Company was included within the preliminary reserve concept and then deleted from the reserve for the reasons set forth in Chapter 3 of the NCCP/HCP. Based on the comments received during the public comment period, the Coal Canyon was designated as an “existing use area.” As explained in the NCCP/HCP and FEIR/FEIS Response to Comments, the existing use area designation for Coal Canyon reflects the presence of CSS habitat, the historic and future biological connectivity provided by the property, and the lack of field surveys that would enable resource agencies to determine the extent to which the site is occupied by coastal California gnatcatchers and other “Identified Species”.

B. Existing Use Areas Located in the City of Orange

The existing use area designation within the City of Orange consists mostly of linear habitat patches that are remnants of the frontal slopes of the Tustin Hills. The patches of habitat combine to include a total of 392 acres, with patch sizes ranging from 10 acres to 75 acres. At their closest point, these habitat patches are about 2,000 feet from the main reserve, but some patches of habitat are within 200 feet of the Santiago Oaks Regional Park component of the Reserve System. Intervening areas separating the Existing Use Areas consist predominantly of developed residential lands. Much of these residential areas are large-lot neighborhoods.

Generally, these open areas exist because they are remnants resulting from prior development. Many areas are common open space areas designated at the time prior residential subdivision plans were approved. Such areas are owned by community associations. Others are located on lands with extreme development constraints. Existing and proposed uses within the designated existing areas generally consist of open space uses and no significant pressure for future development is anticipated within the designated areas.

Within the Existing Use Areas, the predominant habitat is CSS. CSS occupies 181 acres of the total 392 acres within the Existing Use Area. Elevations range from about 400 feet to 800 feet and, because the habitat is located along the frontal slopes of the Tustin Hills, habitat in this area has the same geographic character as target bird concentrations in the main reserve, along the frontal slopes of the Lomas de Santiago. In light of the fragmented character of these open areas, the Existing Use Areas support an unexpectedly high concentration of "Target Species" birds. The spring 1994 bird surveys found 26 gnatcatcher sites (occupying about 140 acres of CSS) and 34 cactus wren sites within the designated open space patches.

The concentrated target bird populations in these areas are visually well linked to the core of the Central Subarea reserve. They are within distances typically crossed by dispersing target bird individuals (*i.e.*, under a mile). The fact that these patches occur within some of the developments in the Tustin/Orange area implies that both immigration and emigration probably do occur. This area is expected to help reinforce the source populations in the Central Subarea reserve.

C. Cook's Corner Existing Use Area

The Cook's Corner Existing Use Area consists of two community association-owned habitat areas located contiguous to the reserve habitat linkage and adjacent to El Toro Road. The Existing Use Area contains 59 acres and includes about 28 acres of CSS. Elevations range from about 1,000 feet to 1,200 feet. These linkages were not surveyed to determine the presence/absence of "Target Species", but cactus wrens are known to occur on immediately adjacent lands, and it is reasonable to assume that gnatcatchers may use the linkages for movement between occupied CSS habitat located in the Central Subarea and the Southern Subregion. The designated area currently consists of undeveloped slopes adjacent to the already-developed Portola Hills residential community. No future pressure to develop these open areas is expected but neither area is protected by a permanent open space designation.

This Existing Use Area serves to reinforce the primary linkage between the Central Subarea and the Southern NCCP Subregion. The nearby habitat linkage included within the Reserve System is enhanced by this Existing Use Area, increasing the utility of the reserve linkage for volant species which attempt dispersal across El Toro Road.

Existing Use Areas Located Within the Coastal Subarea

D. City of San Juan Capistrano Existing Use Area

This designated Existing Use Area consists of 52 acres that includes agricultural lands, stream and riparian areas and grasslands located at the confluence of Oso Creek and Trabuco Creek. The Existing Use Area extends south from the wide, multi-channel culvert under Interstate 5 along Trabuco Creek to the slopes above Oso and Trabuco creeks. This area is privately-owned but is zoned primarily for open space and conservation uses under the City's General Plan.

The City and private landowners are currently proposing uses, including active recreation, that would not be permitted within the reserve if the area was included within the Reserve System. Although this area does not contain CSS or "Target Species" it is important as a part of the proposed biological corridor linking the Coastal Subarea reserve with the southern Subregion NCCP/HCP Reserve System. Therefore, the area is designated as an Existing Use Area to assure that future uses within the area are reviewed both by the City and USFWS/CDFG to allow consideration of alternatives that would protect, and possibly enhance, biological connectivity between the Coastal Subarea and the Southern Subregion Reserve Systems. Based on the NCCP surveys, biologists believe that a number of species, including the gnatcatcher, coyotes, foxes and others, could use the Oso and Trabuco creeks and adjacent lands as corridors for movement between Coastal Subarea and Southern Subregion open space areas.

E. City of Laguna Niguel Existing Use Areas

The NCCP/HCP designates several public and private ownerships within the City as Existing Use Areas. Some of these areas were originally included in the preliminary reserve concept and some lands (e.g. Salt Creek Regional Park and portions of the Hon property) also were included in the reserve design. However,

based on the comments/request received from the City during the public comment period (refer to comment letter 3-7-6), lands within the City that were designated as “reserve” lands in the Draft NCCP/HCP have been deleted from the reserve and designated as Existing Use Areas. Because the NCCP/HCP does not authorize any Incidental Take of occupied gnatcatcher habitat in Existing Use Areas, and because the USFWS will retain regulatory authority over these lands, proposed development on these lands will be evaluated to protect existing habitat and connectivity values that are important to the overall subregional conservation strategy.

The Salt Creek Regional Park (formerly in the reserve) and adjacent CSS habitat are designated as Existing Use Areas because they contain eight gnatcatcher sites and important CSS habitat, and because they provide a component of the overall linkage between the Coastal Subarea reserve and the future South Subregion Reserve System.

The existing use area within the City of Laguna Niguel contains 744 acres of natural habitat and disturbed wildlands. This existing use area includes the Salt Creek Regional Park and adjacent natural lands located on private property, and two privately-owned parcels located in the City of Laguna Niguel. The Regional Park and adjacent private lands include 124 acres of CSS within a total of 596 acres of natural lands. The latter two areas, consisting of the “O’Hill Property” (35 acres) and the “Hon Property” (113 acres) contain a total of 148 acres of natural and degraded wildlands, including 40 acres of CSS habitat. When added to the CSS located within and immediately adjacent to the Regional Park, a total of 164 acres of CSS, including 150 acres of CSS occupied by 12 gnatcatcher sites, are contained within the existing use area.

1. Salt Creek Regional Park

The Salt Creek Regional Park component of the Laguna Niguel existing use area contains about 596 acres, including 114 acres of CSS and eight gnatcatcher sites. Designation of this area as an existing use area was necessary following the City's request to have the Regional Park deleted from the Reserve System. Although active management under the NCCP/HCP adaptive management program will not be possible, the existing use designation prohibits impacts to "occupied" CSS habitat and protects the function of the Salt Creek corridor as a key biological linkage between the Coastal Subarea reserve and the future South Subregion Reserve System.

2. The O'Hill Property

The 35-acre Existing Use Area located on the O'Hill property extends along about 3,500 feet of the ridgetop overlooking San Juan Creek from the northern terminus of Salt Creek Regional Park at the Street of the Golden Lantern, northward to the City of San Juan Capistrano portion of the Reserve System. Elevations within the area range from 400 to 700 feet. At its southwest corner, this area includes an eighteen-acre patch of CSS. According to the 1994 spring surveys, it also contains four gnatcatcher sites and one cactus wren site.

This land is proposed for development as a large-lot (five-acre parcels) residential subdivision. No open space protection is provided for under current general plan designations, although a component of the City equestrian trail system traverses the length of the property. Because of the already existing equestrian trail right of way, and the large-lot character of proposed development, the City is optimistic that a biologically beneficial linkage can be retained during future deliberations on the subdivision plan for this area. Future residential development will require approval by the USFWS if it impacts occupied gnatcatcher habitat.

This Existing Use Area reinforces the Salt Creek/San Juan Capistrano link to the South NCCP Subregion. Without this Existing Use Area, there would be a substantial gap between the Laguna Beach and San Juan Capistrano segments of the reserve. The existence of

gnatcatcher and cactus wren sites at the southwest corner of the area indicates that emigration and immigration by target bird species does occur now. While such a gap would not preclude future connectivity between the two NCCP subregions, maintenance of this linkage would enhance biological connectivity within the subregion and between the Central/Coastal and Southern NCCP Subregions. To the extent feasible, landscaping within the linkage should focus on the use of native grasses and shrubs. Large tree masses should be minimized.

3. The Hon Property

The Hon Property Existing Use Area includes a 113-acre parcel of land located in the canyon traversed by Pacific Island Drive. Elevations in the Special Linkage range from 300 to 700 feet, and CSS occupies 32 acres of the total area. The CSS is concentrated at the northeast corner of the existing use area, contiguous to the reserve. The remainder of the area contains non-native grasslands and chaparral, including maritime chaparral. Surveys conducted in the spring of 1994 did not encounter "Target Species" onsite.

This area serves to enhance connectivity along the southern coastal ridge by effectively enlarging a habitat area to create a visual target for volant species which attempt dispersal across Crown Valley Parkway. The City of Laguna Niguel recently limited permitted development within the existing use area to a single residential site within the designated area as part of a permit issued to the landowner. The remainder of the area is designated as open space; therefore, the maximum feasible area has been retained as natural vegetation and the connectivity and biodiversity value of the designated area has been maximized.

F. City of Laguna Beach Existing Use Areas

Existing Use Areas located within the City of Laguna Beach contain 497 acres of privately-and-publicly-owned open space, including CSS, southern maritime chaparral and other wildlands.

The majority of the 497-acre Existing Use Area is contained within a contiguous block of open space located in the southern portion of the City adjacent to the Aliso and Wood Canyons component of the habitat Reserve System. This area includes the existing Ben Brown Golf Course. Based on the NCCP target bird surveys, this area is not currently occupied by either gnatcatchers or cactus wrens. However, this open space block contains 87 acres of CSS

habitat, it is located immediately adjacent to the reserve and it provides significant biological value as wildlands supplementing the reserve (*e.g.*, the area contains maritime chaparral). The second component of the designated South Coast Existing Use Area is the slope area above Park Avenue, a 72-acre area that includes 17 acres of CSS habitat and other wildlands. This area is separated from the habitat Reserve System by about 800 feet of development.

Neither component of this Existing Use Area is expected to experience significant development pressure. Virtually all of the designated area is either included in the City's Open Space/Conservation Zone or is within the existing golf course.

G. City of Irvine/Turtle Rock Existing Use Area

The NCCP/HCP includes the open space lands owned by the Turtle Rock homeowner association(s) within the Existing Use Area. Portions of this area were included within the Reserve System in the preliminary reserve concept. However, because active management under the terms of the adaptive management program contained in the NCCP/HCP is not feasible within this area, the entire common open space area is designated as an Existing Use Area.

The Turtle Rock Existing Use Area contains a total of 320 acres of open space, including 132 acres of CSS. The designated areas within Turtle Rock consist of remnant slopes around developed neighborhoods. As noted above, this area is directly connected to the Sand Canyon Reservoir linkage area, and separated from portions of the reserve by between 500 and 1,500 feet of existing residential development. Elevations range from 150 to 550 feet. A total of 29 gnatcatcher sites (occupying 124 acres of CSS) and 13 cactus wren sites are located within this area. The high target bird species population density encountered in Turtle Rock may reflect the role of this area as a refugium during and after the Laguna Fire. The slopes of the existing use area are visually well linked to the remainder of the Coastal Subarea reserve, and are well within distances typically crossed by dispersing target bird individuals (*i.e.*, under a mile).

The habitat identified as Existing Use Area also is designated as open space on the City's General Plan. It is owned by homeowner associations and is not expected to experience pressure to be developed in the future. Under the terms of the NCCP/HCP, efforts should

be undertaken by the City to obtain a voluntary conservation easement over these lands to protect long-term habitat values within the community open space areas.

Functioning in concert with the Sand Canyon and Shady Canyon “Special Linkage” areas, this area will serve to reinforce biological connectivity within the Coastal Subarea reserve.

H. Santa Ana River Mouth Existing Use Area

This Existing Use Area contains a total of 530 acres of natural habitat, degraded habitat, and disturbed areas. It is located immediately south of the Talbert Regional Park portion of the Reserve System along the eastern edge of the Santa Ana River, and inland of the Pacific Coast Highway. The area includes 35 acres of CSS and, although bird survey information is not available, it is known to include a significant number of gnatcatcher sites. It also contains 189 acres of grasslands, 25 acres of riparian and one acre of watercourse habitat. These remnant habitats combine with the gnatcatcher habitat to provide significant biodiversity values.

This area is designated as an Existing Use Area because: it provides existing gnatcatcher habitat; it is located adjacent to Talbert Nature Preserve and has significant potential to contribute to the long-term biological function of the Reserve System; and it would be inappropriate to authorize Incidental Take of what could be a significant population of coastal California gnatcatcher without being able to review available biological data (*i.e.*, field survey data for gnatcatchers and other target or “Identified Species”).

Existing Use area Summary

Most of the CSS on non-participating ownerships that contains known gnatcatcher populations is included in Existing Use Areas by the NCCP/HCP. However, as indicated in Chapter 7, non-participating ownerships containing 116 acres of “occupied” CSS habitat that supports 11 surveyed gnatcatcher sites are not included within this designation. The NCCP/HCP Existing Use Area designation focuses on public lands owned in common by homeowner or property owner associations. In some cases, other private lands that contain or may contain significant populations of target or listed species (*e.g.*, Santa River Mouth) are designated as Existing Use Areas.

At least two options to the approach to designating Existing Use Areas were considered and rejected during the public review period. One option would be to designate all CSS occupied by gnatcatchers and located on non-participating ownerships as Existing Use Areas. This approach would require all “*non-participating landowners*” to obtain USFWS approval prior to Take of occupied CSS. No authorization for Take would be provided under the NCCP/HCP and USFWS would determine whether the landowner could elect to use the “mitigation fee” option set forth in Section 6.2.2 and the Implementation Agreement, or whether the Section 10/Section 7 approach would be required. The other option would be to delete the Existing Use Area designation entirely from the NCCP/HCP. This option would involve authorizing Incidental Take under the NCCP/HCP for occupied CSS on all non-participating ownerships subject to the mitigation provisions/options outlined in Section 6.2.2 and the Implementation Agreement.

4.4.2 “Special Linkage” and “Existing Use Area” Policies

1. To the extent practicable and consistent with golf course design requirements, golf courses designated as part of Special Linkages shall be designed consistent with the minimization and mitigation measures contained in this NCCP/HCP and Section 6.1 of the Implementation Agreement to protect biological values important for special linkage purposes.
2. Local jurisdictions shall make best efforts to obtain conservation easements over privately-owned lands in the designated “Existing Use Areas”. Such easements will not require active management of the existing open spaces being managed by individual landowners, homeowner/community associations or others. The purpose of these easements shall be limited to assuring that the natural vegetation in such linkages is retained. At the discretion of the local jurisdiction, the non-profit reserve managing corporation may be designated as an appropriate authority to receive easements obtained for habitat protection and biological connectivity purposes.
3. The failure or inability to obtain conservation easements over private lands located within existing use areas shall not be deemed a breach of the NCCP/HCP or in any way serve as the basis for suspension, revocation or

termination of any Section 10(a) Permit or CDFG Management Authorization.

4. All activities within the Special Linkage Areas owned by TIC shall be governed by the provisions of Section 6.1(b) of the Implementation Agreement. Design and construction of the proposed Shady Canyon golf course shall attempt to minimize impacts on occupied gnatcatcher habitat within the Shady Canyon linkage. However, such construction could require Incidental Take of gnatcatcher habitat. Due to the long-term contribution to habitat protection and management by TIC, such unavoidable Incidental Take is authorized. Provisions will also be made for the spadefoot toad and avoidance of *Dudleya multicaulis* at the edge of the property next to the reserve.
5. All activities proposed within special linkage areas by the County of Orange shall be governed by Section 6.1 [c] of the Implementation Agreement. Design and construction of the proposed Sand Canyon golf course and related facilities shall attempt to minimize impacts on occupied gnatcatcher habitat with the Sand Canyon special linkage. However, such construction could require Incidental Take of gnatcatcher habitat. Due to the long-term contribution to habitat protection and management by the County, such unavoidable Incidental Take is authorized consistent with Section 6.1(c) of the Implementation Agreement and subject to USFWS approval of specific golf course plans.
6. Within the SCE special linkage area in the City of Anaheim, there is the potential for inadvertent "Take" of gnatcatcher habitat due to required operation and maintenance. While this is not expected, if such Take does occur out of necessity, it is authorized consistent with Section 6.1(d) of the Implementation Agreement.
7. Incidental Take related to activities proposed within Existing Use Areas by "non-participating landowners" is not authorized by the NCCP/HCP. Such activities must be submitted to USFWS for review and approval, consistent with existing federal law and the provisions of Section 7.3 of the NCCP/HCP and the Implementation Agreement. If state listed species are involved, activities must also be submitted to CDFG for review and approval.

4.4.3 Other Geographic Components of the Subregional Conservation Strategy

In addition to the Reserve System, special linkage and Existing Use Areas, additional open space planning areas provide permanent and temporary protection for CSS and other wildlands within the subregion. These components include:

- other public non-reserve open space;
- the temporary Pacific pocket mouse preserve;
- the North Ranch Policy Plan Area; and
- the Cleveland National Forest.

The following discussions describe the size, location, functions, and protection offered by each of these areas.

4.4.3.1 Non-Reserve Public Open Space

This subregion contains 3,831 acres of permanent, dedicated public open space located outside the reserve (Figure 12). These public open space areas were not considered suitable for inclusion in the CSS management program due to a lack of significant CSS habitat, the absence of “Target Species”, and/or a location which did not contribute directly to enhanced biological connectivity within the subregion. To illustrate these factors, the 3,831 acres of non-reserve open space contain only 283 acres of CSS, 10 gnatcatcher sites, and no cactus wren sites (Table 4-1, and Figures 15 and 16). Eight of the 10 gnatcatcher sites are located on the thin strip of open space on the bluffs adjacent to Upper Newport Bay.

Portions of the permanent open space set aside by the City of Irvine as part of GPA-16 (*e.g.*, Quail Hill), Mason Regional Park and the County’s Aliso Creek Corridor open space system represent examples of the kind of permanent open spaces that are not included in the Reserve System (Figure 23). Other areas, such as the San Joaquin Marsh, contain significant biological resources but do not contribute to the function of the Reserve System established by this

NCCP/HCP. It is expected that these non-reserve public areas will continue to provide some habitat value.

- Non-Reserve Open Space Policy

Future proposals to convert CSS or “Take” covered species within the 3,831 acres of permanent non-reserve open space shown in Figure 12 are not authorized by the NCCP/HCP, and are not mitigated by this project. Any proposed impacts involving Incidental Take will require separate review by CDFG and USFWS in the same manner as provided for in “Existing Use Areas” to determine compliance with applicable state and federal species protection laws/regulations.

4.4.3.2 Creation of a Temporary Pacific Pocket Mouse Preserve on the Dana Point Headlands Site (Chandis-Sherman)

The 121-acre Headlands site, located in the City of Dana Point, contains the only known population of the federally-endangered Pacific pocket mouse within the subregion. The pocket mouse occupies approximately 3.75 acres of CSS habitat located on the Headlands site (refer to figures 71 and 72). The NCCP/HCP provides for the creation of a temporary, 22-acre pocket mouse preserve on the Headlands site that would be established and maintained for a period of eight years, or as provided for in Section 4.5.1 of the NCCP/HCP and Section 8.3.2 of the Implementation Agreement. For the reasons set forth in Section 3.12.3, the Dana Point Headlands site was not included within the subregional habitat Reserve System established by the NCCP/HCP. Accordingly, the temporary pocket mouse preserve would not be a part of the subregional Reserve System.

The purpose of the temporary preserve on the Headlands site is to provide an opportunity for the USFWS and CDFG to formulate and implement a research and recovery program. This NCCP/HCP research and recovery program will, at a minimum, increase the scientific knowledge of this poorly understood and highly vulnerable species and help to identify the means whereby this species can have its range significantly expanded in areas that can offer improved long-term prospects for the species’ survival. The knowledge gained will also be directly applicable to

future management and recovery efforts for the Pacific pocket mouse populations found on Camp Pendleton and for any subsequently discovered populations.

In addition to creating the temporary preserve, the NCCP/HCP provides for \$700,000 to be used to conduct the necessary studies and enhancement/management activities. Refer to sections 4.5.1 and 4.5.4 of the NCCP/HCP and Section 8.3.2 of the Implementation Agreement for specific information concerning pocket mouse conservation measures established by the NCCP/HCP.

The agencies will develop information on the pocket mouse's specific life history and habitat requirements through programmatic research and recovery efforts initiated by this NCCP/HCP. Until sufficient, additional viable populations are discovered, or existing populations are expanded or made more secure, existing populations of the Pacific pocket mouse are expected to be protected and expanded through active management. A habitat management plan will be prepared, aimed at optimizing the Pacific pocket mouse habitat. This plan may include the creation, restoration and enhancement of mouse habitat. Immediate management efforts may include thinning or removal of certain vegetation (such as coastal sage scrub and ice plant), the increasing density of which may work to further reduce the amount of suitable habitat for the species of the site. The need for predator management measures, particularly directed at house and feral cats, also will be evaluated.

The initial biological studies of the Headlands Pacific pocket mouse population and the initial management efforts to increase the amount of suitable habitat within the temporary preserve are expected to produce information that can be used, along with field surveys, to identify specific sites within the Reserve System offering the best chances for the long-term survival of the species within the subregion.

Expansion of the Pacific pocket mouse population within the Reserve System could allow for several different mouse populations to become established and to develop capabilities of exchange of genetic material among populations, thereby providing more stability and greater viability for the species. The subarea Reserve System and adaptive management program provide for long-term monitoring for the Pacific pocket mouse and methods to modify habitat to address the needs of the species. Any groups of relocated Pacific pocket mice or newly discovered populations in the Reserve System will receive special monitoring attention in the early years to assist with the conservation of this species. The Reserve System can be expected to provide substantially greater buffer capabilities from impacts detrimental to the species and may allow for the establishment of areas of natural refugium to enable population(s) to better withstand negative environmental events such as fire.

The USFWS conducted surveys for the Pacific pocket mouse in 1994 and 1995 on Camp Pendleton. One new population was confirmed in 1995, located at MASS 3 (Oscar 1 Training Area) in the southern portion of the base. The site had two study areas (about 700 meters apart), resulting in the capture of 54 individual Pacific pocket mice.

Two other populations were discovered in the northern portion of Camp Pendleton. These two populations (known as Panhe and Cuchillo populations) are separated by San Mateo Creek and an ongoing agricultural operation. The Panhe population is estimated to contain approximately 33 individuals. No population estimate has been made of the Cuchillo population; however, a total of 13 Pacific pocket mice were trapped in this location in 1995.

If the Pacific pocket mouse research and recovery effort generates data to suggest that translocation of the Headlands population is reasonable and feasible and if potentially suitable habitat has been identified in the subarea Reserve System, translocation would precede pursuant to a peer-reviewed, standardized protocol.

A translocation feasibility study, conducted by professional personnel, may include considerations of the: (1) reason for translocation; (2) status of the wild population(s) to be translocated; (3) ecology, biology and ethology of the species; (4) current size and density of the wild populations; (5) movements and distribution of the species; (6) male/female ratio; (7) annual recruitment; (8) mortality rates and causes; (9) health and condition of the population; (10) genetic variability and integrity; (11) translocation strategy; (12) capture technique and technology; (13) number and location of release sites; (14) post-release support of translocated animals, and other issues. Any translocation protocol would address all phases of the translocation effort, including host site selection, habitat manipulation, animal capture/release and monitoring.

Take of “Identified Species” (as defined in the Implementation Agreement) within the portion of the Chandis-Sherman Headlands site outside of the temporary preserve area is permitted; the NCCP/HCP has been approved; and Section 10(a) permit and CDFG Management Authorization have been issued to Chandis-Sherman, in accordance with specific conditions more particularly described in Section 4.5.1 of the NCCP/HCP and Section 8.3.2 of the Implementation Agreement. Upon expiration of the temporary preserve period (as determined through Section 8.3.2 of the Implementation Agreement) take of “Identified Species” (as defined in the Implementation Agreement) will be allowed within the former temporary preserve area in accordance with Section 4.5.1 of the NCCP/HCP and Section 8.3.2 of the Implementation Agreement if this area is not purchased by the USFWS. Conversion of CSS on the Headlands site (both within and outside of the temporary preserve) will be permitted in accordance with the terms of the Implementation Agreement.

4.4.3.3 North Ranch Policy Plan Area (North Ranch Area)

The North Ranch Area is a 9,456-acre portion of the subregion owned by TIC and located in the Central subarea (Figure 15) . It is located in the unincorporated area, within the Sphere

of Influence of the City of Orange. Bounded by the Cleveland National Forest on the east, the Mountain Park Specific Plan and Cypress Canyon Specific Plan areas on the north, the Weir Canyon Wilderness Park dedication area on the west, and the East Orange General Plan planning unit on the south. With the exception of some residential estate designations in the extreme eastern portion of the area (Figure 12), the entire Policy Plan area is zoned A-1 by the County of Orange. The A-1 zone designation generally is considered by the County to constitute a temporary, or holding zone, pending completion of appropriate studies and approval of general plan and zoning amendments. The A-1 zone could allow up to 1 dwelling unit per four acres of land. The ETC right of way is not a part of the Policy Plan Area.

The need to designate this portion of the subregion as a “policy plan area” rather than including it within the Reserve System reflects several considerations. First, based on the specific surveys conducted during 1991/92 by the biological consultant (Jones and Stokes, and Lilburn), it has been determined that the majority of this area is not used by the three “”Target Species”.” Second, chaparral, not CSS, is the dominant habitat within this portion of the subregion. Third, much of the CSS that is present occurs at higher elevations, and is of a different subtype than the CSS used by “Target Species” throughout the rest of the subregion. Fourth, as noted above, the vast majority of this area has not undergone general planning. Finally, the landowner (TIC) has no immediate plans to commence development within this area. North Ranch Area policies are intended to establish general use priorities during subsequent local planning procedures.

The North Ranch Area bridges the gap between the urgent need for early approval and implementation of an NCCP/HCP for the Central/Coastal subregion and the current lack of detailed biological information within the North Ranch Area portion of the subregion that would support site-specific conservation and development decisions.

In response to this situation, the NCCP/HCP provides for coordinated conservation and development planning within the North Ranch Area consistent with the following policies. The policy commitments set forth below are applicable only to TIC lands. No Take is authorized under the NCCP/HCP or Implementation Agreement within the Policy Plan Area.

NORTH RANCH POLICY PLAN AREA POLICIES

1. Protection of the CSS habitat mosaic is the primary focus of the NCCP/HCP. The focus of future planning within the North Ranch Area will shift to broader issues involving biological connectivity and biodiversity goals. The expected result of implementing the North Ranch Area policies contained herein will be to protect and further enhance the value of the NCCP/HCP Reserve System, and to protect the most unique and sensitive resources within the North Ranch Area, thereby providing protection for multiple species within the North Ranch Area.
2. By addressing subregional biodiversity and connectivity goals, the intent of future planning within the North Ranch Area will be to mitigate development within the North Ranch Area in the same manner as the NCCP/HCP.
3. TIC has made extensive commitments to mitigate CSS impacts as a part of the NCCP/HCP. Compared with the CSS contained in the NCCP/HCP reserve, much of the CSS within the North Ranch Area is of lower value and lower priority for resource protection. Generally, unless the subject CSS habitat meets the “priority” criteria in Policy 4 below, loss of CSS within the North Ranch Area will be preferred over loss of other habitat areas that either:
 - better serve to protect and enhance the function of the NCCP/HCP reserve (*e.g.*, by providing for connectivity between elements of the Reserve System and the CNF); or
 - contain sensitive species that are more important to subregional biodiversity.
4. Areas designated as having high biological value and the highest priority for preservation within the North Ranch Area are characterized by one or more of the following attributes:
 - high habitat linkage value, with primary emphasis on strengthening the Reserve System by providing biological connectivity between elements of the Reserve System and the CNF;
 - high biodiversity value (*e.g.*, addressing the protection of species not adequately addressed in the NCCP/HCP reserve); and

- a capacity to consolidate habitat into contiguous blocks and improve reserve design.
5. Conservation and development planning on TIC lands within the North Ranch Area will be guided by the following principles:
- it will protect and enhance the NCCP/HCP Reserve System by providing for biological linkages through the North Ranch Area that connect elements of the Reserve System with each other and with the CNF;
 - it will protect the biodiversity of the North Ranch Area within the context of the larger NCCP/HCP reserve;
 - it will recognize that the subregional CSS habitat mosaic is one protected by the NCCP/HCP reserve and that much of the CSS in the North Ranch Area is lower quality and not a priority for preservation;
 - it will balance development and preservation objectives within the context of the NCCP Act and the North Ranch Area. It will locate development in contiguous areas and provide for the creation of large, contiguous open space areas and avoid small, inter-connected fragments of open space and linkages.
6. Based on the principles and priorities cited above, the highest priority for habitat preservation, linkages and connectivity within the North Ranch Area will include the following areas (Figure 24):
- Fremont Canyon, because of its unique habitat and its value as a connection between the CNF and Santiago Canyon;
 - Black Star Canyon, because of its unique habitat and the connection it provides between the CNF and Santiago Creek; and
 - South Windy Ridge/Upper Blind Canyon, in conjunction with SCE/ETC wildlife under crossing, because the area provides a connection between Weir Canyon and the CNF.
7. Based on the principles cited above the highest priority areas for development within the North Ranch Area are the Lower Blind Canyon and Baker Canyon areas (Figure 24).

8. Proposed development within the North Ranch Area will be evaluated for compliance with the above principles and priorities.
9. For NCCP/HCP purposes, to the extent that future development avoids high priority preservation areas in accordance with the above priorities, no further resource studies will be needed to confirm ecosystem viability. Proposed development within high priority preservation areas will, however, require additional studies commensurate with the extent to which such proposals potentially locate development within high priority areas.
10. Plans for future development may be prepared for all or portions the North Ranch Area at any time, provided that plans shall be developed in coordination with the USFWS and CDFG, and governing local jurisdictions.
11. If plans are processed in the format of the normal development entitlement/CEQA review process, such plans shall be processed by the governing local jurisdiction according to state and local law.
12. Plans deemed acceptable to USFWS, CDFG, TIC, and the local government with jurisdiction over the property will provide the basis for amendments of the NCCP/HCP, the Implementation Agreement, and Section 10(a) Permits for TIC.
13. If local government plans are not acceptable to USFWS and CDFG, nothing in the NCCP/HCP or Implementation Agreement limits the ability of these agencies to exercise their full powers under state and federal law.
14. Future development within the North Ranch Area will mitigate any significant adverse impacts on the NCCP/HCP reserve in a manner acceptable to USFWS and CDFG in accordance with then applicable law.
15. Notwithstanding any of the foregoing provisions of this section, and upon obtaining all applicable governmental approvals, the following uses will be permitted within the North Ranch Area:
 - relocation of the Hicks Canyon Gun Club to a site in the Baker Canyon area;
 - maintenance and operation of existing utilities and access roads;

- transfer of title, easements and construction of necessary public facilities, provided that all necessary local, state and federal permits have been obtained;
- cattle grazing and fence maintenance (subject to an approved grazing plan) and other activities historically undertaken by the landowner within the North Ranch Area, such as fire management activities. (Fire management within the North Ranch Area will be implemented consistent with the principles/procedures contained in fire management plan for the NCCP/HCP reserve). To the extent that these activities result in enhancement of existing, or creation of additional, CSS, or of non-CSS habitat deemed critical to any “Identified Species”, TIC shall be entitled to receive mitigation credits therefor.

Failure to prepare and adopt a management plan for the Policy Plan Area shall not be considered a breach of the Implementation Agreement or serve in any way as a basis for the suspension, revocation or termination of any Section 10(a) Permit or CDFG Management Authorization pursuant to the NCCP/HCP or Implementation Agreement.

4.4.3.4 The Cleveland National Forest

The CNF extends from Riverside and Orange counties southerly through San Diego County nearly to the international border with Mexico (Figure 25). The Central and Coastal subregion contains a significant portion of the Cleveland National Forest (CNF). More than 26,000 acres within the CNF are included within this subregion, and another 39,000 acres of the CNF is included in the County’s adjacent Southern NCCP Subregion. Largely because of its inland location and elevation, the CNF does not contain major populations of the designated “Target Species”.

The CNF contains extensive private inholdings within that portion of its boundaries located in the Central subarea. Within this subarea, 37 percent of the total acreage within the Congressional Boundary is privately owned (Figure 25 and Table 4-1). The private inholdings tend to be concentrated adjacent to the Congressional Boundary. The USFS is proceeding with habitat management planning and consolidation of private lands within the CNF consistent with its own Forest Management Plan.

Due to the factors cited above, this subregional NCCP/HCP does not include the CNF as a part of the permanent habitat Reserve System, or provide specific policies affecting the USFS's approach to managing CSS or other habitat within the CNF. Thus, the CNF is not an active element of the recommended subregional conservation strategy. Any future losses of CSS habitat within the Congressional Boundary of the CNF are not considered authorized Incidental Take under this subregional NCCP/HCP and must be reviewed by CDFG and USFWS, consistent with the requirements of FESA, CESA, and the NCCP Planning Guidelines.

SECTION 4.5 SPECIES RECEIVING STATE AND FEDERAL REGULATORY COVERAGE

The Coastal Sage Scrub NCCP program for the five-county Southern California study area originally identified specific actions necessary to protect habitat for three specified "Target Species" residing in CSS: the coastal California gnatcatcher (*Polioptila californica californica*), coastal cactus wren (*Campylorhynchus brunneicapillus*) and orange-throated whiptail lizard (*Cnemidophorus hyperythrus beldingi*) (Murphy 1992). The "Target Species" were selected by a Scientific Review Panel (SRP) appointed by the state. The SRP designated the three vertebrate species to serve as "surrogate" species for a broader range of species that reside in and/or are dependent on CSS habitat. Conservation planning for these three NCCP species was intended to provide the basis for maintaining the viability of the remaining coastal sage scrub ecosystem (Murphy 1992).

The NCCP/HCP is designed to provide the basis for authorizing Incidental Take of the federally-listed coastal California gnatcatcher by formulating an effective subregional strategy consistent with state and federal requirements (CESA, NCCP Act, FESA and the section 4(d) Rule), and providing for creation of a permanent habitat reserve. If the coastal cactus wren or orange-throated whiptail lizard are subsequently listed by the USFWS, the NCCP/HCP also provides the basis for authorizing future Incidental Take of either of these species consistent with the provisions of the approved conservation plan. In accordance with Section 8.4 of the Implementation Agreement, the NCCP/HCP also provides the basis for authorizing future Incidental Take for the coastal California gnatcatcher, coastal cactus wren, and orange-throated whiptail lizard under the CESA (including but not limited to sections 2081 and 2090-2095) if any of the "Target Species" is subsequently classified as a "candidate" species and/or listed by the state.

By providing long-term protection for the habitat required by the three “Target Species”, the SRP reasoned that sufficient CSS and other habitat would be protected to benefit a much broader range of CSS-related species through the NCCP approach to conservation planning. The three “Target Species” selected by the SRP were used as indicators, or umbrella species, to guide the design of the permanent habitat Reserve System. The multiple-habitat Reserve System provides a diverse habitat mosaic within its boundaries (see Figure 12 and tables 4-1 and 4-2). The resulting habitat mosaic supports a multiple-species Reserve System.

As described in more detail in Section 4.3, the subregional habitat reserve includes the following biological resources and characteristics:

- 37,378 total acres and more than 18,500 acres of CSS habitat;
- a diverse mosaic of CSS and eleven other habitats with an aggregate acreage that exceeds the amount of CSS contained within the reserve;
- habitat that currently supports or potentially could support a broad range of non-”Target Species”, including seven federally-listed species, numerous species included on state and federal candidate species lists, and other species classified as “sensitive” species;
- sixty-two percent of the gnatcatcher sites and 68 percent of the cactus wren sites;
- a habitat distribution focused at optimal elevations (*e.g.*, most of the reserve habitat is located below an elevation of 900 feet) near the ocean in the San Joaquin Hills, and along the frontal slopes of the Lomas de Santiago favored by “Target Species”, where temperatures are moderated daily by sea breezes; and
- a reserve design that includes large blocks of contiguous habitat, adequately linked to other significant habitat areas by a system of habitat linkages and corridors.

In addition to providing these beneficial physical and biological attributes, the Reserve System will benefit by implementation of the “adaptive management” approach within the reserve. The “adaptive management” approach, as set forth in the NCCP Planning Guideline, is designed to manage the reserve.

...to retain its capacity to support the broad range of CSS species over the long term. Under the adaptive management regime that provides for natural successional dynamics, a Reserve System that consists of smaller habitat areas that are appropriately managed could have a greater likelihood of maintaining CSS biodiversity than a system of larger habitat areas that are unmanaged. (NCCP Conservation Guidelines, at p. 3)

Therefore, based on the combination of physical/biological attributes of the reserve, and the implementation of the adaptive management approach on behalf of biological resources within the Reserve System, the NCCP/HCP concludes that it is appropriate to provide the same regulatory coverage for a broader range of species as that being provided for the three “Target Species.” Regulatory coverage means that species will be treated “as if listed” under Section 10 of the FESA and Section 2835 under the California Fish and Game Code, and Section 2084 of CESA. Therefore, Incidental Take conforming with this NCCP/HCP is authorized.

The following sections identify: (a) the additional species that receive regulatory-level coverage under Section 10 and Section 2835 on a subarea or subregional level; (b) for the Headlands Property in the City of Dana Point only, plant species that are found or potentially could be encountered in the future for which regulatory coverage under Section 10 and Section 2835 is provided; and (c) other species which do not receive coverage under the NCCP/HCP at this time, but may be able to be covered at a Section 10/Section 2835-level in the future after additional field inventories are completed with the Reserve System. Section 4.5.1 addresses the “identified” species. Section 4.5.2 identifies habitats that are “covered” under the NCCP/HCP. Section 4.5.3 identifies the Section 10(a) Permits that will be issued under this NCCP/HCP. Section 4.5.4 discusses the NCCP/HCP treatment of designated plant species on the Headlands site. Finally, Section 4.5.5 identifies the “special interest” species.

4.5.1 Justification for Regulatory Coverage for the Additional “Identified” Species Receiving Coverage Under Section 10 of the FESA, the Special Section 4(d) Rule, and the CESA

The “identified” species receiving coverage in addition to the “Target Species” are identified in Table 4-8 and discussed below. With the addition of thirty-six (36) “identified” species to the three “Target Species”, a total of thirty-nine (39) species receive regulatory coverage

under the NCCP/HCP and the Special 4(d) Rule. The justification for granting regulatory coverage for these species is summarized below. Additional information on the distribution and habitat needs of these species including specific descriptions of the habitat requirements of each of the “identified” species, is presented in Chapter 2.

Justification Overview

Table 4-8 provides a summary of the impacts and protection provided for target and “Identified Species” under the NCCP/HCP. The information provided in Table 4-8 and the following discussion of species coverage applies the criteria used by the USFWS to establish the adequacy of an HCP to address the conservation needs of a particular species, thereby allowing it to receive regulatory coverage under FESA. A recent memorandum prepared by USFWS sets forth guidelines for determining "covered species lists" and for providing assurances to HCP participants. This memorandum states that:

To conserve a listed species, an HCP must either contribute to its recovery or at least not preclude it. To conserve unlisted species, an HCP must not significantly contribute to the subsequent need to elevate that species to candidate or emergency listing status. (August 1, 1995 memorandum, from the Regional Director, Region 1, at p. 2)

All of the covered species, including the five plants on the Headlands site, have been analyzed in accordance with above standards. Based on this analysis it was determined that implementation of the NCCP/HCP Reserve System and adaptive management program would not contribute to a need to elevate unlisted species to listed status. The analysis demonstrated that implementation of the NCCP/HCP would contribute to survival and recovery of all covered species.

For multiple species planning programs, such as the NCCP/HCP, the same memorandum declares:

Table 4-8
SUMMARY OF COVERED SPECIES‡

Species	Conserved and not Taken¹	Assumed Taken²	Reason identified as a covered species
California gnatcatcher <i>Poliopitila californica</i>	479 sites, including 23,250 acres of potential habitat ³	121 sites, including 7,500 acres of potential habitat ³	One of three original “Target Species”. Extensive data/information is available
Coastal cactus wren <i>Campylorhynchus brunneicapillus</i>	777± sites, including 23,250± acres of potential habitat ³	217± sites, including 7,500± acres of potential habitat ³	One of three original “Target Species”. Extensive data/information is available
Sharp-shinned hawk <i>Accipiter striatus</i>	17,000± acres of potential habitat ⁴	4,000± acres of potential habitat ⁵	Identified for coverage because of wide distribution beyond the subregion, and the subregional conservation measures provided by the NCCP/HCP.
Red-shouldered hawk <i>Buteo lineatus</i>	3,750± acres of potential habitat ⁵	1,500± acres of potential habitat ⁶	Identified for coverage because of wide distribution beyond the subregion, relative adaptability to human presence, and the subregional conservation measures provided by the NCCP/HCP.
Rough-legged hawk <i>Buteo lagopus</i>	9,500± acres of potential habitat ⁸	12,000± acres of potential habitat ⁸	Identified for coverage because of wide distribution beyond the subregion, its limited number in the subregion, and the subregional conservation measures provided by the NCCP/HCP.

‡ In addition to the 39 “Identified Species” regulatory coverage for Incidental Take is also provided on the Dana Point Headlands site only for: Blochman’s Dudleya, Western Dichondra, Cliff Spurge, Coast Scrub Oak and Palmer’s Grappling Hook, to the extent that they may occur on the Headlands site.

Species	Conserved and not Taken¹	Assumed Taken²	Reason identified as a covered species
Golden eagle <i>Aquila chrysaetos</i>	51,500± acres of potential habitat ⁶	36,750± acres of potential habitat ⁷ subject to review outside NCCP/HCP in areas within one half mile of a nest.	Identified for coverage <u>subject to conditions</u> because of wide distribution beyond the subregion, and the subregional conservation measures provided by the NCCP/HCP. <u>Conditions provide for review near nest sites and that provision is made for any other appropriate mitigation.</u>
Northern harrier <i>Circus cyaneus</i>	9,500± acres of potential habitat ⁷	12,000± acres of potential habitat ⁸	Identified for coverage because of wide distribution beyond the subregion, and the subregional conservation measures provided by the NCCP/HCP.
Prairie falcon <i>Falco mexicanus</i>	32,750± acres of potential habitat ⁸	19,500± acres of potential habitat ⁹	Identified for coverage <u>subject to conditions</u> because of wide distribution beyond the subregion, and the subregional conservation measures provided by the NCCP/HCP. <u>Conditions provide for review near nest sites and that provision is made for any other appropriate mitigation.</u>
Peregrine falcon <i>Falco peregrinus</i>	10,000 acres of potential habitat ¹⁰	12,000+ acres of potential habitat ¹⁰	Identified for coverage because of wide distribution beyond the subregion, its relative adaptability to human presence, its limited number in the subregion, and the subregional conservation measures provided by the NCCP/HCP.
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	2,500± acres of potential habitat ¹¹ , including six sites of potentially significant long-term conservation value	up to 1,250± acres of potential habitat ¹¹ , subject to review outside the NCCP/HCP if coverage conditions are not met	Identified for coverage subject to conditions which specify that impacts to major occurrences outside the reserve must not have significant long-term conservation value and that provision is made for any other appropriate mitigation.

Species	Conserved and not Taken ¹	Assumed Taken ²	Reason identified as a covered species
Least Bell's vireo <i>Vireo bellii pusillus</i>	2,500± acres of potential habitat ¹¹ including six sites of potentially significant long-term conservation value	up to 1,250± acres of potential habitat ¹¹ , subject to review outside the NCCP/HCP if coverage conditions are not met	Identified for coverage subject to conditions which specify that impacts to major occurrences outside the reserve must not have significant long-term conservation value and that provision is made for any other appropriate mitigation.
Southern California rufous-crowned sparrow <i>Aimophila ruficeps canescens</i>	23,250± acres of potential habitat ³	7,500± acres of potential habitat ³	Identified for coverage because its habitat requirements generally coincide with the California gnatcatcher.
Pacific pocket mouse <i>Perognathus longimembris pacificus</i>	<u>Approximately 940 acres of potentially suitable habitat, according to preliminary habitat models. Exact area of potentially suitable habitat will be obtained through the recovery plan in preparation and the adaptive management program (see General Response to Comments 6).</u>	<u>Approximately 310 acres of potentially suitable habitat, according to preliminary habitat models, including 3.75 acres of known occupied habitat and additional potentially suitable habitat at Dana Point.</u>	<u>Identified for coverage because the existing known population in the subregion is likely to be extirpated without prompt management action. The NCCP/HCP allows early site access for management and subsequent relocation to a more secure site or purchase and preservation of the existing site if relocation is infeasible.</u>
San Diego desert woodrat <i>Neotoma lepida intermedia</i>	23,250± acres of potential habitat ¹²	7,500± acres of potential habitat ¹²	Identified for coverage because its habitat requirements generally coincide with the coastal cactus wren.
Coyote <i>Canis latrans</i>	51,500± acres of potential habitat ⁷	36,750± acres of potential habitat ⁷	Included because of its role as top predator and because linkages have been provided for access to key areas like Upper Newport Bay and San Joaquin Marsh.

Species	Conserved and not Taken ¹	Assumed Taken ²	Reason identified as a covered species
Gray fox <i>Urocyon cinereoargenteus</i>	<u>40,250</u> + acres if potential habitat ⁸	<u>11,500</u> + acres of potential habitat	Included because of its role as a native predator and because linkages have been provided for access to key areas like Upper Newport Bay and San Joaquin Marsh.
Orange-throated whiptail <i>Cnemidophorus hyperythrus</i>	<u>18,250</u> ± acres of coastal scrub and <u>20,000</u> ± acres of other wildlands ⁹	<u>7,250</u> ± acres of coastal scrub and <u>18,750</u> ± acres of other wildlands ¹⁰	One of the three original “Target Species”. Extensive information is available.
San Diego horned lizard <i>Phrynosoma coronatum blainvillii</i>	<u>49,750</u> ± acres of potential habitat ¹¹	<u>24,000</u> ± acres of potential habitat ¹⁷	Identified for coverage because its habitat requirements generally coincide with the orange-throated whiptail.
Coastal western whiptail <i>Cnemidophorus tigris multiscutatus</i>	<u>36,500</u> ± acres of potential habitat ¹⁸	<u>10,500</u> ± acres of potential habitat ¹⁸	Identified for coverage because its habitat requirements generally coincide with the orange-throated whiptail, and this species is more widely distributed.
Coronado skink <i>Eumeces skiltonianus interparietalis</i>	<u>48,500</u> ± acres of potential habitat ¹⁹	<u>23,250</u> ± acres of potential habitat ¹⁹	Identified for coverage because its habitat requirements generally coincide with the “Target Species” and because this species is more widely distributed than the “Target Species”.
Coastal rosy boa <i>Lichanura trivirgata rosafusca</i>	<u>36,500</u> ± acres of potential habitat ¹⁸	<u>10,500</u> ± acres of potential habitat ¹⁸	Identified for coverage because its habitat requirements generally coincide with the orange-throated whiptail.
San Bernardino ringneck snake <i>Diadophis punctatus modestus</i>	<u>47,000</u> acres of potential habitat ²⁰	<u>22,250</u> ± acres of potential habitat ²⁰	Identified for coverage because its habitat requirements generally coincide with the “Target Species”.
Northern red diamond rattlesnake <i>Crotalus ruber ruber</i>	<u>23,250</u> ± acres of potential habitat ²¹	<u>7,500</u> ± acres of potential habitat ²¹	Identified for coverage because its habitat requirements generally coincide with the orange-throated whiptail, and this species is more widely distributed.

Species	Conserved and not Taken¹	Assumed Taken²	Reason identified as a covered species
Southwestern arroyo toad <i>Bufo microscaphus californicus</i>	1,700± acres of potential habitat ²² , with the only known occurrence in a special linkage	750± acres of potential habitat ²² , subject to review outside the NCCP/HCP if coverage conditions are not met	Identified for coverage subject to conditions which specify that impacts to major occurrences outside the reserve must not have significant long-term conservation value and that provision is made for any other appropriate mitigation.
Western spadefoot toad <i>Scaphiophis hamondi</i>	9,500+ or potential habitat ⁸ with 10 known breeding sites	12,000+ acres of potential habitat ⁸ with three known breeding sites	Included for coverage because recent surveys show most breeding sites are conserved and evidence shows that additional sites can be readily established.
Black-bellied slender salamander <i>Batrachoseps nigriventris</i>	1,250± acres of potential habitat ²³	250± acres of potential habitat ²³	Identified for coverage because it is primarily associated with a habitat type (woodland) conserved comparably to coastal scrub.
Arboreal salamander <i>Aneides Lugubris</i>	1,250± acres of potential habitat ²³	250± acres of potential habitat ²³	Identified for coverage because it is primarily associated with a habitat type (woodland) conserved comparably to coastal scrub.
Quino checkerspot <i>Euphydras editha quino</i>	34,000± acres of potential habitat ²⁴	19,750± acres of potential habitat ²⁴ , subject to review outside the NCCP/HCP if coverage conditions are not met	Identified for coverage under certain conditions, which specify that occurrences covered by the NCCP/HCP must not have significant long-term conservation value and that provision is made for any other appropriate mitigation.

Species	Conserved and not Taken¹	Assumed Taken²	Reason identified as a covered species
Riverside fairy shrimp <i>Streptocephalus woottoni</i>	11 acres of potential habitat (vernal pool)	42 acres of potential habitat (vernal pool), subject to review outside the NCCP/HCP if coverage conditions are not met	Identified for coverage under certain conditions, which specify that occurrences covered by the NCCP/HCP must not have significant long-term conservation value and that provision is made for any other appropriate mitigation.
San Diego fairy shrimp <i>Branchinecta sandiegoensis</i>	11 acres of potential habitat (vernal pool)	42 acres of potential habitat (vernal pool), subject to review outside the NCCP/HCP if coverage conditions are not met	Identified for coverage under certain conditions, which specify that occurrences covered by the NCCP/HCP must not have significant long-term conservation value and that provision is made for any other appropriate mitigation.
Foothill mariposa lily <i>Calochortus weedii</i> var. <i>intermedius</i>	<u>45,750</u> ± acres of potential habitat ²⁵	<u>22,000</u> ± acres of potential habitat, ²⁵ subject to review outside the NCCP/HCP if coverage conditions are not met.	Identified for coverage <u>subject to conditions</u> , because its habitat requirements generally coincide with the “Target Species”. <u>Conditions provide for review of projects which may affect larger populations, and allow provision of any other appropriate mitigation.</u>
Catalina mariposa lily <i>Calochortus catalinae</i>	<u>47,000</u> ± acres of potential habitat ²⁶	<u>22,250</u> ± acres of potential habitat ²⁶	Identified for coverage because its habitat requirements generally coincide with the “Target Species” and because this species is more widely distributed than the “Target Species”.

Species	Conserved and not Taken ¹	Assumed Taken ²	Reason identified as a covered species
Laguna Beach Dudleya <i>Dudleya stolonifera</i>	<u>Of six known populations, one large and two small populations are in the reserve. A fourth is in an area at the intersection of reserve, special linkage, and Existing Use Areas. Otherwise, all potential habitat owned by participating landowners is in the reserve.</u>	<u>No Take is authorized for the remaining known populations, and existing regulatory protections apply to “non-participating landowners”.</u>	Identified for coverage because it is endemic to the subregion and all or parts of four of the six known populations are in the reserve, <u>where they can benefit from adaptive management. Existing protections are not diminished for populations outside the reserve.</u>
Santa Monica Mountains Dudleya Dudleya cymosa spp. <i>ovatifolia</i>	65 acres of potential habitat ²⁸	14 acres of potential habitat ²⁸	Identified for coverage because all known occurrences in the subregion are in the reserve or on National Forest.
Coulter's matilija poppy <i>Romneya coulteri</i>	<u>36,500±</u> acres of potential habitat ²⁹	<u>10,500±</u> acres of potential habitat ²⁹	Identified for coverage because its habitat requirements generally coincide with the “Target Species” and because this species is more widely distributed than the “Target Species”.
Nuttall's scrub oak <i>Quercus dumosa</i>	<u>3,750+</u> acres of potential habitat ³⁰	<u>1,000</u> acres of potential habitat ³⁰	Identified for coverage because it is primarily associated with a habitat type (Coastal Subarea chaparral) conserved comparably to coastal scrub.
Small-flowered mountain mahogany <i>Cercocarpus</i> <i>minutiflorus</i>	3,700± acres of potential habitat ³⁰	1,250± acres of potential habitat ³⁰	Identified for coverage because it is primarily associated with a habitat type (Coastal Subarea chaparral) conserved comparably to coastal scrub.

Species	Conserved and not Taken¹	Assumed Taken²	Reason identified as a covered species
Heart-leaved pitcher sage <i>Lepichinia cardiophylla</i>	193 acres of potential habitat (Tecate cypress)	Five acres of potential habitat (Tecate cypress)	Identified for coverage because it is primarily associated with a habitat type (Tecate cypress) conserved comparably to coastal scrub, and all other known occurrences are on National Forest.
Tecate cypress <i>Cupressus forbesii</i>	Almost entirely within the reserve	Very small amounts are outside the reserve	Included for coverage because almost all of its primary occurrence in the subregion is included in the reserve.

¹ For purposes of this table, conserved habitat is habitat in the reserve, and habitats in the special linkage and Existing Use Areas, non-reserve open space, and the policy plan area. The reader should recognize that some development will occur in the not Taken category, which will be offset to a degree by non-development on lands in the assumed Taken category. The precision of the acreage figures is also limited by the degree of habitat type fidelity exhibited by each species.

² For purposes of this table, the assumed Taken category includes other non-reserve lands. The reader should recognize that not all lands in this category will be developed, due to constraints such as slope, which will be offset to a degree by some development on lands in the not Taken category. The precision of the acreage figures is also limited by the degree of habitat type fidelity exhibited by each species.

³ Scrub.

⁴ Grassland, riparian and woodland.

⁵ Riparian, woodland, forest, and chaparral.

⁶ Woodland and riparian.

⁷ All habitat types except disturbed; developed; lakes, reservoirs and basins; and marine and coastal.

⁸ Grasslands.

⁹ Scrub, grassland, and cliff and rock.

¹⁰ Cliff and rock, marsh and grassland

¹¹ Riparian.

¹² Scrub. This species is especially associated with the cactus component of coastal scrub.

¹⁴ Scrub, chaparral, woodland and riparian.

- ¹⁵ Habitat acreages are areas below 1,200 feet in elevation, reflecting the apparent limits of the species within the subregion. Of the total conserved, 13,468 acres can be considered higher quality habitat, defined as coastal scrub below 900 feet in elevation. The species is present, but at much lower densities, in higher elevation coastal scrub and other wildland habitat types.
- ¹⁶ Habitat acreages are areas below 1,200 feet in elevation, reflecting the apparent limits of the species within the subregion. Of the total Taken, 5,302 acres can be considered higher quality habitat, defined as coastal scrub below 900 feet in elevation. The species is present, but at much lower densities, in higher elevation coastal scrub and other wildland habitat types.
- ¹⁷ Scrub, chaparral, grassland, riparian, woodland, and watercourses.
- ¹⁸ Scrub, chaparral, and watercourses.
- ¹⁹ Scrub, chaparral, grassland, and riparian.
- ²⁰ Scrub, chaparral, grassland, and woodland.
- ²¹ Coastal scrub below 1,200 meters in elevation.
- ²² Riparian and watercourses in Central Subarea.
- ²³ Woodland.
- ²⁴ Scrub, grassland, and woodland.
- ²⁵ Scrub, chaparral, and grassland.
- ²⁶ Scrub, chaparral, grassland, and woodland. This species prefers grasslands.
- ²⁷ This footnote is not used.
- ²⁸ Cliff and rock in Central Subarea.
- ²⁹ Scrub, chaparral, and watercourses.
- ³⁰ Chaparral in the Coastal subarea only.

The Service recognizes that multiple species planning efforts may, by necessity, be based on ecosystem health. This means that a multi-species HCP will be analyzed to determine how the proposal will adequately provide for the quality of natural habitat and the species that depend upon those habitats in the planning area. This analysis may find that not all species within the planning area will receive equally benefits from the mitigative measures of the plan, but the overall benefits of a successful plan to the natural ecosystem will provide for the species that inhabit that ecosystem. (August 1, 1995 memorandum, at p. 2)

Continuing to refer to multiple species, or ecosystem-based plan, the guidance memorandum also states:

In general, those species which are under the greatest degree of threat (e.g. Listed species, proposed species, and Category 1 candidate species) or which will be subject to the greatest impact from the project should receive the most detailed analyses, factoring in what is known about the species' numbers, productivity, threats, and other limiting factors. More generalized habitat-based analyses may be acceptable for other species. For example, other species with similar needs or functions in a habitat type within an ecosystem could be analyzed together, provided that the impacts of the project on the group of species are described and a sound scientific rationale is presented supporting the conclusion that the group (and therefore each species) is adequately covered by the HCP and section 10 issuance criteria are met. (August 1, memorandum, at p. 3)

The USFWS guidelines cited above emphasize protection and maintenance of ecosystem health and the benefits accruing to multiple species. Recognition is given that the scientific rationale required to grant coverage ranges from census level data to more general information relating to habitat affinities and ecological roles. The underlying rationale for coverage is described below and in other referenced portions of the NCCP/HCP.

The “Identified Species” listed in Table 4-8 and discussed in Section 2.6.2 of Chapter 2 are covered under Section 10 of the FESA and the CESA, as discussed in Part I and in Section 4.2.1. Each of these species is identified as a covered species for one or more reasons which include: 1) the species habitat closely overlaps that of one or more of the three “Target Species”, 2) the species habitat generally overlaps with one or more of the three “Target Species” and the “Identified Species” is more widespread and secure, 3) the species is largely or completely endemic to the subregion and its known population(s) are adequately protected

by the reserve and adaptive management program, 4) the species is widely distributed beyond the NCCP region and the NCCP reserve and adaptive management program provide fully adequate conservation measures within the context of this subregion, 5) the species is an important top predator and habitat linkages designed in the reserve will allow it to continue to play that role and 6) the species distribution is limited to a very small portion of the subregion, overlaps one or more of the “Target Species” and is addressed through this planning process.

Several of the “Identified Species” are found predominantly in CSS habitat and are ecologically similar to one or more of the three “Target Species”. For example, in terms of habitat requirements, the San Diego woodrat is very closely associated with the cactus patches which support coastal cactus wren; the coastal whiptail, San Diego horned lizard, and red diamond rattlesnake use habitat similar to the orange-throated whiptail; and the southern California rufous-crowned sparrow is closely associated with CSS used by coastal California gnatcatchers, especially the grassland ecotone areas that are often favored by gnatcatchers. Some of these species are similar in terms of predator-prey relationships as well, examples include the largely insectivorous whiptail species and the horned lizard. The degree of similarity in habitat use and ecological relationships indicates that this Reserve System and management program will effectively conserve the “Target Species” and will also effectively conserve the additional “Identified Species”, in accordance with the requirements of FESA Section 10, CESA Sections 2081/2084, and the NCCP Conservation Guidelines.

Some of the additional “Identified Species” are more generally associated with the habitat mosaic of CSS, chaparral, grassland, and woodlands found in the Reserve System. Examples include the loggerhead shrike, San Bernardino ringneck snake, red diamond rattlesnake, coastal rosy boa, Catalina mariposa lily, and Coulter’s matilija poppy. The status of these species generally appears to be more secure than that of the “Target Species”. Conservation needs can be expected to be similar to, but generally not as rigorous as for the “Target Species”. While not as closely tied to elements of the CSS mosaic as the three “Target Species”, effective conservation of a diverse multi-habitat Reserve System indicates that these species will be adequately conserved in accordance with FESA Section 10 standards.

Finally, other “Identified Species” have most of their current Orange County range within the subregional Reserve System. The Laguna Beach *Dudleya* is restricted to the portion of the San Joaquin Hills closest to Laguna Beach, most of which is included within the reserve. Five of

the six known populations are within the Reserve System, and City of Laguna Beach policies coupled with topography provide a measure of protection for the sixth population (Roberts, personal communication). Tecate cypress is limited to one large population (Sierra Peak) and one very small population (Fremont Canyon) population in Orange County. Locally-imposed conditions of approval for adjacent projects require preparation of specific management plans for Tecate cypress which will complement management provided through the NCCP/HCP.

Because the NCCP/HCP Reserve System provides for protection and management of much of the range for these species it is concluded that they are adequately protected to receive regulatory coverage under FESA Section 10, CESA Sections 2081/2084, and the NCCP Conservation Guidelines.

Conditionally Covered Species

Ten of the thirty-nine (39) Identified Species receiving regulatory coverage under the NCCP/HCP are subject to implementation of specific conditions. These conditions address the potential impacts associated with implementation of the NCCP/HCP and assure consistency with the FESA and NCCP Conservation Guidelines. These conditions for granting coverage are intended to assure that:

- implementation of the NCCP/HCP would not contribute to the need to elevate the federal/state listing status of unlisted species;
- implementation would not jeopardize the continued survival and recovery of already-listed species; and
- on-site impacts resulting from proposed uses would be minimized and mitigated to the greatest degree practicable.

Each of the “conditionally-covered” species is identified below, along with a description of the extent of such coverage for Incidental Take and the specific conditions that must be met in order to be “covered” under the NCCP/HCP. Refer to Chapter 2 (Section 2.6) for summaries of habitat requirements and other characteristics relating to these species. For each species where the conditions of coverage require a mitigation plan, the mitigation plan must be approved by USFWS.

In addition to the specific conditions identified in this section for each species, conditional coverage could involve habitat acquisition as an optional method of compliance with the requirements of conditional coverage. If the acquisition option is pursued, the acquired habitat must be located outside the habitat Reserve System, be comparable to the type of habitat impacted (*i.e.*, equal or better quality) and be capable of being effectively managed by the Non-Profit Reserve Management Corporation. Typically, this would mean that the added habitat would be located adjacent or in close proximity to the Reserve System. The habitat acquisition option would be subject to the availability of funding (*e.g.*, state/federal funds or in lieu mitigation fees) and to approval by the Non-Profit Reserve Management Corporation, CDFG and USFWS.

The conditionally covered species within the subregion, and specific conditions relating to each species, are as follows:

1. *San Diego Fairy Shrimp, and*

2. *Riverside Fairy Shrimp*

- The vernal pool habitat that is covered is highly degraded and/or artificial (*e.g.* created as a result of past farming practices, vehicle operation, or grading). Non-degraded, natural vernal pool habitat is not covered.
- Planned activities that would affect vernal pool habitat must be consistent with a mitigation plan that: 1) addresses design modifications and other on-site measures that are consistent with the project's purposes, minimizes impacts, and provides appropriate protections for vernal pool habitat, 2) provides for compensatory vernal pool habitat restoration/creation at an appropriate location (which may include the reserve or other open space) and includes relocation of potential cyst-bearing soils, and 3) provides for monitoring and adaptive management of vernal pools consistent with Chapter 5 of this NCCP. The mitigation plan will be developed in coordination with USFWS, CDFG, and the Non-Profit Reserve Management Corporation and approved by USFWS.

Because vernal pool habitat in the subregion known to support other fairy shrimp species is highly degraded and/or is artificial and has been colonized by fairy shrimp, relocation is a potentially viable mitigation technique.

3. *Quino (Wright's) Checkerspot Butterfly*

- The Quino checkerspot habitat that is covered supports populations that are small and/or satellite in nature, reintroduced populations, or populations which have expanded due to NCCP reserve management. Habitat which supports a major checkerspot population that plays an essential role in the distribution of the checkerspot in this subregion and adjoining areas is not covered.
- Planned activities that would affect Quino checkerspot habitat must be consistent with a mitigation plan that: 1) addresses design modifications and other on-site measures that are consistent with the project's purposes, minimizes impacts, and provides appropriate feasible protections for the Quino checkerspot, 2) provides for compensatory habitat restoration/ enhancement activities at an appropriate location (which may include the reserve or other open space) and which may include seeding with host plants, prescribed burning or grazing, and similar activities, and 3) provides for monitoring and adaptive management of Quino checkerspots and their habitat within the reserve consistent with Chapter 5 of this NCCP. The mitigation plan will be developed in coordination with USFWS, CDFG, and the reserve management corporation and approved by USFWS.

4. *Southwestern Arroyo Toad*

- The southwestern arroyo toad (*Bufo microscaphus californicus*) was listed as an endangered species under FESA on December 16, 1994 (Fed. Reg., Vol. 59, No. 241, pp. 64859-64866).
- The arroyo toad habitat covered supports smaller populations (except for the Limestone Canyon population), reintroduced populations, or populations which have expanded due to NCCP reserve management. Except as provided in Section 6.1(b)(4) of the Implementation Agreement, habitat that supports a major arroyo toad population that plays an essential role in the distribution of the arroyo toad in this subregion is not covered.

- USFWS may define specific locations in the Central subarea for arroyo toad surveys. Participating Landowners shall conduct surveys at the locations specified by USFWS. It is acknowledged by the Parties that TCA has completed surveys for this species in the Santiago Creek area and such surveys have not identified the presence of this species. Except as provided in Section 6.1(b)(4), mitigation necessary to address Take of this on lands owned by Participating Landowners shall be carried out by means of relocation of species populations to areas within the Reserve System in the manner and locations specified by USFWS, after consultation with CDFG and the NCCP non-profit corporation.

5. *Southwestern Willow Flycatcher, and*

6. *Least Bell's Vireo*

- The habitat covered supports migrants and nesting birds in locations with lesser long-term conservation values. Habitat that supports migrants or nesting birds and has potentially significant long-term conservation value in this subregion is not covered.
- USFWS may define specific locations in the Central/Coastal Subregion for surveys for these species. Participating Landowners shall conduct surveys at the locations specified by USFWS.
- Planned Activities that would affect habitat must be consistent with a mitigation plan that: 1) addresses design modifications and other on-site measures that are consistent with the project's purposes, minimizes impacts, and provides appropriate feasible protections, 2) provides for compensatory habitat restoration/enhancement activities at an appropriate location (which may include the reserve or other open space) and which may include planting of riparian trees and shrubs and/or cowbird trapping, and 3) provides for monitoring and adaptive management of habitat, within the reserve including cowbird trapping, consistent with Chapter 5 of this NCCP. The mitigation plan will be developed in coordination with USFWS, CDFG, and the reserve management corporation and approved by USFWS.

Z. Pacific Pocket Mouse

The conditions of Take coverage for the Pacific pocket mouse for Chandis-Sherman and the Dana Point Headlands property are set forth in Section 8.3.2 of the Implementation Agreement as generally set forth below.

- A temporary preserve for the Pacific pocket mouse will be established on the Chandis-Sherman Property, on the seaward side of a fence, which is approximately the fence that presently stands on the property and which includes the area currently occupied by the Pacific pocket mouse. The location and boundaries of the preserve area are depicted on Figure 72. The total size of the temporary preserve is approximately 22 acres (of which approximately 8 acres are oceanward of the bluff edge).
- Chandis-Sherman will allow staff of USFWS, CDFG and County EMA (or authorized biological consultants of such entities approved by USFWS) access to the preserve area for eight years, commencing upon the date of issuance of the Section 10(a) Permit and CDFG Management Authorization for the Chandis-Sherman Property. Chandis-Sherman and their designees will retain the right to access the preserve area, provided that such access is conducted so as not to unreasonably interfere with Pacific pocket mouse research and recovery efforts. Chandis-Sherman and their designees reserve the right to conduct minor activities (such as placing minor, temporary objects in the preserve area, such as height poles, and conducting surveys, planning, engineering or environmental studies, etc.) provided that such activities do not unreasonably interfere with Pacific pocket mouse research and recovery efforts.
- CDFG and USFWS agree to provide letters to the City of Dana Point and the California Coastal Commission, at the request of Chandis-Sherman, with respect to the development of the Chandis-Sherman Property and the

mitigation of Planned Activities consistent with the provisions of Section 8.6(a) of the Implementation Agreement. In any application for land use entitlements from the City of Dana Point or the California Coastal Commission, Chandis-Sherman shall propose and promote the adoption of the following measures to be applicable if the temporary preserve area is not acquired by USFWS pursuant to the Implementation Agreement and Pacific pocket mice remain within any designated natural open space areas within the former temporary preserve area:

- (1) posting information signs at entry points to such designated natural open space areas regarding the status of the Pacific pocket mouse and its conservation needs;
 - (2) posting signs at entry points to such designated natural open space areas prohibiting the public from bringing dogs, cats and other pets into the areas; and
 - (3) limiting public use of such designated natural open space areas to designated walkways.
- Following issuance of the Section 10(a) Permit and CDFG Management Authorization for the Chandis-Sherman Property and the Section 10(a)(1)(A) Permit, Chandis-Sherman will provide to either the CDFG, the USFWS, the County EMA, or an appropriate conservation organization as directed by USFWS and CDFG, a total of \$350,000 for use in Pacific pocket mouse propagation, enhancement, recovery and, possibly, relocation efforts to suitable areas within the Reserve System. The first payment of \$50,000 shall be paid on the later of (1) issuance of the Section 10(a) Permit and CDFG Management Authorization for the Chandis-Sherman Property and issuance of the Section 10(a)(1)(A) Permit or (2) January 1, 1997, and \$50,000 payments shall follow every January 1 thereafter for the next six years.

- Following issuance of the Section 10(a) Permit and CDFG Management Authorization for the Chandis-Sherman Property, Chandis-Sherman will pay to the NCCP/HCP Management Endowment Fund a total of \$500,000. The payments shall be made as annual payments of \$100,000 each, for five years, with the first payment to be made within seven (7) days of the issuance of a grading permit to Chandis-Sherman for any portion of the Chandis-Sherman Property, and the following four payments to be made on the anniversary date of the first payment.
- Within one hundred-eighty (180) days after the issuance of the Section 10(a) Permit and CDFG Management Authorization for the Chandis-Sherman Property, or a longer period agreed to by USFWS, CDFG and Chandis-Sherman, the USFWS and CDFG will negotiate with Chandis-Sherman an option to purchase the preserve area. The option shall provide for a purchase price equal to the preserve area's fair market value, and a process and appraisal standards, assumptions and instructions by which that price shall be determined. All Parties agree that the presence of "Identified Species" on the site (as defined in the Implementation Agreement) will not be a factor in determining the fair market value. The option agreement will be negotiated earnestly and in good faith by USFWS, CDFG and Chandis-Sherman. The option agreement shall provide that the option may be exercised eight years and four months following the date of the issuance of the Section 10(a) Permit and CDFG Management Authorization for the Chandis-Sherman Property, or such earlier time agreed to by USFWS, CDFG and Chandis-Sherman. If USFWS determines at or prior to expiration of the eight-year period that translocation or captive breeding of the Chandis-Sherman Property population of the Pacific pocket mouse is not feasible and continuance of the preserve is necessary to ensure the survival and recovery of the species, USFWS shall take all steps within its legal authority to acquire the preserve area at or prior to expiration of the temporary preserve period including, without limitation, the following:

- (1) exercise its right under the option agreement described herein;
- (2) in the absence of an option agreement, pursue other means of acquisition;
- (3) if (1) and (2) above cannot be accomplished, USFWS shall seek to offer to exchange land of equal value to the temporary preserve area acceptable to Chandis-Sherman;
- (4) if neither (1), (2) or (3) can be achieved prior to expiration of the eight-year temporary preserve period or expiration of the eight-year, four month option agreement period described herein, as applicable, Chandis-Sherman will offer to the USFWS a series of one-year extensions of the temporary preserve period, not to exceed four (4) years, subject to the following conditions:
 - (A) USFWS shall continue to take all steps within its legal authority to acquire the preserve area, including, without limitation, (1), (2) and (3) above, during each one-year extension;
 - (B) USFWS shall make a one-year extension payment of \$90,000 within ten (10) business days of expiration of the eight-year temporary preserve period described in Section 8.3.2(a)(1)(B) of the Implementation Agreement or expiration of the eight-year, four-month option agreement period described herein, as applicable; and

(C) a one-year extension payment of \$90,000 shall be made on or before the anniversary date of the first extension payment each year the temporary preserve period is to be extended.

- Upon the issuance of the Section 10(a) Permit and CDFG Management Authorization for the Chandis-Sherman Property, Take of all “Identified Species” (as defined in the Implementation Agreement) shall be permitted anywhere on the Chandis-Sherman Property, other than the preserve area, in accordance with the NCCP/HCP and the Implementation Agreement and notwithstanding any designation of “critical habitat” for the Pacific pocket mouse prior or subsequent to the Effective Date of this Agreement. Upon expiration of the temporary preserve period, as it may be extended, if applicable, as described in the Implementation Agreement, unless USFWS has acquired the preserve area, the Take of all “Identified Species” shall be permitted anywhere within the former preserve area in accordance with the Planned Activities as described in the NCCP/HCP and the Implementation Agreement and notwithstanding any designation of “critical habitat” for the Pacific pocket mouse prior or subsequent to the Effective Date of this Agreement; provided, however, the following conditions shall apply:
- Trapping of Pacific pocket mice in areas to be directly impacted by grading within the former temporary preserve area will be conducted by an authorized biologist for three days prior to any earthmoving activities. If a longer period of trapping is necessary, USFWS will assume the additional trapping costs. Should the temporary preserve period expire during the winter or early spring months when the animals are not active above ground, and therefore cannot be trapped, earthmoving activities within the former temporary preserve area shall be restricted during that period.

- Any captured Pacific pocket mice will be relocated to suitable areas designated by USFWS at the time of capture with funding from the \$700,000 research and recovery budget or other USFWS sources.

During the temporary preserve period, the following construction management practices shall be required:

- Chandis-Sherman will conduct monitoring of Pacific pocket mice during construction activities within 300 feet of occupied habitat within the temporary preserve area.
- If the monitoring indicates that construction activities are causing significant adverse impacts to mice within the temporary preserve area, members of the monitoring team will meet with construction equipment operators and Chandis-Sherman to explore practicable operational modifications to the construction activities.
- All areas of occupied habitat within the temporary preserve area adjacent to construction activities outside the temporary preserve area will be marked, equipment operators will be informed as to the significance of the marked areas and, to the maximum extent practicable, operational techniques will be adopted to prevent unintended activities outside construction areas that might impact Pacific pocket mice within the temporary preserve area.
- If research and recovery studies indicate a necessary time period during the calendar year to restrict grading, Chandis-Sherman will avoid grading

immediately adjacent to occupied habitat during that time period (not to exceed a time period of four months). If the grading time restrictions for the Pacific pocket mouse fall outside of the parameters of CSS construction-related measures described in the EIR/EIS, the Pacific pocket mouse grading restriction will supersede any other grading restriction for any other species.

- In the event the authorization issued for Take of the Pacific pocket mouse described in Section 8.3.2(a)(1)(G) of the Implementation Agreement is invalidated in a final court order and a subsequent application for new Take authorization for the species is filed for the area outside the temporary preserve, as depicted in Figure 72, or such authorization is considered in a section 7 consultation, no mitigation shall be imposed by CDFG or USFWS for activities or impacts in the area outside the preserve on the basis of impacts, either inside or outside the preserve, to Pacific pocket mouse habitat or individuals of the species, and Take shall be authorized in the area outside the temporary preserve, provided that the USFWS is given the opportunity to relocate any individuals of the species that may be present in the area outside the preserve. Under the circumstances of the preceding sentence, if a subsequent application for Take authorization from CDFG for the species within the temporary preserve is filed, CDFG shall not impose any mitigation for impacts to the habitat or individuals of the species above the baseline condition, which for purposes of the NCCP/HCP shall mean the 3.75 acres of occupied habitat as mapped and described in the Dana Point Headlands Specific Plan Supplemental EIR, dated September 1, 1993, and CDFG Management Authorization shall extend to Take of the species above the baseline condition. Nothing in subsection 8.3.2(a)(1)(H) of the Implementation Agreement is intended to or shall be read to require the issuance of future Take authorization by the USFWS in the event that such authorization would be likely to jeopardize the continued existence of the species and the jeopardy cannot be avoided.

- The following conditions shall apply to the County EMA, USFWS, CDFG and landowners other than Chandis-Sherman within the Coastal subarea:
 - The County EMA shall identify habitat areas located within the Coastal subarea that contain potential Pacific pocket mouse habitat. Figure 39 identifies potential pocket mouse habitat within the subarea pursuant to this condition and areas within the habitat Reserve System that contain potential pocket mouse habitat.
 - The Non-Profit Reserve Management Corporation will agree to allow pocket mice to be relocated onto portions of the Reserve System determined to be suitable for the pocket mouse, and will provide for related enhancement, restoration, propagation and monitoring activities as part of the Adaptive Management Program.
 - The USFWS agrees to provide \$350,000 in matching funds subject to funding availability for use in efforts to recover and relocate the pocket mouse over the term of the study effort. Failure to provide these funds shall not be deemed a breach of this Agreement or the basis for suspension, revocation or termination of any Section 10(a) Permits or the CDFG Management Authorization.
 - Extensive trapping efforts for the Pacific pocket mouse were conducted between 1990 and the present by *Participating Landowners*. Based on these trapping efforts, *Participating Landowners* shall not be required to conduct additional trapping or surveys on their properties. In the event

that Pacific pocket mouse population is encountered on participating land ownerships other than the Chandis-Sherman Headlands site, the USFWS shall assume the responsibility for identifying and implementing appropriate mitigation at no cost to the *Participating Landowners* and with no delays to proposed development programs.

- “*Non-participating Landowners*” that propose development on lands identified as potential pocket mouse habitat will be required to conduct trapping surveys based on protocols developed by USFWS. If the pocket mouse is encountered on these properties, the *Non-Participating Landowner* shall be required, at the discretion of the USFWS, to either:
 - ◆ avoid onsite impacts through project redesign;
 - ◆ prepare and process either a Section 10 HCP or undergo a Section 7 consultation; or
 - ◆ fund the cost of relocating the pocket mouse population to a site within the Coastal Subarea acceptable to the USFWS and provide appropriate and reasonable funding for the cost of any necessary habitat enhancement or population propagation activities in the relocation area.

8. *Golden Eagle and*

9. *Prairie Falcon*

- Planned Activities that would affect golden eagle habitat are authorized if the habitat is more than one-half mile from an active or historically active nesting site.

- If the habitat is within one-half mile of an active or historically active nesting site, Planned Activities shall be sited in such a way that the activity has minimal potential to cause abandonment of the nesting site.
- If the activity is sited in such a way as to have more than minimal potential to cause abandonment, the activity shall be consistent with a mitigation plan that: (1) addresses design modifications or other on-site measures that are consistent with the project's purposes, minimizes impacts to nest sites, and provides appropriate protections for nest sites, (2) provides for compensatory restoration/creation (normally ledge enhancement) of nesting habitat at an appropriate location (which may include land in the Reserve System or other open space), and (3) provides for monitoring and adaptive management of cliff-nesting raptors consistent with Chapter 5 of the NCCP/HCP. The mitigation plan will be developed in coordination with USFWS, CDFG, and the NCCP non-profit corporation and approved by USFWS.

10 Foothill Mariposa Lily

- Planned Activities affecting populations smaller than 20 individuals are fully authorized.
- Planned Activities affecting populations between 20 and 100 individuals (this number may be adjusted by USFWS and CDFG if reserve monitoring shows the size of potentially important populations to be different), the activity shall be consistent with a mitigation plan that: (1) addresses design modifications or other on-site measures that are consistent with the project's purposes,

minimizes impacts to foothill mariposa lily habitat, and provides appropriate protections for any adjoining conserved foothill mariposa lily habitat, (2) provides for an evaluation of salvage, restoration/enhancement/management of other conserved mariposa lily, or other mitigation techniques to determine the most appropriate mitigation technique to offset impacts, and implements mitigation consistent with the foregoing evaluation, and (3) provides for monitoring and adaptive management of foothill mariposa lily consistent with Chapter 5 of the NCCP/HCP.

- The mitigation plan will be developed in coordination with USFWS, CDFG, and the NCCP non-profit corporation and approved by USFWS.

4.5.2 Assurances to *Participating Landowners* for Species Located in Designated Non-CSS Habitats (Covered Habitats)

In addition to the regulatory coverage for the “target and identified” species described above, the NCCP/HCP contains assurances that are being extended by CDFG and USFWS to *participating landowners* relating to future impacts of NCCP planned activities on species other than “target and identified” species in non-CSS habitats. These assurances are set forth in the Implementation Agreement (Sections 8.3.4 and 8.4.4) and summarized below.

The purposes of the assurances offered by CDFG and USFWS are to further the purpose of FESA “to provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved” and to further the Legislative Findings of the NCCP Act to promote “the conservation of broad based natural communities and species diversity.” The assurances also are intended to reverse the trend toward species extinction found by the courts to be the intent of Congress in enacting FESA, the 4(d) Rule for the coastal California gnatcatcher and the tenets of reserve design contained in the NCCP Conservation guidelines. The assurances also reflect the CDFG and USFWS commitment to support the NCCP Guidelines’ prescription that, within the Reserve System, “blocks of habitat should contain a

diverse representation of physical and environmental conditions.” USFWS and CDFG have determined that sufficient habitat of certain types are protected under the NCCP/HCP to a level comparable to CSS protection levels. These habitat types are referred to as “covered habitats” and include the following:

- oak woodlands;
- Tecate cypress forest;
- cliff and rock; and
- within the Coastal Subarea only, chaparral.

The USFWS and CDFG also have determined that programmatic elements of the NCCP/HCP further the protection of important ecosystems and in so doing likely reduce the need for listing species “dependent upon” or “associated with: the foregoing habitats. These programmatic elements include creation of the multiple-habitat NCCP/HCP Reserve System and related land commitments, the certainty of funding for implementation of the adaptive management program, the early commitment of private lands to adaptive management prior to dedication and the commitments to habitat protection extending beyond the term of the Section 10(a) Permit.

For habitats receiving coverage under the NCCP/HCP the terms “dependent upon”: and “associated with” are defined as follows:

1. A species will be considered “dependent upon” a particular habitat when that habitat provides the primary elements for the individuals of the species to feed, grow, reproduce, and undertake essential behavior patterns. A species is likely dependent upon a habitat if that habitat provides its primary source of food, nutrition, substrate, cover or shelter, including sites for breeding, reproduction, pollination, and rearing of offspring on a continual or seasonal basis. If a species is considered dependent upon CSS or a “covered habitat,” then that habitat would provide the primary biological and physical elements essential for the conservation of the species.

2. The term “associated with” refers to habitats that may be occasionally occupied by a species that spends the majority of its time in other habitats, although the loss of the CSS or “covered habitat” may cause injury to the species.

Geographic Extent of Covered Habitats

The geographic extent of “covered habitats” provided for under the NCCP/HCP is shown in Figure 69. Non-CSS habitats located on *participating landowner* properties that are “covered” include 260 acres of chaparral within the Coastal Subarea, 205 acres of oak woodlands within the Central and Coastal subareas, 28 acres of cliff and rock in both subareas and three acres of Tecate Cypress forest within the Central Subarea. In all, a total of 496 acres of non-CSS habitat receive regulatory coverage within the subregion. The 496 acres of non-CSS habitat receiving coverage under the NCCP/HCP represents less than one percent of the total habitat located outside the Reserve System.

Extent of Commitments for Species Dependent Upon or Associated with Covered Habitats

The 496 acres of habitat represents the habitat area allowed for conversion to non-habitat uses. The authorization of Take of species dependent upon or associated with the “covered habitats” is subject to the requirements of Section 8.3.4(d)(2) of the Implementation Agreement.

It is important to understand that the “covered habitat”/CSS acreage only identifies those areas where USFWS will assume the responsibility to undertake mitigation actions and other measures, to the maximum extent of its legal authority and funding capability, to allow for the issuance of Section 10(a)

Permits/CDFG Management Authorization for *Participating Landowners* for species dependent upon or associated with these habitat types. The “covered habitat/CSS” provisions of Section 8.3.4(d) of the Implementation Agreement differ in significant respects from those of the “Identified Species” provisions of the Implementation Agreement. Whereas the “Identified Species” provisions assure the automatic issuance of Section 10(a) Permits (and CDFG Management Authorization approval) for the “Identified Species”, the “covered habitat/CSS” provisions of Section 8.3.4(d) of the Implementation Agreement require an assessment of the adequacy of the NCCP/HCP and any necessary USFWS mitigation measures to meet Section 10(a)(1)(B) permit issuance requirements at the time of the future listing.

USFWS and CDFG have determined that sufficient habitat of the covered habitat types are protected under the NCCP/HCP that USFWS is willing to share mitigation responsibilities by taking any necessary actions or measures to complement those actions taken by the *Participating Landowners* in establishing a Reserve System that contains such a high percentage of these habitat types. If, however, USFWS does not have the legal or programmatic ability to satisfy permit issuance requirements, the Implementation Agreement allows for a determination regarding any necessary additional land or funding compensation on the part of *Participating Landowners* (if they choose to do so). If, following all of these measures, USFWS cannot make the required Section 10 findings, the USFWS will not issue Section 10(a) Permits.

4.5.3 Issuance of Section 10(a) Permits for Identified Species and Headlands Plant Species

On July 17, 1997, the USFWS issued Section 10(a) Permits to signatory participating landowners for all federally-listed species designated to receive coverage under the approved NCCP/HCP. The listed species receiving coverage included:

- coastal California gnatcatcher;
- least Bell's vireo;
- southwestern willow flycatcher;
- peregrine falcon;
- southwestern arroyo toad;
- Pacific pocket mouse;
- Riverside fairy shrimp;

Consistent with Section 8.3.1 of the Implementation Agreement, concurrent with execution of the Implementation Agreement, USFWS also authorized future Take of each "Identified Species" incidental to planned activities. In the event that an "Identified Species" is listed subsequent to the effective date of the NCCP/HCP, the Section 10(a) Permit will become effective as to the particular species concurrent with the listing of such species as an endangered or threatened species.

For any participating landowner or local government which becomes signatory to the Implementation Agreement subsequent to the Effective Date, USFWS shall, following submission of a permit application and in accordance with USFWS regulations, issue a Section 10(a) Permit providing the same Take authorization as that provided for parties signatory as of the Effective Date.

There are currently no state-listed species in the subregion authorized for Take under the NCCP/HCP. In the event that the California Fish and Game Commission subsequently lists an “identified” species or a species that is resident within one of the non-CSS “covered” habitats, as a candidate, threatened or endangered species, the Implementation Agreement constitutes a present Management Authorization for future Take of Identified Species (refer to Section 8.4 of the Implementation Agreement).

In the event any of the five sensitive plant species identified for the Headlands site are subsequently listed, these species will be treated in the same manner as “identified” species.

4.5.4 Treatment of the Pacific Pocket Mouse, Other Sensitive Plant Species and Planned Activities Proposed for the Dana Point Headlands Property

As indicated in Chapter 3, the Dana Point Headlands property was considered for inclusion within the subregional habitat Reserve System but rejected during the reserve design process. In addition to containing occupied gnatcatcher habitat (nine sites), this site contains one of only a few known populations of the Pacific pocket mouse, two cactus wren sites, at least one orange-throated whiptail lizard, and several sensitive plant species. After considering the site's size, the extensive urbanization surrounding the site, its isolation from other areas included in the Reserve System, its isolation from other populations of sensitive plant and animal species and its poor prospects for effective long-term management (*e.g.* control of domestic/feral pet predation on the mouse and birds and ongoing human trespass and disturbance), it was determined that this site should not be included within the subregional habitat Reserve System.

Planned Activities Covered by the NCCP/HCP on the Headlands Site

This section discusses "planned activities" that are covered under the NCCP/HCP and the approach to either protect onsite biological values to the extent feasible and/or to mitigate the unavoidable impacts of planned activities through implementation of the NCCP/HCP adaptive management program. The species to receive coverage for Incidental Take, in addition to the target/"Identified Species", are also identified.

The kinds, location and intensities of land uses proposed for the 121-acre Headlands property are illustrated in Figure 71. For purposes of the NCCP/HCP these kinds of land uses shall constitute the "planned activities" that are covered for purposes of compliance with FESA, CESA, the NCCP Act and Guidelines, CEQA and NEPA. The proposed uses include a combination of residential, visitor serving commercial, recreational and open space uses. The Joint EIR/EIS (Part III) addresses proposed uses and related impacts.

As currently envisioned, planned activities would impact about 30 acres of CSS habitat. Other impacts resulting from the planned activities as currently envisioned would include the loss of less than 1 acre of southern coastal bluff scrub, and 55 acres of annual grassland and disturbed annual grassland. Upon completion of planned activities, as currently envisioned, permanent onsite open space would total roughly 60 acres, including 25 acres of existing and restored CSS, and development would occupy roughly 61 acres.

Chandis-Sherman's proposed development plan has not received final local government and Coastal Commission approvals. As noted above, there will be substantial onsite open space/recreation in the development plan that is acted upon by local/state entities; however, the precise amount and configuration of onsite open space/habitat in the approved plan is not known at this time. Therefore, consistent with the authorization for Take of species outlined in Section 4.5.1 and Section 8.3.2 of the Implementation Agreement, and consistent with the need to protect the temporary pocket mouse preserve, the NCCP/HCP authorizes an estimated Incidental Take of 30 acres of CSS with no additional restrictions on the location/configuration of CSS Take. This Incidental Take authorization is not conditioned on any presumed location, intensity or type of planned activities. However, construction-

related mitigation measures are incorporated into the conditional coverage granted for the Pacific pocket mouse.

From an endangered species/habitat protection perspective, the Take for all of the listed and sensitive species on the Headlands site that would result from planned activities is considered adequately mitigated by the provisions of sections 4.5.1 and 4.5.4 of the NCCP/HCP and Section 8.3.2 of the Implementation Agreement. These mitigation provisions contribute directly to the conservation of the Pacific pocket mouse and to implementation of the NCCP/HCP adaptive management program. Cumulatively, these mitigation measures will contribute to maintaining and, potentially, enhancing subregional biodiversity and the prospects for survival of and recovery of "Identified Species" as defined in the Implementation Agreement.

Mitigation of Impacts Resulting from Planned Activities on the Headlands Site

The NCCP/HCP approach to the Headlands property involves the following biological resources: (a) the Pacific pocket mouse population; (b) other "target and "Identified Species", including the coastal California gnatcatcher, cactus wren and orange-throated whiptail; and c) other designated sensitive plant species. The strategy for addressing the sensitive resources on this site under the NCCP/HCP involves commitments by Chandis-Sherman, CDFG, USFWS and the County of Orange.

Pacific Pocket Mouse

The Pacific pocket mouse (*Perognathus longimembris pacificus*) was listed by the USFWS pursuant to its emergency authority on February 3, 1994 as an endangered species (Fed. Reg. Vol. 59, No. 23 at pp. 5306-5312). This listing was extended by a final rule published on September 29, 1994 (Fed. Reg. Vol. 59, No. 188, at pp. 49752-49764). The distribution, taxonomy and habitat requirements of the Pacific Pocket mouse are addressed in Chapter 2, Section 2.6.2.

In recent years, confirmed populations of the Pacific pocket mouse have been found at only three locations in the United States. (Potential suitable sites in Baja California, Mexico are not known to have been surveyed.) Surveys in 1993 found a small population of the species on approximately 4 acres of the Dana Point Headlands site within the Central/Coastal Subregion. According to the Service's findings in the Federal Register "No more than 39 individuals are known to exist" on this site. The mammologist who surveyed the site put the number of mice trapped at between 25-36 individuals.

As noted in Section 2.6.2 of the NCCP/HCP, the Dana Point Headlands contains the only population of the Pacific pocket mouse currently known to exist within the subregion. Historically, the pocket mouse was found in small numbers in the Spyglass Hill area in the San Joaquin Hills. The Spyglass Hill location has been subsequently developed. Between 1990 and the present, site-specific trapping for the Pacific pocket mouse has been conducted on lands potentially providing suitable habitat for the species within the Coastal Subarea slated for development. Table 4-9 shows the level of trapping conducted within the San Joaquin Hills portion of the Coastal subarea during this time. Trapping efforts resulted in more than 6,400 trap rights. To date, the only location where the species has been found has been the Dana Headlands site. Accordingly, it is possible that at present, the species is limited to this approximately four-acre area within the subregion.

In its current condition and isolated location, this population on the Headlands site may be extremely vulnerable to extirpation. At a population of between 25 and 40 individuals, this population also is significantly vulnerable to the deleterious effects of inbreeding depression. See E. O. Wilson "The Diversity of Life" (1992). Because the effective population size is less than 50, the conservation biologists "rule of 50-500" may apply. The small population size and limited habitat availability place the Headlands population at a high risk of extirpation due to stochastic events such as drought, fire, disease, flooding or a population crash. The population is also significantly at risk from human trespassers who have historically used and currently use the site for recreational purposes. The mice, existing in a small location surrounded by significant urbanization are further threatened by predation from domestic, as well as feral, animals.

The best long-term hope for the continued viability of the population currently located on the Headlands site may involve the translocation of the species at the earliest feasible date. In the absence of proactive intervention measures with this population to attempt to enhance the population size and relocate to a larger and more protected area within the subregion, the extirpation of this population is all but certain.

Potentially suitable habitat has been identified in the Reserve System, much of which is interconnected and provides opportunities for significant expansion of the species within the subregion if propagation and translocation efforts are successful. Therefore, the NCCP/HCP provides funding for behavioral and biological studies, propagation, habitat enhancement and translocation activities both on the eight-year, 22-acre temporary pocket mouse preserve established on the Headlands site and within the permanent Reserve System.

Table 4-9
PACIFIC POCKET MOUSE TRAPPING EFFORTS
IN THE SAN JOAQUIN HILLS PORTION OF THE COASTAL SUBAREA

SITE	DATE	TRAP NIGHTS
Newport Coast Resort Site	September 1993 August 1994	1,227
Pelican Hill	October 1990 July 1994	334 1,575
Wishbone Development Area	September 1993	327
Upper Wishbone Hill	July 1994	500
Upper Coyote Canyon	July 1991	97
Upper Bommer Canyon	July 1991	194
Shady Canyon	September 1994	1,100
MacArthur Boulevard, Irvine	April 1991	291
Concordia University, Irvine	November 1991	194
Laguna Canyon	June 1991 August 1992	97 475
TOTAL TRAP NIGHTS		6,411

Provisions of Regulatory Coverage for the Headlands Under the NCCP/HCP

Under the conditions set forth in Section 4.5.1 for the "conditional coverage" granted for the Pacific pocket mouse and Section 8.3.2 of the Implementation Agreement, the NCCP/HCP establishes a process for onsite protection, propagation, population enhancement and translocation of the remaining Pacific pocket mice on the Headlands property in accordance with the terms of conditional coverage. A process is also established to allow for the attempted maintenance of that population on the site for a period longer than the life of the temporary mouse preserve. In addition, a parallel process is established for other landowners within the subregion in the event the pocket mouse is encountered on other ownerships.

The NCCP/HCP proposes to allow Incidental Take of any Pacific pocket mice within other areas within the subregion on lands within signatory jurisdictions owned by *Participating Landowners* and authorized for Incidental Take for planned activities. No additional surveys for this species would be required by *Participating Landowners*. As explained above, surveying to date does not suggest that any members of the species are located in these areas.

Based on the extensive trapping efforts for the Pacific pocket mouse conducted between 1990 and the present by *Participating Landowners* other than the Headlands Property owners, these *Participating Landowners* shall not be required to conduct additional trapping or surveys on their properties. In the unlikely event that Pacific pocket mouse population is encountered on participating land ownerships, the USFWS shall assume the responsibility for identifying and implementing appropriate mitigation at no cost to the *Participating Landowners* and with no delays to proposed development programs.

This NCCP/HCP also proposes to authorize at this time the Incidental Take of any Pacific pocket mice in the temporary Headlands preserve after the expiration of the eight-year preserve period, unless the USFWS has purchased this area or exercised other options pursuant to the terms outlined in Section 8.3.2 of the Implementation Agreement. Prior to this time, Take will be authorized for qualified individuals under FESA Section 10(a)(1)(A) for purposes of allowing for the propagation, study and enhancement of this population.

Under the terms of Section 4.5.1 and Section 8.3.2(f) of the Implementation Agreement, if at the expiration of the eight-year period the USFWS determines that captive breeding or translocation of the mouse is not feasible and continuance of the reserve is necessary to ensure survival and recovery of the species, the cited sections of the NCCP/HCP and Implementation Agreement address measures designed to provide the necessary level of protection for the species. If, however, translocation and/or captive breeding efforts are demonstrated to be successful and the temporary preserve is not purchased by USFWS or others within eight years, individuals of the species would be expected to have been translocated off of the Headlands site by the end of the eight years. Therefore, it is unlikely that any pocket mice would be impacted by development activity within this 22-acre area after the initial eight year period; however any such resulting Incidental Take will be permitted by this NCCP/HCP.

Other Target and “Identified Species” on the Headlands Site

As Participating Landowners, Chandis-Sherman is fully covered for all target and “Identified Species” found on the Headlands site, including but not limited to the coastal California gnatcatcher, coastal cactus wren and orange-throated whiptail lizard.

Headlands Blochman’s Dudleya

With respect to the Blochman’s dudleya population on the Chandis-Sherman Property only, Chandis-Sherman will offer to relocate any population of Blochman’s dudleya which will be directly impacted by grading. Chandis-Sherman will bear all reasonable costs (not to exceed \$23,000) associated with the relocation of such populations, as such costs are incurred, excluding any and all costs associated with the acquisition of any real property interests in or rights of access to the relocation site.

Any other populations may remain on the site without further mitigation by Chandis-Sherman. At the election of Chandis-Sherman, Chandis-Sherman may opt to undertake a seed collection and planting program in lieu of translocation of existing individuals onsite if such plan meets the approval of CDFG and USFWS. Under either method, CDFG is obligated to identify the relocation site and secure all permissions required to conduct the relocation, if any, at its expense, within one (1) year of the receipt of a request from Chandis-Sherman to identify the relocation site and may relocate the population, without such request, at any time two years after issuance of the Section 10(a) Permit and CDFG Management Authorization for the Chandis-Sherman Property.

Failure of CDFG to identify and make available a reasonable site within the one year time period upon the Chandis-Sherman notice shall entitle Chandis-Sherman to remove any population to be directly impacted. Chandis-Sherman shall use their best efforts to notify CDFG of any grading activities at the earliest practicable time and not later than 90 days preceding commencement of such activities, although notice provided pursuant to the Implementation Agreement need not be tied to grading or disturbance on the site.

Other Sensitive Plant Species on the Headlands Site Not Included on the List of Target and “Identified Species” Receiving Coverage Under the NCCP/HCP

Although the distribution and abundance of five sensitive plant species occurring, or potentially occurring, on the Headlands site are not sufficiently well known within the Central/Coastal Subregion as a whole so as to allow for blanket coverage for Incidental Take to all landowners or *Participating Landowners* within the subregion, the distribution or potential occurrence on the Headlands property is sufficiently well known so as to allow for Incidental Take coverage to be provided to Chandis-Sherman for any impacts to these species on the Headlands property as part of this NCCP/HCP.

Incidental Take/management Take is authorized for these five plant species on the Headlands property only, for the following reasons: (1) the five species occur, or would potentially occur, in only limited portions of the site, (2) the five species occur in a variety of other locations in Orange and San Diego counties and, generally, other areas, (3) suitable and sufficient habitat for these species will be preserved by the subregion's permanent Reserve System relative to the numbers of individuals potentially to be lost on the Headlands property, (4) ultimate open space on the property can be expected to preserve at least some of the individuals of one or more of the five species (e.g. individuals of the cliff spurge are likely to remain under any final open space design), (5) Chandis-Sherman has agreed to relocate any populations of Blochman's Dudleya on the site which would be directly impacted by site development pursuant to terms in the Implementation Agreement, and (6) Chandis-Sherman has agreed to provide \$500,000 to the NCCP/HCP endowment fund for the permanent reserve following issuance of the first grading permit on the site. The endowment contribution will enhance the management of a broad range of species within the subregional Reserve System, including the sensitive species found on the Headlands site.

Collectively, these factors, when applied against the August 1, 1995 guidelines for HCP species coverage in a multi-species plan issued by the Regional Director and discussed in Section 4.5.1, satisfy the necessary requirements to enable the USFWS to issue coverage for those plant species on the Headlands Property.

Accordingly, impacts to, and the Take of, the following plant species that would result from implementation of planned activities on the Headlands site are authorized in accordance with the terms of Section 8.3.2 of the Implementation Agreement:

- Blochman's Dudleya (*Dudleya blochmaniae*) (Subject to the conditions set forth in this Section and the Implementation Agreement)
- Western Dichondra (*Dichondra occidentalis*)
- Cliff Spurge (*Euphorbia misera*)

- Coast Scrub Oak (*Quercus dumosa*)

Note: this species is covered by the NCCP/HCP as an “identified” species

- Palmer's Grappling Hook (*Harpagonella palmeri*)

4.5.5 Other Species Likely to Be Eligible for Regulatory Coverage Following Completion of Field Surveys Within the Habitat Reserve (Special Interest Species)

In addition to the species cited in Section 4.5.1, it is likely that field inventories conducted within the Reserve System during the early years of reserve management will demonstrate that additional species (called special interest species) also will be protected to a Section 10/Section 2835-level as a result of implementation of the subregional reserve and management program. The management program for the permanent Reserve System (Section 5.4.3) will provide for focused field surveys for these special interest species. The special interest species identified in Table 4-10 are designated for focused field surveys early during the adaptive management regime to confirm whether they should receive regulatory coverage under the recommended subregional NCCP/HCP.

Consistent with the Implementation Agreement amendment procedures, additional species may be added to the list of covered “Identified Species” contained in this section. Each new species added to the “covered” list would receive regulatory coverage equal to the coverage received by “Identified Species” under the NCCP Guidelines, CESA, FESA, and the Special 4(d) Rule for the coastal California gnatcatcher. Added species would be recommended for coverage based upon completion of the field surveys discussed in this section and Section 5.4.3 and Section 5.4.3 of the NCCP/HCP. The annual reports prepared and submitted to the CDFG and USFWS by the reserve managing authority will update both of the above lists as additional information becomes available.

Table 4-10

SPECIAL INTEREST SPECIES

COMMON NAME	GENUS/SPECIES
1 grasshopper sparrow	<i>Ammodramus savannarum</i>
2 Bell's sage sparrow	<i>Amphispiza bellii bellii</i>
3 burrowing owl	<i>Speotyto cunicularia</i>
4 black chinned sparrow	<i>Spirella atrogularis</i>
5 <u>white-tailed kite</u>	<u><i>Elanus Leucurus</i></u>
6 summer holly	<i>Comarostaphylis diversifolia</i>
7 western dichondra	<i>Dichondra occidentalis</i>
8 many stemmed Dudleya	<i>Dudleya multicaulis</i>
9 Palmers grapplinghook	<i>Harpagonella palmeri</i>
10 coastal nolina	<i>Nolina cismontana</i>
11 crown beard (FT)	<i>Verbesina dissita</i>
12 coast patch-nose snake	<i>Salvadora hexalipis virgultea</i>

In the event that one or more species is proposed to be added as a new “Identified Species”, such species shall be added to the list of “Identified Species” if, consistent with Section 8.8 of the Implementation Agreement, USFWS and CDFG determine that the conservation and management measures set forth in the NCCP/HCP satisfy the requirements of Section 10(a)(1)(b) of FESA and Fish and Game Code sections 2081, 2084, 2825(c) 2830 or 2835, as applicable. However, under FESA, no Take of new “Identified Species” is authorized until the Section 10(a) Permit(s) are amended to authorize such Take.

4.5.6 Procedures and Findings for Future Listing of “Identified Species” and Other Species and Procedures Regarding Covered Habitats in the Central/Coastal Subregion

USFWS and CDFG agree to specifically consider the provisions of the NCCP/HCP in any determination regarding the listing of an Identified Species as an endangered or threatened species or any other species whose habitat is found in the Reserve System. The Implementation Agreement sets forth the procedures and findings that will be utilized by USFWS (in Section 8.3.4) and CDFG (in Section 8.4.3).

Section 4.5.7 Conclusions Regarding Basis for Critical Habitat Assurances in the NCCP/HCP Implementation Agreement

As reviewed previously, the creation of the NCCP/HCP Reserve System with its associated intra-subregion and inter-subregion biological connectivity features, is an essential element in assuring that there will be no reduction in net habitat value in the subregion for the CSS Identified Species on a long-term basis. Due to the regional planning framework for the NCCP reserve design guidelines, the configuration of the Reserve System is intended to be consistent with “critical habitat” should it ever be designated by USFWS in the future for lands owned by “Participating Landowners” consistent with the substantive requirements of 50 CFR 424.12 of the FESA regulations.

Section 424.12 of the FESA regulations specifies the criteria to be used by the USFWS in designating critical habitat. These criteria include “those physical and biological features that are essential to the conservation of a given species and that may require special management considerations or protection: (424.12(b)).

The basic premise of the NCCP Conservation Guidelines “tenets of reserve design” is to identify CSS habitat essential to the conservation of the target species. Subsection 8.2 of the FEIR/FEIS reviews the NCCP reserve design and assesses its contribution to maintaining net habitat value within the subregion for CSS Identified Species on a long-term basis. As reviewed in Chapters 7 and 8 of the FEIR/FEIS, the NCCP Reserve System protects those habitat areas essential to the conservation of the species on the lands of “Participating Landowners” within the Central/Coastal NCCP subregion.

Likewise, the NCCP Conservation Guidelines address “special management considerations” through the prescriptions for the NCCP Adaptive Management Program. The Central/Coastal NCCP/HCP Adaptive Management Program comprehensively addresses CSS/Reserve System “special management considerations” and those adaptive management elements of the NCCP/HCP have been determined to carry out the requirement of the NCCP Conservation Guidelines.

The Central/Coastal NCCP/HCP also identifies the “principal biological or physical constituent elements within the defined area that are essential to the conservation of the species” in a manner consistent with the critical habitat determination requirements of 50 CFR 424.12(b). These constituent elements are reviewed in Chapters 2 and 3 of the NCCP/HCP, in Chapters 4 - 8 of the FEIR/FEIS and have been applied directly in the formulation of the NCCP/HCP Reserve System.

Consistent with 50 CFR 424.12(c), the specificity of the reserve design complies with the requirement that “each critical habitat will be defined by specific limits

using reference points and lines as found on standard topographic maps of the area.”

The NCCP Conservation Guidelines, as incorporated into the 4(d) Rule, indicate that NCCP regional planning is to be conducted, approved and implemented on the basis of subregional planning areas that may proceed independently of one another. Thus, habitat essential to the conservation of the CSS Species is to be addressed at the subregional, as well as regional, level. Given the scale of the Central/Coastal Subregion, the scale of the Reserve System and the comprehensive nature of the special management considerations incorporated into the adaptive Management Program, USFWS concludes that the Reserve System and Adaptive Management Program identify, and include within the Reserve System, the habitat owned by *Participating Landowners* “essential to conservation” of the CSS Species and the “special management” measures necessary to manage CSS on lands of *Participating Landowners* within the Central/Coastal Subregion in a manner that will “provide for the conservation of the species involved.”

SECTION 4.6 CONCLUSIONS REGARDING BENEFITS PROVIDED BY IMPLEMENTATION OF THE NCCP/HCP SUBREGIONAL CONSERVATION STRATEGY

The subregional conservation strategy outlined in this chapter, and further explained in Chapter 5 and in Chapter 6, creates a systematic program for protecting multiple species and multiple habitats on a subregional basis.

The subregional focus of the NCCP/HCP habitat protection program provides important advantages over past efforts to address environmental protection issues on a project by project basis. The adopted NCCP/HCP approach benefits the environment, the regional economy,

and the public. Some of the benefits associated with the NCCP/HCP are identified below. This brief summary of program benefits is not all-inclusive, but it does illustrate the range of benefits associated with implementing the NCCP/HCP and approaching habitat protection on a subregional ecosystem level.

1. Biological Benefits

- A subregional habitat Reserve System is created that
 - includes more than 37,000 acres of wildlands in a permanent habitat reserve that will prohibit residential, commercial and industrial uses, intensive recreation, and other incompatible activities
 - protects adequate habitat for a federally-listed species, the coastal California gnatcatcher, as required under the Special 4(d) Rule and for 38 additional Identified Species
 - addresses the need to protect biodiversity on a subregional level by providing for multiple-species and multiple habitat protection, including representative habitat of 12 of the 13 major habitat types existing in the County several of which are of sufficient scale to be treated as “covered habitats”
 - protects and enhances biological connectivity within the subregion and between this subregion and adjacent NCCP subregions
 - establishes a Reserve System that is capable of being used to offset development impacts outside the reserve and throughout the subregion that would affect CSS and non-CSS habitat

- completes the minimization and avoidance measures initiated by the County as part of its regional open space strategy
 - provides, through implementation of the adaptive management program and associated monitoring, a greatly increased understanding of the ecology of the target and “Identified Species”, CSS, and the overall CSS habitat mosaic
 - provides a “living museum” that can be used to preserve the natural heritage of Orange County
 - provides a dynamic, ecosystem-level laboratory that can be used by academic, scientific, and educational institutions for study and research to improve protection and management of the region’s remaining biological resources
- creation and implementation of a coordinated management program that will
 - implement an “adaptive management” approach on a subregional level, consistent with the NCCP Conservation Guidelines, thereby maintaining the long-term net habitat value of the CSS habitat mosaic
 - incorporate land management policies which emphasize long-term habitat protection
 - increase certainty within the regulatory and scientific community in terms of the ability of reserve managers to adequately protect and manage sensitive species
 - take advantage of opportunities to expand the current distribution of listed (*e.g.*, the Pacific pocket mouse) and “Identified Species” within the subregion

- identify opportunities, and implement systematic long-term restoration and enhancement measures for both CSS and non-CSS habitat within the Reserve System
 - protect sensitive biological resources by providing for the coordinated control of exotic and invasive plant and animal species, including cowbird trapping, eliminating artichoke thistle, and controlling other invasive plant species
 - implement systematic species/habitat monitoring and field surveys within the Reserve System, both to achieve short-term and long-term management goals
 - coordinate habitat management activities on a subregional level
 - implement coordinated fire management, including more benign fuel modification practices, and improved attention to preventive practices that will benefit both biological resources and communities adjacent to the reserve
 - implement a recreation/access control plan that will provide for appropriate public use and enjoyment of the Reserve System while protecting sensitive resources
 - implement an agricultural management plan that will control agricultural practices while the Reserve System is being assembled, and lead to phasing out of agricultural activities within the reserve that do not contribute directly to long-term management and enhancement of biological resources
- creation of a subregion management corporation that will
 - administer the Reserve System and coordinate ongoing habitat management programs

- solicit and receive funding and land for inclusion in the subregional management program
- disburse funds to individual public agency reserve landowners and managers
- receive and disseminate scientific information concerning species and habitats, advancements in habitat management techniques, and so forth, to participating reserve owners/managers and the public
- prepare annual monitoring reports that allow the public and regulatory agencies to evaluate the performance of the adaptive management program (e.g., fire management, invasive species control and grazing management practices) and,
- as necessary, fine-tune management practices under the adaptive management approach, amend reserve policies, and add or delete species from the list of species that receive regulatory coverage within the subregion

2. Regulatory Efficiency and Economic Benefits

- the efficiency of the state/federal regulatory process will benefit because the NCCP/HCP will
 - establish a coordinated system for addressing the protection of species currently listed as endangered or threatened
 - provide for a level of protection justifying state and federal regulatory coverage under FESA, CESA, and the NCCP Act for thirty-nine "Identified Species" found within the reserve

- reduce the need for future state and federal listings of species within the subregion because
 - a diverse habitat mosaic will be reserved and managed for multiple-habitat and multiple-species protection
 - ongoing adaptive management efforts within the reserve, including systematic monitoring and focused species inventories, will provide the basis for granting regulatory coverage to additional species, over and above the thirty-nine species identified in the NCCP/HCP
- the NCCP/HCP will generate significant economic benefits for the subregion, including
 - financial savings to local governments resulting from the increased regulatory certainty, and reduced processing time requirements, for local governments seeking to implement already-adopted plans, programs, and development projects for important public infrastructure, jobs and housing
 - increased certainty and reduced regulatory processing time for landowners involved in planning and constructing new development
 - creation of new jobs within the subregion and County as a result of the more predictable and efficient regulatory process relating to endangered and sensitive species
 - addressing the need to be able to assemble the reserve and implement the adaptive management program without requiring substantial new financial commitments by local governments

3. significant social benefits created for the people of Orange County will include

- creation of a large public "living museum" that the citizens of Orange County and visitors will be able to use as a place for relaxation and nature appreciation and interpretation, and to gain a better understanding of their natural heritage
- preservation of existing recreation opportunities that could be threatened by existing state/federal endangered species laws, and creation of appropriate new recreation opportunities within the Reserve System
- preservation of large blocks of natural open space that will provide visual relief from the effects of urbanization
- the ability for the public to use the Reserve System with the assurance that, under the policies and management practices implemented within the reserve, long-term habitat values within the Reserve System are being protected

The benefits described above are among those that can be realized by implementing the NCCP/HCP.

Chapter 4 outlined the overall subregional conservation strategy, and described the Reserve System and supporting geographic components. Creation of the Reserve System is the first step necessary to implement this strategy. However, two other essential components of the subregional conservation strategy must be present if the NCCP/HCP is to work. The NCCP/HCP also must establish effective habitat management and implementation programs (including provision for adequate funding). The following two chapters describe these other essential components of the NCCP/HCP.

Chapter 5 sets forth the reserve habitat management program.

Chapter 6 explains how the NCCP/HCP will be funded and implemented.

Tab placeholder.

CHAPTER 5: DESCRIPTION OF THE HABITAT MANAGEMENT PROGRAM

The habitat management program establishes the policies and programs that will guide future uses and activities within the Reserve System. The biotic resources identified in Chapter 2 and described in Chapter 4 will be managed in accordance with the policies contained in this chapter.

The habitat management program is based on the “adaptive management” approach described in the NCCP Planning Guidelines (Attachment A: Conservation Guidelines, p. 3) and recommended by the state for implementation under the NCCP program. This chapter presents the habitat management program in three steps. First, it describes the “adaptive management” regime recommended by the NCCP Guidelines. Second, uses and activities permitted within the reserve and referenced by specific management policies are summarized. Finally, the specific programs and policies that comprise the management program are outlined.

SECTION 5.1 ADAPTIVE MANAGEMENT

The NCCP Planning Guidelines adopted by CDFG and incorporated into the Special 4(d) Rule for the coastal California gnatcatcher recommend that an “adaptive management” regime should be implemented to manage biological resources within the subregion. As used in this NCCP/HCP, adaptive management is defined as a flexible, iterative 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. This approach involves managing CSS and adjacent habitats in a manner designed to support a broad range of “CSS Species” over the long term, with particular emphasis on the “target and identified” species.

The purpose of adaptive management within the framework of the NCCP/HCP Reserve System is to maintain the long-term net habitat value within the subregion. The NCCP Planning Guidelines define the manner in which the creation and management of the Reserve

System provide for assuring no net reduction in the ability of the subregion to maintain viable populations of “Target Species”:

. . . subregional NCCPs will designate a system of interconnected reserves designed to: (1) promote biodiversity, (2) provide for high likelihoods for persistence of target species in the subregion, and (3) provide for no net loss of habitat value from the present taking into account management and enhancement. No net loss of habitat value means no net reduction in the ability of the subregion to maintain viable populations of target species over the long-term.

With improved techniques for management and restoration, the goal of no net loss of habitat value may be attainable even if there is a net loss of habitat acreage. (Conservation Guidelines, p. 9)

Thus, as indicated by the Conservation Guidelines, a Reserve System that consists of smaller, appropriately managed habitat areas could have a greater likelihood of maintaining CSS biodiversity under adaptive management than a system of larger habitat areas that are unmanaged or ineffectively managed.

SECTION 5.2 ELEMENTS OF THE RESERVE SYSTEM ADAPTIVE MANAGEMENT PROGRAM

The following Reserve System adaptive management elements are necessary to maintain the net long-term habitat value of the Reserve System in accordance with the Subregional NCCP/HCP:

- monitoring and associated adaptive management of the biological resources located within the Reserve System;
- restoration and enhancement actions (other than creation of new CSS habitat) such as eradication of invasive, non-native plant species, predator control grazing management plans, construction of additional spadefoot toad breeding sites;

- management carried out by means of short-term and long-term fire management programs within the Reserve System;
- management of public access and recreational uses within the Reserve System;
- management designed to minimize the impacts of ongoing operations/maintenance of uses within the Reserve System 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 Reserve System;
- interim management of privately-owned lands for the above adaptive management elements purposes prior to transfer of legal title to permanent public or non-profit ownership within the Reserve System; and
- restoration and enhancement measures through: (a) acquisition of existing CSS habitat or (b) 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 “non-participating landowners”.

Each of the above management elements contributes to the maintenance of the overall net long-term habitat value of the Reserve System, and is discussed in the following sections 5.4 through 5.12. By providing essential lands and funding for the creation and long-term management of the Reserve System, “*participating landowners*” maintain “net habitat value” that otherwise would be lost due to Incidental Take on their part. Thus, the Reserve System and its associated adaptive management program provide the vehicle whereby landowners/entities which contribute significantly to the creation and management of the reserve can assure that Incidental Take resulting from their activities:

- does not result in a significant reduction in the likelihood of the “target and Identified Species” survival (as required by Section 10 of FESA); and
- meets the requirements of the NCCP Act for the protection of “identified” species.

SECTION 5.3 SUMMARY OF PERMITTED USES WITHIN THE RESERVE

The kinds of uses and activities permitted within the Reserve System will be carefully controlled to protect biological resources, particularly “Identified Species” and their habitat and native grasslands. Uses and activities other than those identified in Chapter 5 and Section 5.3.3 of the Implementation Agreement are not permitted without an amendment to the NCCP/HCP. Sections 5.4 through 5.12 of this Chapter describe the management elements and mandatory management policies. To provide perspective, this section summarizes in one location those uses/activities permitted within the Reserve System. These uses are permitted subject to the specific policy language contained in sections 5.4 through 5.12:

- adaptive management activities, including
 - monitoring “Target Species” and related habitat conditions
 - monitoring non-CSS and non-”Target Species” conditions
 - habitat enhancement, restoration and re-creation activities,
 - other management activities designed to implement NCCP policies, objectives (e.g. cowbird trapping, Pacific pocket mouse research and recovery and pest/invasive species controls), and
 - inventorying for non-”Target Species”.
- habitat mitigation related to activities involving Incidental Take of CSS located outside the reserve and, consistent with the adaptive management program, mitigation for impacts to CSS and other habitat on lands located outside the reserve;
- habitat mitigation for Take of non-“CSS Species” outside the Reserve System, consistent with the NCCP/HCP and state and federal mitigation policies (e.g. wetlands and least Bell’s vireo)

- 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 reserve, including university-approved research on the portion of the reserve owned by the Regents;
- fire management activities consistent with the NCCP/HCP and fire management plans;
- ongoing grazing activities consistent with the NCCP/HCP and grazing plan;
- recreation and public access, consistent with the policies contained in the adaptive management program, including
 - passive recreation activities such as hiking, nature interpretation and picnicking,
 - mountain biking and equestrian activities on designated trails,
 - camping in designated locations,
 - continued operation of pre-existing park facilities, including active recreation facilities 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;
 - within the Coal Canyon Ecological Reserve, public access and hunting as determined appropriate by CDFG;
 - park and reserve 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 identified in Chapter 5 and Section 5.3.3 of the Implementation Agreement
 - consistent with the provisions of the NCCP/HCP, operation, maintenance and repair and reconstruction of existing facilities as depicted on Figure 27, or otherwise a matter of public record,
 - construction of those new infrastructure facilities identified in Figure 28 consistent with adopted County and city general plans and the provisions of the NCCP/HCP,
 - ongoing operations and maintenance, repair and reconstruction activities related to the above facilities consistent with the NCCP/HCP, and
 - emergency activities related to existing or new infrastructure facilities.
- Existing uses consistent with Section 5.11 of the NCCP/HCP.

SECTION 5.4 BIOTIC RESOURCE MANAGEMENT AND MONITORING POLICIES -- MAINTAINING NET LONG-TERM HABITAT VALUE

If long-term habitat value declines, the likelihood of species survival declines as well. Habitat value may be defined as the ability (quality, suitability or functional level) of a unit area to support a particular organism. If a unit of habitat is reduced in area or quality, its habitat value declines.

The creation of the subregional Reserve System and implementation of the adaptive management program are the essential elements in assuring that no long-term net loss of habitat value occurs within the subregion. Implementation of the subregional adaptive management program maintains “net long-term habitat value” in the subregion in two ways:

- first, creation of the Reserve System will provide the essential habitat necessary to sustain the “target and Identified Species” within the subregion. Funding provided for long-term adaptive management of the Reserve System assures the reserve management capability necessary to maintain long-term CSS habitat value with the reserve. All of the management elements of this NCCP/HCP have the potential to not only maintain, but to enhance net long-term habitat value within the Reserve System. Thus, the creation and management of the Reserve System offsets the impacts of Incidental Take on lands of property owners who have contributed significantly to establishment of the Reserve System; and
- second, significant opportunities for restoration and enhancement have been identified and are created within the Reserve System. Where appropriate, lands within the reserve will be made available for CSS restoration/enhancement purposes as a mitigation alternative to “non-participating” landowners/entities which have not contributed significantly to creation and management of the Reserve System. The Reserve System restoration and enhancement opportunities provide an alternative for property owners who do not wish to engage the FESA sections 7 and 10 and the CESA Section 2081/2084 project-by-project mitigation processes that are required under existing law. The use of the NCCP/HCP voluntary restoration and enhancement program is intended to provide a meaningful option to landowners with the potential to reduce regulatory burdens on individual landowners while presenting the regulatory agencies with a program that can readily incorporate project-specific restoration and enhancement into a large-scale subregional management system.

As indicated in the earlier excerpt from the NCCP Conservation Guidelines, habitat monitoring and adaptive management are essential tools for maintaining net habitat value on a long-term basis. Long-term habitat value reflects not only the current ability of habitat to support an organism, but also its future ability to perform that function. A habitat area's future suitability may be affected by a number of factors, such as successional dynamics (e.g., shifts between CSS and grassland due to changing grazing pressure), widespread catastrophic events (e.g., major fires), and changes in competing organisms (e.g., spread or control of weeds, cowbirds or bullfrogs). Actions to maintain long-term habitat value take the form of management programs to limit the severity of changes, reduce the risk of undesirable changes, and/or reduce the frequency of undesirable events. To maximize their effectiveness, management programs must be monitored to provide information that can be used to adapt management program elements over time. Adaptive management of biological resources

within the Reserve System thus plays a key role in maintaining habitat value over the long term.

Habitat restoration and enhancement on lands within the Reserve System likely will achieve much higher long-term values than:

- attempting to maintain existing isolated habitat outside the Reserve System; or
- pursuing Section 7 and Section 10 mitigation of habitat losses through restoration of CSS habitat on lands geographically removed from the Reserve System.

The reason for this is that restoration and enhancement of target and “Identified Species” within the Reserve System will allow for adaptive management of habitat over the long term whereas such restoration and enhancement outside the Reserve System would not be likely to result in the level of benefit generated by sustained management and habitat contiguity.

Thus, the optional program for restoration and enhancement of specific areas within the Reserve System, provides an alternative to sections 7 and 10 of FESA and sections 2081 and 2084 of CESA, and assures that viable mitigation alternatives will be available for maintaining net long-term habitat value in connection with CSS take activities by landowners who have not contributed significantly to creation/funding of the Reserve System.

5.4.1 Evaluation of the Effectiveness of Reserve System Management

The fundamental responsibility of the reserve non-profit management corporation is to facilitate implementation of an effective management program. Subsection 4.3.4 of Chapter 4 contains policies outlining the responsibilities of the non-profit reserve manager, one of which is preparation of an annual report for submittal to CDFG and USFWS for review by December 1 of each year. A key element of the required annual report consists of summarizing the status of the mandatory management and monitoring activities outlined below in sections 5.4.2 through 5.4.7 and recommending changes in the overall management program resulting from efforts to date. Based on the schedule of activities provided for within the following subsections, the findings/recommendations generated by the management program shall be included in the annual reports.

5.4.2 Target and Identified Species and Coastal Scrub Monitoring and Management

Target and Identified Species Management Approach

The overall strategy of the NCCP/HCP is to provide a viable ecosystem which minimizes the need for active intervention to support viable populations of the “Target Species”. However, some ongoing active management will be necessary (*e.g.*, for pest control and fire management).

Monitoring Activities

Direct monitoring of the “target and Identified Species” and the coastal sage scrub community (target resources) is necessary to determine how well the NCCP/HCP adaptive management program is addressing the goal of maintaining long-term net habitat value of CSS habitat within the subregion. Data from the annual reserve-wide plot monitoring activities primarily provide information on the overall status of target resources. The utility of such monitoring is chiefly to detect large-scale changes in population status, especially in key portions of the reserve. Further, target resource monitoring contributes basic knowledge of the reserve's biodiversity, dispersal and demography of “Target Species”, community dynamics, and genetics. This information will aid future research efforts relating to target resources undertaken by state, federal, academic or other scientific interests.

Target resource monitoring will be accomplished through a systematic sampling program designed by biologists with appropriate expertise and field experience. Strategically directed sampling will be employed, rather than repeating broad census/inventory efforts, to more efficiently use available management resources. Elements of the sampling program will focus on the coastal California gnatcatcher, coastal cactus wren, orange-throated whiptail, and the CSS vegetation community.

Figure 66 summarizes a recommended monitoring schedule for the cited species and CSS habitat. The suggested schedule focuses monitoring on an area for two years, followed by checks on the status of the area in years three and four. Other monitoring/sampling elements that will be developed as part of the “adaptive management” regime will involve the full range of “identified” and “special interest” species identified in Section 4.5.

- Target resource monitoring will occur on semi-permanent plots (plot locations may be adjusted if subsequent data analysis shows changes to be warranted).
- Plots will be of a size and shape to allow statistically valid analysis (*e.g.*, 20 to 60 acres), and wherever possible, located and shaped so that at least half of their area is CSS. Shape will be as regular as possible, but flexible given the constraints of strategic locations.
- Plots will be strategically located and of variable size and quality to monitor overall population status of the “Target Species”, intended function of the reserve, and detect relative changes.
 - To monitor overall population status, approximately one-third of the plots will be established at representative locations in core portions of the reserve (*e.g.*, the San Joaquin Hills and Lomas Ridge/Limestone areas).
 - To monitor intended function of the reserve, the remaining plots will be located in non-core areas believed to be of particular importance to reserve function. Such areas include locations of high population density or refugia outside the core areas of the Reserve System (*e.g.*, the El Toro Magazine parcel, the Siphon and Rattlesnake reservoir areas, Santiago Oaks Regional Park, the Crystal Cove shelf) and areas designated as habitat linkages on the reserve design map.
- Each plot will include one semi-permanent 200 meter long orange-throated whiptail transect. The transect will be located in representative habitat types within the plot and along a trail or dirt road, to the degree practical, to maximize lizard detectability. It will be walked once annually during late spring/summer/early fall and under appropriate weather conditions for high lizard activity. The data to be collected include number of lizards seen per transect and number of lizards per kilometer of transect in various habitat types.
- Each cactus patch within a plot will be visited once per year to determine if cactus wrens are present. The number of patches visited in each plot will be recorded, as well as the number of patches having cactus >1 m tall. If wrens are present, their status (single, pair, family group) and estimated number will be recorded. The data to be collected include number of cactus patches per plot, proportion of patches potentially

suitable for wren nesting (those with cactus > 1 m tall), and the estimated number and status of wrens in each plot.

- Each plot will be surveyed for California gnatcatchers three times per year, at least one week apart and in summer/early fall to the degree possible (after nesting and before dispersal, focused on determining overall population trends). Any gnatcatchers with all or a portion of their home range within the plot will be recorded, along with their status (single, pair, with young) and estimated number. Location of nesting pairs (within or outside the plot) will be determined. Data collected will include frequency of gnatcatchers per plot (proportion of plots where gnatcatchers are detected) and nesting pair density (number of nesting pairs per plot area).
- Plant community composition will be documented annually on each plot at four semi-permanent photo points. Each plot will include two semi-permanent line-intercept transects 100-400 m long, located to be representative of slopes, aspects, and soil types within the plot. Each year, the transects in one fifth of the plots will be read (each transect pair is read every five years), and the proportion of the transect falling into different plant communities will be recorded. The data to be collected includes qualitative habitat conditions (photos) and quantitative data on the relative extent of plant communities within the plot.
- On a biannual and rotating basis, a subset of the plots will be selected for more intensive monitoring over four-years. Analysis of data from the monitoring program will help determine the status, function, and related health of key reserve areas to better understand the status of target resources. The focus of monitoring will vary from year to year as described below.
 - In the first year, all nests of gnatcatchers and cactus wrens within the plot will be located during the nesting season. Nests will be monitored to determine phenology (timing of nest building, egg-laying, *etc.*), nest success, and fledgling success. Causes of nest failure will be determined where possible. All nestlings will be color-banded, and a blood feather will be taken and preserved appropriately for possible future genetic analysis.
 - The orange-throated whiptail transects will be walked four times each season. Arrays of pit traps and drift fences will be placed along the transect. Captured

whiptails will be marked for identification by an appropriate technique, and released. Subsequent recaptures and observations of marked individuals will be recorded (for use in developing population estimates along transects using Lincoln indices and/or related techniques).

- Semi-permanent point-intercept transects located along the line-intercept transects will be visited, and percent frequency by various plant species and bare ground will be recorded.

In the second year, surveys will be conducted to locate all nesting pairs of gnatcatchers and cactus wrens within 1.5 miles of the plot(s) or within one mile of the end of the habitat linkage, whichever is farther. The presence of color-banded birds from the previous year's juveniles will be recorded. Within the plot itself, both adult members of gnatcatcher and cactus wren pairs will be color banded (differently from the juveniles).

Whiptail transects will be repeated, as above. Markings will differ from year one so that lizards marked in the first year can be distinguished from those marked in the second year.

If an inventory survey of special interest species/communities (see Section 5.4.3 below) has been conducted on the area including the plot(s), any special interest species/communities within the plot(s) will be monitored by photo points. If no inventory survey has been done, an inventory survey of the plot will be done in year two.

- In the third and fourth years, all pair locations in the plot(s) where adult birds were banded in year two will be visited, and presence of color banded birds will be recorded. Whiptail transects will be walked once each year, and observations of marked and unmarked lizards will be recorded.

Nest monitoring provides information on breeding success and causes of failure. Banding of nestlings and subsequent surveys provide data on dispersal patterns (note that although some birds will doubtless disperse more than 1.5 miles, reserve dimensions make these longer dispersals less important). Banding of adult birds and subsequent visits to their home ranges provide information on adult survival and stability of nesting territories. The orange-throated whiptail mark/recapture program provides population estimates which can be correlated to the

transect data from reserve-wide monitoring, and information on the age structure and turnover of whiptail populations. More in-depth data will also be collected on vegetative community composition and extent, to better evaluate community dynamics.

5.4.3 Target, Identified, and Special Interest Species Inventory Within the Reserve System

This NCCP/HCP Reserve System monitoring program will include an inventory of “target, identified, and special interest species” and related management monitoring. These two elements are inversely related: inventory will be emphasized early in the NCCP/HCP program, the importance of management monitoring will increase as the inventory is completed. Eventually, monitoring will largely supplant the inventory. Each year, the reserve manager will plan either an inventory or monitoring project.

In addition to “target, identified and special interest species” the inventories will include species which are naturally rare or are declining and are largely associated with the coastal scrub mosaic, and special interest communities and associations (*e.g.*, riparian woodland, clay-endemic flora).

- Inventories will be conducted in a systematic and incremental manner, scheduled by the reserve manager as described above. Two basic approaches will be used to conduct the inventory, one which is location-based and a second which is taxon-based.
- Location-based inventory involves intensive inventory of a specific area, such as a particular watershed. The inventory will assess both plant and animal resources in the target area, with the intent of identifying all sensitive resources present in the target location. Because this approach is generally more efficient than taxon-based inventory it will be the primary approach to the long-term incremental and systematic inventory of the reserve's biotic resources.
- Taxon-based inventory involves wide-scale inventory efforts directed toward a particular taxon, such as a reserve-wide survey for a particular plant. This approach is generally less efficient than the location-based approach, but may be the preferred approach under several circumstances. Taxon-based inventory may be desirable when a particular species is being reviewed for possible listing as a threatened or endangered species. Data concerning the nature of populations protected within the NCCP/HCP

reserve would be of great value in such reviews. Taxon-based inventories may also be appropriate CEQA mitigation as they contribute to the database upon which the adaptive management program is based.

- Data to be collected will be locational and status information on special interest species. It will be maintained in files and on a computer database/GIS.

5.4.4 Passive Management and Monitoring

Subject to the exceptions cited above, biological resources generally will be subject to passive management except where there is a need to control invasive species, or restoration and enhancement opportunities are not available. Passive management is management which does not involve direct and active manipulation of resources. It may be characterized as "hands off" management. Passive management will also be the standard management approach to the normal periodic perturbations which are essential elements of community dynamics in most communities, such as fire in scrub and chaparral, floods in riparian habitats, and so forth. The monitoring and management regime for "target and Identified Species" is described in Section 5.4.3. The following policies apply only to the "special interest" species and resources (listed in Table 4-10).

- For passively managed special interest species and resources, monitoring data will be collected on a less frequent basis, typically at five to 10-year intervals. This monitoring will be scheduled by the reserve manager as described above. Monitoring will focus on identifying any special management needs for such species/resources and on identifying any previously unrecognized resources. Data will be qualitative in most cases, using techniques such as permanent photo points accompanied by a description of current management practices.
- When a periodic perturbation event (*e.g.*, a significant wildfire, flood) occurs, the reserve manager may schedule passive management monitoring in response to the event for one or more years (for example, inventory monitoring may be postponed if a wildfire allows significant opportunity to monitor the community's response). The techniques to be used will be quantitative where practical, and will be similar to those described above, but will be tailored to the event and the monitoring opportunity. The types of data to be collected include data on the nature and timing of a community's response to a perturbation event.

5.4.5 Active Management Monitoring and Establishing Baseline Conditions

Active Management and Monitoring

Active management activities will be monitored to directly assess the efficacy of management activities in meeting the overall goal of the NCCP/HCP reserve.

Active management involves direct and active manipulation of resources to produce desired changes. It includes activities such as cowbird trapping, prescribed burns, grazing, other habitat manipulations or the re-introduction of extirpated species such as the Pacific pocket mouse. It also may include recreational zone designations.

Baseline data is information reflecting the condition of resources in the absence of and prior to active management, and may be historical (*e.g.*, pre-burn vegetation data) or contemporary (*e.g.*, an enclosure in a grazed area).

A baseline data collection and active management monitoring component will be included in all adaptive management activities. During or after management actions, monitoring will be performed. Baseline conditions will be documented irrespective of whether the activity to be undertaken is conducted by the reserve management entity or other parties. Specific examples appear below.

- For prescribed burns, baseline data on plant communities and vegetative structure and composition within communities will be collected by use of plots (including photo plots) and/or transects. The burn area will also be surveyed for the two target bird species and a whiptail transect will be established as described above. Sizes and numbers of plots and transects will be adjusted to fit the size of the prescribed burn unit. Following the burn, the same surveys will be performed in years one, two, four, and six. Quantitative data will be collected on the relative extent and composition of plant communities and the densities and distribution of “Target Species”, both before the burn and as they reestablish after the burn.
- For grazing programs, baseline data will be collected in enclosures (*i.e.*, areas closed to grazing) established concurrent with grazing. Within the grazed area, appropriate vegetation cover and composition data will be collected depending on the vegetation

type being grazed and the purpose of grazing (*e.g.*, cattle or sheep grazing to control thatch in annual grassland, goat grazing to maintain fuel breaks). The data collected will be quantitative data on vegetation cover and composition in grazed and ungrazed areas so the effects of grazing can be evaluated. Grazing programs will also be qualitatively monitored at least semi-monthly to prevent excessive grazing.

- Baseline and treatment data for cowbird trapping and other vertebrate pest management (*e.g.*, feral cats) will be derived from records of pest individuals trapped and disposed of. A baseline index of pest species abundance will be determined from the number of individuals caught per trap day at the beginning of a trapping effort, and treatment data will be the same index over the remaining period of the trapping efforts. Data to be collected will be an index of pest species abundance at the beginning and during control efforts, suitable for analysis to determine if pest abundance changes as a result of treatment. Appropriate controls for seasonal and other effects on pest species abundance will be incorporated into the study.
- For noxious weed eradication efforts, baseline plant frequency and/or cover data will be collected from semi-permanent line- or point-intercept transects or plots appropriate to the weed being removed. The number and size of plots and transects will be adjusted to fit the size of the weed eradication unit. Following the eradication, the same surveys will be performed in years one, two, four, and six. Data collected will be quantitative with respect to the relative extent and composition of plant communities, both before and after the eradication work.
- Under provisions of this NCCP/HCP, most of the Reserve System will be accessible for public access and passive recreation on designated trails. However, it is recognized that public access may need to be restricted during breeding seasons or on a rotating basis depending on changing conditions. The NCCP/HCP also requires the preparation and submittal of a Recreation Management Program following the signing of the subregional Implementation Agreement. Therefore, it is necessary to monitor recreational use areas and modify such uses as necessary. Baseline data on the numbers, locations, and types of trails will be collected in existing natural and wilderness parks within the Reserve System and before opening other reserve areas to non-escorted public use. Data will also be collected on brush land vegetation structure (height, canopy cover, stem density) from semi-permanent plots located adjacent to different classes of trails, in areas of dispersed game trails, and in dense trail-less brush.

After the area is opened to public use, data on numbers and locations of trails and brush structure will be collected at year one, two, four and eight (and every four years afterwards). The data to be collected will quantify the amount of trails and vegetative structure adjacent to trails, in areas potentially receiving dispersed off-trail use, and areas resistant to off-trail use. This data will be suitable for analyzing the effects of recreational access on trail density and brush land habitat integrity.

Other forms of active management will be permissible and consistent with the overall objective of the NCCP/HCP. Monitoring programs consistent with the examples above and including baseline studies and treatment monitoring will be developed and approved for such activities.

5.4.6 Data Analysis

The data collected through the monitoring program must be analyzed and used as the basis for evaluating and guiding reserve management. A key responsibility of the reserve manager will be compilation and analysis of monitoring data, coupled with regular assessments of reserve management based on the analyzed data. The reserve manager will produce an annual monitoring report, which will include recommendations to the non-profit management entity board of directors regarding adjustments which should be made to the management program in response to monitoring.

- Data from reserve-wide “target resource” monitoring will be compiled and analyzed annually. Analysis will include comparisons of current and previous year data, with greater emphasis on identifying long-term trends rather than short-term phenomena.
- Data from intensive “target, identified and special interest” species monitoring will be compiled and analyzed as monitoring cycles are completed. Analyses will include determining reproductive success, mortality rates, patterns of dispersal. These data may be used in a population model, if a proven and tested model is available, to help assess reserve function. Particular emphasis will be given to identifying any management activities needed to improve or maintain necessary reserve functions.
- Data from “active management” efforts will be analyzed to assess the effectiveness of the management effort, and will guide decisions on future management efforts.

- Data from species inventories will be compiled in files and a database/GIS. Data from “passive” management/monitoring will be compiled into report format for use in guiding future management.

5.4.7 Adaptation of Management

As noted above, the ability to adapt management practices as new information becomes available is central to achieving the goal of preserving a viable ecosystem with no net loss of long-term habitat value. Monitoring reports will include assessments of current management practices, both active and passive, and will include recommendations for modifying management actions, programs, or policies when appropriate. Such management actions would be appropriate if monitoring shows long-term decline in a species or community, or if monitoring shows that a management activity is causing an unexpected result or is not efficiently achieving its objective.

The monitoring program described above is itself an integral part of adaptive management, and must also be adaptive. New techniques may be found more effective and/or become available (*e.g.*, radios small enough for radio telemetry of target birds may become available and provide superior data on dispersal patterns). The reserve manager may substitute techniques at his/her discretion, so long as the types of data collected remain similar and are suitable for the expressed purpose and are reported to the management entity and to CDFG and USFWS, as applicable. Similarly, the reserve manager may change the locations of monitoring plots at his/her discretion if monitoring shows that a change would provide data more efficiently and/or better suited to adaptive management. If changes in the focus of monitoring are found to be desirable, the reserve manager will identify these changes in the annual report and seek appropriate approval to make the changes.

SECTION 5.5 RESEARCH POLICY

Basic and applied research beyond studies that contribute directly to the ongoing operation and management of the permanent subregional Reserve System is a discretionary activity (*i.e.*, desirable but not essential), and not a primary objective of the NCCP/HCP. This NCCP/HCP already has provided for significant research that will benefit habitats and species of concern, including:

- extensive field surveys conducted as part of the NCCP/HCP planning effort and project level environmental studies which have established the baseline information for CSS, other habitats and “Target Species” used for reserve design, connectivity analyses, and adaptive management planning;
- the monitoring and management program described above; and
- ongoing data analysis.

These contributions result in a highly significant body of research data. In particular, monitoring, and the associated field surveys/inventories will provide additional extensive biological data. Further, the costs incurred by local agencies during their efforts to carry out the monitoring/management functions outlined in Section 5.4 should be credited for purposes of meeting the “matching funds” requirements applicable to a variety of state and federal funding programs.

The data collected through the monitoring program will sustain the adaptive management program while at the same time providing significant opportunities for research beyond what is needed for adaptive management. However, a distinction must be drawn between research required to be carried out for purposes of implementing the adaptive management program in this NCCP/HCP and the broader research goals outlined in the NCCP Conservation Guidelines. Research which is not included above within the previously described monitoring program, but is consistent with the NCCP Conservation Guidelines will be encouraged to the degree that it does not conflict with the basic priorities of the Reserve System. Funding for research beyond that cited above will come from outside sources and such research will be conducted as outside funding is made available.

SECTION 5.6 HABITAT RESTORATION AND ENHANCEMENT POLICIES

Habitat restoration/enhancement is defined as the process of intentionally altering a degraded habitat area to establish a defined historic ecosystem. The goal of restoration/enhancement is to emulate the structure, function, diversity and dynamics of the specified ecosystem. The following policies shall guide future enhancement and restoration activities within the subregional Reserve System.

1. Enhancement and restoration shall be defined to include all of the activities and measures set forth in this section that are designed to improve biological productivity and diversity within the reserve, including but not limited to, the control of invasive and exotic species, fire management, controlling public access, and managing agricultural practices. Enhancement/restoration permitted within the reserve will, as funding permits, include the full range of habitats included within the Reserve System and will be coordinated with CEQA-required habitat enhancement and restoration measures incorporated into the NCCP/HCP for “covered habitats” and grasslands.
2. Enhancement and restoration will be important to the long-term viability and function of the Reserve System and, consistent with the NCCP Planning Guidelines, will be implemented to contribute to overall biological diversity and productivity within the reserve.
3. The primary source of funding for enhancement and restoration measures within the reserve will consist of the Management Endowment and the mitigation fees paid by “*non-participating landowners*” who elect to use the NCCP fee option to offset development impacts on occupied habitat currently protected under federal law on lands located outside the Reserve System. Other funding sources, including state and federal programs, academic institutions, or non-profit sources will be pursued to fund enhancement and restoration activities. Mitigation fees generated by development impacts on non-CSS lands located outside the Reserve System, or funding for non-CSS habitat enhancement and restoration, may be accepted by the non-profit management corporation for enhancement/restoration activities on non-CSS habitat within the reserve, provided that such activities would not conflict with the provisions of this NCCP/HCP.
4. Identified enhancement/restoration measures will be implemented as funding becomes available, either via the receipt of mitigation fees from “*non-participating landowners*” or from other sources. Because annual funding for enhancement and restoration activities is expected to be limited, restoration/enhancement priorities are identified. Highest priority for restoration/enhancement within the reserve shall be for CSS habitat. As funding permits, other habitats included within the reserve will be targeted for restoration/enhancement. The non-profit management corporation will review

enhancement/restoration priorities and annually revise enhancement/restoration priorities to reflect changing conditions within the reserve, progress in achieving enhancement/restoration goals, and the availability of funding.

5. Enhancement and restoration activities will be monitored as part of the adaptive management program to evaluate effectiveness and progress. Ongoing monitoring will also seek to identify new enhancement and restoration opportunities/priorities with the reserve.
6. Within three years following the creation of the non-profit management corporation, a comprehensive enhancement and restoration plan shall be prepared and submitted to the USFWS and CDFG for review and approval. The enhancement/restoration program shall be submitted and reviewed in accordance with Section 5.3.2 of the Implementation Agreement. This plan shall be updated and approved annually by the non-profit management corporation. Subsequent CDFG/USFWS review of restoration measures will be provided as a part of the deliberations of the non-profit Board of Directors. Enhancement and restoration activities may proceed prior to preparation and approval of this plan subject to approval by the CDFG, USFWS and non-profit corporation.

Within one year of the appointment of the Executive Director of the non-profit management corporation, the corporation shall review available reports regarding the cactus wren, and will determine whether management measures should be taken with regard to the cactus wren within the Reserve System, subject to available funds and NCCP/HCP adaptive management priorities. A material change to the comprehensive enhancement and restoration plan shall be submitted to USFWS and CDFG for review and approval in the same manner as the original plan.

5.6.1 Habitat Enhancement and Restoration

The NCCP/HCP addresses the enhancement and restoration element of the adaptive management program in an inclusive manner. Any activity designed to enhance existing biological functions, or restore biological functions that were present historically but no longer

are present, is treated as an enhancement/restoration activity by this NCCP/HCP. Accordingly, the adaptive management definition of enhancement and restoration for the Central/Coastal Subregion Reserve System includes, but is not limited to, the following management activities:

- monitoring and associated adaptive management of the biological resources located within the Reserve System
- restoration and enhancement actions (other than the creation of new CSS habitat) such as eradication of invasive, non-native plant species, predator control, grazing management plans, construction of additional western spadefoot toad breeding sites
- adaptive management carried out by means of short-term and long-term fire management programs within the Reserve System
- adaptive management of public access and recreational uses within the Reserve System
- adaptive management measures to minimize the impacts of ongoing operations/maintenance of uses within the Reserve System that existed prior to approval of the Subregional NCCP/HCP
- assurance that permitted infrastructure uses proceed in a manner provided for in the NCCP/HCP in order to minimize impacts of new uses allowed within the Reserve System
- interim management of privately-owned lands for all of the above adaptive management elements prior to transfer of legal title to permanent public or non-profit ownership within the Reserve System

- restoration and enhancement through: (a) the acquisition of existing CSS habitat or (b) the creation of new CSS habitat to offset potential loss of net long-term habitat value due to development of CSS habitat outside the Reserve System on the part of “non-participating landowners”

All of the above measures, designed to enhance and restore habitat values within the reserve, are incorporated into the enhancement/restoration element of the adaptive management regime and are discussed in the following sections.

The enhancement and restoration component of the NCCP/HCP builds on concepts in *The Irvine Company Open Space Reserve Habitat Enhancement and Restoration Plan* prepared by The Nature Conservancy (1993). This document addresses a large portion of the NCCP/HCP Reserve System in a site-specific manner, and will be used as a guide to restoration and enhancement work in the Reserve System.

The feasibility of restoration/enhancement and the type of habitat most appropriate to be restored on a given site are determined by a number of factors. These include physical characteristics, such as soil type, soil compaction, hydrology, topography, aspect and insolation. Biotic characteristics include current vegetation types (e.g., extent of weed growth), previous use of soil sterilants, and proximity of native communities. Other key factors include access for equipment used in restoration (e.g., hydro seeding equipment) and suitability of terrain for restoration (ability to use equipment and erosion potential).

Restoration of CSS is appropriate where a candidate site's characteristics are consistent with characteristics of sites where CSS is typically found. CSS is typically found where soils are sandy or loamy, well drained, and thin to moderately deep. CSS is found in a wide variety of topographic situations, including ridge lines, steep slopes, and gentle hillsides. Species composition within the community varies greatly with differences in soil type, insolation/aspect, fire history, topography, and disturbance history. This community can usually be established on a properly prepared site without supplemental irrigation.

Conversely, restoration of other plant communities is appropriate where a candidate site's characteristics are not consistent with coastal scrub. As examples, oak woodland is typically found where soils are deep, the site is mesic but well drained, and topography is a north-facing slope and/or valley floor; riparian habitats are typically found where soils are moderate to deep,

at least periodically poorly drained (ground water or surface water at or near the surface), and topographically along a drainage or around a spring or depression; and grassland is typically found where soils are moderately deep to deep, with loam to clay textures and higher water holding capacity, and in topographic situations producing highly insulated sites (e.g., ridges, south-facing slopes).

The following discussions of restoration/enhancement opportunities, priorities, and techniques focus on coastal sage scrub. Restoration/enhancement of other habitat types can significantly add to the overall habitat values and biodiversity of the Reserve System but, as stated previously, are not necessary to maintain a functioning CSS community in the Central and Coastal Reserve System as presently constituted. Restoration/enhancement activities for other habitat types, such as native grasslands, constitute a permitted use within the reserve and will be pursued as funding is available.

5.6.2 Habitat Restoration/Enhancement Opportunities

Habitat restoration/enhancement opportunities in the Coastal subarea reserve include several non-wildland areas and a number of degraded sites. Restoration of non-wildland areas is provided for in several special linkage areas, including portions of the Coyote Canyon landfill, adjacent to the strawberry fields below Sand Canyon Reservoir, and at El Capitan Park. Degraded areas in need of enhancement are located largely in the northern part of this reserve unit, particularly around Quail Hill, upper Shady Canyon, and Bommer Canyon. Soils in these areas are predominantly Myford sandy loam and the Cieneba-Anaheim-Soper association of excessively- and well-drained sandy loams, gravelly loams, loams, and clay loams. Much of the land in these areas is currently occupied by annual grassland, but shows potential for restoration to CSS and native grasslands based on soil survey maps, historical vegetation maps, and existing vegetation patterns. The existing plant community probably resulted from prolonged extensive grazing and is maintained by continued grazing. Cardoon (*Cynara cardunculus*), or artichoke thistle, infestations are substantial in these areas. Buck Gully is another example of a degraded area in need of enhancement.

Habitat restoration/enhancement opportunities in the Central subarea reserve also include both non-wildland areas and a number of degraded sites. Non-wildland areas needing restoration include those portions of the Frank R. Bowerman landfill, Siphon Reservoir included in the reserve, the Santiago Canyon landfill near Irvine Lake, and a number of

orchard areas in the frontal slopes of the Lomas de Santiago. Degraded areas in need of enhancement include Limestone Canyon and the Loma Ridge areas. Soils in these areas are predominantly the Alo-Bosanko association of steep, well-drained clays and the Cienega-Anaheim-Soper association. Much of the restoration areas are currently occupied by annual grassland, but contain remnant coastal scrub species such as saw-toothed goldenbush (*Haplopappus venetus*) and coastal sage. Cardoon and black mustard (*Brassica nigra*) infestations are much less severe than in the Coastal subarea.

5.6.3 Habitat Restoration/Enhancement Priorities

Restoration and enhancement activities will be prioritized to ensure that restoration and enhancement activities that can make the greatest positive contributions to long-term reserve function and maintaining long-term habitat values are undertaken first. The first priority for restoration and enhancement will be for lands already included within the Reserve System. With the landowners permission, and based on available funding, such activities also could occur on lands designated for future inclusion in the reserve subject to "interim" management prior to inclusion within the Reserve System.

Restoration of the non-wildland areas within the reserve will be funded and implemented primarily on a mitigation basis (unless public or foundation funds can be obtained) from fees paid by "non-participating landowners" who decide to opt for the NCCP/HCP mitigation fee alternative rather than pursue Section 7 or 10 approval from the USFWS for the conversion of occupied CSS where required by applicable law. This will provide such landowners with a vehicle for maintaining net habitat value within the subregion to offset the impacts of Incidental Take of CSS habitat.

- Based on the principle that the first actions should focus on those activities that can make the greatest positive contributions to long-term function habitat values within the Reserve System, the first enhancement priority within the Reserve System should involve existing functioning habitats that are impacted by invasive plant and animal species. These species include plant invasives such as black mustard (*Brassica nigra*), non-native grasses, and cardoon (*Cynara cardunculus*), also called artichoke thistle, and animals such as cowbirds. Relatively economical means

(i.e., when compared to the potential cost of habitat restoration or re-creation) of controlling these invasive species can be implemented on a large scale, with significant short-term and long-term biological benefits. For instance, spraying or controlled burns combined with limited container plantings and seeding could be employed to control mustard and cardoon. Similarly, control of invasive animal species, such as cowbirds, is achievable by constructing traps. The latter approach has proven effective in minimizing the adverse effects resulting from gnatcatcher nest parasitism by cowbirds.

- The first priority for restoration involving the creation of new CSS habitat will focus on the agricultural and disturbed (non-wildland) areas included within the Reserve System. Restoration in these locations will serve the important function of enhancing key linkages and combining currently fragmented blocks into larger habitat blocks.
 - Restoration of the non-wildland areas will focus primarily on target resources (“Target Species” and coastal scrub). Site specific restoration programs, where appropriate, will provide for a mosaic of habitat types that includes other elements of the coastal sage scrub mosaic where those communities are more appropriate considering soils, aspect, and similar factors.
 - Restoration of the non-wildland areas will be funded and implemented on a mitigation basis.
- The second priority will be to restore/enhance degraded wildland areas, especially coastal scrub. The Nature Conservancy has identified a number of opportunities within the reserve. Restoration/enhancement work will be focused by considering both habitat priorities and restoration and enhancement needs.
 - The first preference for this type of restoration and enhancement will be CSS occupied by one or more “Target Species”, or which offers good prospects for use by the Pacific pocket mouse or which potentially serve as linkages, followed by other coastal scrub sub-associations.
 - Second preference will be sites which have minimal potential for passive restoration (i.e., are not expected to gradually recover over time) and which currently have

adequate access. Sites of moderate size (5 to 50 acres) and sites adjacent to coastal scrub occupied by "Target Species" are preferred.

- Lower preference will be given to sites which have a moderate or high potential for restoration through natural successional processes. Sites adjacent to occupied coastal scrub will be given higher preference. Lower preference will also be given to sites which would require building a new access road through functioning habitat or use of unduly expensive amounts of hand labor due to poor access. Sites of small size (<5 acres) will be given lower preference due to their limited importance, and large sites (>50 acres) will be given lower preference because cost-effective techniques for such large areas have not been identified.

This type of restoration will also be implemented on a project-by-project mitigation basis.

- Oak woodlands, Tecate cypress and Coastal subarea enhancement priorities will be determined on the basis of CEOA-required mitigation programs, recommendations of stewardship plans prepared by The Nature Conservancy (e.g. for Laguna Canyon and Limestone Canyon, see Appendix 16 and referenced TNC studies) and as determined by the non-profit management corporation.

- Third priority will be given to other restoration activities in other habitat types.
 - Restoration/enhancement of other habitat types will be performed as funds and resources become available. It will be undertaken on a mitigation basis if higher priority restoration and enhancement activities have been adequately provided for.
 - Within this category, first preference will be given to areas with minimal potential for unmanaged passive restoration and areas which are significant sources of weed seeds.

Assigning non-CSS habitats a lower priority for enhancement and restoration within the Reserve System is necessary. Clearly, the benefits related to enhancing and restoring biotic

values on non-CSS lands within the reserve are substantial. Such activities would contribute to overall biodiversity and the long-term productivity of the reserve's habitat mosaic.

However, there are practical economic and regulatory reasons for assigning non-CSS habitats a lower funding priority than CSS. As noted earlier in this discussion, the primary source of funding for enhancement and restoration activities will be mitigation fees related to development impacts on "occupied" CSS located outside the Reserve System. These mitigation fees must be allocated to habitat mitigation (*i.e.*, enhancement and restoration activities) related to the kind of impacts being mitigated (*i.e.*, in legal terms, there must be a "nexus"). Therefore, most of the mitigation fees generated by development impacts outside the reserve will need to be directed toward CSS habitat enhancement and restoration efforts, or purchase of additional "in kind" habitat for preservation.

If use of mitigation fees for non-CSS habitat (*e.g.*, native grasslands, oak woodlands, and others) can be justified by applying the "nexus" principle, or, if funding related to mitigation fees for non-CSS impacts outside the reserve or other independent sources becomes available, such funds will be used to enhance/restore non-CSS elements of the reserve habitat mosaic. The management authority will prioritize non-CSS restoration opportunities within the reserve and annually update the priority assessment to provide for the most effective use of available non-CSS habitat funding.

Under the adaptive management regime, there will be an ongoing assessment of the reserve's overall enhancement/restoration needs. At some time in the future, if CSS enhancement/restoration has progressed to a point where less funding is needed for CSS management, enhancement and restoration priorities will be adjusted to reflect these conditions and shifted to non-CSS components of the habitat mosaic.

5.6.4 Technical Guidelines for Habitat Enhancement and Restoration Activities

Habitat restoration/enhancement activities must be undertaken with adequate project-specific planning and must use the best-suited techniques available both to maximize the likelihood of success and to minimize unnecessary impacts. Examples of techniques are presented below, but these examples are not intended to supersede existing control projects being implemented by EMA/HBP, or other agencies. Monitoring of restoration projects may lead to refinement of best-suited techniques.

- Remnant patches or scattered individuals of native species will be identified and evaluated for protection during the restoration/enhancement work. If remnant native components on a site are judged sufficiently important and viable, they will be preserved.
- Soils will be tested during project-specific planning to aid in selecting the most appropriate restoration techniques. Testing will include agricultural suitability tests (nutrient content, salinity, soil texture, and suitability for plant growth) and tests of soil organic content from both surface and subsurface samples. Soil compaction will be determined by infiltration tests, and soil structure will be determined through soil profile descriptions. Water holding capacity of soils will be tested by a field capacity test.
- Intensive soil preparation techniques commonly used for landscape planting, such as addition of amendments and fertilizers, will normally be avoided. Because fertilizers often promote greater growth of weedy non-native species than desired native species, efforts will focus on specifying native species which tolerate low nutrient levels when nutrient-deficient soils are encountered. Cross-ripping or discing will usually be used to correct soil compaction problems. Augured planting holes may be used in some circumstances, but augured holes will be backfilled with native soil rather than planting mixes, and will be adequately settled before planting.
- Specific plant palettes will be developed on a project-specific basis, as appropriate to the specific site being restored/enhanced.
- Weed eradication and control efforts will focus on non-native grasses (which out-compete seedling coastal scrub plants for moisture), cardoon, and black mustard (the latter two species are discussed below). Weed control will normally be required prior to and after soil preparation activities which are needed. A number of weed control techniques may be appropriate, depending on costs, accessibility, and the characteristics of a particular site. The techniques described below may be combined, and may be repeated for multiple years.
 - Mowing and subsequent herbicide treatment is desirable in areas dominated by annual grasses and black mustard, and may be used on a spot basis for cardoon, fennel (*Foeniculum vulgare*), and Russian thistle (*Salsola* spp.). Mowing will occur

before seed is set. Follow-up herbicide treatment will employ a systemic and non-residual herbicide.

- Herbicide treatment (without mowing) may be desirable in areas dominated by cardoon, tree tobacco (*Nicotiana glauca*), or spots of mustard or fennel where soil preparation will not occur. A systemic, non-residual herbicide will be used. Licensed pest control applicators will be employed, using herbicides approved by appropriate state and federal agencies
- Severe infestation areas, especially cardoon infestations, are best treated with a multi-year combination of soil preparation and herbicide treatment. Standing seed stalks will be removed, followed by soil preparation work to bring seeds to the surface and induce germination. A systemic, non-residual herbicide will be applied once per year for three years between April and June to control remaining plants and seedling weeds.
- Burning is an effective and desirable weed control method when the primary weeds are annual grasses, and especially when a thick thatch layer has built up.
- Soil solarization, using a clear plastic tarp and solar energy to sterilize the soil, may be used where cost-effective. This technique is especially appropriate where a large seed bank is present in the soil.
- Plant material may be placed in the restoration/enhancement area by hydro seeding, hand broadcast seeding, mulching with salvaged vegetation, and/or container plantings. As feasible, these treatments may be supplemented with soil salvage from appropriate development areas that, prior to disturbance, supported CSS habitat. The latter techniques are relatively expensive and will not normally be a primary technique, but may be used to establish selected species such as elderberry (*Sambucus mexicana*). Mulching, when salvaged mulch is available, has the advantage of including mycorrhizal fungi essential to vigorous growth of a number of plant species. Hand broadcast seeding will be followed by harrowing or raking to incorporate seed into the soil surface.
- To the extent feasible, propagation stock (seeds, cuttings, *etc.*) will be collected from the same subarea as the restoration/enhancement project. Seed may be contract grown from material collected within the reserve. Cover crops may be used.

- Erosion control measures will be used wherever warranted, following soil preparation and initial weed control. Punched in rice straw or similar seed-free straw (note that oat hay and seedy oat straw will introduce annual grasses and would be counterproductive) is the preferred erosion control technique for most CSS restoration.
- Temporary irrigation will be avoided or minimized. In some cases it may be desirable to provide temporary irrigation (*e.g.*, for container plants, or to encourage germination of hydroseeded seed), but emphasis will be given to planting in late fall or early winter so that natural rainfall will establish desired plants. Excessive irrigation favoring weedy species will be avoided.
- Maintenance of restoration/enhancement areas will focus on controlling weeds until the coastal scrub community is established. Efforts will be made to completely eradicate any of the following species found in a restoration/enhancement area during the establishment phase: pampas grass, cardoon, black mustard, milk thistle (*Silybum marianum*), Russian thistle, tree tobacco, and fennel.

5.6.5 Invasive Species Control and Management

Invasive species control and management is a specialized form of habitat enhancement and restoration. Presence of exotic, non-native weeds and animals usually degrades habitat function, and in some cases completely displaces native communities and species. As noted in Section 5.6.3, these activities are assigned a high priority. They will be performed at the discretion of the reserve owners/managers consistent with the annual monitoring and management program and budget.

Weed Management

The two plant species (weeds) presently having the greatest potential to conflict with reserve goals and habitat restoration/enhancement are cardoon and black mustard. Other species may be undesirable, but are not likely to significantly compromise the function of the coastal sage scrub community.

Cardoon (artichoke thistle) is the most problematic weed species in the reserve, as it is very widespread and difficult to control. Nearly solid stands of cardoon, up to 50 acres in size, can

be found within disturbed areas of canyons, ridge tops, and open grazing areas. It is also widely distributed in very small patches of one to several individuals, so complete control is unlikely. Cardoon is associated with high grazing pressure, and especially infests deep and moderately deep soils in grasslands and the coastal scrub/grassland ecotone.

Cardoon is an aggressive perennial from the Mediterranean region, with a fleshy taproot that produces above-ground growth beginning in late summer or early fall and culminates with seed production in late spring. After the active growing period is over, the leaves die back and the dry seed stalks are left standing for as long as two years. The tap root survives even high intensity wildfire. Cardoon is a prolific seed producer, and establishes a large seed bank in the soil in and around infested areas. Up to half of the soil seed bank may remain viable for two to five years, and more deeply buried seed may remain viable for up to 20 years. On-going spot control efforts by a seasonal hand crew using a biodegradable herbicide have shown promising results in southern Orange County on the O'Neill Ranch, indicating that control efforts can significantly reduce but probably not completely eradicate this weed species. Similar efforts are being conducted in this subregion by TIC and TNC, and by the EMA HBP.

Cardoon control will continue in conjunction with specific restoration and enhancement projects (described above) and as an on-going reserve management activity. The latter effort is necessary because this weed has potential to significantly degrade existing coastal sage scrub habitat if active control efforts are not undertaken.

- The on-going cardoon control effort will continue, focusing on spot application of a systemic non-residual herbicide. This effort will supplement eradication and restoration of larger patches of cardoon undertaken as habitat restoration/enhancement projects.

Black mustard is a problem species primarily where soil has been significantly disturbed, especially by past discing. It prefers relatively deep soils with high water-holding capacity, and thus is a most severe weed on sites better suited to grassland than coastal sage scrub. Because it dominates sites through allelopathy (producing and shedding chemicals that inhibit growth of other plant species), it can be a significant constraint to restoration of native habitats where it is present. Since it spreads primarily to disturbed, deeper soils, it is not a significant threat to the continued function of the coastal sage scrub community, and a specific control program is not necessary. Control of this species will focus on project-specific eradication in restoration/enhancement projects.

Other noxious weeds are primarily associated with non-target habitat types. Examples include giant reed (*Arundo donax*), myoporum (*Myoporum laetum*), tamarisk (*Tamarix* spp.), garland chrysanthemum (*Chrysanthemum coronarium*), Bermuda grass (*Cynodon dactylon*) (note that sterile hybrid forms are rarely a weed problem, and may be freely used in development landscaping), fountain/kikuyu grass (*Pennisetum* spp.), German ivy (*Senecio mikanoides*), periwinkle (*Vinca* spp.), and Cape honeysuckle (*Tecomaria capensis*) which are most problematic in riparian and wetland habitats. In more mesic habitats adjacent to development, iceplant (*Carprobrotus edulis* and *Mesembryanthemum nodiflorum*), nasturtium (*Nasturtium* sp.), and Bermuda buttercup (*Oxalis pes-caprae*) may become weeds. Some weed species can infest a wide variety of habitat types, including tree tobacco (*Nicotiana glauca*), tree-of-heaven (*Ailanthus* spp.), brooms (*Cytisus* spp.), Brazilian pepper (*Schinus terebinthifolia*) and gorse (*Ulex europaeus*).

The following policies will guide management of invasive and pest plant species:

1. Eradication of existing infestations of invasive weed species identified in this subsection will be one of the primary funding elements of the annual reserve management program until it is determined that other actions are of a higher priority. The list of species above may be modified if the monitoring program identifies other problem weed species.
2. The first enhancement priority within the Reserve System will involve existing functioning habitats that are impacted by invasive plant and animal species. These species include plant invasives such as black mustard (*Brassica nigra*), non-native grasses, and cardoon (*Cynara cardunculus*), also called artichoke thistle, and animals such as cowbirds. Relatively economical means (*i.e.*, when compared to the potential cost of habitat restoration or re-creation) of controlling these invasive species can be implemented on a large scale, with significant short-term and long-term biological benefits. For instance, spraying or controlled burns combined with limited container plantings and seeding could be employed to control mustard and cardoon. Similarly, control of invasive animal species, such as cowbirds, is achievable by constructing traps. The latter approach has

proven effective in minimizing the adverse effects resulting from gnatcatcher nest parasitism by cowbirds.

3. Local governments participating in the NCCP/HCP will adopt regulations prohibiting planting and cultivation of the species listed above where proposed projects are adjacent to the reserve and/or where projects could contribute to the establishment or spread of these species.
4. The list of species above may be modified if the monitoring program described in Section 5.4 identifies other problem weed species.

Management of Invasive and Pest Vertebrate Species

Several vertebrate pest species have the potential to affect the functioning of the reserve, especially by directly affecting one or more “target and Identified Species.” This group of vertebrate pests includes cowbirds (*Molothrus ater*), the non-native red fox (*Vulpes fulva*), and a group of medium-sized mammals known as “meso-predators” (including opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and feral dogs and cats). Cowbirds are nest parasites known to parasitize gnatcatchers, and the remaining species are predators which can cause high levels of adult and juvenile mortality along with high levels of nest failure for both gnatcatchers and cactus wrens. Vertebrate pest species are known to seriously affect the orange-throated whiptail. Soule et.al. (1988) presented the hypothesis that extirpation of top predators (primarily the coyote in this context), removes key population controls from the meso-predators, a phenomenon termed “meso-predator release.” The release of population controls allows meso-predator species to increase in numbers and, because they prey directly on small birds such as the gnatcatcher and cactus wren, substantially increase rates of mortality and nest failure.

The following policies will guide management of these vertebrate pest species.

1. The need for vertebrate control efforts will be determined by analysis of the target resource monitoring, with the exception of cowbird control, which will continue as described below. All vertebrate pest control activities will be monitored, as described above, by recording initial pest species densities (as an index by capture effort) and any changes to that index as control efforts proceed.

2. Cowbird trapping programs required as conditions of approval of previously approved projects during the NCCP interim take process will continue in substantial compliance with the terms of the original approval. The reserve manager may geographically redirect existing efforts, if monitoring indicates redirection is warranted.
3. Local governments participating in the NCCP/HCP will use their best efforts to discourage projects which use extensive turf in projects adjacent to the reserve. This tends to attract cowbirds. If extensive turf areas are unavoidable parts of proposed projects (e.g., for golf courses), the local lead agency should require appropriate mitigation in the form of cowbird controls.
4. Using available NCCP/HCP management funding, the reserve owners/managers will undertake control activities for feral dogs and cats and red fox if monitoring indicates that control efforts are warranted. Control will focus first on non-lethal methods of capture. However, captured animals will be disposed of as funds and facilities allow and NCCP funding may not be used to house captured pest species. Lethal control measures may be used if non-lethal means are not effective, subject to appropriate safeguards for public safety and protection of other wildlife species.
5. Using available NCCP/HCP management funding, the reserve owners/managers will undertake control activities for meso-predators if monitoring indicates that control efforts are warranted due to predation on NCCP/HCP "Target Species". The reserve manager will cooperate with meso-predator control efforts if meso-predators are affecting other species (e.g., salt marsh wildlife species in the UNB reserve), but NCCP/HCP management funds will not be used unless NCCP/HCP "target, identified, and special interest species" are affected. Control efforts will focus first on encouraging increased coyote use of problem areas, such as by providing artificial dens, improving movement corridors, and so forth. Meso-predator capture and removal or lethal control measures will be employed only if monitoring shows efforts to encourage coyote use are ineffective.

In addition to the vertebrate pest species discussed above, several other species are present or potentially present in the Reserve System. Primary examples include bullfrog (*Rana catesbeiana*) and African clawed frog (*Xenopus laevis*). This type of vertebrate pest species does not affect the primary function of the Reserve System, but may reduce biodiversity within the overall Reserve System. The reserve owners/managers will cooperate with any control

efforts undertaken by third parties to the degree the control measures do not conflict with the primary purpose of the NCCP/HCP.

5.6.6 Restoration and Management of Grassland Habitats

Grasslands are one of the three most extensive habitat types that make up the CSS mosaic within the Central and Coastal Subregion, the other two types being CSS and chaparral. The NCCP/HCP includes more than 6,100 acres of grasslands within the habitat Reserve System and an additional 2,500 acres are contained in areas designated as Special Linkages, Existing Use Areas and Other Non-Reserve Open space. Clearly, however, the focus of the habitat reserve design and the adaptive management program are on CSS and the other covered non-CSS habitats and related “target and identified” species.

However, the NCCP/HCP recognizes that additional attention to grassland management, including enhancement and restoration of grasslands within the Reserve System, would significantly benefit biodiversity within the subregion, make it possible to include grasslands as a “covered non-CSS habitat” and to expand the list of “identified” species to include species dependent on or associated closely with grasslands. Therefore, subject to the availability of additional funding for the adaptive management program to support grassland management efforts, the NCCP/HCP proposes to extend the adaptive management program in a timely manner to include grassland enhancement and restoration within the Reserve System. Extending the NCCP/HCP adaptive management program to include grasslands would have the potential to increase habitat value provided by preserved grasslands within the Reserve System, to reduce pressures to conserve grasslands outside the Reserve System and to minimize the need for future regulatory listings of grasslands species.

Extending adaptive management to grassland will also require balance with CSS management. While the distribution of other comparably conserved habitat types (oak woodland, Tecate cypress, cliff and rock, and Coastal Subarea chaparral) in the mosaic is largely determined by aspect and substrate, CSS and grassland exist in a more dynamic equilibrium. At many places, the community present at any time can be either grassland (generally favored by frequent fire and grazing) or coastal scrub (generally favored by infrequent fire and minimal grazing). For this reason, it may not be possible to maximize potential habitat values for both communities simultaneously. Identifying the appropriate balance, appropriately weighing the values of each community, will be necessary to extend adaptive management to the grassland community.

Adaptive management of grasslands would be similar overall to CSS adaptive management, but would also have some key differences.

- Monitoring would focus on a different suite of species, selected specifically for the grassland community. Greater attention would be given to the plant community itself, due to the much higher non-native component in most grasslands compared to coastal scrub.
- Restoration would be a high priority, especially in reducing ruderal (weedy) components and also in increasing native components. In contrast to coastal scrub, grasslands cannot usually be restored to a primarily native condition, rather, a more realistic restoration objective is to increase the native component to be a significant part of the community. In this setting, planting is rarely cost-effective in grassland restoration, so restoration is likely to employ indirect techniques such as prescribed fire and selective grazing to favor native species.
- Because a number of grassland species are migrants, greater emphasis would be given to maintaining key habitat values, such as presence of healthy rodent populations to serve as prey for migrant and wintering raptors.
- Certain management challenges would be unique to grasslands. As a prime example, non-native grasslands in California tend to build up thick layers of thatch (undecayed dead grass from previous years). High levels of thatch build-up prevent many native plants from growing and often reduce the availability of small mammals to predators. There is no good analog in the coastal scrub community.
- Many management practices would be similar overall, but with different prescriptions. Prescribed fire is very useful in grasslands, but may be required every few years in grasslands as opposed to every few decades in coastal scrub. As another example, grazing is usually detrimental to coastal scrub, but well-timed and well-managed grazing can be very helpful in grasslands.

Grasslands Management to Enhance Oak Woodlands

Finally, as the 1995 “Oak Woodlands Restoration” report indicates, grasslands management is essential to oak woodlands restoration. According to this 1995 report, management prescriptions for “oak and sycamore woodland soils, maintenance and reforestation management activities” include:

- the reduction of soil compaction through pitting, discing or auguring
- the removal of dense annual non-native grassland or ‘weedy’ under stories to reduce water competition during the first growing season following discing and reforestation (p. 47)
- development and implementation of a prescribed fire program, in an effort to restore native bunch grasses and forbs and oak and sycamore woodland under story” (page 50)

5.6.7 Restoration Monitoring and Evaluation

A project-specific monitoring plan will be developed for each restoration/ enhancement project. Data from implementing these plans will be included in annual reserve monitoring reports and will be used in the overall adaptive management program, as described in Section 5.4. As with the resource monitoring data, restoration/enhancement monitoring will provide a significant body of research data. The reserve manager will analyze these data as necessary to evaluate restoration activities, but the data will also be available for use in other research analyses if outside funding is available. Other research on restoration and enhancement will be encouraged to the degree that it does not conflict with the basic management priorities of the Reserve System.

The project-specific monitoring plans will address the following elements:

- size of the restoration unit and relation to existing, adjacent habitat patches to be enlarged by the restoration and enhancement project;

- soil conditions, including soil structure, compaction, nutrient levels, organic matter content, water holding capacity, and soil compaction;
- plant material application techniques, including seeding, hydromulching, mulching, container planting, plant palettes, and timing of plant material application relative to rain and/or irrigation;
- irrigation, if any;
- weed control techniques and techniques to encourage native forbs and grasses, and
- quantitative monitoring plans to determine plant cover and diversity during the establishment phase. Monitoring to determine use by “Target Species” in the middle of the establishment period and at the end of the establishment period will be included.

The monitoring plans will provide for collection and analysis of the baseline and post treatment data above for use in determining success of the restoration/enhancement project and to guide future efforts.

The monitoring plans will allow for cooperation with the Management and Restoration Committee to be convened by CDFG and USFWS for purposes of designing and carrying out multi-factorial experiments, when and if that committee is convened and funded to do this experimentation.

SECTION 5.7 FIRE MANAGEMENT PROGRAM AND POLICIES

The subregional NCCP/HCP plan shall address short-term and long-term fire management issues related to implementing an effective subregional CSS management program. This section discusses the importance of the fire management program to the subregional CSS management program and provides policy direction for the kinds of actions and programs that must be formulated early during implementation of the subregional NCCP/HCP plan.

5.7.1 Importance of Fire Management to the CSS Management Program

Coastal sage scrub is a fire-tolerant community. The importance of fire in maintaining CSS is discussed in Chapter 2. Fire plays a significant role in the natural dynamics of habitat systems. A recent Nature Conservancy Report included the following statement:

Historically, fire within wilderness areas has played an important ecological role in maintaining successional cycles within plant and animal communities. Naturally occurring fires reduce dense climax vegetation, making possible the growth of grasses and forbs as part of a productive, younger successional sere. (The Nature Conservancy, Laguna Laurel Stewardship Plan, 2/22/93, at p. 5)

Fire control regulations and urban development patterns have dramatically altered the natural fire regime in much of the NCCP subregional planning area. The Nature Conservancy and others have noted that the ecological role of fire has been suppressed in urban areas, resulting in the build up of thick layers of thatch and dense patches of vegetation. These layers and patches impede a healthy functioning ecosystem and increase the likelihood of an intense wildfire.

The USFWS has indicated that controlled burn activities to reduce the buildup of fire fuel loads have ". . . decreased from about 20,000 acres a year in Southern California in the mid-1980s to 5,000 to 6,000 acres currently." As noted in Chapter 2, high intensity and high frequency fires can result in vegetative type conversions from CSS to grasslands, and from chaparral to CSS. Therefore, fire management is extremely important as a part of the adaptive management program. Huge, catastrophic fires (e.g., the 1993 Laguna Beach fire) must be avoided. Smaller, planned fires can be very useful in maintaining the diversity and viability of the Reserve System.

In October, 1993, the Laguna Beach wildfire burned roughly 60 percent of the CSS in the Coastal subarea, fueled both by the man-aided buildup of vegetation/fuel in Laguna Canyon and adjoining portions of the coastal hills and strong Santa Ana winds.

In January 1994, the USFWS prepared a summary of fire management/habitat protection issues posed by the October 1993 southern California wildfires. As the USFWS observed in its memo titled "Wildfire on Lands in the Urban/Wildland Interface in Southern

California," the following considerations must be taken into account in fashioning both short-term and long-term fire management policies and programs for CSS habitat areas:

Fires are a natural, periodic occurrence within many of the natural vegetation communities in Southern California. The role of fire is well recognized as a periodic and necessary component of many of the vegetation communities in the region, particularly the lower to mid-elevation communities such as most chaparral types, grasslands and coastal sage scrub. . .

Fire periodicity, intensity, and extent depends on fuel accumulation, weather conditions (especially relative humidity, wind speed, and temperature), and landscape features, including ridge lines and locations of recent fires that would serve as natural firebreaks. Under pre-settlement conditions the cycle of fire, regrowth, fuel accumulation over time, and eventual re-occurrence of fire maintained a dynamic landscape with a mosaic of vegetation in various stages of maturity. Such conditions allow for recolonization of recently burned areas with individuals from adjoining habitat that did not burn.

Currently the fragmented pattern of human and natural landscapes, juxtaposed with one another, occurs throughout Southern California. This extensive urban/wildland interface creates the potential for loss of property and human life.

Prevention strategies have focused on various methods including construction of firebreaks, prescribed burning to reduce fuel loads, and weed abatement programs near structures vulnerable to wildfires. The effectiveness of such programs varies. . . .

The recent listing of the coastal California gnatcatcher as threatened added another element to the mixture of considerations related to fire prevention activities in San Diego, Riverside and Orange Counties. The California Department of Forestry and Fire Protection (CDF) is principally responsible for fire prevention activities on non-federal lands. Air quality, the concern/objection of local property owners,

budget limitations and effects on endangered species are among many issues that CDF must address in the process of planning and conducting prescribed burns. Weather conditions from year to year can also constrain control efforts. For example, the Orange County Fire Department scheduled fire prevention activities (i.e., controlled burns) for the Laguna/San Joaquin Hills area over the last three years but were unable to conduct the burns because of unsuitable weather conditions.

Conducting a controlled burn in habitat occupied by a listed species constitutes a potential effect on the species and could harm or even kill individuals of that species. Given the serious threat that wildfires pose and the attendant risk to property, the Service clearly recognizes the expertise and responsibilities of agencies like the CDF. The Service's expertise and responsibilities are with wildlife protection and accordingly we encourage those engaged in fire prevention activities to examine the viable alternatives for accomplishing their goal.

The October 1993 wildfires in the Laguna/San Joaquin Hills were and are a vivid statement of the impelling need to fashion short-term and long-term fire management policies and programs for the NCCP subregion. Although urban development over time has reduced CSS habitat, some aspects of urban development provide a counterbalance to these effects when wildfires do occur. In the case of the Coastal subarea wildfire, urban development and urban infrastructure helped create a number of "refugia" where "Target Species" literally took refuge from the fires. The Irvine Coast golf course and Newport Coast Drive clearly protected the "Target Species" populations on the coastal shelf. Given the locations of large source populations of "Target Species" in the Central and Coastal planning areas, such refugia functions play an important role in designing fire control and fire management measures.

The experiences gained from the wildfires indicate that certain types of fuel modification measures around urban development areas are effective in protecting residential and other types of development from wildfires. The specific requirements of such fuel modification measures must be taken into account in addressing "urban edge" effects for NCCP planning purposes. At the same time, the fact that "fuel modification zone" and special building permit requirements are effective may allow for less severe forms of fuel load management in natural areas than otherwise would be the case. And, perhaps most significantly, the

force of the wildfires may have created a much stronger base of public support for managed fuel load reduction through a long-term program of prescribed burns than would otherwise be the case.

5.7.2 Fire Suppression Policies and Fire Management Goals and Policies

Short-term Fire Suppression Policies

The general fire policy shall be to use suppression and control methods which cause the least damage to natural resources commensurate with effective fire-fighting control needed to protect human life and property. The following short-term fire suppression policies will apply to NCCP/HCP reserve and connectivity areas prior to completion of a long-term fire management plan:

1. The NCCP/HCP short-term fire management plan shall be prepared within eighteen (18) months following the Effective Date of the NCCP/HCP. The short-term fire management plan shall be provided to CDFG and USFWS 150 days prior to the first management action under the short-term fire management plan. USFWS and CDFG shall, in full consultation with the NCCP non-profit corporation, OCFA and CDF, determine whether the short-term fire management plan is substantially consistent with the short-term fire management policies set forth in the NCCP/HCP. If USFWS and CDFG fail to provide a written response to the draft fire management plan within 60 days the plan shall be deemed approved. If there is a disagreement between the non-profit corporation and either USFWS and CDFG, or both agencies, regarding the substantial consistency of the management plan with applicable NCCP/HCP policies, the short-term fire management plan shall be forwarded to the USFWS Regional Director and Director of CDFG for additional review and consultation with the non-profit corporation. Review, conflict resolution, if necessary, and action on the short-term fire management plan (including any legal actions), shall be conducted in accordance with the provisions of Section 5.3.2 of the Implementation

Agreement. A material change to the fire management plan shall be submitted to USFWS and CDFG for review and approval in same manner as the original plan.

2. To the extent practicable, the use of bulldozers or other mechanical land altering equipment will be restricted to the widening and improving of existing fire roads.
3. To the extent practicable, new fire roads or firebreaks will not be created by mechanical methods. Hand crews will be used to create any necessary new firebreaks wherever practicable or feasible.
4. When conditions are suitable, backfiring from existing fire roads, natural barriers or trails will be considered preferable to constructing new fire control lines and other methods of suppression.
5. To the extent practicable, ground tactical operations will use natural features such as ridge lines, as well as roads and firebreaks for containment lines.
6. The minimum number of fire suppression vehicles considered necessary for effective fire control by the command fire agency or ground tactical units will be allowed to drive off fire roads and fire breaks.
7. To the extent practicable, proper grading techniques and erosion control methods will be used to minimize soil erosion on fire roads.
8. To the extent practicable, ground tactical units will use water saturation as a mop-up technique rather than digging out and stirring hot spots in locations with significant CSS or other natural resources and/or in areas potentially subject to significant post-fire erosion.
9. Until such time as a specific set of fire-related recreational use policies is prepared by the County of Orange Fire Department/Department of Harbors, Beaches and Parks, the interim Chino Hills State Park policies (at pp. 6-9, 11-set forth in

Appendix 10) shall serve as the policies for "fire prevention techniques," "pre-suppression activities" and the fire season "step-up plan."

Long-Term Fire Management Goals

The long-term component of the subregional fire management program will address the above fire management concerns in a manner designed to achieve the following goals:

1. The effects of a catastrophic fire, that would destroy substantial areas of the Central and Coastal reserves and connectivity areas shall be avoided or minimized, primarily through the use of prescribed burns and other fuel load reduction techniques; and
2. Optimal fire frequencies shall be established for prescribed burns in relation to optimal fire regimes for CSS plant species and in relation to potential adverse erosion impacts from such burns, (*e.g.*, Tutten et.al., found that 81 percent of gnatcatcher sites in a study area were located in areas that had not burned in at least 16 years.)

Long-Term Fire Management Policies

The policies and assumptions that will guide the preparation of the long-term fire management program are:

Within six (6) months of the appointment of the Executive Director of the non-profit corporation under the provisions of Section 6.1.2 of the NCCP/HCP, the non-profit corporation shall establish the timelines for the preparation of the long-term fire management plan to be completed. The long-term plan shall be completed within three (3) years of the Effective Date of the NCCP/HCP. Upon completion of the draft long-term fire management plan, the review and implementation shall be carried out in the same manner as provided for the short-term fire management plan. In addition, a material change to the long-term fire management plan shall be submitted to USFWS and CDFG for review and approval in same manner as the original plan.

2. The fire management program will be pro-active, focusing on pre-suppression fire management activities.
3. The reserve management program should facilitate the use of fire (prescribed burns) as a management tool. The following considerations must be addressed:

 - an effective fire cycle (frequency of burns) which satisfies both fire safety and ecological concerns will be determined and utilized by the program;
 - the intensity of burns and the efficacy of various burn intensities for ecological purposes will be determined and employed in developing the management program;
 - as feasible, prescribed burns should attempt to create a mosaic of several stages of plant succession;
 - the program will address the interface portion of very high fire hazard severity zones identified in compliance with California law;
 - the program will establish and map burn areas/units of variable sizes as appropriate for fire safety and ecological protection;
 - the timing of burns may vary; not all burns have to be conducted in the fall; and
 - prescribed burns should be conducted “in season” for CSS plants, *i.e.*, at a time when fires normally occur and plants can most effectively recover from a burn.
4. The fire management program must be acceptable to CDF so that state funding can be utilized.
5. The program will address post-burn adaptive management and soil erosion strategies to minimize long-term habitat impacts that might result from the use of non-native species for erosion control strategies frequently used by state or local agencies.

5.7.3 Preparation of the Subregional NCCP/HCP Fire Management Program

Orange County will be the lead agency and assume responsibility for preparing the subregional NCCP/HCP Fire Management Program in accordance with the above policies. It is anticipated that the fire management program will rely on the work of the Wildland/Urban Interface Task Force report which addressed a number of important wildfire issues, including recommendations relevant to NCCP management concerns.

Lessons learned from the 1993 wildfires were also reflected in an important policy document prepared for Chino Hills State Park as an integral component of the Shell/METROPOLITAN HCP for a portion of northern Orange County bordering the Park. Due to excessive fire frequencies in Chino Hills State Park and a recent fire in Carbon Canyon, USFWS and CDFG staff worked extensively with Shell, METROPOLITAN and State Parks staff to encourage the preparation of an interim fire management plan for the portions of Chino Hills State Park related to the Shell/MWD HCP. Because the State Parks fire management plan and policies are specifically directed toward NCCP planning concerns, elements of that document are also incorporated into the following sections.

The final source document is the "Draft Fire Management Plan for Lake Mathews - Riverside County, California" dated October 27, 1993. The draft fire management plan for Lake Mathews was a joint undertaking of the California Department of Forestry (CDF), the USFWS, CDFG and the METROPOLITAN and represents a "state of the art" planning effort to provide site-specific, pre-planned information to guide tactical operations to control or manage wildfires in ways that: (a) result in the least damage to sensitive habitat areas from fire suppression techniques, and (b) provide special fire protection measures to minimize direct wildfire impacts on sensitive habitat areas.

The NCCP subregional fire management program consists of both short-term and long-term components. The short-term and long-term program will include several components.

Submittal of a Fire Management Plan for USFWS and CDFG Approval

A fire management plan addressing the short-term and long-term issues set forth in the following sections shall be prepared and submitted to the USFWS and CDFG for review and approval in accordance with the terms of Section 5.3.2 of the Implementation

Agreement for the NCCP/HCP. Unless emergency conditions require an immediate response, the plan shall be provided to USFWS and CDFG prior to the first action under the plan.

Short-term Fire Suppression Planning and Implementation

The County of Orange, in cooperation with CDF and in consultation with the non-profit corporation, will prepare a short-term fire suppression program that will include the following elements.

- Defining fire management "compartments" that encompass major populations of "Target Species" and the overall subregional Reserve System, and preparing specific fire attack measures that would protect these areas as "refugia" in the event of a wildfire with the least impact on sensitive habitat in or near the "refugia."
- Preparation of suppression plans for each fire management compartment or unit.
- Identify urban development fuel modification zone criteria which achieve effective fire protection for urban development while minimizing impacts on CSS habitat.
- Defining Fire Suppression Compartments that Encompass Major Populations of "Target Species".

This step involves undertaking a systematic delineation of fire management "compartments" for the subregional reserve and supporting geographic components of the CSS management program. Fire management "compartments" will be defined consistent with existing State Parks, CDF and Lake Mathews plans for large-scale wildlands areas. The fire compartment zones will then be further organized into Fire Management Units in a manner comparable to the Lake Mathews planning approach. The compartments will include major populations of "Target Species" including the populations in the San Joaquin Hills, Lomas Ridge, and the frontal slopes around Siphon and Rattlesnake reservoirs.

- Preparation of Fire Suppression Plans.

A Fire Suppression Plan will be prepared for each designated Fire Management Unit. These suppression plans will include:

- a "Fire Fighting Prescription" which summarizes special considerations relating to pre-suppression, suppression and post suppression activities, and special safety precautions that respond to steep road grades, high fuel load content, or the presence of sensitive environmental resources;
- a "Tactical Map" which defines the boundary of the Fire Management Unit in relation to adjacent management units, urban development, roads, gates, water supply locations, power lines, telephone lines, fuel breaks, proposed emergency bulldozer lines, historic cultural resources, and sensitive CSS or other significant habitat types;
- a "Vegetation Map" that identifies all significant vegetation types in the Fire Management Unit and is correlated with the "Tactical Map;" and
- "Fuel Break Management Recommendations" for each Fuel Management Unit will be prepared for so that planning for fuel breaks can account for both minimization of impacts to sensitive resources and the effectiveness of fuel breaks in protecting significant CSS habitat areas and urban development areas. Ongoing maintenance measures for fuel breaks and fire access roads will also be included;

- Urban Development Fuel Modification Zone Criteria.

Fuel modification zones are not a permitted use within the habitat Reserve System, with the exception of limited and identified areas adjacent to already developed areas located in immediate proximity to the reserve boundary (e.g. Emerald Bay and the Top of the World in City of Laguna Beach). In all other cases, fuel modification zones shall be located outside and immediately adjacent to the Reserve System, separating the Reserve System from the nearest urban uses.

Although fuel modification zones are not included within the Reserve System, a brief discussion of the importance of such zones is appropriate. The Reserve System fire management program is based on the premise that effective fuel modification measures undertaken outside the Reserve System on the urban fringe will, in the long run, reduce future pressure for unnecessary and unwise fuel load reductions within the Reserve System. Inconsistent fuel modification zone requirements applied by local fire departments have the potential to unnecessarily impact CSS resources. For instance, the use of invasive non-native plants within the reserve could increase Reserve System management and monitoring costs by requiring more attention to invasive plant control efforts. On the other hand, effective fuel modification requirements have been demonstrated to provide both protection for urban development (*e.g.*, in the Irvine Coast residential areas during the 1993 fires) and effective buffers between developed areas and wildlands.

Accordingly, along the urban/wildlands interface, agreement on uniform fuel modification zone criteria (*e.g.*, widths and plant palettes) and inspection standards should be reached among participating agencies at the earliest feasible time. Pending such agreements, this fire management program shall use the guidelines set forth in Attachment C of the Urban Interface Task Force Report, titled "Fuel Modification Plan Guidelines for High Fire Hazard Areas" (Appendix 10).

Long-term Fire Management Planning and Implementation

- **Current Factors Limiting Effective Long-Term Pre-Suppression Fire Management Activities**

The Orange County Wildland/Urban Interface Task Force was convened in the aftermath of the October 1993 Laguna fire to address the need for long-term fire management. The Task Force report identified the several problems associated with pre-suppression activities that have limited the ability of fire and habitat management agencies to integrate long-term fire management with habitat protection/management concerns. The problems cited in the Task Force report include:

- fuel modification measures along the immediate urban edge have not been sufficient to protect against major wind-driven fires;

- prescribed burns or other treatments are needed to reduce fuel loads and create a greater buffer zone;
- existing fire management plans did not cover the entire wildland/urban edge;
- historically, proposed prescribed burn activities required considerable staff time in the pursuit of permits from agencies such as the California Department of Fish & Game, the USFWS and the Air Quality Management District;
- due to the lack of comprehensive biological data to understand the impacts of a proposed prescribed burn in the context of the larger bio-region, resource agencies were skeptical of the predicted impacts of such burns;
- because of the relatively large size of planned prescribed burns (from 500 to more than 2,000 acres) and the broad array of habitats which might be impacted, it was difficult to identify mitigation measures which would satisfy all concerns;
- the assessment of impacts and mitigations was left to the discretion of individual resource agency staff, which led to inconsistent determinations; and
- due to last minute permit problems, prescribed burns were frequently canceled.

The Orange County Task Force recommended several steps to be followed in preparing a long-term pre-suppression fire management program. The first of these steps consisted of developing fire prescription models. It should be noted that these recommendations emphasized the use of prescribed burns to reduce fuel loads and the related possibility of an uncontrolled reserve wildfire. However, it may be necessary to revise these recommendations over time depending upon the outcome of recovery monitoring in the wake of the 1993 Laguna fire. Indeed, prescribed burns in the Coastal subarea may not be necessary for two or more decades.

Long-Term Fire Management Plan

The long-term fire management plan will include the following elements:

- development of a wildland management planning model;
 - preparation and implementation of a specific plan; and
 - monitoring and integration into the reserve adaptive management regime.
- **The Wildland Fire Management Model**

Formulation and implementation of a wildland fire management model will include the following actions:

- develop databases for information relevant to fire management planning, including long-term monitoring of recovery for areas impacted by the 1993 Laguna fire;
 - develop a fire prescription model to create a mosaic of seral (successional) stages;
 - incorporate the fire prescription models into the fire management program; and
 - prepare an implementing MOU involving the Orange County Fire Department, CDF, USFWS, CDFG and the South Coast Air Quality Management District, recognizing that failure to sign an MOU will not delay implementation of the fire management plan.
- **Long-Term Plan Preparation and Implementation**

The long-term fire management plan will address long-standing problems cited above, summarize and describe available fire management techniques, and recommend implementation measures. The latter could include, but not be limited to, the following:

- the timing of burns, including season and frequency. Such fuel load reduction programs will, to the extent practicable and effective in relation to the goal of preventing catastrophic wildfires, be carried out in a manner that emulates a fire regime approximating that of pre-urban conditions;
- the use of mechanical or other fire management techniques, such as crush and burn, chip and place and grazing, as alternatives to prescribed burns for fuel load reduction purposes;
- fire behavior patterns, including proposed intensity/severity of prescribed burns and burn size/pattern;
- extent of fire protection desired;
- available refugia for NCCP “Target Species” and other “Identified Species”;
- the need for pre-burn surveys for sensitive species;
- defining and carrying out habitat restoration measures that reduce fuel load buildups of non-native vegetation such as invasive grasses and replacing non-native vegetation with native species such as native grasses that have a much lower fire fuel content;
- using fire as a CSS restoration site-preparation technique to reduce populations of invasive plant species prior to undertaking propagation of CSS plants in restoration areas;
- monitoring and adaptive management, including:
 - evaluation of burn or other fire management programs for development of adaptive management strategies,
 - regrowth, regeneration and plant succession analyses for selected burn areas, and
 - sampling of post-burn sites for NCCP target and other species.

A fire management implementation schedule/timetable shall be completed within one year of the signing of the Implementation Agreement. It shall be updated as necessary depending on the results of the fire recovery monitoring program. The long-term fire management program shall be completed within three years of the signing of the Implementation Agreement.

SECTION 5.8 PUBLIC ACCESS AND RECREATION POLICIES

Permitted public access and recreation uses, along with prescribed responsibilities for management of lands available for public access are set forth in the following recreation and access policies. These policies and programs are to be implemented by the public agency owners/managers for their respective ownerships. Background information concerning EMA/HBP management practices and capabilities is provided in Appendix 11 (Management Overview).

5.8.1 Access and Recreational Use Assumptions

The recommended habitat reserve design has been formulated with the understanding that public access, passive recreational uses and development of future recreation facilities would be compatible with and permitted within the habitat Reserve System. It was understood from the outset of planning for CSS and the "Target Species" that significant portions of the public lands now recommended for inclusion in the permanent habitat reserve were originally acquired by governmental agencies specifically for recreational purposes. Some of these lands already have been developed as County Regional Parks. It was also determined during formulation of this subregional NCCP plan that there are only a few areas within the designated habitat Reserve System where the biological resources are so sensitive that no access would be appropriate. The few areas within the subregional Reserve System where public access and recreation would not be appropriate are identified below in Section 5.8.3 (Policy 3) and Figure 26.

The NCCP/HCP policies reflect a determination that there is not an inherent conflict between the recreation uses permitted as a part of the NCCP/HCP existing park County HBP General Development Plans (GDPs) and County HBP Resource Management Plans (RMPs) and protection of sensitive biotic resources. Provided that facilities are properly located, public access and use problems, if they arise, will result from one or a combination

of the following: uncontrolled off-trail activities, inadequate maintenance/management of trails and park facilities, or overuse of designated areas. Therefore, compatible public access and recreation activities within the reserve can be assured through effective management demonstrating an ability to:

- effectively monitor and manage trails and facilities;
- enforce user compliance with NCCP/HCP policies and GDP/RMP 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 GDP/RMPs.

Within the Reserve System, the bottom line is that either adequate protection for habitat and “Identified Species” will be provided, or public access and recreation within portions of the reserve will need to be reduced or temporarily restricted for specific problem areas. A long-term failure to adequately manage recreation activities or facilities, leading to significant damage to biotic resources, could result in the elimination of such activities within the reserve, either on a temporary or permanent basis.

5.8.2 Consistency with Related Recreation Programs

- The public access and recreation policies set forth in this section have been formulated to be consistent with the requirements and policies contained in several state and federal statutes and programs that either address or impact public access and recreation use of wildlands. Applicable policies, provisions and programs reviewed for purposes of consistency included those found in:
 - the Recreation Element of the County of Orange General Plan;
 - the City of Irvine GPA 16 -- Open Space Plan;
 - terms of existing dedication and development agreements involving recreational lands (refer to Figure 20);

- the California Coastal Act of 1976;
- the certified Local Coastal Programs for the Irvine Coast and the cities of Newport Beach, Laguna Beach, Dana Point, and San Juan Capistrano;
- the approved Land Use Plan and Newport Beach/TIC development agreement for Upper Newport Bay;
- the NCCP Act of 1991;
- the NCCP Planning Guidelines (including the Conservation Guidelines);
- County of Orange General Development Plans (GDPs) and Resource Management Plans (RMPs) for Upper Newport Bay Regional Park, Laguna Coast Wilderness Park, Aliso & Wood Canyons Regional Park, William R. Mason Regional Park, Talbert Nature Preserve, Santiago Oaks Regional Park and Irvine Regional Park. Future GDPs will be prepared for Peters Canyon Regional Park, Weir Canyon Wilderness Park, and Limestone Whiting Wilderness Park;
- the Crystal Cove State Park General Plan of 1982;
- the California Endangered Species Act; and
- the Federal Endangered Species Act.

5.8.3 Public Access and Recreation Policies

The following access and recreational use policies are intended to define recreational uses within the reserve in a manner that is compatible with CSS protection and management and to provide for management and monitoring of such uses for habitat protection purposes. A description of the kinds of recreation facilities that will be permitted is provided in Section 5.8.4. Policies governing the construction of future recreation facilities within the Reserve System are set forth in Section 5.8.5.

1. Public access and “passive” recreational uses shall be permitted within the permanent habitat reserve.
2. Passive recreation shall be defined to include:
 - hiking, equestrian, and mountain bike uses on designated and existing truck trails;
 - picnicking in areas designated by the adopted RMP;
 - nature interpretation;
 - vehicular parking in areas designated in adopted RMPs and staging areas serving existing truck trails;
 - overnight camping in areas designated for camping in the adopted RMP;
 - concession facilities supporting the above uses; and
 - other forms of public access and recreation determined by the GDP/RMP to be consistent with the primary species and habitat protection mission of the permanent reserve.
3. Public access and recreation shall be prohibited in those areas designated in Figure 26 due to the potential for serious adverse impacts such uses could have on “Target Species” and sensitive habitats. Prohibitions on access and recreation shall be reviewed on a regular basis in response to changing conditions and the availability of new information. Figure 26 shall be amended as necessary as a part of the adaptive management approach to implementing the NCCP/HCP and existing and future RMPs. UCI will be responsible for managing public access and determining where public access would be appropriate within their portion of the Reserve System. Access will be restricted to protect research and restoration work.

4. Public access shall be carefully monitored by the respective reserve owner/managers consistent with the protocols established in Section 5.4 and managed to avoid significant degradation of biologic resources within the reserve. Such monitoring/management shall mean that:
 - existing truck trails shall be utilized whenever feasible, thus minimizing the need for new trail construction;
 - unneeded truck trails shall be closed and impacted habitat restored to appropriate natural habitat conditions;
 - the intensity of trail and facility use shall be subject to management and change based on observed conditions; and
 - public access shall be restricted in areas that are unsafe for users or where it is necessary to minimize impacts to sensitive habitat or would jeopardize biological research.

5. Ongoing use and maintenance of trails within the reserve shall be monitored to assure that overuse for recreation does not create problems leading to impacts on "Target Species" or sensitive habitat. The following controls shall be implemented to assure that the significant adverse effects of recreational use on habitat resources are minimized:
 - equestrian and mountain bike use of trails shall be prohibited for appropriate periods following heavy rains to avoid trail damage and subsequent effects on adjacent habitat;
 - seasonal trail guidelines, including possible rotation of access points, shall be formulated to protect sensitive species from significant adverse user impacts during nesting or other sensitive periods;
 - trail use shall be monitored to minimize off trail use, particularly by equestrian and mountain bike users; and

- docents/educational programs shall be used to communicate to trail users and other public users the importance of restricting recreational use to designated trails.
6. Recognizing the importance of appropriately managing recreational use within the reserve in order to protect habitat areas from intrusions, reserve managers shall take the following steps to increase enforcement capabilities and thereby minimize impacts of recreational use on reserve habitat values:
- 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 reserve;
 - if allowed by state and local regulations, park rangers shall be given the authority to issue citations for misuse of trail or other park facilities;
 - fines levied for abuse of park facilities resulting in harm to species or sensitive habitat shall be sufficient to discourage repeat occurrences; and
 - repeated offenses by multiple users shall provide the grounds for temporary closure of trail segments and, where necessary, entire parks as a means of avoiding unacceptable adverse impacts to habitats/species within the reserve. Such temporary closures also will serve to educate users concerning the need to obey park and reserve rules and regulations, thereby reducing future recreational impacts on the biological resource of the Reserve System.
7. Access and recreational uses within the reserve shall be periodically reviewed to determine their consistency with the evolving reserve management policies, practices, and priorities under the adaptive management program.
8. The following parks and preserves are included within the habitat reserve:
- Crystal Cove State Park (including the Crystal Cove State Park Plan as approved by the Coastal Commission);

- Coal Canyon Reserve;
 - UCI Reserve;
 - Laguna Coast Wilderness Park;
 - Aliso and Wood Canyon Regional Park;
 - Irvine Regional Park;
 - Upper Newport Bay Regional Park
 - Talbert Nature Preserve
 - Peter's Canyon Regional Park;
 - Santiago Oaks Regional Park;
 - Weir Canyon Wilderness Park; and
 - Limestone Canyon Wilderness Park (includes Whiting Ranch Park).
9. In the Round Canyon Area of the Limestone Canyon Wilderness Park, attempts will be made to transfer/consolidate recreational uses, services and concessions, and public access roads to that portion of the adjacent Frank R. Bowerman Landfill area designated for restoration.
10. The policies contained in the Recreation Element of the County's General Plan and adopted GDPs/RMPs are incorporated herein by reference. These NCCP/HCP policies shall be implemented as supplemental policies to those contained in the County General Plan's Recreation Element. In the event that conflicts are determined to exist between the Plan policies and these policies, the Recreation Element or RMP shall be amended through appropriate County action.

11. The following recreation uses shall be prohibited within the habitat Reserve System:

- active sports facilities (baseball diamonds, soccer fields, tennis courts, etc.);
- golf courses;
- stadiums, field houses and so forth;
- concert facilities or lighted outdoor amphitheaters;
- facilities requiring night lighting except for safety purposes (*e.g.*, restrooms in campgrounds, entry areas, park ranger/administrative facilities, etc.);
- hunting, except as specifically authorized by CDFG as part of their operation of a state reserve (*e.g.*, Coal Canyon reserve);
- motorized recreation vehicle activities; and
- other facilities that would significantly harm “Identified Species” or sensitive natural habitat resources.

12. The County of Orange Department of Harbors, Beaches, and Parks Department (EMA HBP) shall be responsible for planning, constructing and managing recreation facilities within the County-owned portion of the habitat reserve consistent with the policies contained in this section. The California Department of Parks and Recreation shall be responsible for managing recreation access and use of the Crystal Cove State Park. Other public agency owners/managers shall be responsible for managing public access and recreation within their respective ownerships consistent with these policies.

13. The policies set forth in this section shall be implemented and enforced in a manner consistent with the other policies contained in Chapter 5 of the NCCP/HCP. In the event that there is a conflict between the recreation policy and other policies, the

conflict shall be resolved, as feasible, in the manner that is most protective of the reserve's biological resources.

14. Annual reports shall be prepared by the reserve owners/managers that shall include, at a minimum, the following information:

- the results of recreational use monitoring (*e.g.*, trail conditions, adverse habitat impacts, and so forth);
- specific recommendations involving modifications 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, and so forth).

5.8.4 Future County EMA/HBP Recreational Facilities

As Stated in Section 5.8.1, future recreational facilities will be needed to accommodate public access and recreational use of the habitat reserve. Figure 28 shows potential areas within the reserve needed to provide future park facilities. These park facility locations reflect an attempt to locate and quantify potential acreage impacts to habitat types from future park facility development.

Locations of future County EMA/HBP park facilities are to be determined by the RMP process. Since RMPs for some of the County's regional parks within the reserve have yet to be prepared, it is necessary to describe future permitted recreational facility siting conceptually. Therefore, the policies in Section 5.8.5 allow flexibility in locating future recreational facilities within regional parks in the Reserve System. However, the total take of habitat shall not exceed that which is allowable under the NCCP/HCP.

The following types of recreational facilities will be allowed within the Reserve System:

- entry roads, park entry control structures;

- parking areas, staging areas, trailheads;
- utilities infrastructure (waterlines; sewer lines; leach fields; electric, telephone, and natural gas lines); restrooms;
- interpretive centers (focusing on natural/cultural resource interpretation);
- Park Ranger/Reserve Manager Headquarters/Offices;
- park maintenance structures/yards;
- concession buildings/improvements supporting passive recreational uses;
- overnight campsites;
- day-use picnicking sites;
- other facilities determined to be consistent with the reserve's primary species habitat protection mission.

5.8.5 Policies Governing the Siting and Construction of New Recreational Facilities

The following policies shall guide the siting and construction of permitted recreational facilities within the Reserve System. The policies in this section are intended to allow flexibility in locating future recreational facilities.

1. New County EMA/HBP facility improvements shall be consistent with permitted facilities outlined in Section 5.8.4, and the park's approved Interim Operations Plan, or Resource Management Plan.
2. New facility siting shall be coordinated with the non-profit reserve management corporation.
3. The facility shall be located and designed to minimize impacts to sensitive resources.

4. Access roads and infrastructure supporting new facilities will be routed to minimize disturbance and impacts to sensitive resources.
5. Necessary infrastructure required for new park facilities shall be consistent with policies set forth in Section 5.9.
6. Where proposed facilities potentially may impact sensitive resources, a qualified biologist shall be hired to document the resources and vegetation in the area to be disturbed by the proposed facility.
7. EMA/HBP estimates that construction of future recreational facilities within regional parks could result in up to 150 acres of CSS loss and Incidental Take of habitat supporting gnatcatcher sites within the Reserve System. The take of habitat and species associated with the development of future recreational facilities located within the reserve is considered authorized take and mitigated under this subregional NCCP/HCP.
8. Since many proposed recreational facilities will not be constructed in the immediate future and because regional recreational needs change over time, flexibility will be allowed in future design and siting of facilities.
9. Where impacts to sensitive vegetation occurs, revegetation plans shall become part of the facility improvement plans.
10. Revegetated areas shall be monitored for a minimum 5 year period.

5.8.6 Preparation of Recreational Management Programs by EMA HBP

Prior to the establishment of permanent access, uses or facilities, and consistent with the terms of Section 5.3.2 of the Implementation Agreement and the provisions set forth in this section, Resource Management Plans (RMPs) shall be prepared by EMA HBP and submitted for each future County Park development on lands designated for inclusion within the Reserve System. These RMPs shall be submitted for review and approval to the CDFG and USFWS at least 150 days prior to implementation of any action under the plan. The USFWS and CDFG shall review these plans

for consistency with the conservation and/or specific recreation management policies set forth in the NCCP/HCP and with Section 9.2.1(b) of the Implementation Agreement. USFWS and CDFG review of the plans and resolution of potential disagreements shall be conducted in accordance with the terms of Section 5.3.2 of the Implementation Agreement. A material change to a RMP shall be submitted to USFWS and CDFG for review and approval in same manner as the original plan.

County approved RMPs already are available for some parks and are under preparation for others. These plans will address future access uses and facilities of parks located within the habitat Reserve System and be prepared and submitted to CDFG/USFWS for approval sequentially as the public planning process for each park progresses. The RMP for each park may be submitted individually for review/approval by CDFG and USFWS.

5.8.7 Crystal Cove State Park Facilities

As stated in Section 5.8.2 of the NCCP/HCP, the Crystal Cove General Plan of 1982, approved by the California Coastal Commission, has been reviewed and determined to be compatible with the policies of this NCCP/HCP. New facilities or improvement, repair, maintenance and operation of existing facilities in accordance with the adopted General Plan are allowed.

Crystal Cove State Park has two ongoing coastal sage scrub restoration programs covering 18 acres of the parkland that are not mitigation for any past disturbances. In recognition of this, mitigation credit in the amount of 18 acres is being assigned to Crystal Cove State Park to offset future impacts.

Any impacts to habitat within the reserve that occur in accordance with the adopted General Plan will be evaluated by CDFG, USFWS and the non-profit corporation and appropriate mitigation determined. Should the required mitigation for such impacts exceed the allowed credit, additional restoration may be required.

SECTION 5.9 INFRASTRUCTURE POLICIES

As explained in Section 5.3 certain public infrastructure necessary for public health and safety or economic reasons will be permitted within the subregional Reserve System. These facilities (see Appendix 14) will include:

- arterial and other identified roads;
- water lines, reservoirs and associated facilities (*e.g.*, pump stations, pressure control facilities, and access roads), and regional water storage and treatment facilities;
- sewer lines and pump stations;
- electric, telephone, cable televisions, and natural gas facilities;
- storm drain and flood control facilities; and
- landfill gas recovery facilities, borrow sites, access roads, monitoring wells and maintenance facilities.

The following policies shall guide the siting, construction, and operation of permitted infrastructure, both existing and proposed, within the subregional habitat reserve. Existing infrastructure facilities/corridors located within the Reserve System are illustrated. (Figure 27).

Proposed facilities shall be sited within the subregional Reserve System generally in accordance with the following policies and Figure 28. It is necessary to describe future permitted infrastructure facility siting conceptually because precise locations cannot be provided at this time. Therefore, the following policies allow flexibility in locating planned infrastructure within the Reserve System. Infrastructure locations shown on Figure 28 are generalized forecasts. Additional infrastructure facilities on Wishbone Ridge are described in the exhibits to the NCCP/HCP amendment incorporating the 1996 Irvine Coast Local Coastal Program Amendment.

The identified infrastructure locations reflect interpretations of existing local government land use plans. As local land use plans are amended in the future, the infrastructure master plans also will need to be amended. No amendment to this NCCP will be necessary for purposes of constructing infrastructure facilities as long as the amended infrastructure plans do not result in Incidental Take beyond that described and permitted by the NCCP/HCP (refer to Chapter 7 and the Implementation Agreement).

5.9.1 General Infrastructure Siting Policies

The policies in this section are intended to allow flexibility in locating planned infrastructure with the Reserve System while at the same time minimizing impacts on reserve resources in order to maintain net habitat value. The NCCP/HCP infrastructure siting policies are set forth below.

1. Operation and maintenance of existing and future infrastructure facilities is a permitted use within the Reserve System and is included as authorized Incidental Take under this NCCP/HCP.
2. Infrastructure facilities included in Figure 28 (or comparable facilities) shall be treated as permitted uses in the subregional Reserve System, subject to the specific policies set forth in sections 5.9.2 through 5.9.4.
3. To the extent feasible, siting of new infrastructure within the Reserve System should minimize impacts to CSS, other habitat, and “Target Species”.
4. The loss of habitat and take of species associated with the new infrastructure facilities is identified in Chapter 7 of this NCCP/HCP. The identified loss of habitat and take of species associated with the new infrastructure facilities sited within the Reserve System is considered authorized Incidental Take and is mitigated under this subregional NCCP/HCP.
5. Because many of the proposed facilities will not be constructed in the immediate future (e.g., certain arterial roads and water facilities), and because of the dynamic service environment for public utilities, flexibility will be allowed in future design and siting of facilities.

6. Other permitted uses within the Reserve System include those activities or facilities that are necessary to carry out activities in accordance with other governmental regulations affecting public health, safety, and welfare.

5.9.2 Operation and Maintenance

Operation and Maintenance (O/M) activities for existing and proposed facilities are permitted within facility easements. Attempts will be made, as feasible, to undertake activities that impact vegetation supporting "Identified Species" outside the breeding/nesting season (From March 15 through June 15). These activities include, but are not limited to:

- road maintenance;
- regular patrol and inspection;
- insulator washing;
- facility operations;
- necessary clearing and weed abatement around facilities;
- maintenance grading within existing landfill boundaries;
- all routine maintenance and repair of facilities that does not result in permanent loss of existing natural vegetation;
- replacement, rehabilitation and upgrading of facilities that does not result in permanent loss of existing natural vegetation; and
- activities mandated by regulation or law affecting public health, safety, and welfare.

Operation and Maintenance Policies for Existing and Proposed Facilities

1. The operations and maintenance activities listed above are permitted as required within facility easements and are considered authorized Incidental Take.
2. Periodic re-grading and repair of roads within the existing cleared area will be permitted as needed.
3. Routine facility operation, maintenance, and repairs that extend outside the cleared area will be allowed consistent with project proponent compliance with the following procedures:
 - need for the action will be coordinated with the public reserve owner/manager;
 - the area to be disturbed shall be delineated on a map;
 - existing biological resources in the area to be disturbed will be documented using existing or new surveys and submitted to the reserve owner/manager;
 - a revegetation plan shall be prepared, implemented and monitored, by the agency proposing the action. The results of the monitoring will be submitted to the reserve owner/manager; and
 - Incidental Take that results from operations/maintenance activities will be considered authorized, and will not be considered new take. Mitigation shall be satisfied by replacement of the area disturbed or other appropriate areas within the reserve on an acre-for-acre basis. Any operations/maintenance impacts by SCE are considered further mitigated by its habitat protection commitments within the SCE Anaheim Special Linkage Area.
4. Where feasible and consistent with public safety, and where agreed to by the facility owner/easement holder, joint use for public access shall be permitted on infrastructure access roads. This policy is intended to reduce the need for new trail

construction and associated Incidental Take. Public use will be monitored. Damage or vandalism to facilities or habitat resulting from public use will be cause for prohibiting use of access roads.

5. Routine, periodic patrol and inspection of roads and facilities shall be permitted.
6. Insulator washing on electrical transmission facilities shall be permitted as determined necessary by the operator/owner.
7. Weed abatement and clearing around facilities shall be allowed using mechanical and chemical means consistent with current regulations.
8. Each infrastructure operator shall prepare a plan for the reserve owner/manager detailing its expected operational needs. The first such plan shall be submitted within six months of the identification of a reserve manager. Plans shall include expected patrol and maintenance time intervals, describe to the extent practicable, routine repair/maintenance activities and location, describe areas and procedures to be used for routine weed abatement and clearing, and any other anticipated operational activities.
9. The reserve non-profit management corporation shall prepare and implement a program to educate operations and maintenance personnel about the reserve and its sensitive resources. The program shall include guidelines on behavior of field personnel and procedures for working in the reserve.
10. Attempts will be made to undertake activities outside the breeding/nesting season.

5.9.3 Policies Governing Construction of New Facilities

Consistent with the Incidental Take identified in the NCCP/HCP and as specified in individual Section 10(a) and Section 2835-2081 approvals issued to project proponents pursuant to the Implementation Agreement, construction of new infrastructure and expansion of existing infrastructure addressed in the NCCP/HCP shall be permitted and mitigated in accordance with the policies in this section. The project proponent responsible for constructing new infrastructure facilities will coordinate construction activities with the

public reserve owner/manager to facilitate conformance with NCCP/HCP policies. Each project sponsor will, in accordance with their Section 10(a) permit/Section 2835/2081 approval, assure that such activities conform to the NCCP/HCP. It is intended that this coordination occur concurrent with normal project review procedures and that no additional time or costs will be required.

The estimated amount and location of CSS and other wildlands that will be disturbed is discussed below for each of the “*participating landowners*” and agencies and shown on Figure 28. The estimated loss of CSS and take of “Target Species” associated with these planned facilities is addressed in Chapter 7 of this NCCP/HCP and Chapter 5 of the EIR/EIS (Minimization and Incidental Take). Estimates of disturbance acreage and location are conceptual, but believed accurate enough to be covered by the recommended subregional NCCP/HCP. Actual disturbances will be monitored over time when engineering plans are prepared and construction is imminent. A brief description of planned facilities covered by the subregional NCCP/HCP is provided below and cited facilities are shown on the maps contained in Figure 28 and Appendix 25.

Southern California Edison Company (SCE)

The Viejo Substation and associated transmission facilities are planned to be constructed (Figure 28). The substation facility will not impact CSS but the transmission and access road stubs will impact about 0.4 acres of CSS that is not occupied by gnatcatchers. In addition, SCE will impact two acres of CSS not occupied by gnatcatchers in the Shady Canyon portion of the reserve as a result of modifications to existing electrical transmission lines and access roads.

Irvine Ranch Water District (IRWD)

Based on current general plan land use designations, IRWD estimates construction of 19 storage tanks, associated distribution lines, and access roads within the Reserve System. It is likely, however, that the actual number of tanks required will vary from this estimate as a result of future changes to local land use plans and/or more detailed evaluations of service alternatives. Generally, these storage tanks will be sited on the edge of the Reserve System, close to the urban uses they will serve. A typical storage tank will have a capacity of five million gallons and require a two-acre site. Each access road will disturb approximately one acre of wildlands. In addition to the water storage tanks and associated

facilities, IRWD has identified two future sewer facilities which will be located in the reserve: the East Orange Water Reclamation Plant and the south Irvine Regional Sewer located along Bonita Creek. It is also possible, but unlikely, that additional currently undefined future IRWD facilities may be required in the reserve. This could be sewer pipelines which occasionally follow natural drainage courses, rather than streets, to maximize the opportunity for gravity flow (e.g., the upper reaches of the Harvard Avenue Trunk Sewer which follow Peters Canyon Wash through Peters Canyon Park, and the proposed South Irvine Sewer).

The potential cumulative IRWD impacts on CSS and other wildlands within the Reserve System related to constructing storage tanks, a wastewater reclamation plant, regional sewer, distribution lines, and access roads within the Reserve System, is estimated to be 60 acres. The actual Incidental Take may be lower, and the location of impacts may vary, but the total Incidental Take for these facilities will not exceed the total cited above (60 acres). Disturbance will occur over time and mitigation will be phased as provided for in Section 6.2.

In addition to the construction of new storage tanks, IRWD is studying four alternative “open” seasonal reclaimed water storage reservoirs. These sites are identified and being studied by IRWD with the understanding that only one such reservoir might actually be needed. All four of the sites being studied are located within the subregional Reserve System (Figure 28). Because a decision has not been made to build a new seasonal storage reservoir, IRWD is not asking for a specific authorization for Incidental Take as a part of this NCCP/HCP. In view of the potential need for the reservoir, however, it is being identified as a permitted use within the Reserve System in the event that public health, safety, and welfare require such a facility in the future. At the time such a facility is needed, IRWD will review the plans with appropriate agencies and propose a specific mitigation plan or pay fees adequate to mitigate the Incidental Take associated with the new reservoir. Using the Upper Rattlesnake Reservoir as an example, this facility could result in an incidental loss of 66 acres of CSS habitat and Incidental Take of one gnatcatcher site. It is understood that the selection of a specific site for the reservoir will involve early consultations with resource agencies to address siting, design and mitigation issues.

Finally, the IRWD proposes to construct the South Irvine Regional Sewer Alignment in a portion of Bonita Canyon (Figure 28). This sewer facility is a permitted use within the

Reserve System but, because it will impact wetland/riparian habitat, it is not considered mitigated by the NCCP/HCP. IRWD will obtain a separate Section 404 permit from the U.S. Army Corps of Engineers and concurrent USFWS Section 7 Consultation under the Clean Water Act, and a Streambed Modification permit from CDFG for this project.

Metropolitan Water District of Southern California (METROPOLITAN)

METROPOLITAN's Central Pool Augmentation and Water Quality Project (CPA) facilities are a permitted use in the Reserve System. The CPA project EIR describes potential impacts and mitigation. Conceptual locations of these facilities, as analyzed in the project EIR, are shown in Figure 28. The estimated amount of temporary disturbance is 37 acres and the permanent disturbance is estimated to total 6 acres of CSS within the Reserve System. There will also be a temporary disturbance of 60 acres of non-CSS habitat and a permanent loss of 13 acres of non-CSS habitat within the reserve.

Metropolitan and its member agency the Municipal Water District of Orange County also have planned the construction and operation of a parallel pipeline project of the existing Allen McColloch Pipeline (AMP). In view of the existing AMP and the probable need for Phase III of the AMP after the year 2000, operations and maintenance of the AMP and Phase III are being identified as permitted uses within the Reserve System.

At such time as Phase III of the AMP is needed, Metropolitan and its member agency the Municipal Water District of Orange County will provide the required environmental documentation, under CEQA/NEPA. It is estimated that the project could result in temporary conversion of approximately 17.9 acres of wildlands, including Incidental Take of 2.3 acres of CSS and one gnatcatcher site, and loss of one cactus wren site within the El Toro MCAS portion of the reserve (Figure 28). In addition, there would be temporary loss of 49.2 acres outside the reserve, including 12.8 acres of CSS habitat. No take of gnatcatcher or cactus wrens would occur outside the reserve. All of the biological impacts of the proposed projects, both inside and outside the reserve, will be temporary and will be mitigated through creation of the reserve and restoration of new pipeline right of way.

Regents University of California (UCI)

UCI plans to extend California Avenue as a minimum width, two-lane road through a portion of the reserve to accommodate campus traffic consistent with the UCILRDP

and in compliance with the County's Master Plan of Arterial Highways. The proposed extension could impact up to three acres of occupied CSS habitat containing two gnatcatcher sites.

In addition, portions of the UCI NCCP/HCP area on both the main and North Campus will be graded by UCI or TCA prior to revegetation. These areas do not currently contain CSS habitat.

County of Orange

- County Circulation Plan

Roads shown on the existing County Circulation Plan (formerly called the Master Plan of Arterial Highways) shall be permitted in the reserve. These roads are shown on Figure 28, and listed in Appendix 12. It is estimated that construction of these roads will disturb approximately 174 acres of CSS within the reserve, ten acres within Special Linkages, and 238 acres outside the Reserve System. Habitat supporting one gnatcatcher site would be impacted. The arterial road impacts include the arterial interchanges with the ETC, FTC, and SJHTC.

- County Department of Harbors, Beaches and Parks (EMA HBP)

EMA HBP estimates that its capital improvement projects could result in up to 150 acres of CSS loss and Incidental Take of CSS habitat supporting five gnatcatcher sites within the Reserve System and an additional 10 acres of take outside the reserve.

- County Integrated Waste Management Department (IWMD)

The County currently operates two active Class III sanitary landfills in the Central/Coastal Subregion, the Frank R. Bowerman Landfill and the Santiago Landfill. An inactive landfill, the Coyote Canyon Landfill, also is located in the subregion. The IWMD proposes conversion of up to 30 acres of CSS within the Frank R. Bowerman Landfill facility (Figure 28) in a portion of the site is designated as part of a "special linkage" and discussed in Section 4.4 and Section 7.2. An additional 30 acres of CSS will be impacted and restored on portions of the landfill included within the reserve adjacent to the Special Linkage.

Adjacent to the Santiago Canyon Landfill, six acres of CSS will be impacted. An equivalent area will be restored on County property along the Bee Canyon Access Road. Thus, IWMD will impact a total of 36 acres within the reserve and 30 outside the reserve.

- Flood Control (OCFCD)

OCFCD owned and/or future planned flood control facilities within the reserve are shown on attached exhibit of flood control facilities. Construction or modification of these facilities will result in impacts to approximately 30 acres of CSS within the reserve, and 40 acres outside the Reserve System.

The present state of regional flood control planning within the Central Region is incomplete and does not allow definitive identification of future projects. On-going improvements, reconstruction, repair, maintenance and operations needs to existing flood control facilities, are not easily quantifiable.

The estimates were based on the following OCFCD facilities:

- | | |
|---------------------------|----------------------------|
| 1. Santiago Creek | 6. Santa Ana-Delhi Channel |
| 2. Sulfur Creek Reservoir | 7. San Diego Creek |
| 3. Laguna Audubon Basin | 8. Laguna Canyon Channel |
| 4. Serrano Creek | 9. Aliso Creek |
| 5. Salt Creek | 10. Oso Creek |

Planned flood control improvements that are to be constructed by private interests, but eventually owned and operated by OCFCD (such as East Foot Retarding Basin, and Orchard Estates Retarding Basin) were not included in the estimates.

Santiago County Water District (SCWD)

The SCWD facilities plan calls for construction of 3 storage tanks with a potential loss of up to 9 acres of CSS within the reserve. As in the case of IRWD, these tanks will be constructed over several years.

Chandis-Sherman Companies

Planned activities on the 121-acre Headlands site owned by Chandis-Sherman would result in the take of about 30 acres of gnatcatcher-occupied CSS habitat out of 55 acres of CSS that now contains nine gnatcatcher sites. In addition, subject to the provisions of Section 8.3.2 of the Implementation Agreement, Chandis-Sherman planned activities would involve the potential take of almost 4 acres occupied by the federally-endangered Pacific pocket mouse in the event that USFWS or CDFG do not purchase the temporary pocket mouse preserve established onsite under the terms of the NCCP/HCP.

The Irvine Company (TIC)

Within the Shady Canyon portion of the habitat Reserve System approximately two acres of CSS that are not occupied by the gnatcatcher will be impacted by planned activities. The impacts will be associated with modification to existing electrical transmission lines and related access roads.

TIC planned activities also would impact up to 4,420 acres of CSS outside the Reserve System in non-reserve areas (4,360 acres containing 88 gnatcatcher surveyed gnatcatcher sites) and Special Linkages (60 acres containing 2 gnatcatcher sites).

Transportation Corridor Agencies (TCAs)

Because Section 7 consultations have been completed for the SJHTC, ETC and FTC(N) (Appendix 8), the rights of ways for those portions of the ETC, FTC, and SJHTC within this subregion are not located within the Reserve System. Therefore, construction of TCAs facilities will not result in loss of CSS within the Reserve System. However, the TCAs will, through construction of the three transportation corridors, impact a total of 465 acres of CSS within the subregion as follows:

ETC	272 acres of CSS
FTC	37 acres of CSS
SJHTC	156 acres of CSS

As mitigation for these impacts, the TCAs and USFWS/CDFG already have agreed upon a mitigation program for each of the subject corridors. The total mitigation package will include the payment of \$6.615 million and 651 acres of CSS revegetation, restoration, and preservation. A summary of the mitigation packages agreed upon by TCAs and the USFWS/CDFG is provided below:

ETC	Conservation Fund	\$2,015,000
	Reveg/Restoration	384 acres
	Cowbird traps	25 in perpetuity
	Other	26 wildlife culverts
		5 wildlife bridges
	5 years wildlife studies	
FTC	Conservation Fund	\$950,000
	Reveg/restoration	5 acres
	SRP Funding	\$100,000
SJHTC	Conservation Fund	\$3,650,000
	Reveg/Restoration	262 acres
	Cowbird traps	20 in perpetuity
	Other	4 wildlife bridges
		10 years habitat studies (\$60,000)

TCAs already have funded \$2,775,000 of the total conservation fund package. Further, 318 acres of the 651 acres of revegetated/restored habitat ultimately will be transferred to public owners/managers within the Reserve System. This includes all of the revegetated/restored acreage outside the 314 acres of restored slopes within the rights of ways of the three corridors.

The above descriptions of proposed infrastructure within the Reserve System are based on information provided by the participating jurisdictions, SCE, IRWD, METROPOLITAN, SCWD, and County departments. If additional facilities are proposed in the future that exceed authorized Incidental Take, an amendment to the subregional NCCP/HCP will be required in accordance with the Implementation Agreement.

Specific Policies

The following specific policies apply to the construction of the facilities identified in this section. These policies reflect the coordinating role of the non-profit reserve management corporation and the management role of the individual reserve owners/managers (e.g., EMA HBP). The intent of these policies is to assure that Incidental Take does not exceed the limits set forth in this NCCP/HCP without additional mitigation.

1. Each infrastructure project proponent will coordinate the siting of new infrastructure with the reserve owner/manager to document compliance with NCCP/HCP policies in a timely manner.
2. To the extent feasible, infrastructure will be located and designed to minimize impacts to sensitive resources within the reserve. The physical and engineering requirements of the proposed infrastructure shall be considered during the siting procedure.
3. Access roads for permitted facilities will be routed as feasible to minimize disturbance and impacts to sensitive resources. This will generally mean the shortest feasible route. The cleared roadbed will be the minimum feasible width taking into account specific slope and safety requirements. Necessary erosion control measures and/or drainage pipes will be included.

The project proponent shall hire a qualified biologist to document the resources and vegetation in the area to be disturbed by the proposed facility. The biological findings shall provide the basis for revegetation and monitoring plans. The biologist used may be in the employ of the reserve owner/manager, the non-profit reserve management corporation, the proposing agency, or an independent consultant acceptable to the reserve owner/manager.

4. Improvement plans, including those for access roads will be distributed to the reserve owner/manager as part of the coordination process concurrent with submittal to the approving jurisdiction. Said plans shall include revegetation of any temporarily disturbed areas in accordance with reserve standards. Provision shall

be made for monitoring the revegetated areas for 5 years following completion of revegetation.

5. Activities shall be permitted that are necessary to comply with other governmental regulations affecting public health, safety and welfare. Examples include compliance with Water Quality Control Board regulations to use "best construction practices" to minimize sedimentation.

5.9.4 Emergency Procedures and Policies

It is anticipated that emergencies associated with infrastructure located within the reserve will occur from time to time. In such emergency conditions, immediate repairs shall be permitted in accordance with the following policies and procedures to protect both the public and the habitat in the reserve.

1. Emergencies that require immediate action (*e.g.*, pipeline breaks and downed power lines) shall be addressed as follows:
 - the affected agency shall enter the reserve and complete necessary repairs consistent with normal practices;
 - it will not be necessary for a biologist to be present;
 - the extent of disturbed area shall be determined upon completion of the repairs and revegetation plans prepared, implemented and monitored by the project proponent in accordance with the standards and requirements included in this chapter; and
 - revegetation shall be limited to the area determined to be disturbed.
2. Should an emergency occur requiring eight or more hours of preparation before disturbance of natural habitat occurs (*e.g.*, water tank leak), the affected agency shall make reasonable effort to delineate the area of disturbance and have a biologist map the resources present. The delineation shall serve as the basis for the revegetation plans prepared and executed after the repair is complete. The affected

agency may use their in-house biologists. Should the affected agency not have staff biologists, they may request the reserve manager to provide one.

3. Under no circumstances shall the action of the non-profit management corporation or biologist delay necessary emergency repairs.

SECTION 5.10 NEW USES WITHIN THE RESERVE OTHER THAN INFRASTRUCTURE FACILITIES

In addition to the infrastructure uses cited above, the NCCP/HCP will permit TIC to operate a temporary sand and gravel operation in a site in the Santiago Creek corridor located immediately west of the Irvine Lake Dam (Figure 28). The term of the permitted activity will be for a period of up to five years. No specific commencement date for the sand and gravel operations has been determined. TIC will extract up to five million cubic yards of sand and gravel.

The permitted use will not impact CSS and no Incidental Take will occur or be authorized. Mitigation for the permitted activities will involve restoration of the impacted area to enhance and restore wetlands and riparian habitat, measures that will contribute to biodiversity within the Central Subarea portion of the reserve.

SECTION 5.11 EXISTING USES WITHIN THE RESERVE SYSTEM

Existing uses unrelated to habitat protection/management are located within the areas designated to be included within the Reserve System. These existing uses include (Figure 27 and Appendix 14):

- existing TNC habitat management, enhancement, restoration and docent/public access programs;
- the UCI San Joaquin Road Landfill and associated maintenance and monitoring program, existing UCI habitat restoration projects, NPDES related surface drainage/erosion improvements and groundwater monitoring activities.

- 577 acres of agriculture, including orchards and row crops, more than 84 percent of which is located in the Central Subarea along the frontal portions of the Lomas de Santiago;
- 8,559 acres of cattle grazing within the Central Subarea and 1,881 acres of grazing in the Coastal Subarea, all on TIC lands;
- the Frank R. Bowerman Landfill and Santiago Canyon Landfill, located in the Central Subarea and designated as reserve and special linkage;
- a sand/gravel/asphaltbatch plant operation located north of Rattlesnake Reservoir on approximately five acres;
- a sand and gravel extraction operation, located in Santiago Creek west of Irvine Lake, operating under a Special Use Permit;
- the UCI San Joaquin Road Landfill and associated maintenance and monitoring program;
- existing UCI habitat restoration projects;
- an Irvine Lake sedimentation removal project, which will soon begin to remove accumulated sediment;
- existing County and state park facilities, including active use areas, interpretive centers and parking facilities at Santiago Oaks Regional Park, Whiting Ranch Wilderness Park, and Crystal Cove State Park and concessions for recreational use. The Crystal Cove State Park Plan of 1982 approved by the Coastal Commission (Appendix 21) has been reviewed and determined to be compatible with the policies of the NCCP/HCP. Accordingly, new facilities or improvement, repair, maintenance and operation of existing facilities in accordance with the adopted General Plan are allowed;

- the City of Irvine Bommer Canyon recreation/staging area;
- land fill closure and operation and gas recovery operations in the Santiago and Coyote Canyon landfills; and
- water storage reservoirs.

Several of these existing uses will eventually be terminated. The following policies explain the terms under which these uses will continue to operate within the reserve and how they will be restored/revegetated after existing uses are terminated.

- **Existing Use Policies**

During the “interim management” as discussed in Section 5.12 and after designated public and private lands are incorporated within the Reserve System, existing uses will be permitted to continue to operate within the reserve in accordance with the following policies in order to minimize the impacts of existing use operations, maintenance and repairs to the maximum extent practicable consistent with cost-effective operation of the particular facility:

1. existing uses shall be "permitted uses" within the Reserve System;
2. existing uses shall be permitted to operate in accordance with any existing special conditions or as they have operated historically;
3. periodic re-grading and repair of existing access roads/facilities shall be permitted within existing cleared areas, or within areas shown as cleared/disturbed on plans approved by local/state agencies prior to creation of the Reserve System;
4. facility repairs that extend outside existing cleared areas, or areas shown as cleared/disturbed on approved plans, will be permitted in accordance with the following procedures:

- the need for such action will be stated in written form and the area to be disturbed delineated by the agency proposing the action,
 - existing resources in the area to be disturbed shall be documented and by the agency proposing the action prior to commencing repairs,
 - a revegetation plan shall be prepared and approved by the reserve manager, including a plan for monitoring and reporting on the success of revegetation by the agency proposing the action for a period of 5 years,
 - the reserve owner/manager shall review repair plans, recommend revisions and approve the proposed action prior to commencement of repairs,
 - routine, periodic patrol and inspection of roads and facilities shall be permitted, and
 - weed abatement and clearing around facilities requiring mechanical and chemical means shall be carried out consistent with existing regulations;
5. construction related to expansions of existing uses beyond the existing disturbed area or the disturbed area identified on approved plans will require an amendment to this NCCP per the amendment provisions contained in the Implementation Agreement;
6. existing Uses shall be terminated when the local government Special Use Permit (including any extensions) or other applicable approval expires, or when the operation is complete;
7. all restoration activities for terminated uses shall be conducted consistent with the provisions contained in the conditional use permit:

8. when required by the Special Use Permit, the area disturbed by the use shall be revegetated in accordance with the approved restoration plan and the following procedures:

- the operator of the Use Permit shall submit the approved restoration plan, along with a cost estimate to the reserve manager at least one year before termination is scheduled to occur;
- the reserve owner/manager shall review the restoration plan and make suggested revisions deemed appropriate to the reserve. Suggested revisions cannot increase the cost of restoration without the approval of the existing use operator; and

9. the emergency procedures previously identified for Infrastructure shall also apply to emergencies related to existing uses.

SECTION 5.12 INTERIM MANAGEMENT POLICIES

Although the entire permanent habitat Reserve System is designated as a part of the recommended project (Figure 12), it is important to remember that it will require many years to assemble the entire Reserve System. Following the signing of the Implementation Agreement by NCCP participants, it is expected that approximately 15,000 acres of the 37,378-acre Reserve System will be immediately available for inclusion in the permanent reserve. However, the remaining parcels of land designated for inclusion in the reserve, totaling more than 24,000 acres, will be assembled over time. It may require 25 years or more to assemble all of the lands designated for inclusion in the permanent reserve. Therefore, to the extent feasible, it will be necessary to assure that designated reserve lands are maintained in their existing conditions and in a manner that will avoid a net loss in habitat value pending their addition to the reserve. Further NCCP/HCP adaptive management actions under the Interim Management Program are expected to increase net long-term habitat value.

The period of time following the effective date of the Implementation Agreement and complete assemblage of designated parcels of land as part of the Reserve System, is defined

as the “interim management period.” During this “interim” period the following management policies shall be implemented.

- **Interim Management Policies**

1. During the “interim management period” designated reserve lands shall not be developed or otherwise permitted to be used for purposes that would result in significant degradation of the biological values existing at the time the Implementation Agreement is signed. Existing uses and facilities will be permitted during the “interim” period.
2. Landowners shall document the levels of grazing and other agricultural uses that have existed prior to the effective date of the Implementation Agreement (*i.e.*, practices conducted during the decade preceding signing of Implementation Agreement). Agricultural uses shall be permitted to continue on those portions of the designated reserve lands historically used for such purposes, provided that the uses are not intensified during the interim period when compared to historic practices.
3. During the interim period, grazing shall be a permitted use on lands designated for inclusion in the Reserve System. Because of the potential long-term impacts on biological resources within the Reserve System, Within one year of the Effective Date of the NCCP/HCP a grazing plan consistent with the NCCP/HCP shall be submitted for review and approval by USFWS and CDFG. A material change to the grazing plan shall be submitted to USFWS and CDFG for review and approval in the same manner as the original plan in accordance with Section 5.3.2 of the Implementation Agreement.
4. Other uses and activities existing at the time the Implementation Agreement is signed (*e.g.*, sand and gravel mining, and landfills) shall be permitted during the interim period provided that the ongoing use is consistent with existing approvals/permitsand permit renewals. Habitat impacts associated with changes in the kind, intensity, or geographic extent of such use(s) beyond the levels provided for in existing approvals are not mitigated by this subregional NCCP and shall

require an amendment to the NCCP/HCP in accordance with the provisions in Implementation Agreement.

Landowners and easement holders will permit the non-profit management corporation and its biologists entry onto lands designated for future inclusion in the permanent habitat reserve during the interim period. Such access will be necessary to conduct the following activities:

- monitoring of CSS and other habitat to assess potential changes in biological conditions over the term of the interim period;
- monitoring of species covered under the NCCP/HCP (refer to Chapter 2 and Section 5.4);
- field inventories conducted for additional species being considered for coverage under the NCCP/HCP;
- fire management and suppression activities, including controlled burns, consistent with the policies and programs set forth in Section 5.7 of the NCCP/HCP; and
- monitoring of public access and recreational activities.

The non-profit corporation shall coordinate with landowners and affected agencies to limit interruption to routine activities and prevent endangerment to facilities, personnel, and ongoing operations. Reasonable notice shall be provided to landowners and the reserve owner/managers concerning access needs.

6. Consistent with the management policies contained in this Chapter, the following activities also shall be permitted on designated reserve lands during the interim period:

- eradication of invasive plant species and management of invasive and pest vertebrate species; and

- fire management activities such as controlled burns consistent with the restoration policies in Section 5.6 and the fire management policies in Section 5.7.
7. In those instances where landowners agree to implement or permit enhancement or restoration measures during the interim period, the CDFG and USFWS shall assess the habitat values resulting from the interim management measures and assign “mitigation credit” to the landowner or implementer of such mitigation for the purpose of offsetting future development impacts on habitat within the subregion. Mitigation credits may be granted for impacts to CSS, or to other habitats of interest to state and federal agencies. This policy does not apply to or affect pre-existing mitigation agreements involving the landowner, CDFG and/or USFWS, or other public agencies.
 8. Prior to commencement of permitted interim management activities on designated lands, the non-profit management corporation shall arrange to provide appropriate legal instruments (e.g., hold harmless agreements, etc.) capable of protecting the landowner against:
 - legal liabilities arising out of management activities designed to protect or enhance habitat values during the interim management period; and
 - recreation use permitted during the interim period.

Oak woodlands avoidance, enhancement and restoration measures provided for in the final EIRs for the East Orange General Plan, Mountain Park General/Specific Plan and Shady Canyon projects shall be carried out in accordance with those CEQA documents as the specific projects are implemented.

Tab placeholder.

CHAPTER 6: NCCP/HCP COSTS, FUNDING AND IMPLEMENTATION

This Chapter discusses three key topics related to the implementation of the NCCP/HCP consistent with the FESA, CESA and NCCP Planning Guidelines:

- estimated costs associated with the assemblage of the Reserve System and implementation of the habitat management program;
- sources and availability of funding to implement the NCCP/HCP; and
- implementation actions and mechanisms that will be required consistent with the NCCP/HCP.

SECTION 6.1 ESTIMATED COSTS ASSOCIATED WITH IMPLEMENTING THE SUBREGIONAL NCCP/HCP

This section provides an estimate of the costs associated with the recommended subregional CSS management program. Costs that will be incurred during implementation will include annual managing and monitoring costs, restoration and enhancement costs, fire management costs, overhead/administrative costs, and acquisition costs (fee title and easements for voluntary acquisitions). The section includes the following discussions:

- a brief comparative management cost survey, based on available information pertaining to other Reserve Systems;
- estimated annual management costs, including management/monitoring, fire management, and restorations/enhancement; and
- one-time costs relating to assembling lands for the reserve and easements for designated Special Linkages.

6.1.1 Survey of Comparable Annual Reserve Management Costs

Estimates of the cost of habitat reserve management vary considerably depending upon the program. Information on management costs for existing reserves was obtained from four sources (refer to appendices 11, 13 and 16 for the cited documents):

- a CIC Research, Inc. report, titled "Management, Operations and Maintenance Costs of Habitat Preserves," prepared for the San Diego Multiple Species Conservation Program (Appendix 13);
- information provided by the County of Orange Department of Harbors, Beaches and Parks regarding existing levels of expenditures for natural areas and the kinds/levels of habitat management currently being provided (Appendix 11);
- information generated by The Nature Conservancy (TNC) based on their stewardship experience over the past years managing 17,000 acres of the TIC property in the Central and Coastal subareas (Appendix 16); and
- a report prepared by the Center for Natural Lands Management, titled "Habitat Management Cost Analysis" (Appendix 13).

The findings and conclusions contained in these documents are summarized below.

- The CIC Report

This report (Appendix 13) collected information on several existing reserve management programs, including California examples such as the Santa Rosa Plateau, the U. C. Mott-Rimrock Reserve, Starr Ranch, and The Irvine Company Stewardship area. These programs were chosen for review because they all are located within urban areas and include a large portion of CSS.

The budget for the proposed Balcones Canyonlands preserve near Austin, Texas was also reviewed because of the size of that reserve (29,000-32,000 acres) and its similarity to an NCCP approach. The estimate of annual costs for Balcones is very detailed and includes salaries, equipment, operational costs such as supplies, and educational programs. Costs for "hard facilities" such as trailheads, information centers and similar public facilities did not appear to be included.

The CIC report indicates that annual management and maintenance costs for these programs range from just under \$12.00 per acre to \$40.00 per acre. Table 6-1 summarizes these costs. Generally, the reserves analyzed indicate that an annual management cost of between \$20.00 and \$30.00 per acre is common. This level of expenditure covers the cost of a full-time

manager, rangers, and management in the form of trail and fence maintenance, trash clean-up, signage and some associated activities such as fire management or limited species monitoring.

- County of Orange Department of Harbors, Beaches and Parks (EMA HBP)

The EMA HBP information includes both the most recent departmental budget, and an overview report that describes current staffing/management practices and goals (Refer to Appendix 11).

EMA HBP is already responsible for managing 20 regional parks, beaches, and other open space lands totaling more than 38,000 acres in Orange County (28,000 acres of which are mostly natural vegetation and function as habitat). EMA HBP's current annual operations budget is \$19,900,000.00. On a conceptual level, these categories of parkland could be considered compatible with the goals of the NCCP; thus, the current costs of managing these facilities could be useful for estimating future management costs within the subregional Reserve System.

Table 6-1
REPRESENTATIVE COSTS OF MANAGEMENT AND MONITORING
OPEN SPACE AND HABITAT LANDS IN CALIFORNIA

Preserve Name	Acres	Annual Cost	\$/Acre
Mott-Rimrock Reserve	1,200	\$ 43,000	\$33.86
Santa Rosa Plateau	7,000	\$175,000	\$25.00
Starr Ranch	4,000	\$ 80,000	\$20.00
Irvine Company	17,000	\$200,000	\$11.76

It is important to note that in all of the examples cited in the CIC report, costs are reduced by the fact that public access is very limited. This is an important factor because the majority of the recommended Reserve System will be available for passive public recreation activities. Therefore, the cost of managing the Central and Coastal NCCP Reserve System could potentially be higher than the costs cited in the CIC report.

The 1994 EMA/HBP budget provided \$3,500,000.00 for operation of the natural parks/wilderness parks/nature preserves in 1994. The level of funding provided for each park

varied depending upon the type, size, and facilities, ranging from \$13.00 per acre to over \$200.00 per acre. The average cost for these parks was \$123.00 per acre. Thus, the average “per-acre funding” for management of County-owned natural lands exceeds the per-acre funding for the cited private reserves by a considerable margin. Clearly, a major factor in the higher level of funding is the greater level of public access and recreation use provided for within the County areas when compared to the private reserves studied by CIC.

- TNC Costs for Managing the 17,000-Acre TIC Preserve

Another indicator of potential management costs for the subregional Reserve System can be found in the monies spent by TNC during formulation and implementation of the stewardship plan for the TIC properties in this subregion. By limiting public access to management lands, and by careful allocation of staff resources, TNC has been able to manage the TIC preserve over the last three years for costs ranging from \$11.00 to 15.00 per acre (see Appendix 16).

- Center for Natural Lands Management Study

A 1994 study released by the Center, titled “Habitat Management Cost Analysis,” prepared cost estimates based on two sources of information (Appendix 13). First, costs related to ten California preserves was estimated based on talks with managers and review of budgets. Second, the Center forecasted cost of managing several proposed conservation properties. The Center concluded that annual costs ranged from \$17.00 to \$463.00 per acre for the surveyed projects and \$8.00 to \$529.00 per acre for the forecasted properties. Their study also concluded that larger projects generally offer measurable economies of scale, and that costs per acre declines with the increasing size of the project. For projects larger than 1,000 acres, the “possible stewardship costs per year” were estimated at \$10.00 to \$75.00 per acre (at page 27, Center for Natural Lands Management, 1994).

- Summary

The four sources of information on reserve management costs represent a broad range of costs/experiences. These sources demonstrate that future costs of managing the subregional reserve are difficult to estimate with accuracy, and that public agency and foundation commitments to public access, restoration and enhancement, and research will play a critical role in determining how much it will cost annually to manage the 37,378-acre Reserve System.

The following sections address estimated annual operating costs and the one-time costs associated with assembling the habitat Reserve System.

6.1.2 Estimated Annual Operating Costs of the Reserve System After Full Funding of the Endowment and Assemblage of Reserve Lands

Section 5.4 (Management and Monitoring) and Section 5.6 (Restoration and Enhancement) identify the ongoing biological management activities that are included in the recommended project. For purposes of estimating annual costs related to the NCCP/HCP, it is assumed that the recommended biological management measures and administrative costs associated with the recommended non-profit management entity, must be funded as a part of this project. Costs associated with other management activities, including fire management and public access and recreation, will be addressed by individual reserve owners/managers (e.g., recreation and access on county and state parklands) and by existing local/state programs (fire management) according to current practices.

The following annual cost estimates reflect conditions following full funding of the reserve management endowment by contributing landowners/agencies (see Section 6.2), and assemblage of all designated reserve lands. A “start up” budget also is provided in Section 6.2.5 (Table 6-5) to reflect funding in the first five years of the NCCP/HCP Reserve System.

- **Staffing Requirements and Costs**

The biological management and administrative staff resources required to implement the policies and programs recommended in this NCCP/HCP will include the following personnel and costs (note: staff cost estimates are for budget/funding purposes, include an overhead factor to cover the expenses related to hiring, benefits, and so forth):

Non-Profit Managing Authority Staff	Annual Cost
(2 positions)	
Executive Director	\$100,000
Administrative Assistant/Coordinator	<u>40,000</u>
Subtotal	\$140,000

- **Habitat Monitoring and Species Inventory Costs Related to Implementing the Adaptive Management Program**

Conducting the field studies and species inventories recommended in Section 5.4 will require the use of consulting biologists on a seasonal basis. These seasonal biologists will be selected based on their particular fields of expertise, and the management need at various stages of the adaptive management program. The monitoring and inventories will be conducted throughout the Reserve System, including private lands designated for inclusion in the reserve but not yet acquired/transferred.

Seasonal Biologists and Responsibilities	Average Annual Cost
3 Biologists to Monitor Habitat/Species Conditions (4-6 mos/year)	\$124,000
5 Biologists to Conduct New Species Inventories (3-4 mos/year)	<u>\$112,000</u>
Subtotal	\$236,000

At some point, the annual costs associated with species inventories may be able to be reduced as the habitat/species in the Reserve System designated for focused surveys are fully inventoried.

- **Office and Administrative Costs**

In addition to the annual costs required for staffing the subregional NCCP/HCP management program, the following costs will result:

Office, Supplies and Equipment	\$11,000
Travel (vehicle insurance, maintenance, misc. travel)	14,500
Non-office Equipment	6,000
Equipment Purchases During First 10 years	6,500
2 - 4WD Vehicles (total cost \$35,000)	
Office Equipment (total cost \$15,000)	
Non-office Equipment (total cost \$15,000)	
Subtotal	<u>\$38,000</u>

- Habitat Management Activities

Specific management measures related to controlling exotic plants and animal pests will be undertaken within the permanent habitat Reserve System. These activities will include:

Control of exotic plants (e.g., cardoon)	\$40,000
Trapping Animals (e.g., cowbirds)	<u>\$25,000</u>
Subtotal	\$65,000

The estimated cost of animal trapping within the Reserve System reflects the fact that the funding for cowbird traps generally will be provided through individual project mitigation measures (e.g., horse stables, golf courses, and so forth)

- Fire Management

The costs of fire management activities within the subregional Reserve System will be covered by the Orange County Fire Authority and the California Department of Forestry. The NCCP/HCP will focus on the use of regularly available public funding toward fire management within the Reserve System. Existing properties adjacent to County open spaces already must be protected; therefore, no added cost for fire management is being attributed to this NCCP/HCP.

- Public Access and Recreation

As noted earlier in this section, the mandatory management and monitoring activities related to access and recreation uses already are accounted for under Section 5.8 Accordingly, although there will be a re-ordering of some management and staff priorities, added annual management costs attributed to recreational use is already addressed.

- Summary of Management/Monitoring Costs

Based on the above discussion, the total annual cost for performing mandatory management activities within the habitat Reserve System is estimated to be about \$12.50 per acre. Thus, after the reserve is completely assembled, the annual cost of mandatory activities will be approximately \$479,000.00 per year. It can be expected that the cost of management may increase over time due to inflationary factors.

- Restoration and Enhancement Costs

The subregional Reserve System contains approximately 1,506 acres of agricultural and disturbed that could be suitable for CSS or other wildland restoration/enhancement. Additional degraded CSS exists within the Reserve System. The amount, location, and priority for restoration/enhancement activities is discussed in Section 5.6.

The costs of restoring CSS can vary tremendously, depending on the status of the existing habitat, historic uses, and specific restoration goals. Cost estimates range from as low as \$2,000.00 per acre for enhancement efforts up to more than \$50,000.00 per acre for intensive full-scale restoration of severely degraded, or type-change situations. The cost of restoring 300 acres of CSS habitat within the Reserve System, for example, could range from \$600,000.00 to more than \$15,000,000 within the Reserve System using the full range of historic costs. A “reasonable” cost estimate of \$15,000 to \$20,000 per acre for CSS restoration (excluding land value) would yield a total restoration cost of \$4,500,000 to \$6,000,000 over the life of the Reserve System. Additional habitats could be considered for enhancement and restoration (e.g., grasslands, oak woodlands, riparian), if additional funding becomes available.

Recognizing the potential cost associated with restoration and enhancement opportunities within the Reserve System, such activities will be pursued as money becomes available, consistent with the provisions of Section 5.6. As explained in Section 5.6, the pace of restoration/enhancement will proceed commensurate with mitigation of CSS impacts outside the reserve to maintain net habitat value for CSS lands not included within the Reserve System. As noted previously, the Reserve System is biologically viable in its existing condition with implementation of the “adaptive management” program. Restoration and enhancement is not necessary to maintain habitat value within the Reserve System, but will be necessary to maintain long-term net habitat value on a subregional level (*i.e.*, to offset CSS impacts outside the reserve by *non-participating landowners*).

- Research Costs (not covered by NCCP/HCP)

As reviewed in Section 5.5, a variety of activities covered within the subregional management and monitoring activities, including compilation of the detailed biological information for the County’s GIS program, will provide significant sources of information for future “basic research” activities. A considerable amount of data will be generated by the required management and monitoring activities, and will serve as the basis for any additional research

conducted pursuant to the cited research tasks. However, as used in this discussion, the research costs refer to the potential costs associated with research tasks 2 through 7 outlined in the NCCP Guidelines (Conservation Guidelines, pp. 6 and 7).

Except for information generated by the NCCP monitoring /adaptive management program, any such additional research, and related costs necessary to complete research tasks 2 through 7 in the NCCP Guidelines are not considered the responsibility of the subregional NCCP/HCP. The subregional Reserve System will be available as a venue and living laboratory for studies conducted by agencies, academics and institutions, or non-profit organizations. The costs of such efforts shall be covered by others, except that as funding is available, the costs of management incurred by reserve landowners shall be considered matching funds to secure/qualify for available state and federal funds. Research that falls into this category may be paid for in a variety of ways. State and federal funds (e.g., NBS funds) may be used as called for in the NCCP Guidelines. Institutional grants are one potential source of funds.

6.1.3 Estimated Acquisition Costs

Acquisition costs related to the Reserve System are treated as one time costs. They will be incurred over time during assemblage of the reserve and include, where appropriate and feasible, acquisition of conservation easements for special linkage areas. Each of these cost categories are discussed below.

- Acquiring Easements on Lands Within Designated Special Linkages and Existing Use Areas

Acquisition of interests (fees, easements, etc.) within Special Linkages and Existing Use Areas is not required by the NCCP/HCP. The potential costs of acquiring conservation, scenic, or other easements for lands included within the special linkage/Existing Use Areas has not been calculated. These areas include more than 4,000 acres of wildlands within the Central and Coastal subareas (Figure 22 and Table 4-1). These designated areas and linkages are located outside the permanent habitat reserve, and are owned by public, non-profit, homeowner associations, and private entities. Incorporating Special Linkages located on public lands into the overall CSS management program is not expected to result in significant program costs. However, a significant portion of the “special linkage” lands are owned by private landowners and/or homeowner groups. These are the lands where significant costs could be incurred.

As described in more detail in Section 4.4, this acquisition category would not eliminate all use of the property within the designated linkages. An assessment of the need for an easement will be made on a parcel-by-parcel basis for lands within the identified Special Linkages. While recording a conservation easement and proper use of plant materials with appropriate species and compatible design are primary goals within these linkages, easements may not be necessary in all instances for the linkages to function as effective habitat corridors linking lands within the Reserve System.

In many cases, because economic use of private property is provided, the necessary conservation easements may be obtained at no cost to the managing entity. Such easements, along with revegetation requirements, can be obtained as mitigation at the time projects are proposed that include lands within special linkage areas. In certain instances (*e.g.*, Pelican Hill, Shady Canyon, and along Santiago Creek), the landowner has already agreed to grant the easement and has or will undertake revegetation to enhance biologic function. These areas comprise significant share of the supplemental non-reserve areas where conservation easements would be important. In addition, the County and IRWD have agreed to special design and planting conditions in the construction of a long-planned Sand Canyon golf course.

- Fee Title Acquisition

Several of the key ownerships within the subregion are public ownerships that would be included with existing County lands to become part of the subregional reserve (but continued to be owned/operated by local/state/federal agencies). These lands include:

- Crystal Cove State Park (2,807 acres);
- the MCAS El Toro property (1,033 acres);
- the UCI property (135 acres);
- 318 acres re-vegetated and restored by the TCAs; and
- CDFG's Upper Newport Bay Reserve (678 acres), Coal Canyon Reserve (953 acres), and California Ecological Reserve (82 acres).

The remaining lands designated for inclusion in the permanent Reserve System are private lands. By far the largest private owner of designated reserve lands is TIC. Approximately 20,800 acres of TIC property are designated for inclusion in the Reserve System. Existing dedication agreements include 17,877 acres that TIC has committed to public ownership through phased dedication programs (e.g., for the Newport Coast, East Orange, Mountain Park, and Shady Canyon projects). An additional 3,001 acres (primarily located along the frontal slopes of the Lomas de Santiago) are designated for inclusion in the reserve by this NCCP/HCP.

The subregional NCCP/HCP will acquire these TIC lands at no cost to the managing entity based on a phased acquisition agreement with TIC that will be included in the Implementation Agreement.

Other smaller ownerships were determined to be of sufficient biologic value to warrant their inclusion within the Reserve System. To be included within the Reserve System, the cooperation of the owners of these private or quasi-public lands will be required. In other words, they must be “willing” sellers. Of the smaller ownerships listed below, only the SCE parcel is considered to be essential for long-term reserve function. This is due to its critical location and function as a linkage to the Southern NCCP Subregion and Reserve System. The other parcels of land are considered to be desirable, but not essential for reserve function. These land ownerships will be acquired if and when funding becomes available, and include (Figure 19):

- Central Subarea;
 - Orange Unified School District/Serrano Irrigation District property (524 acres)
 - the 120-acre Santiago Ranch (excluding the 11-acre equestrian facility located adjacent to Santiago Canyon Road)
 - Glen Ranch/SCE Corridor (148 acres owned by SCE, up to 99 acres would need to be purchased)

These properties contain important CSS habitat, populations of target species, or provide key habitat linkages that would enhance the function of the Reserve System. The Orange Unified School District/Serrano Irrigation District and Santiago Ranch properties are both being

considered for acquisition by the County EMA HBP using existing dedicated funds which must be applied to open space acquisitions. Discussions involving these landowners and the County are underway. As a result of recent negotiations between the County of Orange and SCE, only about 99 acres of the 148-acre SCE property will need to be purchased.

For the purposes of this report, it is assumed that each of the listed properties located within the Central Subarea will need to be purchased in order to be incorporated into the Reserve System. The County EMA HBP already is proceeding with plans to acquire the Santiago Ranch (120 acres) with available funding sources. EMA HB also is considering acquiring the 524-acre Barham Ranch site owned by the OUSD. Assuming a “worst case” situation, where all of the remaining privately-owned lands which do not have an existing commitment for acquisition had to be purchased through the NCCP/HCP, it is estimated that the private ownerships cited above, totaling about 750 acres, could cost between \$8.0 million and \$9.0 million. The non-profit corporation for the reserve also will explore opportunities to obtain these properties at no cost or at a reduced cost.

6.1.4 Cost Summary

Table 6-2 summarizes the estimated annual, ongoing, and one-time acquisition costs of operating and assembling the reserve, and protecting special linkage habitat. These estimates assume that state and federal entities will assume the costs of managing and monitoring the reserve designated lands that they already own.

SECTION 6.2 NCCP/HCP FUNDING

Based on the costs identified in Table 6-2, the recommended NCCP/HCP creates and relies on three funding sources:

- an endowment to fund the adaptive management program within the reserve over the life of the Reserve System, contributed by the same landowners within the subregion who were willing to fund the preparation of the NCCP/HCP plan and transfer land to the Reserve System at no cost;
- a mitigation mechanism that gives non-participating landowners within signatory jurisdictions who are not contributing directly to creation/management of the reserve

**Table 6-2
ESTIMATED SUBREGIONAL NCCP/HCP COSTS**

	Annual Costs Management	Other Costs	Total Cost (20 years)
Administration and Biology	\$500,000	N/A	\$10 million
Restoration and Enhancement	N/A	\$15 to 20 million	\$15 to 20 million*
Acquisitions	N/A	\$ 9 million	\$ 9 million*
Total Estimated Cost Over 20 Years			\$34 to 39 million

* Indicates that restoration/enhancement activities and acquisitions will occur as funding becomes available over the life of the project consistent with priorities set forth in the annual work programs.

a choice of how to mitigate proposed conversions of CSS habitat located outside the Reserve System, with funds supporting restoration/enhancement activities within and outside the reserve, or acquisition of lands (fee title or easements) to add to the reserve or Special Linkages;

- fees collected during interim planning (*e.g.*, from SCE for the Serrano Heights property), prior to approval of the NCCP/HCP; and
- state/federal contributions to fund research, focused species inventories, and acquisitions of designated lands for the reserve or “Special Linkages.”

6.2.1 Creation of an Endowment to Fund Adaptive Management Activities Within the Reserve System

The recommended NCCP/HCP provides for an endowment by landowners within the subregion to implement the management, monitoring, and species inventory adaptive management measures identified in Section 5.4. Endowment funding will be contributed by those landowners (*e.g.*, TCAs, IRWD, METROPOLITAN, and the County) that participated in the funding and formulation of the NCCP/HCP, and that expect to generate significant incidental CSS impacts as a result of future permitted construction of facilities inside and outside the Reserve System. The TCAs, and the County actually will be contributing both land and funding toward the NCCP/HCP management endowment. Because it is contributing

more than 21,000 acres of land to the Reserve System, TIC is not contributing funding to the endowment. The other *participating landowners* in this category are assisting in funding the endowment. Creation of the \$10.6 million, “non-wasting” endowment fund recommended in this chapter would be adequate to support the recommended adaptive management programs (Table 6-3).

Table 6-3
NCCP/HCP FUNDING SOURCES
(for first 20 years of implementation)

ENDOWMENT		\$10.665 million
TCAs	\$6.615 million ¹	
METROPOLITAN	\$1.0 million	
IRWD	\$1.0 million	
COUNTY	\$1.0 million ²	
CHANDIS-SHERMAN	\$0.5 million ³	
SCE	\$0.4 million ⁴	
SCWD	\$0.15 million	
CSS MITIGATION FEES		<u>\$5.0-7.5</u> million
(based on estimated \$50,000 per acre for <u>100 to 150</u> acres occupied)		
STATE/FEDERAL CONTRIBUTIONS		\$32 million
(based on average funding of 1.6 million/yr using available state/federal funding programs)		
TOTAL REVENUES		<u>\$47.665-50.165</u> million

¹ TCAs funds previously committed per ETC, FTC, and SJHTC approvals

² Pass through funds taken from annual federal funding for NCCP implementation (not provided if federal funding is not provided)

³ Following issuance of first grading permit to Chandis-Sherman, in five annual \$100,000 payments

⁴ Contribution related to an “Interim Take” permit and subject to a contractual agreement between SCE and the purchasing entity

6.2.2 Establishment of a Mitigation Fee Program for Non-Reserve Lands

For *non-participating landowners* proposing development activities that would involve Incidental Take of “occupied” gnatcatcher habitat or the habitat occupied by other listed species outside the Reserve System, the NCCP/HCP authorizes Incidental Take in accordance with existing FESA (Section 7 and Section 10 processes) and CESA regulations (Section 2081/2084) covering habitat take and mitigation. However, the NCCP/HCP also provides for an additional mitigation option that is intended to be simpler, less time consuming and more compatible with the subregional habitat conservation strategy than current Section 10/7 FESA and Section 2081/2084 CESA approval processes.

Accordingly, if a *non-participating landowner* with land located outside the reserve and Existing Use Areas in a signatory jurisdiction determines that onsite avoidance is not practicable, and decides not to obtain FESA Section 7/10 or CESA Section 2081/2084 approvals, the NCCP/HCP would allow the *non-participating landowner* to elect to pay a one-time Mitigation Fee to offset Incidental Take of habitat supporting a listed or unlisted CSS “Identified Species.” The CSS species that are covered by the “Mitigation Fee” option are the San Diego woodrat, San Diego horned lizard, coastal cactus wren, coastal California gnatcatcher, orange-throated whiptail lizard, coastal western whiptail lizard, southern California rufous crowned sparrow and red diamond rattlesnake. The Mitigation Fee option does not apply to other non-CSS “Identified Species.” Therefore, under the NCCP/HCP, these landowners would have three options instead of the two options now available under existing law. The three mitigation options for non-participating landowners within signatory jurisdictions are:

- Landowners may elect to avoid conversion of habitat resulting in “take” under FESA or CESA (no mitigation necessary);
- As provided for under existing law, landowners may choose to minimize CSS impacts and mitigate unavoidable impacts onsite or on other lands located outside the reserve through the federal Section 7 or Section 10 processes or, if necessary due to future state listings, through the Section 2081/2084 permit process. If landowners choose this option, they will proceed through the agencies’ normal review, approval, and ongoing monitoring processes.

- Or, owners may choose payment of a mitigation fee to the non-profit management corporation to fund either purchase of designated private lands to be included within the Reserve System and/or habitat restoration and enhancement activities within the Reserve System. If the landowner selects this mitigation option, all mitigation responsibilities for impacts on CSS Identified Species would be fulfilled as soon as the designated funds are accepted by the non-profit management corporation. The mitigation fee under this option would be established by the non-profit corporation.

Where practicable, the preferred approach under FESA will be to avoid impacts to CSS habitat. When impact avoidance is not practicable, the choice of mitigation approaches is up to the landowner and local government; however, the NCCP/HCP recommends option three above.

To implement option three, this NCCP/HCP establishes a CSS mitigation program and provides for the collection of fees to offset Incidental Take on lands located outside the Reserve System and owned by *non-participating landowners* that are not contributing to creation and management of the Reserve System in other significant ways. The mitigation fee program option is not available within “Existing Use Areas” unless: 1) the land is located within a signatory jurisdiction, and 2) the fee option is specifically authorized by USFWS.

Under the mitigation fee program, *a non-participating landowner* may choose to pay the Mitigation Fee in lieu of obtaining state and/or federal approvals for Incidental Take of habitat occupied by the coastal California gnatcatcher or other listed species. A prescribed fee, established by the non-profit reserve management corporation, would be paid to the non-profit corporation by the landowner. The fee will be based upon the acreage of habitat “occupied” by listed species and impacted by proposed actions. The non-profit management corporation will record the amount of impacted occupied and un-occupied habitat and provide the landowner with verification of payment of the Mitigation Fee for impacts to “occupied” habitat. The landowner will present proof of Fee payment to the local government and the local government will issue applicable permits/approvals for the subject project.

The mitigation fee will entail significant economic implications for the non-profit corporation in terms of implementing mitigation measures within the Reserve System and to landowners and the public. Therefore, during the decision-making process for establishing or modifying the amount of the mitigation fee, the non-profit will request input by the scientific community, local governments and the public concerning the actual costs of restoring habitat for the coastal California gnatcatcher and acquiring land at the time the fee is established or modified. The specific procedures for ensuring public involvement will be established by the Board of Directors of the non-profit corporation.

An initial, estimated mitigation fee of \$50,000 per acre of occupied habitat is used only for purposes of illustration. The actual mitigation fee will represent the real costs associated with implementation of the subregional NCCP/HCP and will be adjusted over time to reflect then current costs/conditions. The NCCP/HCP non-profit corporation shall, in accordance with the process described in this section, establish a reasonable nexus between the Take associated with impacts to “occupied” habitat and the amount of the mitigation fee. The mitigation fee will include two components:

- a per acre assessment to cover the average cost of restoring one acre of CSS habitat within the Reserve System; and
- a per acre assessment representing land value, and designed to offset the cost of the following benefits that will accrue to *non-participating landowners*.

Non-participating landowners choosing to take advantage of the mitigation fee approach will be assessed an equitable fee that reflects the costs already being borne by contributing landowners (e.g., transfer of land, funding commitments), and the following benefits of being able to avoid the Section 7 Consultation and Section 10 permit processes:

- dedication costs of contributing landowners for lands that are being transferred to the reserve at no cost;

- benefits to non-contributing landowners resulting from the annual operation of the Reserve System that were made possible by *participating landowner* endowments;
- the ability of non-contributing landowners to avoid imposition of habitat mitigation ratios in excess of 1:1 (e.g., 2:1, 3:1 or greater);
- avoidance of the need for non-contributing landowners to design and implement independent onsite/offsite mitigation programs, including the need for 5 years of monitoring;
- avoidance of the need to purchase offsite lands to support required mitigation, at prices that are certain to escalate over the years.

Assuming that the 100-150 acres of CSS habitat occupied by gnatcatchers known to exist on lands located outside the Reserve System and owned by non-contributing landowners will be developed over the next 20 years, a fee program based on the illustrative fee of \$50,000 per “occupied” acre will generate between \$5 million and \$7.5 million to support restoration and enhancement activities and land acquisitions (Table 6-3). Restoration and enhancement opportunities within the Reserve System are such that, even if all of this non-reserve CSS habitat is developed, the mitigation funding would be effectively used to enhance the function of the Reserve System consistent with FESA and CESA, and the NCCP Planning Guidelines.

In the event that *non-participating landowners* owning non-CSS habitat desire to pay a mitigation fee to the non-profit reserve management corporation as mitigation for impacts to such resources, and agencies with jurisdiction concur with this mitigation approach, the non-profit corporation will accept such fees for purposes of enhancing/restoring comparable habitat resources within the reserve or for acquisition of available lands as additions to the Reserve System. Acceptance of the mitigation fee by the non-profit corporation will be subject to a determination that such fees can be used consistent with the purposes of the NCCP/HCP and implementation of the adaptive management program.

6.2.3 Use of Fees Collected Under the Special 4(d) Rule Interim Take Permit Process

Some permits issued by local governments and approved by the CDFG and USFWS have been conditioned to require the payment of fees toward the NCCP/HCP Endowment, or Conservation Fund. A case in point is the SCE agreement to contribute \$400,000 to the NCCP/HCP management endowment as a condition of approval of an interim take permit for a project located in Serrano Heights, in the Central Subarea. SCE agreed to contribute the \$400,000 in 1995; therefore, these monies will be available during the initial start-up period of NCCP/HCP reserve management. Both Table 6-4 and Table 6-5, which summarize the overall budget and start-up budget, respectively, for reserve management, reflect the SCE contribution.

6.2.4 Funding for Conservation and Scientific Study of the Pacific Pocket Mouse

The Headlands site contains one of the few known populations of the Pacific pocket mouse. The other known pocket mouse populations are located in the County of San Diego, on or adjacent to the Camp Pendleton Marine Corps facility. Under the terms of the NCCP/HCP, Chandis-Sherman and USFWS have agreed to provide matching funds to conduct scientific studies aimed at conserving and enhancing the pocket mouse population that now resides on the Headlands site. Both Chandis-Sherman and USFWS have agreed to contribute \$350,000 over an eight-year period to study and conserve the pocket mouse, providing a total of \$700,000 solely for the purpose of conservation of the pocket mouse. The USFWS contribution shall be subject to the availability of funding. Failure of USFWS to provide funding shall not be grounds for permit revocation. It is understood that these monies can be used to pay for, among other activities, relevant scientific/management measures and studies, maintenance of the temporary preserve on the Headlands site, propagation activities and preparation/restoration of the offsite habitat for translocation of the pocket mice now present on the Headlands site should this be determined to be essential to ensuring survival and recovery of the species. Appropriate use of the funding will be guided by the USFWS Pacific pocket mouse recovery plan that is being prepared concurrent with the NCCP/HCP.

6.2.6 NCCP/HCP Program Funding Summary

As explained in the preceding sections, overall funding for implementation of the actions and requirements contained in the subregional NCCP/HCP will come from a combination of participating NCCP landowners, local, state, and federal agencies/programs and others, including non-profit foundations. Table 6-3 summarizes the revenues expected to be generated by each of these funding categories.

As explained below, timely funding of the Management Endowment in the designated amount is essential in order for the non-profit reserve management corporation to be able to effectively implement the NCCP/HCP. The timing and amount of other funding identified in the NCCP/HCP is not as critical. For instance, the Mitigation Fees collected from *non-participating landowners* will fund important enhancement and restoration activities within the reserve or acquisition of parcels of land. However, such enhancement/restoration or acquisitions will occur on an ongoing basis only after the Fees are collected by the non-profit corporation. Thus, while restoration and enhancement is an essential component of the NCCP/HCP management program, the timing of such activities must remain flexible. State and federal funding provided for under the NCCP/HCP may not be available in a timely manner, or at the level suggested. The NCCP/HCP does not rely on state or federal monies in order to be able to implement the adaptive management or acquisition programs in a manner consistent with FESA, CESA or the NCCP Act/NCCP Planning Guidelines. If state/federal funding does become available, it could significantly enhance both adaptive management within the Reserve System and/or acquisition of additional lands for inclusion within the Reserve System. If it is not available, the NCCP/HCP will nonetheless be in compliance with state and federal laws.

The reserve management endowment will be operated as a “non-wasting” fund. A comparison of the funding program and the estimated program costs indicates that recommended funding measures will be sufficient to implement the policies/programs recommended in this NCCP/HCP. By funding the implementation of the recommended management, reserve creation, and restoration/enhancement measures set forth in this chapter, the subregional NCCP/HCP will be in full compliance with the requirements of FESA and the Section 4(d) Rule, the NCCP Act, CESA, and the NCCP Planning Guidelines.

While the long-term funding appears to adequately support management tasks, it must be understood that the total \$10.665 million endowment fund identified in Table 6-3 will not be available on “day-one” of the newly created subregional Reserve System and non-profit managing entity. Approximately \$4.6 million of the total endowment will be available as of January 1, 1996, the earliest projected date when the non-profit corporation could be created (Table 6-4). The \$4.6 million that will be available January 1, 1996, will have resulted from the SCE contribution and the first portions of the required installment payments by the TCAs to the Conservation Funds established under the terms of the adopted USFWS biological opinions for the three transportation corridors located within the subregion. The remaining \$5.4 million of the \$10.0 million management endowment will be provided by the cited landowner contributors in phased installments between 1996 and January 1, 1999 (Table 6-4).

Table 6-4 summarizes the expected phasing of funding for the reserve management endowment. Under the NCCP/HCP funding program, and as indicated in this tabular summary, the endowment fund would grow from \$4.6 million in January of 1996 to \$9.0 million by January, 1999, as installment payments are made by each of the *participating landowners* are identified in Table 6-4. The TCAs installment payments already are established under the terms of the biological opinions for the respective transportation corridors. For each of the remaining landowner participants, four (4) payments each of \$250,000 will commence January 1, 1997, and end January 1, 2000. Based on this funding strategy, the entire reserve management endowment would be funded by January 1, 2000.

Because the endowment will not be fully funded in year one of the non-profit corporation's existence, it will be necessary to phase the start up and funding for the non-profit management corporation. Therefore, this NCCP/HCP reflects the need to commence a “phased adaptive management program” that recognizes funding limits during years one through four of the program. Based on the funding installments cited in Table 6-4, the annual management budgets that will be available for reserve management during the first four years of the NCCP/HCP implementation are shown in Table 6-5. The projections of “annual funding available” in Table 6-5 reflect a growing “non-wasting endowment” with a five percent net return.

The start up period covering the first four years of the NCCP/HCP will provide funding adequate to commence the phased, orderly implementation of the adaptive management program within the subregional Reserve System. Specific management efforts for the first

year will focus on establishing the non-profit reserve management corporation. Accordingly, the available funding for the first year will focus on start up activities rather than active monitoring/management. A Board of Directors will be formed and the newly created Board of Directors will select an Executive Director as soon as practicable to direct/coordinate the completion of the implementation key tasks outlined in the Implementation Agreement. The Assistant/Coordinator position within the non-profit organization will not be filled until after the successful 1997 and 1998 bond sales by TCAs.

In addition to completing start up tasks, the initial year's effort will include preparation of the first annual adaptive management work program. This work program will be implemented during the second year of the NCCP/HCP and updated annually thereafter by the non-profit management corporation.

6.2.7 Use of Funds Following Termination of the NCCP/HCP Implementation Agreement

After the term of this NCCP/HCP and Implementation Agreement, as set forth in Section 11.1 of the Implementation Agreement, the NCCP/HCP non-profit corporation shall continue to use the income from the non-wasting endowment for management of the Reserve System. If the non-profit corporation dissolves prior to the end of the term, the endowment shall be managed by the County pursuant to Section 5.1.1 of the Implementation Agreement. If, at or after the end of the term of the Agreement the NCCP/HCP non-profit corporation dissolves or the County relinquishes its management role under Section 5.1.1, the endowment shall be disbursed consistent with the purposes of the NCCP/HCP, in a manner approved by CDFG and USFWS.

SECTION 6.3 NCCP/HCP SUBREGIONAL IMPLEMENTATION PROGRAM

Part IV of the overall Central and Coastal Subregion NCCP/HCP document contains the subregional Implementation Agreement. The Agreement has been signed by the participating local, state and federal agencies, and the landowners identified in Part I (Introduction) and earlier in this NCCP/HCP. The Implementation Agreement sets forth the

responsibilities and roles of participating entities during implementation of the policies and programs set forth in the NCCP/HCP, and other substantive measures required pursuant to Section 10 of FESA, the CESA and NCCP Act.

Tab placeholder.

CHAPTER 7: INCIDENTAL TAKE AND MINIMIZATION ACTIONS

This Chapter summarizes the potential loss of CSS habitat and authorized Incidental Take that would be permitted by the NCCP/HCP within the Central and Coastal NCCP Subregion. In addition, potential impacts to non-CSS habitats designated as “covered” habitats under the NCCP/HCP that could result from the development activities of “*participating landowners*” are summarized. Future listings of species under CESA or FESA will result in the issuance of Section 10(a) or 2081 permits by CDFG and USFWS to “*participating landowners*” for these “covered” habitats.

Chapter Overview

Section 7.1 provides an overview of the federal regulatory framework relating to the Incidental Take of gnatcatcher habitat associated with the NCCP/HCP.

Section 7.2 quantifies CSS impacts and authorized “Incidental Take” permitted under this NCCP/HCP. It should be noted that the locations of bird sites shown on figures in this document are based on previous NCCP field surveys conducted in 1991/1992 and 1994. Both the location and number of birds sites vary from year to year. Under natural conditions, individual birds move their nests frequently and the subregional bird population fluctuates significantly from year to year in response to changing climate, population dynamics, and natural/man made events such as fires. All gnatcatcher habitat located in areas that are designated “other non-reserve” areas on Figure 12 are authorized for future Incidental Take consistent with the provisions of the NCCP/HCP. If the number of gnatcatcher sites increases within these areas based on future surveys when compared with the NCCP bird counts cited herein, future activities in such areas are still considered mitigated and authorized if they otherwise conform to the terms of this NCCP/HCP.

Section 7.3 describes the regulatory approach for non-participating ownerships that contain gnatcatcher habitat within designated Existing Use Areas designated by the NCCP/HCP. Incidental Take is not authorized by the NCCP/HCP for these lands.

Section 7.4 briefly summarizes the NCCP/HCP approach to future take within the North Ranch Policy Plan Area.

Section 7.5 summarizes potential loss under the NCCP/HCP of “covered” non-CSS habitats by “*participating landowners*” as a result of future development activities on lands owned as of the effective date of the NCCP/HCP.

Section 7.6 summarizes historic and NCCP/HCP-related actions that have been and will be taken to “minimize” CSS impacts and Incidental Take and impacts to non-CSS “covered” habitats within the subregion consistent with FESA requirements. A more detailed description of historic and NCCP/HCP minimization measures, including “construction-related measures” that are directed toward minimizing direct impacts of allowable Incidental Take on a site-by-site basis, is presented in Chapter 5 of the Joint EIR/EIS.

SECTION 7.1 OVERVIEW OF THE FEDERAL REGULATORY FRAMEWORK

The FESA Section 10(a)(1)(B) regulations require that authorized Take be “incidental” to activities that otherwise would be lawful. Section 10 further requires that a permit applicant demonstrate how the habitat conservation plan minimizes and mitigates the impacts of Incidental Take to the maximum extent practicable.

Take authorized under the NCCP/HCP has been determined to be incidental to otherwise lawful purposes. Incidental Take identified in the NCCP/HCP will occur as a result of: (1) construction activities undertaken pursuant to local government authorizations; (2) public utilities and public recreational activities undertaken pursuant to authorization of the particular public utility or public agency; and (3) ongoing maintenance of existing and future permitted facilities.

SECTION 7.2 INCIDENTAL TAKE AND CSS IMPACTS

Four separate categories of potential Incidental Take are covered under this NCCP/HCP:

- three categories of Take for “*participating landowners*”,
 - Incidental Take related to permitted uses within the Reserve System;
 - Incidental Take on lands located within special linkage areas; and

- Incidental Take resulting from activities outside the Reserve System and Special Linkages;
- for “*non-participating landowners*”, Incidental Take on lands located outside the reserve, Special Linkage and Existing Use Areas will be addressed through alternative measures involving either Section 7/10 or Section 2081/2084 permits, or the NCCP mitigation fee program discussed in Chapter 6.

Summary

Table 7-1 summarizes the Incidental Take authorized by the NCCP/HCP. The NCCP/HCP authorizes the “Take” of 7,444 acres of CSS habitat containing 121 previously surveyed gnatcatcher sites. Although the number of gnatcatcher sites that could be impacted by future development is reported, the “Incidental Take” authorized by the NCCP/HCP is framed in terms of CSS acreage.

The terms “Incidental Take” and “Incidental Take of CSS habitat” are used as shorthand references to habitat conversion allowed by the NCCP/HCP. The following analysis refers to “occupied CSS” and the number of gnatcatcher sites in order to provide a “point in time” quantitative and qualitative assessment of the significance of the CSS habitat protected and the habitat authorized for conversion. Due to dispersal patterns and periodic fluctuations in “Identified Species” population locations and numbers, the term “Incidental Take authorized” includes all CSS habitat potentially impacted by “*participating landowners*,” regardless of the number of “Identified Species” occupying the area to be converted at the time habitat conversion actually occurs.

For “*participating landowners*”, the NCCP/HCP authorizes the conversion of a total of 5,336 acres of CSS habitat inside and outside the Reserve System. This habitat conversion would constitute “Take” under the NCCP/HCP definition. The total acreage subject to future conversion includes 512 acres of CSS within the Reserve System, 4,718 acres outside the reserve and 106 acres in Special Linkage Areas. The total CSS habitat subject to conversion also includes 1,101 acres of “occupied” CSS supporting 110 gnatcatcher surveyed sites.

For “*non-participating landowners*” the regulatory nexus under current law extends only to those activities resulting in “harm” to state- or federally-listed species. The NCCP/HCP

identifies a total of 2,108 acres of CSS habitat that could be converted as a result of development activities by “*non-participating landowners*”. The CSS habitat includes 116 acres of CSS supporting 11 previously surveyed gnatcatcher sites. “Take” for “*non-participating landowners*” is limited to CSS habitat that is currently occupied by the gnatcatcher or other “identified” listed species. This limitation applies because: (1) such landowners are subject to CESA/FESA regulation only if their activities are prohibited by CESA/FESA; and (2) it is not known which landowners will actually elect to use the Mitigation Fee option instead of pursuing the typical FESA Section 7/Section 10 (or CESA 2081) processes.

If a *non-participating landowner with land in a signatory jurisdiction* does elect to use the Mitigation Fee option provided for by the NCCP/HCP, regulatory coverage will extend to all CSS “Identified Species” designated by the NCCP/HCP found on the project site (refer to Chapter 4 and the Implementation Agreement for a list of “CSS species”). This regulatory coverage is appropriate because the collected fees will go to the non-profit reserve management corporation to be used for enhancement/restoration activities benefiting CSS “Identified Species” under the reserve adaptive management program.

The following discussions, tables, and Figures 29 and 30 identify the Incidental Take that will be authorized for “*participating landowners*” and “*non-participating landowners*”, and where the authorized Take will occur.

7.2.1 Authorized Incidental Take by *Participating Landowners*

Incidental Take Authorized Within the Habitat Reserve

Within the 37,378-acre Reserve System that will be created as a result of the NCCP/HCP, a total of 512 acres of CSS habitat could be impacted as a result of activities permitted by the NCCP/HCP. All of this loss of CSS acreage (refer to the itemized summary in Table 7-2) is related to activities undertaken by “participating” agencies and landowners.

These activities and uses result in the Incidental Take of habitat supporting nine identified gnatcatcher sites and impact an estimated 95.3 acres of occupied habitat. The 512 acres of CSS habitat impact and Incidental Take of nine identified gnatcatcher sites (Table 7-2 and Figures 29 and 30) is authorized based on the mitigation provided by the creation of the permanent

**Table 7-1
SUMMARY OF AUTHORIZED TAKE WITHIN THE CENTRAL
AND COASTAL NCCP SUBREGION**

OWNERSHIP/LOCATION	Total CSS ACRES ⁵	OCCUPIED CSS ACRES	GNATCATCHER SITES ¹
1. "participating landowners"			
Habitat Reserve	512	95	9
Special Linkage Areas	106 ²	40	4 ³
Non-Reserve Areas	4,718	966	97
SUBTOTAL	5,336	1,101	110
2. "non-participating landowners" ³	2,108	116	11
TOTAL AUTHORIZED TAKE	7,444	1,217	121

1 Number of gnatcatcher sites in impacted CSS habitat may change over time.

2 Includes golf courses (66 acres), landfills (30 acres) and roads (10 acres).

3 Estimated impact on habitat supporting gnatcatchers in the Shady Canyon and Sand Canyon due to golf course construction.

4 Does not include habitat within "Existing Use Areas."

5 Includes CSS Take previously authorized/mitigated under the 4(d) Interim Take and Section 7 processes.

**Table 7-2
CSS IMPACTS AND INCIDENTAL TAKE BY PARTICIPATING
LANDOWNERS WITHIN THE HABITAT RESERVE SYSTEM**

LANDOWNER	GNATCATCHER SITE IMPACTS ¹	CSS ACRES IMPACTED	OCCUPIED ACRES IMPACTED ²
IRWD	0	60.0	0
TIC	0	2	0
METROPOLITAN	1	45.3	2.3
SCE	0	2.4	0
UCI	2	3.0	3
SCWD	0	9	0
COUNTY OF ORANGE			
FLOOD	0	30	0
ROAD	1	174.0	15
HARBORS, BEACHES, PARKS	5	150.0	75
LANDFILLS	0	36	0
TOTAL IMPACTS	9	511.7	95.3

1 Number of impacted gnatcatcher sites in CSS habitat may change over time.

2 Preliminary acreage pending completion of detailed master plans for proposed projects.

**Table 7-3
GNATCATCHER SITES AND CSS ACREAGE WITHIN
SPECIAL LINKAGE AREAS**

SPECIAL LINKAGE	<u>GNATCATCHER SITES¹</u>	<u>CSS ACRES</u>	<u>OCCUPIED CSS ACRES</u>	<u>TOTAL ACRES</u>
Limestone Creek	0	64	0	223
SCE Easement/Anaheim	4	51	20	135
Frank Bowerman Landfill	0	38	0	173
Sand Canyon	7 ²	56	25	296
Shady Canyon	6 ²	117	90	357
Wishbone Ridge	0	18	0	98
Coyote Landfill	0	1	0	219
El Capitan	0	0	0	13
Pelican Hill	0	67	0	81
Pelican Hill G.C.	3	37	25	311
TOTALS	20	449	160	1,906
	SITES	ACRES	ACRES	ACRES

1 Number of impacted gnatcatcher sites in CSS habitat may change over time.

2 Incidental Take is authorized for habitat supporting two identified gnatcatcher sites and related habitat adjacent to a proposed golf course in Shady Canyon, and habitat supporting two identified gnatcatcher sites adjacent to a proposed golf course in Sand Canyon.

habitat Reserve System and implementation of the “adaptive management” program within the Reserve System.

Incidental Take Authorized Within Special Linkages

Special linkage areas are designated areas located outside the boundary of the permanent habitat Reserve System. Special Linkages are located within “participating” ownerships. These Special Linkages are designated because, although they are not necessary components of the Reserve System, they provide supplemental connectivity and/or habitat that will enhance the function of the Reserve System. As indicated in Table 7-3 and Figure 29, 1,906 acres within the subregion are included within Special Linkage Areas. Table 7-3 and Figures 29 and 30 identify the location of gnatcatcher sites and CSS habitat within these areas. A total of 20 gnatcatcher sites, located on 160 acres of occupied habitat, are included within these Special Linkages .

The NCCP/HCP authorizes Incidental Take of 106 acres of CSS containing four identified gnatcatcher sites within Special Linkages owned by “*participating landowners*”. These habitats subject to authorized Take are located within portions of the Sand Canyon, Shady Canyon,

Limestone Creek and Frank R. Bowerman Special Linkages. The Take is related to the proposed construction of golf courses, a road and landfill uses. For these “*participating landowners*” (i.e., County EMA HBP and IRWD for Sand Canyon, and TIC for Shady Canyon and Limestone Creek), land contributions to the Reserve System and funding for NCCP planning have been determined to adequately mitigate authorized Incidental Take within the Special Linkages. Other identified gnatcatcher sites located on “*participating landowner*” property are not threatened by future development and Incidental Take is not authorized for these sites.

Non-participating owners of occupied habitat within Existing Use Areas are not authorized to Take occupied habitat under the NCCP/HCP and will be treated in the manner described below in Section 7.3.

Authorized Incidental Take on Other Non-Reserve Lands For *Participating Landowners*

“*Participating Landowners*” and public agencies are proposing activities that will impact CSS and “Target Species” both inside and outside the Reserve System. On lands located outside the Reserve System, Incidental Take related to the actions of the contributing landowners could impact 4,718 acres of CSS (refer to Table 7-4 and figures 29 and 30). Within these affected lands, habitat supporting 97 identified gnatcatcher sites could be impacted.

As noted in the introduction to this Chapter, the number of gnatcatcher sites occurring within the subregion will fluctuate over time. The 97 identified sites located outside the reserve area, and authorized for Incidental Take by the NCCP/HCP, may not represent all of the gnatcatchers occurring on the subject development sites at the time of actual development. Because of the potential for dispersal and population shifts over time, it is possible that, at a future date, additional gnatcatchers may be sited in areas subject to development under this NCCP/HCP. If additional gnatcatchers do disperse onto such non-reserve lands owned by contributing landowners at the time the NCCP/HCP Implementation Agreement is signed, development on these lands shall be considered fully mitigated for purposes of gnatcatcher/CSS impacts and no additional mitigation shall be required.

7.2.2 Incidental Take Authorized for Non-Participating Agencies and Landowners that Will Be Mitigated Through Alternative Measures (Section 7 or 10 Permits or the Optional Mitigation Fees)

Authorization and Mitigation of Incidental Take and Loss of CSS by Alternative Measures

Unlike the first categories of Incidental Take, Incidental Take resulting from impacts to *non-participating landowner* property located outside the Reserve System is not addressed by creation of the Reserve System and implementation of the management program. Under existing law, these impacts to occupied CSS habitat must be either avoided or fully mitigated by the “*non-participating landowners*”. At the discretion of the landowner, mitigation for such Incidental Take on these lands will be addressed in one of the following ways.

- As provided under existing law landowners may elect to obtain either a Section 7 approval or Section 10 permits from the USFWS, and/or Section 2081/2084 permits from CDFG in the event a species is subsequently listed by the state. If the landowners choose this option, they will proceed through the agencies’ normal review, approval, and ongoing monitoring processes.
- Or, landowners may exercise the Mitigation Fee option under the NCCP/HCP and choose to pay a fee to the reserve non-profit corporation based on the acreage of CSS considered to be occupied by gnatcatchers and impacted by the proposed activity. If the landowner selects this mitigation option, all mitigation responsibilities are fulfilled as soon as the designated funds are accepted by the non-profit managing authority. The non-profit corporation will use these fees to fund restoration/enhancement activities within the reserve, or to purchase additional reserve lands.

As indicated in Chapter 6, the mitigation fee under this option will be established by the non-profit management corporation and, as appropriate, periodically adjusted to reflect the actual costs of restoration and land.

Amount of CSS Impact and Incidental Take to Be Addressed by Alternative Measures

In addition to the loss of CSS habitat and Incidental Take authorized for participating public agencies and landowners, the NCCP/HCP authorizes the conversion of 2,108 acres of CSS located on non-participating ownerships outside the Reserve System (Figure 30). As indicated

in Table 7-5 and Figure 29, this Incidental Take of CSS impacts could result in the loss of 11 identified gnatcatcher sites occupying 116 acres of CSS habitat.

In the Central Subarea, eight gnatcatcher sites identified during NCCP surveys are subject to Incidental Take. Five of these gnatcatcher sites are located in the City of Anaheim on city-owned and private lands, and three gnatcatcher sites are on private lands in the City of Orange.

Table 7-4
CSS IMPACTS AND INCIDENTAL TAKE BY PARTICIPATING
LANDOWNERS OUTSIDE THE HABITAT RESERVE SYSTEM

	Total CSS Acres ¹	Gnatcatcher Sites	Occupied CSS Acres ^{2,3}
The Irvine Company			
Central Subarea	2955	38	351
Coastal Subarea	<u>1405</u>	<u>50</u>	<u>585</u>
Subtotal (TIC)	4360	88	936
Irvine Ranch Water District			
Central Subarea	12	0	0
Coastal Subarea	<u>15</u>	<u>0</u>	<u>0</u>
Subtotal (IRWD)	27	0	0
Metropolitan Water District (Central Subarea)	13	0	0
Chandis Sherman (Coastal Subarea)	30	9	30
County of Orange (Central & Coastal)			
Road	238	0	0
HBP	10	0	0
Flood	<u>40</u>	<u>0</u>	<u>0</u>
Subtotal (County)	<u>288</u>	<u>0</u>	<u>0</u>
Totals	4718	97	966

1 Includes CSS Take previously authorized/mitigated under the 4(d) Interim Take and Section 7 processes.

2 Excludes "Existing Use Areas."

3 Based on 15 acres/gnatcatcher site unless CSS polygons clearly demonstrate small patch size.

In the Coastal Subarea, habitat supporting three (3) gnatcatcher sites are subject to future Incidental Take. Two of the sites are located in the City of Dana Point on remnant patches of CSS in the northern portion of the City. The third gnatcatcher site is

located on the southern edge of Aliso Viejo, adjacent to the Aliso-Wood Canyon Regional Park (Figure 29).

SECTION 7.3 REGULATION OF EXISTING USE AREAS

Regulatory Approach for “non-participating landowners”

In Existing Use Areas, the NCCP/HCP maintains habitat values and uses that existed prior to the gnatcatcher listing. Accordingly, the NCCP/HCP does not authorize Incidental Take resulting from the conversion of habitat occupied by coastal California gnatcatchers. So long as existing uses are maintained in these areas, no additional regulation or habitat management will be required. However, if changes in use are proposed with the potential to “harm” gnatcatchers (as defined in FESA regulations), the project proponent would be required to obtain approvals from the USFWS and affected local jurisdictions in the same way as is presently required in areas subject the gnatcatcher listing.

“Non-participating landowners” with lands located within a signatory jurisdiction that are considering a change in land uses that would have the potential to impact occupied CSS habitat have three options:

- on-site avoidance of conversion of habitat that would constitute Incidental Take of gnatcatcher habitat; or
- mitigation of Incidental Take through a Section 7 or Section 10 process; or
- with USFWS approval, payment of the mitigation fee established by the NCCP/HCP non-profit corporation for impacted occupied CSS habitat.

Under all of these approaches, permitted Incidental Take within Existing Use Areas will be mitigated to the satisfaction of the USFWS, and net long-term habitat values within the subregion will be maintained.

Habitat Subject to USFWS Regulation

Table 7-6 summarizes the amount of CSS habitat and gnatcatcher sites contained within Existing Use Areas. Available information indicates that the majority of the gnatcatcher habitat and related bird sites located within the Existing Use Areas are not subject to threats

of Incidental Take within the foreseeable future. However, the degree of threat to occupied habitat within these special linkage and Existing Use Areas varies. About 1,103 acres of CSS habitat containing 87 gnatcatcher sites is located on non-participating ownerships within Existing Use Areas.

Existing Use Areas in the City of Anaheim contain 450 acres of CSS and 20 known gnatcatcher sites. In the City of Orange, a total of 181 acres of CSS supports 26 gnatcatcher sites within Existing Use Areas designated by the NCCP/HCP. In Orange most of this habitat is contained in common areas owned by homeowner or community associations protected by covenants and open space zoning, and is not threatened by future development proposals. However, one significant patch within the City of Orange is on or adjacent to a private parcel occupied by a restaurant. This patch supports eight gnatcatcher sites. The degree of threat to this parcel is not clear but it appears to be limited because of the extremely steep slopes which surround the hilltop restaurant. The terrain would appear to minimize the prospects for future development. Another habitat patch supports two gnatcatcher sites. It is located adjacent to an existing church-owned cemetery that is proposed for expansion.

In the Coastal Subarea two Existing Use Areas contain occupied gnatcatcher habitat. Approximately 124 acres of CSS supporting 29 gnatcatcher sites are included within Turtle Rock (City of Irvine) common open space that is owned by homeowner associations. These lands were reserved in perpetuity by the City as a condition of approval of residential development and they currently are protected by covenants and/or open space zoning. In the City of Laguna Niguel, the lands owned by Robert O'Hill and lands in and adjacent to Salt Creek Regional Park contain 164 acres of CSS and 12 gnatcatcher sites within designated Existing Use Areas. The CSS habitat within the O'Hill property could be impacted by a large-lot residential development plan that is now under consideration.

SECTION 7.4 FUTURE TAKE WITHIN THE NORTH RANCH POLICY PLAN AREA

As explained previously in Section 4.4, the NCCP/HCP does not authorize Incidental Take of occupied CSS gnatcatcher habitat within the North Ranch Area. Therefore, the CSS habitat that supports the five gnatcatcher sites located within the North Ranch Area will be treated in the same manner as occupied CSS habitat located within designated Existing Use Areas (see Section 7.3). Any future proposals to convert occupied CSS habitat within the North Ranch Area will require approval by USFWS in addition to local government approvals.

**Table 7-5
INCIDENTAL TAKE BY NON-PARTICIPATING
AGENCIES AND LANDOWNERS BY JURISDICTION**

	TOTAL CSS Acres ¹	GNATCATCHER SITES	OCCUPIED HABITAT AC.
CENTRAL SUBAREA			
CITY OF ANAHEIM		5	53
CITY OF ORANGE		3	23
Subtotals		8 Sites	76 AC.
COASTAL SUBAREA			
COUNTY/ALISO VIEJO		1	15
DANA POINT		2	25
Subtotals		3 Sites	40 AC.
Total Take	2,108	11 Sites	116 AC.

1 Includes CSS Take previously authorized/mitigated under the 4(d) Interim Take and Section 7 processes.

**Table 7-6
GNATCATCHER SITES AND CSS ACREAGE WITHIN EXISTING USE AREAS**

EXISTING USE AREA	GNATCATCHER SITES ¹	CSS ACRES	OCCUPIED CSS ACRES ²	TOTAL ACRES
City of Anaheim	20 ³	450	186	1,202
City of Orange	26	181	140	392
Cooks Corner	0	28	0	59
San Juan Capistrano	0	0	0	52
Laguna Niguel	12	164	150	744
Laguna Beach	0	113	0	497
Irvine/Turtle Rock	29	132	124	320
Santa Ana River Mouth	N/A ³	35	0 ²	530
Grand Total	87	1103	600	3,796

1 The number of gnatcatcher sites will vary from year to year.

2 Occupied acreage estimates based on a conservative 15-acre/site unless specific polygon data dictates otherwise.

3 "Target Species" survey data not available at this time for the Coal (Cypress) Canyon property and Santa Ana River Mouth.

SECTION 7.5 AUTHORIZED LOSS OF NON-CSS HABITATS DESIGNATED AS COVERED HABITATS UNDER THE NCCP/HCP

In addition to the regulatory coverage for the “target and identified” species described above, the NCCP/HCP contains assurances by CDFG and USFWS to *participating landowners* relating to future impacts of planned activities on species other than “target and identified” species. These regulatory assurances are set forth and explained in Chapter 4 and in the Implementation Agreement (Section 8.3.4).

Within properties owned by “*participating landowners*” as of the effective date of the NCCP/HCP, habitat types designated as “covered habitats” under the NCCP/HCP are (refer to Figure 69):

- oak woodlands (205 acres located on participating lands);
- Tecate cypress forest (3 acres);
- cliff and rock (28 acres); and
- within the Coastal Subarea only, chaparral (260 acres).

The total area included in “covered” habitats under the NCCP/HCP that could be impacted by future development is 496 acres. Based on the provisions of the NCCP/HCP, with the exception of the species included in Table 4-10, USFWS and CDFG will issue Section 10 and/or Section 2081 permits to “*participating landowners*” concurrent with the listing of species located within the “covered” habitats for planned activities carried out by “*participating landowners*” in accordance with the NCCP/HCP.

It is also important to understand what the term “habitat coverage” means under the provisions of the Implementation Agreement. For species dependent upon or associated with CSS, oak woodlands, cliff and rock, Tecate Cypress and Coastal subarea chaparral, this does not mean that there will be no measures taken to mitigate or otherwise address impacts on these habitat types outside the Reserve System. Instead, the Implementation Agreement assurances provide that future

costs, in the form of wildlife management actions (e.g., species relocation) monetary compensation or land above and beyond the NCCP/HCP provisions for protecting these habitats, if any, necessary to enable the issuance of Take authorizations to participating landowners for future listings will be borne by the USFWS within the limits of its legal authority. The USFWS has assumed the responsibility for the future costs and actions involving land or compensation required, if any, to satisfy Section 10(a)(1)(B) requirements in the event such a species is listed.

The USFWS finds that programmatic elements of the NCCP/HCP further the protection of important ecosystems and in so doing likely reduce the need for listing species dependent upon or associated with the foregoing habitats; these elements of the NCCP/HCP include the NCCP/HCP reserve design and land commitments, the certainty of Adaptive Management funding, the early commitment of private lands to Adaptive Management prior to dedication and the commitments to habitat protection extending beyond the term of the Section 10(a) Permit (Implementation Agreement, Section 8.3.4(c), p. 88).

Thus in light of the extensive protection provided by the NCCP/HCP subregional plan to the above-enumerated habitat types receiving “habitat coverage,” and the participating landowners’ major contribution to ecosystem biodiversity in a manner consistent with the NCCP Conservation Guidelines, the USFWS has determined that any remaining measures necessary to meet statutory and regulatory requirements for the issuance of Section 10(a) permits will be the responsibility of the USFWS. Further, the Implementation Agreement has been modified to address circumstances under which USFWS would not issue a Section 10(a) permit due to its inability to make the jeopardy finding required by Section 10(a) of FESA. In this way, the USFWS intends to carry out the Congressional intent

set forth in the Legislative History of the 1982 FESA Amendments encouraging “creative partnerships between the public and private sectors” as a means of carrying out FESA’s goals of assuring ecosystem protection, in this instance the protection of the Central/Coastal subregion CSS mosaic of habitat types.

Finally, it should be noted that, both in absolute terms and in percentage of habitat provided Reserve System protection, the areal extent of covered habitats is relatively small and restricted to lands owned by *participating landowners*. Out of a potential 5,157 acres of “covered habitats” within the subregional plan area other than CSS (CSS acreage is examined in detail in Chapter 6 of the FEIR/FEIS), only 496 acres of habitat are treated as “covered habitats.” Over 90 percent of the habitat types are protected within the NCCP Reserve System under the responsibilities assumed by the *participating landowners*, with approximately 8.5 percent of the total of these four types to be treated as “covered habitats” subject to the responsibilities assigned to the USFWS pursuant to the Implementation Agreement. These totals do not include habitat within the North Ranch Policy Plan area that are addressed through the special policies for the North Ranch.

At a policy level, the USFWS believes that the sharing of responsibility (*i.e.*, the *participating landowners* have assumed the responsibility for protecting 4,721 non-CSS acres of these habitat types within the Reserve System and the USFWS will assume the responsibility for any additional measures required on the 496 acres owned by the *participating landowners* outside the Reserve System) furthers the Congressional intent, as expressed in the purpose clause of FESA and in the Legislative History of the Section 10 HCP provisions, in favor of efforts by the USFWS to provide incentives for broad, ecosystem-level protection and management. The USFWS is willing to accept the future costs of actions required to enable issuance of 10(a) permits because their analysis of the NCCP/HCP protection afforded to the covered habitats (see above acreage comparison of

“covered habitat acreage” and Reserve System acreage) is sufficient to conclude that the likelihood that significant costs will be required to provide additional mitigation is minimal. Further, master plan level EIRs already require habitat enhancement measures that will be carried out within the Reserve System, thereby offsetting, in significant measure, loss of habitat value on lands owned by participating landowners outside the Reserve System.

**SECTION 7.6 SUMMARY OF MINIMIZATION OF IMPACTS THROUGH
PAST LAND USE ACTIONS AND NCCP/HCP ACTIONS
RESULTING IN AVOIDANCE OR REDUCTION OF
DEVELOPMENT IMPACTS ON TARGET AND IDENTIFIED
SPECIES**

Chapter 5 of the EIR/EIS contains a detailed discussion of the past and NCCP/HCP actions to minimize and avoid Incidental Take within the subregion. This section provides a brief overview of the "minimization and avoidance" requirements as addressed by FESA.

FESA requires a showing of the steps that have been Taken or will be Taken to "minimize" the impacts of Incidental Take to the maximum extent practicable. The term "minimize" connotes those actions which have been Taken to avoid, or otherwise reduce to the maximum extent practicable, actions prohibited by Section 9 of the federal ESA. According to the Federal Register discussion of the gnatcatcher final rule, the Section 10(a)(1)(B) requirement to "minimize" impacts includes the following:

Compliance with this standard involves a planning strategy that emphasizes avoidance of impacts to the gnatcatcher (and potentially other sensitive species that may become listed), [and] provides measures to minimize potential impacts by modifying proposed activities (e.g., clustering urban development or siting such activities in low quality habitat) (Federal Register, Vol 58, No. 236 - December 10, 1993, at p. 65089)

Thus, in addressing the requirements of Section 10(a)(1)(B) of FESA, it is important to assess the extent to which past and present planning activities in the NCCP subregion have avoided impacts on significant CSS habitat.

For purposes of the NCCP planning program, the Section 10 requirement for minimization of impacts on habitat is addressed primarily through planning for a subregional Reserve System that meets the substantive reserve design criteria of the NCCP Conservation Guidelines. The EA for the 4(d) Rule/Interim Take regulations for the gnatcatcher summarized the primary threats to the survival of the gnatcatcher as follows:

The present threatened status of the gnatcatcher is the result of a variety of effects: (1) habitat area has been reduced by urbanization and agricultural conversion leading to a lower population size; (2) habitat fragmentation hinders dispersal and increases predation and nest parasitism by the brown headed cowbird...leading to lower population in size, lower recolonization rates and less effective utilization of remaining habitat; and (3) habitat quality has been degraded by fire, invasive exotic species, off-road vehicles, and over-grazing . . .

This habitat-based threat to the gnatcatcher was recognized by the SRP in its recommended conservation strategy for CSS. The SRP recommended designation of a reserve network which would preserve habitat area, maintain connectivity, and manage threats to habitat quality in a way that no net loss of habitat value for the gnatcatcher would occur. Land to be incorporated into the reserve network would be selected on the basis of size, location and quality. Land in small patches, isolated and degraded by urban land uses would be of little long term value to a CSS reserve network. (Draft EA, August 2, 1993, at p. 13)

Thus, as emphasized in the EA for the gnatcatcher 4(d) Rule, "the habitat based threat" is the central consideration in assuring the continued survival and recovery of one of the NCCP "Target Species" - the gnatcatcher. As noted in the above excerpt from the 4(d) Rule EA, the configuration of potential reserve lands is critical to the SRP's recommended conservation strategy for CSS - "Land to be incorporated into the reserve network would be selected on the basis of size, location and quality. Land in small patches, isolated and degraded by urban land uses would be of little long term value to a CSS reserve network."

Due to the influence of large-scale land ownership in central Orange County, the concerted actions of state and local governments and the interest of concerned citizens, a series of planning and governmental acquisition programs have affected the vast majority of the existing coastal-sage scrub habitat in central Orange County. Virtually all of the planning and acquisition activities involving regional-scale open space in central Orange County have been

oriented toward protecting a broad range of habitat values in large blocks of contiguous habitat ultimately to be placed in public ownership. While significant portions of the overall Southern California NCCP coastal sage scrub planning region are characterized by severe habitat fragmentation, past efforts in Orange County to avoid habitat impacts through large-scale master planning and public acquisition programs have resulted in a "planning landscape" that contains the core of coastal sage scrub reserves for both the Central and Coastal planning areas. These prior actions reflect conscious efforts to protect regional open space system that has effectively preserved planning and habitat management options already foreclosed in many other subregions of the NCCP planning program.

As noted in Chapter 3, the NCCP/HCP reserve design planning effort has considered prior planning efforts as a step toward determining what reserve design and management measures would be necessary to meet the objectives of the 4 (d) Rule and the NCCP statute in relation to the long-term protection of habitat necessary to sustain the "target/identified" species. In turn, when it was determined that additional lands would need to be added to the pre-existing regional open space commitments, the NCCP/HCP identified specific areas to be included in the subregional Reserve System.

Prior land use and coastal planning actions provided a firm foundation and served to facilitate reserve design efforts within the Central and Coastal Subregion. In combination with the NCCP/HCP reserve design and the policies and other measures incorporated into the recommended NCCP/HCP "adaptive management" program, these prior actions will have contributed to "minimizing" impacts within the subregion by:

- avoiding substantial direct and cumulative impacts on CSS habitat;
- allowing for greater certainty of reserve design by providing large-scale blocks of regional open space;
- providing a diverse geographic and biological basis for NCCP/HCP planning, that is, a large subregional-scale natural habitat mosaic with representative elements in terms of elevation, coastal versus inland location, and a complete range of vegetative communities existing within the subregion;

- allowing NCCP/HCP habitat planning to take advantage of previous efforts and to address the need to selectively add core habitat elements (instead of having to create an entire regional open space system from scratch);
- enabling the NCCP/HCP process to increase attention on smaller-scale additions that are critical to biological connectivity and biodiversity within the subregion;
- allowing for greater emphasis on the formulation of an adaptive management program than would be the case in subregions where large-scale acquisition of reserve lands would, of necessity, be the first priority; and
- focusing on funding on an adaptive management program that can be implemented early in the life of the Reserve System because the substantial components of the subregional Reserve System will be in place at the outset of NCCP implementation (through a combination of lands already either in public ownership or committed to permanent open space, and lands that will be subject to "interim management" as described in Chapter 5).

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CHAPTER 8: CONSISTENCY OF THE NCCP/HCP WITH APPLICABLE STATE AND FEDERAL ENDANGERED SPECIES LAWS

Under the terms of the Special 4(d) Rule for the coastal California gnatcatcher, the NCCP/HCP must be prepared, approved and implemented pursuant to the NCCP Act (Fish and Game Code 2800-2840) and consistent with Section 10(a)(1)(B) of the FESA, the NCCP Planning guidelines, and Section 2835 of the NCCP Act. This Chapter addresses the consistency of the NCCP/HCP with these state and federal statutes.

SECTION 8.1 CONSISTENCY OVERVIEW

The determination as to whether the NCCP/HCP adequately provides for the long-term viability of the "target/identified" species (as defined in the Implementation Agreement) in a manner consistent with the requirements of the NCCP Conservation Guidelines and Section 10(a) of FESA revolves around the ability of the NCCP/HCP program to maintain "net habitat value" on a long-term basis for the target/Identified Species and other species addressed by the NCCP/HCP. Under the NCCP Act, this determination is based on the consistency of the Reserve System and adaptive management program with the NCCP Conservation Guidelines. Under FESA and the 4(d) Rule for the gnatcatcher, this determination regarding net habitat value involves linking the conclusions regarding consistency with the NCCP Conservation Guidelines to the Section 10(a) requirements that the Incidental Take will not significantly reduce the likelihood of survival and recovery of the species in the wild. Thus, the "net habitat value"/NCCP Conservation Guidelines consistency determinations are essential for purposes of determining consistency with the "survival" and "recovery" requirements under Section 10(a).

SECTION 8.2 CONSISTENCY WITH THE NCCP CONSERVATION GUIDELINES

8.2.1 Net Habitat Value: The NCCP Conservation Guidelines

For purposes of the overall five-county NCCP CSS program, the substantive conservation planning and implementation requirements of the NCCP Act are defined in the NCCP Conservation Guidelines. As prescribed in these Guidelines the creation and management of

a CSS Reserve System provides the basis for assuring no net reduction in the ability of the subregion to maintain viable populations of target species:

. . . subregional NCCPs will designate a system of interconnected reserves designed to: (1) promote biodiversity, (2) provide for high likelihoods for persistence of target species in the subregion, and (3) provide for no net loss of habitat value from the present taking into account management and enhancement. No net loss of habitat value means no net reduction in the ability of the subregion to maintain viable populations of target species over the long-term.

The NCCP will need to establish a wide range of habitat management and enhancement tools and incorporate a monitoring program to provide guidance for ongoing management. With improved techniques for management and restoration, the goal of no net loss of habitat value may be attainable even if there is a net loss of habitat acreage.

(Conservation Guidelines, p. 9, emphasis added)

Thus, as indicated by the Conservation Guidelines, a Reserve System that consists of smaller, appropriately managed habitat areas could have a greater likelihood of maintaining CSS biodiversity under adaptive management than a system of larger habitat areas that are unmanaged or ineffectively managed (*i.e.*, the current conditions of “benign neglect” that the Guidelines conclude will result in the continued decline of CSS species).

8.2.2 The NCCP/HCP Program for Maintaining Long-Term Net Habitat Value for NCCP "Target/Identified Species"

If long-term habitat value declines, the likelihood of species survival declines as well. Habitat value may be defined as the ability (quality, suitability or functional level) of a unit area to support a particular organism. If a unit of habitat is reduced in area or quality, its habitat value declines. The NCCP/HCP program for creating the subregional Reserve System and implementing the adaptive management program are the essential elements in assuring that no long-term net loss of habitat value occurs within the subregion. Implementation of the subregional adaptive management program, in conjunction with commitments of lands to the Reserve System, maintains “net long-term habitat value” in the subregion in two ways.

First, creation of the Reserve System will provide the essential habitat necessary to sustain the “target and Identified Species” (as defined in the Implementation Agreement) within the subregion. This commitment of lands to the reserve mitigates the loss of habitat value related to Incidental Take authorized for “*participating*” landowners. Funding provided for long-term adaptive management of the Reserve System assures the reserve management capability necessary to maintain long-term CSS habitat value with the reserve. All of the management elements of this NCCP/HCP have the potential to not only maintain, but to enhance net long-term habitat value within the Reserve System. Thus, the creation and management of the Reserve System offsets the impacts of Incidental Take on lands of property owners who have contributed significantly to establishment of the Reserve System.

Second, significant opportunities for restoration and enhancement have been identified and are created within the Reserve System. As noted above, the adaptive management elements of the NCCP/HCP provide significant enhancement and restoration through actions such as eradication of invasive plants, cowbird trapping, imperiled species enhancement/propagation and fire management. In addition to the enhancement/restoration actions provided through adaptive management measures contributed by “*participating landowners*,” reserve lands will be made available for CSS restoration and enhancement purposes on a voluntary basis to landowners/entities which have not contributed significantly to creation and management of the Reserve System. Such restoration and enhancement actions will include enhancement of severely degraded CSS habitat and creation of new CSS habitat.

The Reserve System restoration and enhancement opportunities described above provide an alternative for property owners who do not wish to engage the FESA Sections 7 and 10 and the CESA Section 2081/2084 project-by-project mitigation processes. The NCCP/HCP voluntary restoration and enhancement program is intended to provide a meaningful option for landowners while presenting the regulatory agencies with a program that can readily incorporate project-specific restoration and enhancement into a large-scale subregional management system.

8.2.3 Consistency of the NCCP/HCP with the NCCP Tenets of Reserve Design

The Central and Coastal Subregion NCCP/HCP addresses the NCCP Conservation Guidelines “tenets of reserve design” by including more than 35,000 acres of natural wildlands within the boundaries of the Reserve System (Figure 12). Within the overall reserve, about 49 percent

of the natural habitat consists of CSS, while 19 percent is chaparral and 15 percent is grassland habitat. The overall reserve contains 62 percent of the gnatcatcher sites and 68 percent of the cactus wren sites identified within the subregion.

The subregional Reserve System actually consists of two geographically separated subarea reserves because of the impacts of historic development and agriculture within the subregion. The Central Subarea reserve (Figure 15) contains 20,177 acres. The primary habitat components within the subarea reserve in terms of acreage included CSS (49 percent of the reserve area), chaparral (18 percent) and grasslands (13 percent). Riparian and oak woodland habitats also are important elements of the reserve. Recognizing the habitat needs of the “target species,” 74 percent of the reserve habitat is found below the 1,200 feet elevation. The habitat below this elevation is the most productive habitat for the gnatcatcher and the other two “target species” (*i.e.*, cactus wren and orange-throated whiptail lizard). The subarea reserve contains 206 gnatcatcher sites and 409 cactus wren sites, and includes all but one of the major population concentrations.

The Coastal Subarea reserve contains 17,201 acres (Figure 16) concentrated in and around the San Joaquin Hills. The primary habitats within this subarea reserve also are CSS (50 percent coverage), chaparral (19 percent coverage) and grasslands (18 percent coverage). All of the habitat is located below the 1,200 feet elevation, and about 96 percent is found below 900 feet. This subarea contains 164 gnatcatcher sites and 262 cactus wren sites.

For the reasons set forth in the preceding subsections and Chapter 7 of the Joint EIR/EIS, , the NCCP/HCP is considered by USFWS, CDFG and the County of Orange to be consistent with the NCCP Conservation Guidelines tenets of reserve design. Consistency with the tenets of reserve design may be summarized as follows.

- NCCP Guidelines: Conserve target species throughout the planning area (*i.e.*, “well-distributed across their native ranges”).

NCCP/HCP Consistency: Figures 7, 8, 9, 10 and 12 illustrate the consistency of the NCCP/HCP with this tenet of reserve design. Tables 4-2, 4-3 and 4-4 further demonstrate compliance with this design tenet. The figures and tables demonstrate the distribution of target species throughout the Reserve System, in inland and coastal

locations, and the focus on protecting target species in habitat located below the 1,200-foot elevation.

- NCCP Guidelines: Larger reserves are better.

NCCP/HCP Consistency: Figures 12, 15 and 16 portray the consistency of the NCCP/HCP with this tenet. Two large contiguous Reserve Systems focus on the habitat/target species populations in the San Joaquin Hills and along the frontal slopes of the Lomas de Santiago.

- NCCP Guidelines: Keep reserve areas close.

NCCP/HCP Consistency: Figures 12, 15 and 16 portray the consistency of the NCCP/HCP with this tenet. Virtually all of the reserve areas in the Central and Coastal subareas are contiguous. The few outlying areas in public parkland and, with the exception of Talbert Regional Park, are located within one mile of the reserve.

- NCCP Guidelines: Link reserves with corridors.

NCCP/HCP Consistency: Figures 12, 15, 16, 22 and 23 portray the consistency of the NCCP/HCP with this element of the reserve design guidelines. Habitat linkages within the reserve, in combination with “Special Linkages” outside the reserve, provide virtually continuous biological connections between habitat in each of the subarea reserve units.

- NCCP Guidelines: Reserve should be diverse.

NCCP/HCP Consistency: Figures 7, 8, 12, 15 and 16 portray the consistency of the NCCP/HCP with this aspect of the tenets of reserve design. The Reserve System is a multiple habitat reserve that supports a wide range of CSS and non-CSS species. Thirty-nine species, CSS and four non-CSS habitats receive regulatory coverage under the NCCP/HCP.

- NCCP Guidelines: Protect reserves from encroachment.

NCCP/HCP Consistency: Figures 7, 8, 12, 15, 16 and 30 portray the consistency of the NCCP/HCP with this tenet of reserve design. These figures are reinforced by policy

languages in Chapters 4 and 5 that prohibit residential, commercial and other uses that could adversely impact biotic resources and preclude effective adaptive management.

Therefore, the NCCP/HCP Reserve System and supporting components are determined to satisfy the substantive requirements of the NCCP Conservation Guidelines tenets of reserve design and thus are determined to contribute significantly to the long-term protection of viable populations of Identified Species.

8.2.4 Conclusions Regarding Maintaining Net Habitat Value

As indicated in the NCCP Conservation Guidelines, habitat monitoring and adaptive management are essential tools for maintaining net habitat value on a long-term basis. Long-term habitat value reflects not only the current ability of habitat to support an organism, but also its future ability to perform that function. A habitat area's future suitability may be affected by a number of factors, such as successional dynamics (*e.g.*, shifts between CSS and grassland due to changing grazing pressure), widespread catastrophic events (*e.g.*, major fires), and changes in competing organisms (*e.g.*, spread or control of weeds or cowbirds). Actions to maintain long-term habitat value take the form of management programs to limit the severity of changes, reduce the risk of undesirable changes, and/or reduce the frequency of undesirable events. To maximize their effectiveness, management programs must be monitored to provide information that can be used to adapt management program elements over time. Adaptive management of biological resources within the Reserve System thus plays a key role in maintaining habitat value over the long term.

Likewise, habitat restoration and enhancement on lands within the Reserve System likely will achieve much higher long-term values than attempting to maintain existing isolated CSS habitat outside the Reserve System, or pursuing Section 7 and Section 10 mitigation of CSS habitat losses through restoration of CSS habitat on lands geographically removed from the Reserve System. The reason for this is that restoration and enhancement of habitat for target and Identified Species and the five Headlands plant species within the Reserve System will allow for adaptive management of habitat over the long term whereas such restoration and enhancement outside the Reserve System would not be likely to result in the level of benefit generated by the sustained management and habitat contiguity features of the Central/Coastal NCCP/HCP. Similarly, establishment of a temporary reserve on the Headlands site and initiation of a research and recovery program for the Pacific pocket mouse will likely

achieve higher long-term benefits than attempting to maintain the current mouse population on the isolated and small Headlands site.

As previously reviewed, the EA for the 4(d) Rule summarized the primary threats to the survival of the gnatcatcher as follows:

The present threatened status of the gnatcatcher is the result of a variety of effects: (1) habitat area has been reduced by urbanization and agricultural conversion leading to a lower population size; (2) habitat fragmentation hinders dispersal and increases predation and nest parasitism by the brown headed cowbird . . . leading to lower population size, lower recolonization rates and less effective utilization of remaining habitat; and (3) habitat quality has been degraded by fire, invasive exotic species, off-road vehicles, and over-grazing . . .

This habitat-based threat to the gnatcatcher was recognized by the SRP in its recommended conservation strategy for CSS. The SRP recommended designation of a reserve network which would preserve habitat area, maintain connectivity, and manage threats to habitat quality in a way that no net loss of habitat value for the gnatcatcher would occur. Land to be incorporated into the reserve network would be selected on the basis of size, location and quality. Land in small patches, isolated and degraded by urban land uses would be of little long term value to a CSS reserve network. (Draft EA, August 2, 1993, at p. 13, emphasis added)

The NCCP/HCP addresses each of the factors cited in the above EA excerpt as follows.

- (1) Long-term reduction in CSS has been addressed through a comprehensive program for assuring the assemblage of the NCCP/HCP Reserve System. Habitat fragmentation is avoided by focusing preservation efforts on assembling large blocks of contiguous, high value habitat with substantial concentrations of NCCP target species present. Land incorporated into the Reserve System has been "selected on the basis of size, location and quality" of habitat. Likewise, "land in small patches, isolated and degraded by urban land uses" has not been included within the reserve.
- (2) Direct threats to species due to cowbird parasitism have also been addressed through the continuation of specific programs for reducing cowbird parasitism (e.g., TCA-funded programs and interim take permits). The adaptive management program

monitoring system will provide ongoing assessments of the health of target species populations and thereby allow for the application of other measures addressing direct threats to target and Identified Species populations.

- (3) Habitat quality will be maintained through the comprehensive adaptive management program of the NCCP/HCP. Specific adaptive management programs, with a comprehensive set of implementing actions provided for in the Implementation Agreement, address each of the factors cited above in the EA excerpt cited as contributing to the decline in CSS habitat quality: fire, exotic species, recreational use and grazing.
- (4) Most significantly, the NCCP/HCP provides that adaptive management measures will be implemented for the entire Reserve System from the outset, regardless of the ownership/legal status of the dedication and donation programs required to assure the long-term transfer of lands into public or non-profit ownership. Under the "interim management" program reviewed above in this section, most of the adaptive management measures will be implemented in advance of much of the Incidental Take authorized by the Section 10(a) permits and NCCP Section 2835 approvals.

8.2.5 Conclusion: Consistency of the NCCP/HCP With the NCCP Conservation Guidelines

Due to the increase in the long-term net habitat value resulting from the NCCP adaptive management program, the long-term carrying capacity of the reserve will increase and thus sustain increased populations of target and Identified Species (the latter factor is particularly relevant for the whiptail because, unlike the mobile bird species, it will not readily disperse from converted habitat areas).

In conclusion, the NCCP/HCP creates a subregional habitat Reserve System that will:

- include more than 35,000 acres of wildlands and more than 2,000 acres of additional disturbed and agricultural lands capable of being biologically enhanced and restored in a permanent habitat reserve that will prohibit residential, commercial and industrial uses, active recreation and other unsuitable activities;

- protect adequate habitat for the coastal California gnatcatcher, as required under the Special 4(d) Rule;
- address the need to protect biodiversity by providing for multiple-species and multiple habitat protection, including representative habitat of 12 of the 13 major habitat types existing in the County;
- protect and enhance biological connectivity within the subregion and between this subregion and adjacent NCCP subregions;
- establish a mitigation bank usable for development impacts affecting both CSS and non-CSS habitat impacts throughout the subregion;
- provide opportunities to expand some sensitive species populations within the subregion, such as the Pacific pocket mouse, and make them more secure;
- complete the minimization and avoidance measures started with the regional open space strategy;
- provide a dynamic, ecosystem-level laboratory that can be used by academic, scientific and educational institutions for study and research to protect biological resources.

The NCCP/HCP would also result in the creation and implementation of a coordinated management program that will:

- provide mandatory management policies which emphasize long-term habitat protection;
- implement an “adaptive management” approach on a subregional level, consistent with the NCCP Conservation Guidelines;
- implement conservation measures for the Pacific pocket mouse;

- identify opportunities, and implement systematic long-term restoration and enhancement measures for both CSS and non-CSS habitat within the Reserve System;
- protect sensitive biological resources by providing for the coordinated control of exotic and invasive species, including cowbird trapping, elimination of artichoke thistle and so forth;
- implement systematic species/habitat monitoring and field surveys within the Reserve System, both for short-term gains and to achieve long-term goals;
- coordinate habitat management activities on a subregional level;
- implement coordinated fire management, including more benign fuel modification practices, and improved attention to preventive practices that will benefit both biological resources and communities adjacent to the reserve;
- implement a recreation/access plan that will provide for appropriate public use and enjoyment of the Reserve System while protecting sensitive resources; and
- implement a grazing management plan that will control grazing practices while the Reserve System is being assembled and lead to phasing out of most grazing activities within the reserve.

For the reasons set forth in this chapter, the Central/Coastal NCCP/HCP provides for: (a) a Reserve System, including specifically designed subarea reserves protecting core habitat and connectivity features assuring species interchange within and between reserves, and (b) a comprehensive adaptive management program determined to be fully consistent with the substantive requirements of the NCCP Conservation Guidelines. The Implementation Agreement, in combination with pre-NCCP and NCCP avoidance actions, assure the assemblage of the Reserve System and the implementation of the adaptive management and Pacific pocket mouse research and recovery efforts. In turn, these mitigation measures provide the basis for mitigating those impacts of Incidental Take which remain following the application of the minimization and avoidance measures reviewed in Chapter 5 of the EIR/EIS.

Therefore, by fulfilling the requirements of the NCCP Conservation Guidelines, and by providing for implementation of the measures required to carry out the NCCP/HCP, the subregional plan meets the requirements of the NCCP Act and provides the basis for the management authorization and actions taken pursuant to Fish and Game Code Section 2825(c), 2830 and 2835 as set forth in the Implementation Agreement.

SECTION 8.3 FESA CONFORMITY FINDINGS

Section 8.2 has analyzed the extent to which the NCCP/HCP addresses the requirements and conservation planning criteria set forth in the NCCP Conservation Guidelines and thereby address the requirements of the NCCP Act. As set forth in the 4(d) Rule, conclusions regarding consistency with the NCCP Act are to be related to the findings required for the approval of an HCP pursuant to the FESA Section 10 (a)(1)(B) regulations.

8.3.1 FESA Section 10(a) Findings

With regard to FESA Section 10(a) findings set forth in the Implementation Agreement, the following conclusions may be drawn regarding the level of significance of impacts resulting from the NCCP/HCP.

- Chapter 7 indicates that identified “take” *is incidental to otherwise lawful activities* and reviews the extent of this “take.”
- Chapter 5 of the EIR/EIS concludes that, as a result of both pre-NCCP and NCCP/HCP actions, the comprehensive, large-scale CSS habitat reserves in the Central and Coastal subareas and the temporary Pacific pocket mouse preserve and conservation/enhancement activities, will “*minimize*” the impacts of Incidental Take to *the maximum extent practicable*.
- Chapters 3, 4 and 5 demonstrate that the NCCP/HCP constitutes a comprehensive subregional Reserve System and adaptive management program, consistent with the NCCP Conservation Guidelines, which *mitigate* the impacts of identified take to *the maximum extent practicable*.

- As set forth in Chapter 6 and the Implementation Agreement, *the permit applicants have ensured that adequate funding will be provided to implement the measures set forth in the habitat conservation plan.*
- Chapter 7 and the Implementation Agreement demonstrate that the permit applicants *have provided for all measures identified by CDFG and USFWS as required conditions for issuance of Section 10(a) permits for Incidental Take on the part of “participating landowners” and for Section 10(a) permits for Incidental Take on the part of “non-participating landowners.”*

By assuring the maintenance of net CSS habitat value for CSS-related Identified Species in the subregion on a long-term basis, and of the habitat of non-CSS Identified Species, the NCCP assures that identified Incidental Take will not appreciably reduce the likelihood of survival of the Identified Species (as defined by the Implementation Agreement) in the wild. Thus, compliance with the NCCP Conservation Guidelines provides the programmatic basis for making the “survival” findings of the FESA Section 10(a) requirements.

With regard to the “recovery” findings required under FESA Section 10(a), the NCCP/HCP provides for a funding endowment that is to be managed (on a non-wasting basis of principal) on a long-term basis. As a consequence of these funding assurances, the scale of the NCCP/HCP Reserve System (including its intra-regional and inter-regional connectivity features) and the comprehensive nature of the adaptive management program, the NCCP/HCP provides measures necessary not only to maintain net habitat value but also to contribute to the recovery of Identified Species. According to the EA for the 4(d) Rule:

The Service believes that the Subregional NCCP Plans, once implemented, will enhance the recovery of the gnatcatcher by providing an ecosystem-based habitat management plan that would not be possible under a species-specific habitat conservation plan (draft EA, at p. 37)

Short-term and long-term fire management measures incorporated into the adaptive management program will reduce the impacts of major wildfires on Identified Species (as defined by the Implementation Agreement) populations. In addition, long-term fire management measures are intended to reduce the frequency of major wildfires and establish a prescribed burn program that emulates the natural role of fire in CSS ecosystem succession.

Other adaptive management elements will further reduce biological factors that presently impede recovery over the long term, such as cowbird brood parasitism and loss of habitat due to invasive plant species. For these reasons, the Incidental Take authorized within the NCCP/HCP subregion will not appreciably reduce the likelihood for recovery of the Identified Species (as defined by the Implementation Agreement) as required by FESA Section 10(a). The foregoing measures also provide the basis for the "assurances" regarding recovery planning set forth in the Implementation Agreement.

8.3.2 Conclusions Regarding Basis for Critical Habitat Assurance in the Implementation Agreement

By incorporating the CSS NCCP Program into the 4(d) Rule for the gnatcatcher and as reviewed in the accompanying Environmental Assessment, the USFWS determined that the overall CSS NCCP Program provides a comprehensive, habitat based approach to protecting the habitat of CSS Identified Species consistent with the overall FESA statutory purpose "to provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved."

Section 50 C.F.R. 424.12 of the FESA regulations specifies the criteria to be used by the USFWS in designating critical habitat. These criteria include "those physical and biological features that are essential to the conservation of a given species and that may require special management considerations or protection" (50 C.F.R. 424.12(b)). The basic premise of the NCCP Conservation Guidelines tenets of reserve design, as reviewed in the NCCP/HCP and Joint EIR/EIS, is to identify CSS habitat essential to the conservation of CSS Identified Species; thus, the Conservation Guidelines specifically address one of the fundamental requirements of a critical habitat designation. In turn, the NCCP/HCP, in conforming with those guidelines, establishes a Reserve System and adaptive management program which maintain net habitat value for the CSS Identified Species within the subregion on a long-term basis. In so doing the NCCP/HCP: (1) provides for, through the Reserve System, the protection of "those physical and biological features essential to the conservation of the CSS Identified Species; and (2) provides for, through the Adaptive Management program, "special management considerations" and "protection" specified in the foregoing critical habitat determination regulation.

The NCCP/HCP also identifies the "principal biological or physical constituent elements within the defined area that are essential to the conservation of "CSS Identified Species" in a manner consistent with the critical habitat determination requirements of 50 C.F.R. 424.12(b). The principal biological and physical constituents within the subregion essential to the conservation of the CSS Identified Species are set forth in Chapters 2, 3 and 4 and were applied directly in the formulation of the NCCP/HCP Reserve System as reviewed in the EIR/EIS. Consistent with 50 C.F.R. 424.12(c), the specificity of the reserve design complies with the requirement that "each critical habitat will be defined by specific limits using reference points and lines as found on standard topographic maps of the area."

The NCCP Conservation Guidelines, as incorporated into the 4(d) Rule, indicate that NCCP regional planning is to be conducted, approved and implemented on the basis of subregional planning areas that may proceed independently of one another. Thus, habitat essential to the conservation of CSS Identified Species is to be addressed at the subregional, as well as regional, level. Given the scale of the Central/Coastal Subregion, the scale of the Reserve System and the comprehensive nature of the special management considerations incorporated into the adaptive management program, the USFWS concludes that the Reserve System and adaptive management program identify, and include within the Reserve System, the habitat owned by "*participating landowners*" that is essential to the conservation of CSS Identified Species and the "special management" measures necessary to manage the CSS habitat on lands of *Participating Landowners* within the Central/Coastal Subregion in a manner that will "provide for the conservation of the species involved."

Based on the preceding subsections and consistent with the terms of the Implementation Agreement, in the event that a critical habitat determination is made for any CSS Identified Species and upon a determination that the NCCP/HCP is functioning properly, no additional mitigation in the form of land or financial compensation will be required of any *participating landowner* in connection with planned activities through the Section 7 consultation process under FESA or otherwise.

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CHAPTER 9: ANALYSIS OF ALTERNATIVE CONSERVATION STRATEGIES

SECTION 9.1 OVERVIEW OF APPROACH TO ALTERNATIVES ANALYSIS

This section of the NCCP/HCP addresses what might be termed "regional conservation strategy alternatives." Due to the scale of the NCCP subregional planning program for central Orange County, review of a reasonable range of feasible alternatives involves qualitatively different considerations than would be the case for a small-scale, project specific EIR/EIS alternatives analysis. The analysis of habitat conservation alternatives for an individual parcel of land generally involves a limited range of options reflecting the size, location and feasible uses of the particular parcel. In contrast, informed decision-making for a subregional scale conservation planning process requires an assessment of different approaches that provide decision-makers with alternative strategies for attaining endangered species/habitat conservation planning objectives. These "regional conservation strategy alternatives" are reviewed conceptually in this Chapter, with the rationale for the selection of the alternatives reviewed presented below. The alternatives selected for further review are analyzed more extensively in chapters 5 and 7 of the Joint EIR/EIS.

A second type of alternative analysis assumes the validity of the conservation strategy set forth in the NCCP Conservation Guidelines regarding creation and management of a CSS habitat Reserve System and analyzes the incremental, site-specific decisions made in defining the reserve boundaries. This analysis may be considered an assessment of reserve "design" alternatives (*i.e.*, different configurations of lands that could potentially be included in the NCCP/HCP habitat reserve). This type of alternatives analysis is geographically specific in that the review of reserve design alternatives involves decisions as to which lands to include in the reserve and which lands to exclude. Accordingly, the NCCP/HCP reviews reserve design alternatives as part of the "minimization and avoidance" analysis in Chapter 5 of the EIR/EIS.

Overall, a wide range of conservation planning alternatives and institutional approaches to habitat conservation planning and implementation were examined. However, to provide a better basis for informed decision-making, the types of alternatives summarized above have been selected to provide the reasonable range of alternatives required by CEQA and NEPA.

Finally, it is important to analyze alternatives with respect to their ability to attain the project purposes identified in Chapter 1.

Four "alternative conservation strategies" potentially consistent with existing state and federal laws have been selected for initial review and screening for further consideration in this Chapter. The conservation alternatives addressed include:

- the "Proposed Project" Alternative;
- the "No Project" Alternative;
- the "No Take" Alternative; and
- a "Programmatic" Alternative.

These alternatives are being analyzed pursuant to the regulations covering HCP approval requirements (50 CFR 17.32 (b)(1)(C)(3)), as well as the CEQA and NEPA requirements for analysis of alternatives. Section 10(a) of the FESA regulations requires that applicants identify "what alternative actions to such taking the applicant considered and the reasons why such alternatives are not proposed to be utilized. . . ." CEQA and NEPA similarly require a review of a reasonable range of alternatives to the Proposed Project.

Two of the alternatives considered in this chapter, the No Project and No Take alternatives, are fundamentally different from the Proposed Project because they focus on a subregional strategy of project-by-project review and regulation instead of formulating and implementing a subregional conservation strategy that addresses the assemblage and management of a Reserve System at one time.

According to the draft USFWS National Conservation Planning Guidelines (1994):

The "Alternatives Analyzed" section of the HCP should usually include at least two alternatives: (1) any specific alternative, whether considered before or after the HCP process was begun, that would not result in take

of listed species or would reduce such take below levels anticipated for the project proposal; and, (2) a “no action” alternative, which means that the project would not be constructed or implemented. (Guidelines at p.38)

The No Project Alternative would rely on the application of FESA Section 7 consultation and Section 10 permit processes to protect the coastal California gnatcatcher, while the No Take Alternative would rely on the prohibitions on take included in Section 9 of FESA to protect the gnatcatcher. Neither the No Project nor the No Take alternatives would restrict or limit impacts on the cactus wren, the orange-throated whiptail (two of the three "target species") or the other "identified" species recommended for regulatory coverage under the Proposed Project (although the No Project Alternative has some potential for addressing unlisted species). The No Take Alternative may not further the recovery effort for the Pacific pocket mouse and provide the opportunity to expand the population in the subregion and potentially make it more secure.

A fourth alternative, the Programmatic Alternative, would formulate a subregional conservation strategy, but involves a different approach to assembling the subregional Reserve System. Under the Programmatic Alternative, the subregional Reserve System would be assembled incrementally over time as specific projects requiring mitigation move forward and contribute mitigation fees or dedication lands to a management entity. This approach provides for more flexibility, but less certainty than the Proposed Project, in defining reserve boundaries and in accumulating scientific understandings regarding reserve design than is the case with the Proposed Project.

This Chapter concludes with findings regarding the selection of an alternative as the preferred alternative for purposes of more detailed environmental assessment, and the rationale for the selection of alternatives for comparative analysis in the Joint EIR/EIS.

SECTION 9.2 THE PROPOSED PROJECT ALTERNATIVE

9.2.1 Key Principles of the NCCP Conservation Guidelines

The NCCP Conservation Guidelines set forth three fundamental conservation planning principles that, in effect, provide the subregional and regional planning framework for the CSS NCCP program. These principles involve:

Creation of a CSS Habitat Reserve - In contrast with single species HCPs under Section 10 of FESA, the subregional NCCP/HCPs for Orange County create large scale "habitat reserves" capable of maintaining and protecting populations of target species over the long term.

Focusing on Reserves Designed to Provide "Connectivity" - In order to allow for necessary dispersal of target species and the ability to maintain genetic flow within and between "reserve" areas, the subregional NCCP/HCP places major emphasis on assuring that "connectivity" needs for the target species are addressed as a part of reserve design. To the extent feasible, the reserve design also addresses dispersal needs of other species integral to CSS ecosystem diversity.

Implementation of Adaptive Management Within Reserves - As noted previously, the NCCP Conservation Guidelines declare that ". . . a status quo strategy of "benign neglect" management likely will result in substantial further losses of CSS biodiversity . . ." The Guidelines conclude that habitat reserves ". . . should be actively managed in ways responsive to new information as it accrues." Much of the NCCP planning effort has been devoted to identifying reserve management programs and to fashioning an ongoing institutional capability to assure that NCCPs continue to implement adaptive management techniques over time.

9.2.2 Central Orange County NCCP/HCP Subregional Habitat Conservation Planning Objectives

In applying the above planning principles, the Orange County Coastal/Central NCCP/HCP defined a set of specific conservation planning objectives.

- Provision for long-term protection of CSS habitat and target species on a subregional basis with a focus on source populations of target species and maintaining and enhancing connectivity between habitat areas.

- Protection of long-term CSS habitat carrying capacity for target species by, to the maximum extent practicable, avoiding, minimizing and mitigating impacts, and by assuring that Incidental Take resulting in the conversion of significant CSS habitat will not appreciably reduce the likelihood of CSS and target species survival and recovery.
- Consideration of opportunities for protection and management of CSS species other than target species and opportunities for protecting other habitats within the study area that are embedded within the CSS mosaic.
- Creation of a habitat Reserve System consistent with the NCCP Conservation Guidelines tenets of reserve design.
- Identification and evaluation of the effectiveness of alternative habitat management techniques.
- Based on the review of management alternatives, incorporation of a specific, implementable long-term management program into the NCCP/HCP for designated species and associated habitat included within the permanent reserve.
- Identification and evaluation of CSS habitat and adjacent habitat areas with significant potential for enhancement and restoration.
- Provision for appropriate development and economic growth within the subregion, compatible with the reserve design, consistent with the goals/purposes of the NCCP Act.
- Formulation of mitigation measures that provide adequate mitigation for "target species" habitat impacts related to development actions addressed by the NCCP/HCP that constitute "harm" and "take" under FESA.
- Within the permanent habitat reserve, identification of compatible and incompatible activities/uses in relation to species protection and survival, and the ability to effectively implement specified habitat management, restoration and enhancement measures.

- Identification of equitable and effective funding and implementing mechanisms adequate to implement recommended actions and achieve objectives set forth in the NCCP/HCP.
- Comparative evaluation of the technical, social and economic implications of potential mitigation measures and conservation alternatives prior to incorporation into the NCCP/HCP.
- Early involvement of interested agencies, landowners and public interests in advance of proposals for a specific conservation strategy in an effort to minimize conflicts and delays and facilitate appropriate development.

9.2.3 Important Programmatic Elements of the NCCP/HCP

The Proposed Project's Reserve System and adaptive management program consists of the following elements.

- Reserve System - Creation of a publicly-owned 37,378-acre habitat Reserve System that includes CSS and other habitat types representative of virtually all of the major habitat types currently existing within the subregion (see Figure 4);
- Special Linkages and Existing Use Areas - Designation of "Special Linkages" and "Existing Use Areas" to enhance biological connectivity within the Reserve System and subregion, and to protect remnant populations of "Identified Species" and/or important habitat;
- Adaptive Management Program - Implementation of an "adaptive management" regime within the Reserve System, as recommended by the state's NCCP Conservation Guidelines;
- Interim Management - Provisions for extensive "interim" management of designated reserve lands prior to the time of the actual transfer of these lands to public ownership;
- Funding - Establishment of a funding program to pay for creation of the Reserve System, adaptive management and other mitigation measures; and

- Mitigation Program for Non-Participating Landowners - Provisions for an alternative to existing law, allowing mitigation of occupied CSS impacts on lands located outside the Reserve System and owned by landowners who have not participated in the assemblage and management of the Reserve System either through contribution of reserve lands or management funding.

9.2.4 Overview of the NCCP/HCP Subregional Reserve System

9.2.4.1 Habitat Reserve System

The boundaries of the Habitat Reserve System are displayed in Figure 12. For regulatory purposes, the official boundary will be that which is depicted on 1,000-scale maps identified in Appendix 25. These maps are available for inspection at the County of Orange, Environmental Management Agency, 300 N. Flower (Room 321), Santa Ana, California.

-- Coastal Subarea Reserve

The Coastal Subarea Reserve includes over 17,201 acres in and surrounding the Laguna and San Joaquin Hills (see Figure 16 and Table 4-4, Coastal Subarea Summary). Within this reserve, CSS constitutes approximately 50% of the total wildlands. Other important habitat components include chaparral (19%) and grasslands (18%). Virtually all of the CSS within the Reserve System (96%) occurs at elevations below 900 feet and 100% of the reserve CSS occurs below the 1,200 foot elevation. The elevations where the reserve CSS is found, in combination with the moderating effects of its proximity to the ocean, make the Coastal Subarea Reserve particularly important as habitat for the target species and a variety of CSS-related species. Approximately 77% of the surveyed gnatcatcher sites and 77% of the surveyed cactus wren sites are located within the reserve and in Special Linkage/Existing Use Areas).

-- Central Subarea Reserve

The Central Subarea Reserve contains 20,177 acres (see Figure 15 and Table 4-3, Central Subarea Summary) of the existing wildlands located in and around the Lomas de Santiago, Limestone Canyon, Weir Canyon, Windy Ridge and Coal Canyon CDFG preserve areas. CSS habitat occupies approximately 50% of the reserve land area. Other major habitat types included within the reserve include chaparral (18%), grasslands (13%), riparian habitat (6%) and major areas of oak woodlands in Limestone and Weir Canyons. In all, 74% of the CSS within the reserve is found at elevations below 1,200 feet. Approximately 80% of surveyed gnatcatcher sites and 73% of surveyed cactus wren sites are found in areas located within the reserve and in Special Linkage/Existing Use Areas. All but one substantial population concentration of gnatcatchers are located within the reserve or in Special Linkage and Existing Use Areas. The Central reserve is significant for regional connectivity purposes due to: (a) habitat linkages with the Southern NCCP Subregion; and (b) its functional contiguity with the Chino Hills State Park open space in northern Orange County and San Bernardino County.

Overall a 37,378-acre habitat Reserve System is created that includes significant areas of twelve of the thirteen major habitat types located within the subregion (Figure 12 and Table 3-1). The Reserve System will protect about 18,500 acres of CSS habitat.

In addition, almost 3,900 acres of non-reserve public open space is located within the subregion adjacent to the Reserve System, and 5,702 acres are included within the "supplemental non-reserve habitat areas." In all, nearly 47,000 acres are included within the Reserve System, other permanent public open space, and the "supplemental" non-reserve habitat areas. These areas contain 487 of the gnatcatcher sites (81 percent), and 774 of the cactus wren sites (78 percent) identified during the NCCP field surveys. Also included within these areas are

about 20,360 acres of CSS, 7,790 acres of chaparral and 8,700 acres of grassland habitat. The multiple habitat protection provided by the NCCP/HCP's habitat reserve is demonstrated by the fact that the reserve contains the following percentages of existing habitat types within the subregion:

- 60 percent of remaining CSS
- 45 percent of chaparral
- 27 percent of grasslands
- 18 percent of vernal pools
- 56 percent of cliff and rock
- 52 percent of marsh
- 46 percent of riparian
- 63 percent of woodlands
- 97 percent of forests

When it is fully assembled, the entire reserve will be owned and managed by public agencies and managed by a non-profit corporation that consists of representatives of individual public agency reserve owners, the CDFG and USFWS. This non-profit corporation will coordinate activities within the Reserve System, receive and disburse funds to the reserve owners, hire staff and biologists, and prepare annual reports for public review.

-- “Identified Species” and “Covered Habitats”

Under the NCCP Conservation Guidelines, the subregional reserve design process focused on protecting the habitat of three designated "target species:" the coastal California gnatcatcher, the coastal cactus wren and the orange-throated whiptail lizard. However, as envisioned by the NCCP Conservation Guidelines, the Reserve System designed for the three "target" species actually provides significant levels of protection for a much broader range of habitats and species than just CSS and the three target species. Accordingly, the NCCP/HCP provides regulatory coverage for a total of 39 species (*i.e.*, the three target species and 36 additional species), most of which are not presently "listed" under state or federal endangered species laws. The habitat requirements for each of the above species are reviewed in Chapter 2.

In addition to the regulatory coverage for Incidental Take of CSS habitat and the thirty-nine “target and Identified Species” cited above, the NCCP/HCP contains assurances to *participating landowners* relating to future impacts on other species located within specified habitats outside the habitat Reserve System. The USFWS and CDFG have determined that the programmatic elements of the NCCP/HCP further the protection of certain habitats in a manner comparable to the protection provided for CSS habitat. These habitat types are referred to as “covered habitats” and include (Figure 69):

	<u>COVERED HABITAT ACREAGE OUTSIDE THE RESERVE</u>	<u>COVERED HABITAT ACREAGE INSIDE THE RESERVE</u>
• <u>oak woodlands;</u>	<u>205</u>	<u>940</u>
• <u>Tecate cypress forest;</u>	<u>3</u>	<u>191</u>
• <u>cliff and rock; and,</u>	<u>28</u>	<u>74</u>
• <u>chaparral within the Coastal Subarea only.,</u>	<u>260</u>	<u>3,337</u>
- <u>TOTALS</u>	<u>496</u>	<u>4,542</u>

For these habitats, CDFG and USFWS will assume the responsibility for assuring that all statutory and regulatory requirements necessary to issue Section 10(a)(1)(B) and/or Section 2081 permits to *participating landowners* for listed species found in these habitats that are affected by planned activities. USFWS and CDFG will issue Section 10/2081 permits to *participating landowners* concurrent with the listing.

Additionally, certain plant species are covered on the Headlands Property only and a temporary preserve for the Pacific pocket mouse is established.

Within the Reserve System, the NCCP/HCP limits the kinds of permitted uses to protect long-term habitat values. Residential, commercial and industrial uses are prohibited, as well as new active recreational uses (as contrasted with passive recreational uses such as hiking and tent-camping) outside already-disturbed areas. However, the NCCP/HCP recognizes that some new non-habitat uses will need to be sited in the Reserve System (e.g., infrastructure facilities such as roads, utilities, water storage facilities) and that some existing uses will need to be maintained (e.g., recreation facilities). New recreational facilities will be sited in locations compatible with habitat protection.

-- Designation of “Special Linkage Areas” to Supplement the Reserve System

In addition to the lands designated for inclusion in a habitat Reserve System, the preliminary Reserve System is intended to be supplemented by the designation of other non-reserve lands called “Special Linkage Areas.” These “Special Linkages” are not considered “essential” areas for inclusion within the reserve; nor are they envisioned to be actively managed as a part of the “Adaptive Management Program.” The “Special Linkages” are designated as areas that contained “target” species or biological habitat that enhance connectivity between elements of the Reserve System. Specific habitat protection commitments are provided by “participating landowners,” but Reserve System habitat management policies do not govern uses/activities within such non-reserve linkages.

Functionally, these linkages include areas where proposed development or current uses (e.g., private open spaces, parkland, golf courses, or low density residential uses) will provide either an opportunity to conserve habitat useful for biological connectivity or support of target species while permitting compatible non-habitat uses. Examples of Special Linkages designated to supplement the reserve concept include (see Figure 12):

- Coastal Subarea

- the frontal slopes of Pelican Hill
 - the proposed Shady Canyon and Sand Canyon golf courses
 - El Capitan Park
 - Coyote Canyon Landfill
- Central Subarea
 - the proposed golf course along Limestone Creek
 - the Frank R. Bowerman Landfill
- Designation of Existing Use Areas

Certain areas containing important populations of target species are not authorized for Incidental Take but, instead, remain subject to CESA and FESA review authority, as is presently the case. In most instances, existing uses in these areas are compatible with habitat protection.

-- Other Sensitive Plant Species on the Dana Point Headlands Property

Five additional sensitive plant species addressed by the NCCP/HCP occur or could occur on the Dana Point Headlands property and are covered for Incidental Take only for this site. The justification for such coverage is discussed in Sections 4.5.1 and 4.5.4 of the NCCP/HCP and Section 8.3.1 of the EIR/EIS. Four of these five species have been found to occur on the Headlands site. The other species (Palmer's grappling hook) was found in 1983 in small numbers (under 10 plants), but has not been found in more recent surveying.

9.2.4.2 The Adaptive Management Program

The NCCP/HCP creates a comprehensive habitat management program designed to protect the biological resources within the reserve over the long term. Based on the principles set forth in the NCCP Conservation Guidelines, this

management regime is called “adaptive management.” It literally means that 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.

Key elements of the Adaptive Management Program include the following:

- monitoring and associated management of the biological resources located within the Reserve System;
- restoration and enhancement actions within the reserve such as eradication of invasive and pest species, grazing management and revegetation; short-term and long-term fire management measures within the reserve; management of public access and recreation use within the reserve; management of uses existing prior to creation of the Reserve System;
- assurances that permitted infrastructure uses proceed in a manner provided for in the NCCP/HCP in order to minimize the impacts of such uses;
- interim management of privately-owned lands prior to transfer of legal title to the public reserve manager or non-profit management authority (see discussion below); and
- restoration and enhancement through the acquisition of existing CSS habitat or creation of new CSS habitat within the reserve to offset potential loss of net long-term habitat value due to the conversion of CSS on lands owned by *non-participating landowners* outside the Reserve System.

The NCCP/HCP anticipates that the Adaptive Management Program will be fully operational one year following approval of the NCCP/HCP and creation of the NCCP management non-profit.

9.2.4.3 Interim Management Program

Approximately 15,000 acres of the Reserve System are currently publicly owned and will be available for inclusion in the reserve immediately following approval of the NCCP/HCP and signing of the Implementation Agreement by participants. However, because more than 21,000 acres of the reserve are presently privately owned and because most of the private ownership is subject to phased dedication commitments that preceded the NCCP/HCP, it will take many years to complete these open space dedication programs. To address the need for managing these lands prior to dedication, participating landowners will be required to allow the non-profit management corporation to implement "interim" habitat management measures during the time following approval of the NCCP/HCP and the actual transfer of lands from private to public ownership. The purpose of this interim management is to maintain and to improve habitat values on CSS lands designated for inclusion within the reserve. These interim protection and habitat enhancement measures are reviewed in Chapter 5.

9.2.4.4 North Ranch Policy Plan Area (North Ranch Area)

Almost all of the lands located within the Central and Coastal Subregion and outside the Cleveland National Forest have been the subject of general plan amendments or specific planning by local government agencies and landowners. The most notable exception is a 9,456-acre area located north of Irvine Lake and east of the cities of Anaheim and Orange, the vast majority of which is almost entirely owned by The Irvine Company. This area is called the North Ranch Area (Figure 12). The NCCP/HCP proposal to designate the North Ranch as a *Policy Plan Area* reflects the fact that: (1) it has not been master planned, (2) CSS is not a dominant habitat within the area, (3) there are few target species present, (4) most of the area is not suitable habitat for the target species because elevations generally are higher than those tolerated by NCCP-designated target species, and (5) there is insufficient knowledge of particular species occupying particular

portions of the Policy Plan Area upon which to base *site specific* conservation and development decisions comparable to those reflected in the NCCP/HCP reserve designs.

The North Ranch Area element of the NCCP/HCP does not mitigate the impacts of the NCCP/HCP, nor is it mitigated by the NCCP/HCP. Decisions concerning future land uses within this area will carry out the specific North Ranch Area conservation and development planning policies contained in Chapter 5. The NCCP/HCP identifies habitat and conservation policies intended to complement the functions of the Central Reserve and to carry forward the basic planning precepts of the NCCP Conservation Guidelines. Accordingly, the NCCP/HCP planning policies provide that future planning actions will focus on protecting and enhancing the function of the NCCP/HCP habitat Reserve System by: (1) providing for biological linkages that will improve connections between elements of the Reserve System and between the Central Reserve and the Cleveland National Forest; (2) identifying the types and locations of lands that will contribute to improved subregional biodiversity within the context of the NCCP/HCP Reserve System; and (3) articulating policies for identifying lands appropriate for development.

9.2.4.5 Ownership of Reserve Lands

-- Current Ownership of Designated Reserve Lands

As indicated above, public ownerships within the recommended Reserve System now total approximately 15,000 acres and include the following:

- about 8,377 acres already owned by the County of Orange and managed by the County's Harbors Beaches and Parks Department (HBP);

- the 2,807-acre Crystal Cove State Park owned by the State of California and operated by the Department of Parks and Recreation (DPR);
- the Regents of the University of California/University of California at Irvine (UCI) owns or will manage approximately 135 acres, including the existing 63.5-acre open space Reserve;
- a 1,033-acre portion of the existing El Toro Marine Corps Air Station owned by the U.S. government and operated by the Department of Defense (DOD);
- 1,713 acres owned by the State of California and managed by the CDFG, including the 678-acre Upper Newport Bay reserve, 953-acre Coal Canyon reserve ; and 82-acre California Ecological Reserve;
- 1,662 acres owned/managed by the City of Laguna Beach; and
- 318 acres owned by the TCAs (214 acres around Siphon Reservoir and 104 acres within the Coyote Landfill).

As explained in Chapter 4 and the Implementation Agreement (Part IV), during the initial phase of the implementation process, each of these public ownerships will be formally incorporated into the management program of the Reserve System. Immediately following signing of the subregional NCCP Implementation Agreement, the Reserve System will include all of the above public acreage except for the 318 acres owned by the TCAs, which will be transferred to the Reserve System at a later date under the terms of existing agreements with USFWS. The rights of way for the SJHTC, ETC, and FTC are not included within the Reserve System.

- Existing Private and Other Lands Within the Reserve System

The Irvine Company (TIC) is by far the largest private owner of designated reserve lands within the subregion (Figure 19). TIC owns 20,878 acres that are recommended for inclusion in the permanent Reserve System. This includes 17,877 acres that already are designated for future dedication to the County or cities of Irvine, Orange, Anaheim, or Newport Beach as natural open space under the terms of existing dedication programs and development agreements (Figure 20). In accordance with existing agreements, dedication of these lands will be phased to coincide with phasing of approved entitlements in the cities of Anaheim, Orange, Irvine, and the County of Orange. Although transfer of portions of the 17,877 acres will occur in the early years of implementation, completing the assemblage of these lands as part of the reserve will require many years.

In addition to the TIC dedication areas, the recommended Reserve System also includes 3,001 acres of TIC lands that were not previously offered as future open space. These lands currently are approved for residential uses in adopted local general plans. Inclusion of such lands within the Reserve System and elimination of residential uses will require the cooperation of TIC. Amendments to the affected local government general plans will not be required to execute the transfer of lands to the reserve but such amendments ultimately may be processed to update general plans.

Other smaller ownerships were determined to be of sufficient biologic value to warrant their inclusion within the Reserve System. To be included within the Reserve System, the cooperation of the owners of these private or quasi-public lands will be required. In other words, they must be “willing” sellers. Of the smaller ownerships listed below, only the SCE parcel is considered to be essential for long-term reserve function. This is due to its critical location and function as a linkage to the Southern NCCP Subregion Reserve System. The other parcels

of land are considered to be desirable, but not essential for reserve function. These land ownerships will be acquired if and when funding becomes available, and include (Figure 19):

- 99 acres which have part of the 148-acre parcel of land owned by the Southern California Edison Company (SCE);
- the 120-acre Santiago Ranch property (excluding the existing 11-acre stables adjacent to Santiago Canyon Road);
- the 524-acre Barham Ranch, owned by the Orange Unified School District and Serrano Irrigation District.

-- Projected Future Ownership of Reserve Lands

Existing public agency land managers will retain their respective ownership management responsibilities for all reserve lands under their control. In some cases this may be accomplished by the use of cooperative management agreements entered into by the respective owners/managers designed to increase operating efficiency. Ownership changes within the Reserve System are likely to occur over time, as lands are transferred from private to public ownerships by participating landowners under the terms of the NCCP/HCP and Implementation Agreement. Following completion of phased dedications and the transfer of the additional 3,001 acres of TIC property and the 1,033-acre MCAS El Toro property, reserve lands are projected to be owned/managed by the following entities:

- the County EMA HBP will potentially manage approximately 24,000 acres;
- 1,033 acres owned by DOD;

- 5,809 acres owned by the City of Irvine;
- 1,662 acres owned by the City of Laguna Beach;
- 254 acres managed by the City of San Juan Capistrano;
- the UCI will continue to manage 135 acres included within the reserve owned by the Regents of the University of California;
- the state DPR will continue to own and manage the 2,807-acre Crystal Cove State Park; and
- CDFG will continue to own and manage 1,713 acres, comprising the 678-acre Upper Newport Bay reserve, the 953 acres included in the Coal Canyon reserve and the 82-acre California Ecological Reserve.

The NCCP/HCP creates an endowment fund of more than \$10.6 million to pay for the ongoing Adaptive Management Program within the reserve. The endowment will be operated on a non-wasting basis, meaning that the principle will be protected and management will be funded by interest earned annually on the endowment account. Endowment funding will be provided by the following *participating landowners*:

- the Transportation Corridor Agencies;
- Irvine Ranch Water District;
- Metropolitan Water District;
- Santiago County Water District;

- Southern California Edison;
- Chandis/Sherman; and
- County of Orange (using federal pass-through funds).

All necessary funding commitments to establish this habitat management endowment are assured and described in Chapter 6 and assured through the NCCP/HCP Implementation Agreement.

Finally, major restoration and revegetation of lands within the reserve will be funded by any mitigation fees received by the non-profit managing corporation from "non-participating" landowners (i.e., landowners other than the landowners identified in the NCCP/HCP that are contributing significant land and/or funding to the NCCP/HCP) who elect to use the NCCP/HCP mitigation fee program as a way to meet the requirements of FESA and CESA for activities impacting habitat occupied by listed species. These mitigation fees will be allocated to designated restoration areas within the Reserve System or for acquisition of additional reserve lands.

9.2.5 Impacts and Mitigation under the NCCP/HCP

As noted previously, the NCCP/HCP establishes a 37,378-acre Reserve System, including almost 18,500 acres of CSS. In addition, almost 3,900 acres of non-reserve public open space are located within the subregion and more than 5,700 acres are included within the "supplemental" non-reserve habitat areas (i.e., Special Linkage Areas and Existing Use Areas). In all, nearly 47,000 acres of natural habitat are included within the Reserve System, other permanent public open space, and the "supplemental" non-reserve Special Linkage and Existing Use habitat areas. Taken together, these areas contain 487 of the gnatcatcher

sites (81 percent), and 774 of the cactus wren sites (77 percent) identified during the NCCP field surveys.

9.2.5.1 Summary of Potential Impacts on CSS Habitat Permitted for Conversion

-- Impacts on Lands Located Inside the Habitat Reserve System and on Supplemental Non-Reserve Habitat Areas

The NCCP/HCP authorizes the Incidental Take of habitat supporting an estimated 13 surveyed gnatcatcher sites located within the Reserve System (nine surveyed sites) and within supplemental non-reserve Special Linkage habitat (four surveyed sites). All of this Incidental Take is related to future activities proposed by participating landowners.

-- Impacts on Lands Located Outside the Habitat Reserve System

Target/Identified Species are protected by the two large reserves in the Central Subarea and the Coastal Subarea and by the Special Linkage Areas. Impacts on occupied "target and identified" species will be permitted outside the Reserve System on lands owned both by "participating landowners" and by "non-participating landowners" subject to the terms of the NCCP/HCP, Implementation Agreement and applicable local, state and federal laws (e.g., the federal Clean Water Act, General Plan and zoning laws). These non-reserve areas currently contain 108 gnatcatcher sites and 206 cactus wren sites. The NCCP/HCP authorizes Incidental Take within these lands for the coastal California gnatcatcher, and for Identified Species listed in the future under the terms of the NCCP/HCP. Of the 108 gnatcatcher sites that will be impacted, 97 sites are located on lands owned by participating landowners, and 11 sites are on lands owned by non-participating landowners (see Section 9.2.5.2 below).

The North Ranch Policy Plan Area contains approximately 3,000 acres of CSS habitat. Five gnatcatcher sites and fourteen cactus wren sites are located within the North Ranch Policy Plan Area. The NCCP/HCP indicates that the NCCP/HCP is not mitigated by, nor does it mitigate future potential development impacts within the North Ranch Policy Plan Area. Future development will be planned, approved and mitigated in accordance with the conservation and development policies contained in Chapter 4 (see discussion in chapter 7 of the EIR/EIS).

-- Total Conversion of CSS Habitat Allowed Pursuant to the NCCP/HCP

When all of the cited impacts are considered, the total authorized Incidental Take under the NCCP/HCP includes an estimated 1,217 acres of presently occupied CSS habitat containing 121 surveyed gnatcatcher sites. Total "Take" (i.e., habitat conversion) of CSS permitted under the NCCP/HCP, without regard to use by gnatcatchers or other listed species, totals 7,444 acres. The 7,444 acres amounts to 24 percent of the total remaining CSS within the subregion.

9.2.5.2 NCCP/HCP Mitigation Program and Mitigation Options

-- "Participating Landowners"

As indicated previously, two categories of landowners are identified by the NCCP/HCP: *participating landowners* and *non-participating landowners*. Each of these landowner categories is offered different endangered species habitat mitigation options under the NCCP/HCP.

Participating landowners are those parties contributing significant land and/or funding toward implementation of the Reserve System and Adaptive Management Program. The *participating landowners* are:

- Southern California Edison;
- Metropolitan Water District of Southern California;
- Irvine Ranch Water District;
- Santiago County Water District;
- Transportation Corridor Agencies;
- The Irvine Company;
- Regents of the University of California/University of California-Irvine;
- California Department of Parks and Recreation;
- California Department of Fish and Game;
- County of Orange EMA; and
- Chandis/Sherman.

For these landowners, development activities and uses that are addressed by the NCCP/HCP will be considered fully mitigated under the NCCP Act and the state and federal ESAs for impacts to habitat occupied by listed and other "Identified Species" and to species dependent upon or associated with "covered habitats" as provided for in the NCCP/HCP and Implementation Agreement. Satisfactory implementation of the NCCP/HCP and the terms of the Implementation Agreement will mean that no additional mitigation will be required of participating landowners.

-- New Mitigation Option for "Non-Participating Landowners"

Other landowners within the subregion that are not contributing either significant land to the Reserve System or funding for the Adaptive Management Program are treated as non-participating landowners. The NCCP/HCP provides for a different mitigation option for these landowners to provide opportunities to help assure that impacts to listed species habitat resulting from activities on their lands are mitigated consistent with the NCCP Act, CESA and FESA. Under existing law and the optional new mitigation measure provided by the NCCP/HCP, non-

participating landowners could satisfy the requirements of FESA and CESA with respect to listed species in any of the following ways:

- avoidance of “Take” of CESA or FESA listed species;
- satisfaction of applicable FESA and CESA provisions under the consultation and permit provisions of these statutes; or
- under the new option provided by the NCCP/HCP, payment of a Mitigation Fee to the non-profit management authority as provided for in the NCCP/HCP and Implementation Agreement.

9.2.6 NCCP/HCP Implementation Agreement

The Proposed Project also includes a NCCP/HCP Implementation Agreement that specifies measures necessary to implement the NCCP including funding, other mitigation actions (land commitments, adaptive management), roles, responsibilities and assurances.

9.2.7 Conclusions - Environmental Policy Considerations Involved in Comparing the Proposed Project with the Other Alternatives Reviewed in this Chapter

According to the NCCP/HCP, the primary benefits of implementing a conservation strategy based on the NCCP Conservation Guidelines are:

- certainty of reserve boundaries;
- immediate protection of substantial populations of target species and their associated habitat;

- near-term commencement of significant adaptive management actions within the Reserve System (including on lands not yet dedicated for public ownership), and actions to attempt to maintain a viable Pacific pocket mouse population within the subregion; and
- creation of an institutional capability for carrying out adaptive management on a long-term basis.

Given the potential threat of habitat conversion in areas otherwise allowed for development absent FESA listing prohibitions, Identified Species (as defined in the Implementation Agreement) and CSS and other “covered habitats” species will benefit from certainty of long-term protection. (EA for the 4(d) Rule)

Perhaps equally significant, the certainty of ultimate inclusion of specific land areas in the reserve, when combined with the willingness of *participating landowners* to commit future reserve lands to extensive “interim management” activities, allows for very early implementation of comprehensive habitat management programs. In many other subregions, the implementation of habitat management programs will have to await the finalization of reserve configuration over a long time period. As an example of the benefits of “interim management” cited by the NCCP/HCP, the certainty of reserve design enables the reserve management entity and appropriate fire management agencies to undertake comprehensive short-term and long-term fire management, a form of management whose significance was highlighted in the October 1993 Laguna Hills wildfire and the four fires in ten years in Chino Hills State Park (in northern Orange County), the latter resulting in conversion of CSS habitat to invasive grass species.

The negative aspects of defining the Reserve System boundaries at this point in time include the necessity of making long-term reserve configuration determinations based on current scientific knowledge. Deferring the final

determination of reserve boundaries, as is the case with the "Programmatic Alternative" reviewed in Section 3.5 below, would allow for the accumulation of scientific knowledge over time which could well affect reserve design decisions. However, the concomitant delay in reserve boundary decision-making could result in the loss of some lands that might have contributed to a workable reserve and would limit severely, if not eliminate, opportunities for early adaptive management planning.

As reviewed in the following sections, unlike the Proposed Project, neither the No Project nor No Take Alternatives would provide for the implementation of a coordinated, subregional conservation strategy that would combine the benefits of creating a permanent habitat Reserve System and an "adaptive management" program designed to provide for "no net loss of habitat value over the long-term." In addition, the No Take Alternative would be limited to protecting the coastal California gnatcatcher on a project by project basis, with relatively little or no ability to address the conservation needs of other adjacent habitats and sensitive species. Under the Proposed Project, a Reserve System and Adaptive Management Program would address the protection of multiple-species and their habitats.

SECTION 9.3 THE NO PROJECT ALTERNATIVE

9.3.1 Overview of the No Project Alternative

The No Project Alternative assumes that no NCCP/HCP subregional planning effort would be undertaken pursuant to the Special 4(d) Rule for the coastal California gnatcatcher. Local governments and landowners would attempt to proceed with build-out of all master plans, infrastructure and development projects presently included in local general plans on a project-by-project basis under the terms and conditions imposed by presently existing local, state, and federal plans, statutes, and regulations (*e.g.*, roadways required by the County Master Plan of Arterial Highways, residential, commercial, and industrial projects). This alternative also assumes that some level of Incidental Take of gnatcatchers would be allowed pursuant to FESA (as has been the case with approved Section 10 HCPs), and that no restrictions on the

take of coastal cactus wrens or orange-throated whiptail lizards would be imposed under the CESA and FESA because neither of the latter species is listed. It is impossible to predict whether all or a significant number of future HCPs would elect to treat such species “as if listed” pursuant to the unlisted species provisions of the Section 10 HCP guidelines (i.e., such decisions are at the discretion of each landowner and the USFWS on a case-by-case basis). Further, the No Project Alternative may not contribute to recovery of Pacific pocket mice because it does not assure that additional habitat would be acquired and would not address the need to actively study and attempt to recover the known Pacific pocket mouse population within the subregion.

At the local government level, existing city and county land use plans, zoning, and development agreements which presently establish the location, kinds, and intensity of permitted development within the subregions and criteria and standards for review of future development would be reviewed incrementally on a case-by-case basis, pursuant to Section 7 or Section 10 of the FESA. Compliance with existing regional programs (e.g., regional air quality and housing requirements, County-wide programs such as the state-mandated Congestion Management Plan) would be reviewed periodically and related to the FESA habitat-protection mandates.

Applicable state and federal regulatory program requirements to be applied during the consideration and approval of future development would include, but not be limited to, the following:

- California Coastal Act requirements relating new development within the Coastal Zone portion of the subregion;
- CESA and FESA provisions and requirements (including project-level federal Section 7 and Section 10 permits, state CDFG Section 2081 permits, etc.);
- state and federal air quality, water quality, and transportation program requirements; and
- environmental impact review requirements imposed by CEQA and NEPA.

9.3.2 Comparison of the No Project Alternative with the Proposed Project

Species Coverage and Protection

The No Project Alternative would rely on the existing permitting processes under Section 7 and Section 10 of the FESA to protect the coastal California gnatcatcher. Because the gnatcatcher is the only one of the target species listed under CESA or FESA, the other two target species (coastal cactus wren and orange-throated whiptail lizard) would not be addressed under the No Project Alternative unless landowners voluntarily elected to undertake Section 10 HCPs and treat these species "as if listed." Small landowners could be precluded from effectively addressing unlisted species due to the limited habitat areas under their ownerships which would limit their ability to provide adequate habitat protection for other species. Section 7 reviews would be limited by law to addressing listed species and species proposed to be listed. Other species and habitats included within and adjacent to CSS habitat also would not be addressed under this alternative. Thus, the No Project Alternative would likely be a one-species, partial CSS habitat protection program that, according to the Environmental Assessment (EA) for the Special 4(d) Rule, ". . . would result in further loss and fragmentation of habitat as projects continue to develop habitat in southern California." The EA also concluded that ". . . other habitats would continue to diminish due to piecemeal losses from individual projects . . ." and ". . . biodiversity within the CSS ecosystem would incur substantial losses."

Under the Proposed Project, the three target species will be treated as if they were listed species pursuant to the CESA and FESA. The combined habitats associated with the three target species will receive full protection under the terms/provisions of the CESA and FESA. These combined habitat areas will be significantly larger than the habitat associated only with the coastal California gnatcatcher (*i.e.*, the remaining "Identified Species" under the Proposed Project). Other species and their habitats will receive protection through their inclusion in the habitat Reserve System that will be created under the Proposed Action approach. Thus, both from the species coverage and habitat coverage perspectives, the Proposed Project will provide protections superior to the No Project Alternative.

Implications for the Creation of a Subregional Habitat Reserve System

The project-by-project regulatory process implemented under the No Project Alternative for protection of the coastal California gnatcatcher would not be likely to provide a basis for identifying and creating a viable CSS habitat Reserve System. Efforts to protect gnatcatcher habitat would proceed incrementally on a range-wide (five-county) basis, over the next several decades. However, it would be virtually impossible to know which land would actually come under Section 7 or Section 10 review and when lands containing CSS habitat would be subject to FESA Incidental Take processes. Recognizing the reality of incremental review over many years of individual projects that would impact gnatcatcher habitat, it would be nearly impossible to set aside and protect the parcels of land necessary to preserve biological connectivity within the subregion for the gnatcatcher, let alone for the cactus wrens or orange-throated whiptail lizard. Further, and as noted in the EA for the Special 4(d) Rule, biological diversity on a subregional and range-wide basis would continue to decline under the No Project Alternative.

Under the Proposed Project, protection of CSS habitat related to the three target species and other habitats will proceed on a coordinated, subregional basis. Lands necessary to be included within a viable subregional Reserve System, including those lands necessary for biological connectivity both within the subregion, and between subregions, are identified by the Proposed Project. The result of the subregional conservation strategy employed under the Proposed Project is a recommended habitat Reserve System containing more than 37,000 acres of CSS and other habitats. More importantly, the specific phasing and implementation measures needed to assemble the Reserve System in a timely and orderly manner also are identified.

Creation of a Subregional Habitat Management Program

In contrast with the Proposed Project, the No Project Alternative is not amenable to coordinated, long-term management of CSS habitat and related species in a manner comparable to the NCCP/HCP. Under the typical Section 7 or Section 10 processes, specific parcels of land are subject to review only when a specific activity resulting in Incidental Take is ready to proceed to implementation. As a consequence, it would be impossible to know which land would actually come under Section 7 or 10 review and, equally significantly, when lands containing CSS habitat would be subject to FESA Incidental Take processes.

Thus, there would be no ability to plan for, much less coordinate and undertake, short and long-term management actions for lands whose status and commitment to an actual reserve cannot be assured either in terms of geographic location or in terms of timing. Further, as noted in the Special 4(d) Rule EA, much-needed practical research on CSS management and restoration ". . . would probably not be initiated, since no one project could justify such an expense."

Under the Proposed Project, the "adaptive management" approach of the NCCP Planning Guidelines was emphasized during formulation and implementation of the subregional management program for CSS habitat, related target species, and the other habitats/species included within the Reserve System. Pursuant to the NCCP Planning Guidelines, adaptive management will mean managing the reserve in a manner that promotes biodiversity, provides for high persistence of target species, and provides for no net loss of habitat value over the long term, taking into account management and enhancement. Moreover, the adaptive management approach will be implemented from the outset of Proposed Project, and will continue as a flexible management program over the long term to facilitate natural successional dynamics within the CSS habitat system. As new information or techniques become available, the management program will be modified to incorporate the latest information/techniques. Key elements of the NCCP/HCP adaptive management approach unlikely to be carried out under the No Project Alternative include:

- coordinated maintenance, monitoring, field surveys, and research within the entire ultimate Reserve System;
- active enhancement and restoration of degraded habitat resources within the reserve;
- pro-active fire management on a large geographic scale designed to prevent the adverse effects of fire on sensitive habitats within the reserve, and on adjacent urban areas;
- possible selective use of fire as a management tool to maintain/enhance certain habitat values; and
- inventories of designated non-target species designed to provide enough data to enable these other species to be added over time to the list of "identified" species addressed to a level sufficient to permit issuance of a Section 10 permit.

Also under the Proposed Project, the NCCP/HCP will provide for the formulation and implementation of funding, phasing, and other implementation measures necessary to support a long-term habitat management program consistent with the requirements of the Special 4(d) Rule for the coastal California gnatcatcher.

9.3.3 Conclusion: Protection of Target Species and CSS Under the No Project Alternative

For the reasons outlined above and in the detailed "Alternatives Analysis" contained in chapters 5 and 7 of the Joint EIR/EIS, the No Project Alternative would provide significantly less protection for Identified Species and for subregional bio-diversity for the CSS habitat system, than the Proposed Project. When compared with the Proposed Project, the No Project Alternative would result in the following deficiencies.

- because incremental FESA Section 7/10 review under the No Project alternative is unlikely to provide the basis for extensive "Identified Species" coverage, major landowners would not be likely to provide protection for vital CSS species and "covered" habitats now designated for urban uses in existing general plans, including the portions of the frontal slopes of the Lomas de Santiago in the Central Subarea, not occupied by gnatcatchers;
- it would be unlikely to include key corridors and linkages providing biological connectivity within the subregion necessary for the creation of a viable habitat Reserve System (e.g., habitat linkages within the East Orange General Plan area, along the Bonita Creek Corridor, and along the Salt Creek/San Juan Creek corridor);
- it would not support creation of a fully-funded, long-term habitat management program that would incorporate the adaptive management approach called for in the NCCP Planning Guidelines and that can be commenced on a subregional basis within 6-12 months under the NCCP/HCP Interim Management Programs; and

- it would not have the ability to provide the long-term certainty incentives for multiple habitat/“Identified Species” required to generate funding and implementing measures capable of assuring the long-term protection of habitat and species.

The ability to assure a comprehensive, coherent reserve design and long-term management program provided by the Proposed Project is superior to the planning uncertainty inherent in the incremental Section 7 and Section 10 review under the No Project Alternative. Further, for the same reasons, the No Project Alternative is inferior to the Proposed Project in terms of assuring, in a manner consistent with the NCCP Conservation Guidelines, that Incidental Take would not significantly reduce the likelihood of survival and recovery of the gnatcatcher. Therefore, the Proposed Project was selected as the preferred alternative when compared with the No Project Alternative.

SECTION 9.4 THE NO TAKE ALTERNATIVE

According to the draft USFWS National Conservation Planning Guidelines (1994):

The "Alternatives Analyzed" section of the HCP should usually include at least two alternatives: (1) any specific alternative, whether considered before or after the HCP process was begun, that would not result in take of listed species or would reduce such take below levels anticipated for the project proposal; and, (2) a "no action" alternative, which means that the project would not be constructed or implemented. (Guidelines at 38)

9.4.1 Overview of the No Take Alternative

In contrast with the No Project Alternative, the No Take Alternative analyzes conditions that would result if take of coastal California gnatcatchers and other listed species (including the Pacific pocket mouse) and associated CSS habitat were not allowed at all within the subregion. The No Take Alternative assumes that no Incidental Take of gnatcatchers would be allowed within the subregion pursuant to Section 9 of the FESA and that the Section 7 and Section 10 processes under the FESA would not be used as a vehicle to permit such Incidental Take. This alternative assumes that all development impacts on gnatcatchers and associated CSS habitat constituting "harm" under FESA, and therefore "take," would be precluded, and

that modification of occupied CSS habitat would be prohibited on any lands where take would be allowed under the Proposed Project and No Project Alternative. Further, the No Take Alternative assumes that prohibitions on habitat modifications would not extend to habitat areas supporting the other two target species - the coastal cactus wren and the orange-throated whiptail lizard (to the extent that their habitat areas differ from occupied gnatcatcher habitat) - or other CSS and non-CSS species because they are currently not listed under the CESA or FESA.

9.4.2 Comparison of the No Take Alternative with the Proposed Project

Species Coverage and Protection

The No Take Alternative would result in a habitat protection program that would protect only one species, and only CSS habitat occupied by gnatcatcher(s) and other listed species. This alternative would not provide protection for habitat occupied by the coastal cactus wren or the orange-throated whiptail lizard if that habitat differs from the gnatcatcher habitat; nor does this alternative protect habitat for other CSS or non-CSS species that is not coterminus with occupied gnatcatcher habitat.

It is important to note that the evaluation of the No Take Alternative differs from the No Project Alternative in that this alternative would significantly alter and likely undermine previous regional open space planning and related development agreements involving properties within the subregion. Chapter 7 (the "Incidental Take and Minimization" analysis) and Chapter 5 of the EIR/EIS review previous planning within the subregion that has served to "minimize and avoid" potential development impacts on CSS and other habitat communities. Prior open space commitments pursuant to development agreements include significant CSS areas and other areas of non-CSS habitat. CSS that is not occupied by gnatcatchers and non-CSS habitat in these prior dedication commitments could be lost under the terms of the No Take Alternative because development approvals required to trigger some important phased dedications would not occur. The detailed analysis of the No Take Alternative contained in Chapter 5 of the Joint EIR/EIS evaluates the adverse impacts of the No Take Alternative on these prior regional open space planning efforts within the context of the Special 4(d) Rule for the coastal California gnatcatcher. Furthermore, the No Take Alternative would not produce proactive measures aimed at enhancing and securing the existing Pacific pocket mouse population in the subregion. The No

Take Alternative would not be expected to further the recovery of the Pacific pocket mouse or provide the opportunity to expand the population in the subregion.

Under the Proposed Project, the three target species will be treated as if they were listed species pursuant to the CESA and FESA. The combined habitats associated with the three species will receive full protection under the terms/provisions of the CESA and FESA. These combined habitat areas will be significantly larger than the habitat associated only with the coastal California gnatcatcher. In addition, other habitats and related species located adjacent to CSS will receive protection through their inclusion in the habitat Reserve System created under the Proposed Action approach. As noted above, whereas the No Take Alternative would preclude previous regional open space dedications from being finalized, the Proposed Action takes full advantage of previous open space commitments, and incorporate these dedication commitments into the NCCP/HCP process. Thus, in terms of both species and habitat coverage, the Proposed Action is substantially superior to the No Take Alternative.

Creation of a Subregional Habitat Reserve System

As noted above, this alternative would prohibit modification of habitat occupied by the coastal California gnatcatcher. Other CSS habitat and non-CSS habitat would not be protected under the No Take Alternative. Therefore, under the No Take Alternative it would be difficult, if not impossible, to assemble the lands necessary to create a viable CSS habitat reserve within the Central and Coastal Subregion. There are at least two major factors that explain why a viable habitat Reserve System could not be assembled under this alternative conservation strategy.

First, it is important to understand that CSS is a naturally fragmented habitat system (see Figure 4) which, as a result of decades of urban development and agricultural impacts, has experienced increasing fragmentation. Under the No Take Alternative, only habitat modifications to CSS habitat occupied by coastal California gnatcatchers could be prohibited. Without full implementation of the presently existing open space dedication programs, the combined natural and human-induced fragmentation of CSS habitat would preclude the protection and assemblage of sizable, contiguous acreages of habitat that would be necessary

to create a viable Reserve System within the subregion. Biological linkages and corridors that would be necessary to allow creation of a functional reserve could not be protected under the No Take approach. Therefore, due to the fragmented condition of the remaining CSS habitat, it would be difficult to designate lands and assemble lands that constitute a functional habitat reserve.

A second factor that explains why the No Take Alternative would not contribute to creation of a viable CSS Reserve System focuses on the adverse effect this alternative could have on ongoing regional open space planning efforts within the subregion. In addition to prohibiting modifications only to occupied CSS impacts, the No Take approach also could result in the termination and/or cancellation of several important development agreements between TIC and local governments that have resulted in commitments to dedicate up to 17,000 acres of new, as yet undedicated, open space within the subregion. As noted above, within the subregion, several large open space "commitments" could be jeopardized under the No Take Alternative. "Committed" open space lands that remain in private ownership under phased dedication programs include large portions of the San Joaquin Hills (dedicated under the provisions of the Irvine Coast LCP) and portions of the City of Irvine GPA 16 phased dedication program in the Coastal Subarea (see Figure 67).

In the Central Subarea, the East Orange General Plan and Mountain Park Specific Plan approvals resulted in commitments to dedicate Limestone Canyon, portions of the Lomas Ridge, Weir Canyon and Windy Ridge (see Figures 38, 62 and 65). These committed open space areas include significant CSS habitat, but most of the CSS is not inhabited by gnatcatchers; thus, it would not be protected under CESA. Although not as heavily populated with target species as the frontal slopes of the Lomas Ridge and El Toro MCAS portion of the Central Subarea, portions of these areas do contain significant populations of target species and function as natural habitat linking CSS habitat areas and areas occupied by target species. These areas are particularly significant for reserve design in terms of their function as links between CSS habitat areas and areas occupied by target and Identified Species (see Figure 15).

Thus, the No Take approach would:

- limit regulatory control to the gnatcatcher-occupied portions of CSS habitat within an already fragmented CSS ecosystem;

- fail to protect the habitat of other target species; and
- result in the loss of substantial "committed" open space acreage that would provide essential non-CSS biological linkages/corridors necessary to create a viable CSS habitat Reserve System.

Under the Proposed Project, protection of CSS habitat will proceed on a coordinated, subregional basis for all three target species and other habitats, not just CSS habitat occupied by gnatcatchers. Lands necessary to be included within a viable subregional Reserve System, including those lands necessary for biological connectivity within the subregion, and between subregions, are identified by the Proposed Project. The result of the subregional conservation strategy employed under the Proposed Project is a habitat Reserve System containing more than 37,000 acres of CSS and other habitats. In addition, the phasing and implementation measures needed to assemble the Reserve System in a timely manner are identified. Further, under the Proposed Project approach, substantive measures that serve to protect biological diversity within the subregion are also identified (under the Proposed Project Alternative, approximately half of the Central and Coastal reserves are composed of habitats other than CSS) and provided for through the Implementation Agreement.

Equally important, the Proposed Project will not impact the existing dedication provisions of the regional open space planning efforts that preceded the NCCP/HCP planning programs. Due to the absolute prohibition on development of gnatcatcher-occupied CSS inherent in the No Take Alternative, a number of the phased dedication increments of the existing regional open space dedication programs would likely be terminated. As noted above and in the detailed analysis of alternatives in Chapters 5 and 7 of the Joint EIR/EIS, the open space areas already designated and committed as a part of prior development agreements and open space planning will provide a significant portion of both the CSS and non-CSS habitats that constitute essential elements of an effective Reserve System.

Regarding the NCCP Conservation Guidelines' requirement to provide for biodiversity within the Reserve System, the ability of the Proposed Project to provide for the creation of habitat reserves where more than one-half of the reserve acreage is non-CSS habitat reflects the importance of these committed open space lands to the reserve design process. Under the No Take Alternative, these non-CSS/non-gnatcatcher habitat areas would not be protected by the

gnatcatcher listing or by other regulatory programs and largely would not be protected by other species' current federal listing.

Creation of a Subregional Habitat Management Program

According to the NCCP Conservation Guidelines (at p. 2):

4. Because CSS is found naturally admixed with other vegetation communities, the best conservation strategy for CSS is to protect large areas of native vegetation that include biologically significant patches of CSS.

5. Under present conditions, few CSS-dominated lands are of sufficient extent to be self-sustaining. A status quo strategy of "benign neglect" management likely will result in substantial further losses of CSS biodiversity. Habitat areas large enough to be self-sustaining should not be significantly reduced in size and they should be actively managed in ways responsive to pertinent new information as it accrues.

Under the No Take Alternative, the task of formulating and implementing an effective subregional habitat management program would become far more difficult. Contrary to the habitat biodiversity focus set forth in the NCCP Planning Guidelines, the No Take Alternative focuses solely on habitat protection efforts to avoid impacts to gnatcatcher-occupied CSS habitat and that of other currently listed species in the subregion. Accordingly, the No Take Alternative would limit the lands available for long-term management to existing public lands and to the highly fragmented, existing gnatcatcher habitat. The reduced availability of private lands for inclusion within the Reserve System would create severe obstacles to formulation of a subregional management program due to:

- loss of certainty for assuring large-scale contiguous habitat;
- loss of future public ownership certainty that would be necessary to support the preparation and implementation of a comprehensive habitat management program;
- loss of private lands within the reserve necessary to provide biological connectivity between core areas of occupied and other CSS habitat;

- reductions in opportunities for habitat restoration and enhancement within a Reserve System; and
- reduced potential for comprehensive and sustained short-term and long-term fire management under a subregional management program.

In contrast with the No Take Alternative, the Proposed Project takes full advantage of prior regional open space planning efforts and phased development/dedication agreements by incorporating existing and "committed" open space areas into the reserve design. Thus, the Proposed Project will protect a much greater area of CSS habitat and other habitats than a "No Take" approach that focuses only on gnatcatcher habitat. Also, the Proposed Project Alternative provides for extensive natural habitat lands presently zoned for development to be added to lands committed through pre-NCCP dedication programs, lands which would not be committed by landowners for public use and management under the No Take Alternative. As a result of the certainty and scope of the reserve boundaries under the Proposed Project Alternative, the Central/Coastal NCCP/HCP has been able to devise a comprehensive management program addressing the actual conditions of areas committed to be included in the reserve. Because the reserve boundaries existing on "day one" of the implementation program will be known with certainty, implementation of the adaptive management program will also commence on "day one." Moreover, with the extensive "interim management program" identified under the Proposed Project Alternative, the Reserve System lands as a whole will benefit from adaptive management measures on "day one" and thereafter regardless of the ultimate timing of specific dedications.

Also in contrast, under the No Take Alternative, the reserve areas comprise only those dedications that will occur despite the CSS-take prohibitions. Other CSS habitat is unlikely to be made available for "interim management" as is the case with the Proposed Project Alternative. Thus, the gnatcatcher-occupied CSS focus of the No Take Alternative limits the scope of management actions to those which benefit the gnatcatcher, rather than the full suite of CSS-related species identified as "target species/Identified Species" under the NCCP/HCP (see Figures 15 and 16).

Conclusion: Protection of Target Species and CSS Habitat Under the No Take Alternative

Due to the extent to which a No Take Alternative would prevent development that triggers dedications essential to the NCCP reserve design for the Central/Coastal NCCP Subregion, this alternative effectively becomes a "No NCCP/HCP" alternative, an alternative that would preclude the assemblage of a viable habitat Reserve System and management program (see Figure 68).

As noted previously, the No Take Alternative would undermine the significant elements of the presently existing development and open space dedication relationships of major land use plans within the subregion. These land use plans provide the core of the habitat Reserve System under the Proposed Action, and include (see Figure 67):

- the Irvine Coast Local Coastal Program;
- the City of Irvine Development/Open Space Program for the San Joaquin Hills pursuant to GPA 16;
- the City of Irvine Development/Open Space Program for the Lomas Ridge/Limestone Canyon Area within the City's sphere of influence pursuant to GPA 16;
- the East Orange General Plan Amendment affecting 10,000 acres of land in the Lomas Ridge, Limestone Canyon Wilderness Park and Irvine Lake areas within the City's sphere of influence and for which defined development and open space relationships exist; and
- the Mountain Park General Plan which provides for phased dedication of Weir Canyon Wilderness Park and Windy Ridge in conjunction with corresponding development approvals.

Although CSS habitat occupied by coastal California gnatcatchers could not be taken in any of the above areas, the planning uncertainty for future NCCP reserve design and the extensive delay in resolving development/open space planning issues would preclude comprehensive reserve level management in areas already in public ownership within the subregion. Additionally, significant development pressures would be generated on non-CSS habitats,

thereby potentially undermining biodiversity, connectivity and large-scale reserve design objectives set forth in the reserve design guidelines contained in the state's NCCP Planning Guidelines.

For these reasons, the Proposed Project is determined to be substantially superior to the No Take Alternative.

SECTION 9.5 THE PROGRAMMATIC NCCP ALTERNATIVE

The previous sections of this chapter reviewed two alternatives that involve fundamentally different approaches to species and habitat protection when compared with the Proposed Project. The No Project Alternative assumed that the existing FESA Incidental Take options available to landowners and local governments - Section 7 consultations and Section 10 HCPs - would continue to be employed on a case-by-case basis. The No Take Alternative would not allow modifications to habitat supporting the coastal California gnatcatcher anywhere within the subregion or that of other currently listed (federal) species in the subregion. Under either approach, a subregional habitat reserve would not be designated and assembled, and a subregional-level adaptive management program would not be formulated and implemented.

9.5.1 Overview of the Programmatic Alternative

In contrast with the previous alternatives, the Programmatic Alternative addressed in this section would be similar in some respects to the Proposed Project. As in the case of the Proposed Project, the Programmatic Alternative would involve creating a subregional conservation strategy, including assemblage of a large-scale habitat reserve and formulation of a long-term habitat and species management program. The differences between the two approaches to habitat protection focus on the issues of timing and flexibility. The Proposed Project attempts to provide certainty for agencies, local governments, and landowners at the outset of the NCCP process. It involves early designation of a habitat reserve with specific boundaries, and formulation of a management program with specific components before Incidental Take beyond the "interim take" level is allowed. The Programmatic approach, on the other hand, would defer decisions on specific boundaries for the habitat Reserve System and substance of the management program during the initial approval phases, and develop the details of the habitat reserve/management program over time.

For purposes of this alternative analysis, the Bakersfield HCP provides a useful example of the Programmatic Alternative. The Bakersfield HCP is comparable in scale to the Central and Coastal NCCP Subregion and it is the only approved regional-scale HCP involving development/habitat conversion in urban expansion areas providing mitigation through the formation of a major habitat reserve. Equally important, this HCP was recently approved by USFWS under Section 10(a)(1)(B) of FESA; therefore, it can be assumed that its program approach can be employed to satisfy the substantive Section 10 requirements that also apply to the NCCP program under the Special 4(d) Rule. The following analysis compares the corresponding program elements of a Programmatic Alternative (such as the Bakersfield HCP) with the Proposed Action.

9.5.2 Comparison of the Programmatic Alternative with the Proposed Project

Species Coverage and Protection

Under the Programmatic Alternative, a subregional conservation strategy addressing multiple species and multiple habitats would be possible. The number of species addressed under this alternative would reflect available biological information, development pressures and timing constraints, and available funding. Compared with the Proposed Project, the Programmatic Alternative could address the same number of species, fewer, or a greater number of species. The flexibility and increased time allowed prior to making specific decisions on reserve boundaries and management actions could potentially allow this alternative to address more species than are addressed in the Proposed Project.

In terms of regulatory coverage under the CESA and FESA, the Proposed Project addresses the three target species designated by the state's SRP, and thirty-six (36) additional "Identified Species," and associated CSS and other habitat. The decision to create a subregional reserve design strategy based on the three target species in part reflected a policy decision to proceed with a subregional planning effort that could:

- be completed within a reasonable time frame;
- provide certainty regarding scope of species/habitat management and necessary funding commitments; and

- respond to potential threats to the long-term viability of the regional CSS habitat resources cited by the EA for the Special 4(d) Rule.

The Proposed Project's focus on the target Species also reflected the intent to use these species as "surrogates" for a broader range of CSS species that will benefit from the formulation and implementation of a subregional conservation strategy. The potential value of the target species as surrogate species was outlined in the NCCP Conservation Guidelines. Thus, the use of target species represents a significant difference between the Proposed Action and a Bakersfield-type programmatic approach.

In the final analysis, a determination of whether the Programmatic Alternative or the Proposed Project would provide better species coverage and protection depends on the precise nature of the conservation strategy as it evolves over time under the Programmatic Alternative. The number of species covered would not be the sole gauge of protection on a comparative basis with the Proposed Project. The extent of actual protection to habitat systems and associated species depends as well on the ability to assemble a viable Reserve System and implement an effective subregional management program. In other words, from a subregional and regional conservation strategy perspective, it may be far more beneficial to define clear reserve boundaries on the basis of selected target species so that a comprehensive habitat protection system can be implemented and managed adaptively than to try to protect more species on an ad hoc or time-deferred basis. These issues are addressed in the following sections.

Creation of a Subregional Habitat Reserve System

A Programmatic Alternative similar to the Bakersfield HCP would identify a large land area for "potential preservation." Generally, the potential preservation area under the Programmatic approach would be larger than the area actually needed/deemed practical for purposes of the ultimate reserve. Those lands within the potential preservation area that actually would be included in the ultimate Reserve System would be delineated and assembled over time by an entity such as an "HCP Implementation Trust." The actions of the Trust would reflect the HCP's preserve design guidelines and future recommendations by USFWS and CDFG.

As in the case of "*non-participating landowners*" under the Proposed Project, under the Programmatic approach, mitigation funds would be generated over time by collecting fees (pursuant to a specified formula) from those projects impacting habitat resources. The fees

would be used to incrementally acquire all or portions of the lands included within the "potential preservation" area. Unlike the Proposed Project, the specific size and configuration of the habitat reserve might not be determined for a number of years and, depending on the efficacy of the mitigation fee system, the resulting "Reserve System" could be either larger or smaller than a Reserve System assembled under the terms of the subregional NCCP/HCP. In addition, the degree of connectivity provided by the resulting Reserve System could be better or worse than the Proposed Project, depending on the availability of funding and properties at specific times during implementation of the NCCP.

The Proposed Project designates a habitat Reserve System with specific reserve boundaries. The NCCP subregional plan provides a specific reserve implementation program, including dedication and acquisition methods, designed to assure and coordinate the assemblage of lands within the designated Reserve System. Landowners and local governments know at the time that USFWS and CDFG approve the NCCP/HCP whether specific parcels are located within or outside the habitat Reserve System. Interested parties also know how permitted development and acquisition of reserve lands will be phased to create the ultimate Reserve System. Thus, in contrast with the Programmatic Alternative, there is early and ongoing certainty for NCCP participants and interested parties under the Proposed Project.

Creation of a Subregional Reserve Management Program

Under the Programmatic Alternative, a reserve manager(s) may or may not be identified at the time the programmatic NCCP is approved by CDFG and USFWS. Further, under the Bakersfield approach, a specific management program would not be included in the NCCP when submitted to CDFG and USFWS for review and approval. As provided in the Bakersfield HCP, a future managing entity would be required to adopt a Habitat Management Plan acceptable to CDFG and USFWS within 120 days following acquisition of the first parcel of land within the designated Reserve System. Thus, the Programmatic approach would permit the basic physical and functional elements of the management program to be defined over time.

In comparison, the Proposed Project creates a non-profit corporation to manage the habitat reserve. It also outlines the specific management program components. Management and implementation for the Proposed Project begins with the understanding that an "adaptive management" approach, as described by the NCCP Conservation Guidelines, will be applied

to assure the long-term protection of target species and their habitat. Thus, at the outset, interested parties understand who will manage the Reserve System and how it will be managed.

Conclusion: Protection of Target Species and CSS Under the Programmatic Alternative

A Bakersfield-type Programmatic approach clearly has benefits in terms of its adaptability to situations involving diverse, fragmented ownerships of both developable areas and natural lands. Application of a mitigation/compensation formula, as provided for in the Bakersfield HCP, could help assure overall equitable treatment in the NCCP program of *participating landowners* and local governments. Likewise, the ability to delay formulation of a final management program and the ability to allow the program to evolve over time as parcels are added to the reserve represents an attractive option from the perspective of landowners and local governments.

However, the circumstances encountered in Orange County dictate a different approach. The Environmental Assessment (EA) for the Special 4(d) Rule emphasized the historic losses of CSS habitat within the Southern California region. The EA also focused on the near-term, range-wide threats to CSS resulting from continuing habitat conversion and fragmentation. Due to the existing environmental stress experienced by the regional CSS habitat system and proximity of remaining CSS to rapidly expanding urban areas, the formulation of a specific Reserve System and management program in the near term appears to be a high priority for the southern California coastal sage scrub NCCP program.

Moreover, the emphasis of the Proposed Project on a specific, subregional reserve and a specific management program for the Central and Coastal NCCP Subregion reflects three important characteristics of present day circumstances in Orange County:

- the concentration of large wildland areas in a few ownerships (*e.g.*, the County of Orange, The Irvine Company, Department of Defense, State Parks) (see Figures 19 and 20);
- the concentrations of large populations of target species within the large land ownerships (see Figures 15 and 16); and

- the advanced state of prior regional open space planning within the subregion (see Figures 37 and 38)

The land ownership pattern, the legacy of prior master planning and regional open space conservation efforts, and concentration of species populations in existing/committed open space areas, impel a focus in the Proposed Project on finalizing a specific reserve design in the near term rather than deferring reserve design decisions, and corresponding management program decisions, for the future. By concentrating on adding lands and management/implementation programs needed to round out the existing protection measures for wildlands, and on assuring the "connectivity" necessary to enable the resulting management units to function as effective reserves, a much greater degree of protection for target species, CSS habitat and biodiversity can be provided in comparison with the Programmatic Alternative.

For the reasons outlined above, the Proposed Project, with its firm Reserve System boundaries, comprehensive adaptive management program, and specified implementation measures, is a more effective conservation strategy for the Central and Coastal Subregion than the Programmatic Alternative.

SECTION 9.6 SELECTION OF THE PRIMARY ALTERNATIVE FOR ENVIRONMENTAL REVIEW

Under CEQA and NEPA the preferred alternative must be capable of feasibly attaining the basic purposes of the project. As reviewed in Chapter 1, both FESA and the NCCP Act have, as their overarching statutory purposes, the protection of habitat systems. Likewise, the permit applicants' stated purposes in Chapter 2 focus on providing long-term certainty both for habitat protection and land use/economic development goals. In comparison, with the alternatives reviewed in this Chapter, the Proposed Project best achieves the purposes of all parties in terms of: (a) providing certainty of habitat protection, (b) extensive geographic Reserve Systems for protecting target/Identified Species, (c) specific and comprehensive management programs susceptible of early implementation and (d) a definitive resolution of potential short-term and long-term habitat protection/land use conflicts. Therefore, for the reasons set forth in this Chapter, the NCCP/HCP, the Proposed Project Alternative, has been selected as the primary alternative for environmental review and for Section 10(a)/NCCP review.

The No Take and No Project (FESA Section 7 or 10 review and CESA 2081/2084 permits on a case-by-case basis) Alternatives have also been selected for more detailed analysis. Because the No Project Alternative is the most likely scenario in the event the Proposed Project were not to proceed, the No Project Alternative is considered the “baseline” for environmental review purposes. The No Project Alternative relies on existing regulatory vehicles (Section 7 and 10 HCPs under FESA) and thus requires further assessment. However, the No Take Alternative is also a potential future scenario because Incidental Take of the gnatcatcher under future Section 7 and 10 processes could cumulatively reach a threshold of impacts that would preclude further “no jeopardy” findings under Section 7 and 10 processes (see EA for the Special 4(d) Rule, at p. 43). Further, because the configuration of lands protected under the No Take Alternative can be identified with considerable certainty and is lesser in scope than lands protected under the No Project and Proposed Project Alternatives, the No Take Alternative provides an important analytic tool for comparing the three alternatives. Additionally, the No Take Alternative serves, to some extent, as a “functional baseline” because it protects habitat occupied by a federally-listed species, the gnatcatcher.

The Programmatic Alternative is not further analyzed because it is too speculative to attempt to identify which types and locations of habitat would actually be designated and funded for inclusion in a Reserve System. However, because alternative reserve design configurations are reviewed for the Proposed Project in Chapter 5 and because the biodiversity habitats of the subregion have been substantially identified in prior master plan EIRs or will be addressed through the North Ranch Policy Plan program, most of the environmental considerations inherent in the Programmatic Alternative have been effectively addressed in this NCCP/HCP and in the EIR/EIS (*i.e.*, the Programmatic Alternative would most likely result in a different reserve design and all of the different potential reserve design configurations of significance are addressed in Chapter 5).

Tab placeholder.

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